

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2017

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number 001-35961



LIBERTY GLOBAL®

Liberty Global plc

(Exact name of Registrant as specified in its charter)

England and Wales

(State or other jurisdiction of incorporation or organization)

98-1112770

(I.R.S. Employer Identification No.)

Griffin House, 161 Hammersmith Rd, London, United Kingdom

(Address of principal executive offices)

W6 8BS

(Zip Code)

Registrant's telephone number, including area code: +44.208.483.6449 or 303.220.6600

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Liberty Global Class A Ordinary Shares, nominal value \$0.01 per share	NASDAQ Global Select Market
Liberty Global Class B Ordinary Shares, nominal value \$0.01 per share	NASDAQ Global Select Market
Liberty Global Class C Ordinary Shares, nominal value \$0.01 per share	NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: none

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months. Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. Check one:

Large Accelerated Filer Accelerated Filer Non-Accelerated Filer Smaller Reporting Company Emerging Growth Company

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

State the aggregate market value of the voting and non-voting common equity held by non-affiliates, computed by reference to the price at which the common equity was last sold, or the average bid and ask price of such common equity, as of the last business day of the Registrant's most recently completed second fiscal quarter: \$28.9 billion.

The number of outstanding ordinary shares of Liberty Global plc as of February 7, 2018 was: 219,723,236 shares of class A ordinary shares, 11,102,619 shares of class B ordinary shares and 578,424,685 shares of class C ordinary shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement for the Registrant's 2018 Annual General Meeting of Shareholders are incorporated by reference in Part III of this Form 10-K.

LIBERTY GLOBAL PLC
2017 ANNUAL REPORT ON FORM 10-K
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PART I

Item 1. BUSINESS

Who We Are

We are Liberty Global plc (**Liberty Global**), the world's largest international television and broadband company. We are focused on building a strong convergence of fixed and mobile communication opportunities and we are constantly striving to enhance and simplify our customers' lives through quality services and products that give them the freedom to connect, converse, work and be entertained anytime, anywhere they choose.

Liberty Global has consolidated operations in 12 European countries serving 22.0 million customers at December 31, 2017. Our primary business operations are listed below, all of which we consolidate, with the exception of the VodafoneZiggo JV (defined below).

<u>Brand</u>	<u>Entity</u>	<u>Location</u>	<u>Ownership</u>
	Virgin Media	United Kingdom & Ireland	100.0%
	Unitymedia	Germany	100.0%
	Telenet	Belgium & Luxembourg	57.4%
	UPC Holding	Switzerland, Austria, Poland, Hungary, Romania, Czech Republic, Slovakia	100.0%
	VodafoneZiggo	Netherlands	50.0%

General Development of Business

As a result of a series of mergers that were completed on June 7, 2013, Liberty Global became the publicly-held parent company of the successors by merger of Liberty Global, Inc. (the predecessor to Liberty Global) and Virgin Media Inc. (**Virgin Media**). In the following text, the terms “we”, “our”, “our company” and “us” may refer, as the context requires, to Liberty Global (or its predecessor) or collectively to Liberty Global (or its predecessor) and its subsidiaries. Unless otherwise indicated, convenience translations into United States (**U.S.**) dollars are calculated as of December 31, 2017, and operational data, including subscriber statistics and ownership percentages, are as of December 31, 2017.

On December 29, 2017, we effected the split-off of our LiLAC Group (the **Split-off Transaction**) by distributing 100% of the common shares of Liberty Latin America Ltd. (**Liberty Latin America**) to holders of our then LiLAC ordinary shares (the **LiLAC Shares**). The “**LiLAC Group**” consisted of our businesses, assets and liabilities in Latin America and the Caribbean, including Cable & Wireless Communications Limited (**C&W**), VTR.com SpA, a 60% interest in Liberty Cablevision of Puerto Rico LLC (**Liberty Puerto Rico**) and related cash and cash equivalents and indebtedness. Just prior to the completion of the Split-off Transaction, all of the businesses, assets and liabilities of the LiLAC Group were transferred to Liberty Latin America, which was then a wholly-owned subsidiary of Liberty Global. Following such distribution, the LiLAC Shares were redesignated as deferred shares (with virtually no economic rights) and Liberty Latin America became a separate publicly traded company. As a result, we no longer own Liberty Latin America and the former operations of the LiLAC Group. As a result of the Split-off Transaction, the entities attributed to the LiLAC Group are reflected as discontinued operations in our consolidated financial statements for all applicable periods presented. Unless otherwise noted, the below discussion of our business focuses on our continuing operations.

Expansion and Acquisitions

We have expanded our broadband footprint through new build projects and strategically selected acquisitions. Our new build projects consist of network extension programs pursuant to which we connect additional homes and businesses to our broadband communications network (**Network Extensions**). Our investment in Network Extensions is critical not only for our business to grow, but also for the countries and communities in which we operate. The Network Extensions, together with upgrades to our existing networks and next generation customer premises equipment, provide our customers the means to enter the gigaworld society. During 2015 and 2016, we initiated Network Extensions in the United Kingdom (**U.K.**), Germany, Ireland, Central and Eastern Europe and certain other markets. During 2017, through our Network Extensions, our continuing operations connected approximately 1,177,000 additional residential and commercial premises (excluding upgrades) to our two-way networks, including approximately 536,000 residential and commercial premises connected by Virgin Media in the U.K. and Ireland through Project Lightning. We expect to continue the Network Extensions in 2018. Depending on a variety of factors, however, including the financial and operations results of our new build programs, any Network Extensions may be continued, modified or cancelled at our discretion.

Over the past five years, we have also completed several strategic acquisitions. We made these acquisitions in order to deliver the scale that allows us to innovate effectively and invest in great content and the best products. This enables us to deliver quality services to our customers. Our significant acquisitions include:

- On June 19, 2017, Telenet Group Holding N.V. (**Telenet**) acquired Coitel Brabant sprl, operating under the brand name SFR BeLux (**SFR BeLux**), which provided broadband operations in Belgium (Brussels and Wallonia) and Luxembourg.
- On May 16, 2016, we acquired C&W, a provider of telecommunication services, including mobile and high-speed broadband, focused in Latin America and the Caribbean (the **C&W Acquisition**). In connection with the Split-off Transaction, we transferred C&W to Liberty Latin America.
- On February 11, 2016, Telenet acquired BASE Company N.V. (**BASE**), the third-largest mobile network operator in Belgium.
- On June 3, 2015, we acquired, together with investment funds affiliated with Searchlight Capital Partners, L.P., Choice Cable TV, a cable and broadband services provider in Puerto Rico, which was integrated into the operations of Liberty Puerto Rico. In connection with the Split-off Transaction, we transferred Liberty Puerto Rico to Liberty Latin America.
- In November 2014, we gained control of Ziggo Holding B.V. (**Ziggo**), a provider of video, broadband internet, fixed-line telephony and mobile services in the Netherlands, and integrated Ziggo into our Netherlands broadband operations. This business was contributed to form the VodafoneZiggo JV (as defined below), a 50:50 joint venture, on December 31, 2016.

For additional information on our more recent acquisitions see note 4 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K. In addition, we have completed various other smaller acquisitions in the normal course of business.

Pending Acquisitions

In October 2016, through a subsidiary of UPC Holding B.V. (**UPC Holding**), we entered into an agreement to acquire the cable business of Multimedia Polska S.A. (**Multimedia**), a broadband communications provider in Poland. We are currently uncertain as to the timing of closing this transaction.

For additional information on the above proposed acquisition, see note 4 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Dispositions

In addition to the Split-off Transaction, we completed the following dispositions during the past five years:

- On December 31, 2016, our company and Vodafone Group Plc (**Vodafone**) contributed our respective operations in the Netherlands to VodafoneZiggo Group Holding B.V., a 50:50 joint venture (referred to herein as the "**VodafoneZiggo JV**"). We treat the VodafoneZiggo JV as an equity investment.
- On January 31, 2014, we sold substantially all of our programming interest held through Chellomedia B.V.

For additional information on our more recent dispositions, see note 5 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K. We have also completed various other smaller dispositions in the normal course of business and as required by regulatory authorities in connection with approving the BASE and Ziggo acquisitions.

Pending Dispositions

Recently we entered into an agreement to sell our Austrian operations (**UPC Austria**). Closing of the transaction is subject to regulatory approvals, which are not expected until the second half of 2018.

For additional information on the above proposed disposition, see note 5 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Equity Transactions

Pursuant to our share repurchase programs authorized by our board of directors, we have repurchased a significant amount of our shares since our inception in 2005. During 2017, our share repurchases were:

Title of shares	Number of shares	Average price paid per share*	Aggregate purchase price*
			in millions
Liberty Global Class A	34,881,510	\$ 33.73	\$ 1,176.9
Liberty Global Class C	52,523,651	\$ 32.71	\$ 1,717.8
LiLAC Class A	2,062,233	\$ 22.84	\$ 47.1
LiLAC Class C	285,572	\$ 22.25	\$ 6.4

* Includes direct acquisition costs and the effects of derivative instruments.

At December 31, 2017, the remaining amount authorized for repurchases of Liberty Global Shares was \$2.1 billion. From November 2016 through the completion of the Split-off Transaction, we were authorized to repurchase LiLAC Shares. For a further description of our share repurchases, see note 12 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Financial Information About Operating Segments

Financial information about our reportable segments is provided in note 18 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Forward Looking Statements

Certain statements in this Annual Report constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. To the extent that statements in this Annual Report are not recitations of historical fact, such statements constitute forward-looking statements, which, by definition, involve risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. In particular, statements under Item 1. *Business*, Item 1A. *Risk Factors*, Item 2. *Properties*, Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations* and Item 7A. *Quantitative and Qualitative Disclosures About Market Risk* may contain forward-looking statements, including statements regarding our business, product, foreign currency and finance strategies in 2018, our property and equipment additions in 2018 (including with respect to Network Extensions), subscriber growth and retention rates, competitive, regulatory and economic factors, the timing and impacts of proposed transactions, the maturity of our markets, the anticipated impacts of new legislation (or changes to existing rules and regulations), anticipated changes in our revenue, costs or growth rates, our liquidity, credit risks, foreign currency risks, target leverage levels, our future projected contractual commitments and cash flows and other information and statements that are not historical fact. Where, in any forward-looking statement, we express an expectation or belief as to future results or events, such expectation or belief is expressed in good faith and believed to have a reasonable basis, but there can be no assurance that the expectation or belief will result or be achieved or accomplished. In evaluating these statements, you should consider the risks and uncertainties discussed under Item 1A. *Risk Factors* and Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*, as well as the following list of some but not all of the factors that could cause actual results or events to differ materially from anticipated results or events:

- economic and business conditions and industry trends in the countries in which we or our affiliates operate;
- the competitive environment in the industries in the countries in which we or our affiliates operate, including competitor responses to our products and services;
- fluctuations in currency exchange rates and interest rates;
- instability in global financial markets, including sovereign debt issues and related fiscal reforms;
- consumer disposable income and spending levels, including the availability and amount of individual consumer debt;
- changes in consumer television viewing preferences and habits;
- consumer acceptance of our existing service offerings, including our cable television, broadband internet, fixed-line telephony, mobile and business service offerings, and of new technology, programming alternatives and other products and services that we may offer in the future;
- our ability to manage rapid technological changes;
- our ability to maintain or increase the number of subscriptions to our cable television, broadband internet, fixed-line telephony and mobile service offerings and our average revenue per household;
- our ability to provide satisfactory customer service, including support for new and evolving products and services;
- our ability to maintain or increase rates to our subscribers or to pass through increased costs to our subscribers;
- the impact of our future financial performance, or market conditions generally, on the availability, terms and deployment of capital;
- changes in, or failure or inability to comply with, government regulations in the countries in which we or our affiliates operate and adverse outcomes from regulatory proceedings;
- government intervention that requires opening our broadband distribution networks to competitors, such as the obligations imposed in Belgium;
- our ability to obtain regulatory approval and satisfy other conditions necessary to close acquisitions and dispositions and the impact of conditions imposed by competition and other regulatory authorities in connection with acquisitions;
- our ability to successfully acquire new businesses and, if acquired, to integrate, realize anticipated efficiencies from, and implement our business plan with respect to, the businesses we have acquired or that we expect to acquire;
- changes in laws or treaties relating to taxation, or the interpretation thereof, in the U.K., the U.S. or in other countries in which we or our affiliates operate;

- changes in laws and government regulations that may impact the availability and cost of capital and the derivative instruments that hedge certain of our financial risks;
- the ability of suppliers and vendors (including our third-party wireless network providers under our mobile virtual network operator (**MVNO**) arrangements) to timely deliver quality products, equipment, software, services and access;
- the availability of attractive programming for our video services and the costs associated with such programming, including retransmission and copyright fees payable to public and private broadcasters;
- uncertainties inherent in the development and integration of new business lines and business strategies;
- our ability to adequately forecast and plan future network requirements, including the costs and benefits associated with the planned Network Extensions;
- the availability of capital for the acquisition and/or development of telecommunications networks and services;
- problems we may discover post-closing with the operations, including the internal controls and financial reporting process, of businesses we acquire;
- the leakage of sensitive customer data;
- the outcome of any pending or threatened litigation;
- the loss of key employees and the availability of qualified personnel;
- changes in the nature of key strategic relationships with partners and joint venturers;
- our equity capital structure; and
- events that are outside of our control, such as political unrest in international markets, terrorist attacks, malicious human acts, natural disasters, pandemics and other similar events.

The broadband distribution and mobile service industries are changing rapidly and, therefore, the forward-looking statements of expectations, plans and intent in this Annual Report are subject to a significant degree of risk. These forward-looking statements and the above-described risks, uncertainties and other factors speak only as of the date of this Annual Report, and we expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statement contained herein, to reflect any change in our expectations with regard thereto, or any other change in events, conditions or circumstances on which any such statement is based. Readers are cautioned not to place undue reliance on any forward-looking statement.

Narrative Description of Business

We are a leading international telecommunications company with a commitment to providing our customers the “best in class” communications and entertainment services. These services are delivered to our residential and business customers over our networks and include video, broadband internet, telephony and mobile services. We also deliver mobile services over our own networks and through third-party networks as MVNOs. We design these services to enable our customers to access the digital world on their own terms and at their own pace. In most of our footprint, the core of our offer is “**triple-play**”, which we use to describe bundled services of digital video, internet and telephony in one subscription. We are enhancing this offer by expanding our services to include mobile services for a “**quad-play**” or fixed-mobile convergence service in most of our markets. Available service offerings depend on the bandwidth capacity of a particular system and whether it has been upgraded for two-way communications. In certain markets, we also offer video services through direct-to-home satellite (**DTH**) and fiber-to-the-home (**FTTH**) networks.

Following the completion of the Split-off Transaction, our consolidated operations are in the U.K., Ireland, Germany, Belgium, Luxembourg, Switzerland, Austria and Central and Eastern Europe. In terms of video subscribers, we operate the largest cable network in each of Austria, Belgium, the Czech Republic, Hungary, Ireland, Poland, Slovakia, Switzerland and the U.K. and the second largest cable network in each of Germany and Romania. We also have investments in the VodafoneZiggo JV, which operates the largest cable network in the Netherlands, and in various content businesses.

In connecting our customers through our telecommunication services, we recognize that we are a global corporate citizen—that we play a role in addressing the environmental impacts generated through our business. By seeking to address these issues, we strengthen our company and positively influence the communities in which we operate. This includes enhancing the energy efficiency of all our operations, with a focus on energy use, carbon emissions and management of electronic waste. We also recognize that coding skills are essential to our industry and other technology-based jobs of the future. As a result, we have partnered with the CoderDojo Foundation, a global community of free coding clubs for children age 7-17. Our support for CoderDojo is enabling the next generation of creators, improving their long-term career prospects. We are also working with European Schoolnet to raise awareness of teachers on educational resources available for them to help address online issues teenagers are facing. Corporate responsibility is a key part of our business.

Liberty Global Statistics

The following tables present certain operating data as of December 31, 2017, with respect to the networks of our consolidated subsidiaries. The following tables reflect 100% of the data applicable to each of our subsidiaries regardless of our ownership percentage. Percentages are rounded to the nearest whole number.

Consolidated Operating Data - December 31, 2017

	Homes Passed (1)	Two-way Homes Passed (2)	Cable Customer Relationships (3)	Total RGUs (4)	Video			Total Video	Internet Subscribers (8)	Telephony Subscribers (9)	Mobile Subscribers (10)
					Basic Video Subscribers (5)	Enhanced Video Subscribers (6)	DTH Subscribers (7)				
United Kingdom	13,979,000	13,967,200	5,432,600	13,371,600	—	3,827,200	—	3,827,200	5,104,300	4,440,100	3,002,800
Germany	12,981,300	12,900,400	7,160,200	13,068,400	4,687,200	1,653,600	—	6,340,800	3,476,600	3,251,000	320,400
Belgium	3,317,100	3,317,100	2,190,400	5,008,000	244,700	1,786,600	—	2,031,300	1,674,100	1,302,600	2,803,800
Switzerland (11)	2,281,600	2,281,600	1,236,800	2,487,500	520,600	679,900	—	1,200,500	749,300	537,700	114,800
Austria	1,410,800	1,410,800	654,100	1,433,900	93,200	367,500	—	460,700	515,600	457,600	64,100
Ireland	893,900	855,300	454,300	1,021,200	24,600	268,100	—	292,700	372,200	356,300	49,900
Poland	3,354,100	3,296,900	1,434,900	2,982,200	188,800	1,023,800	—	1,212,600	1,139,700	629,900	4,000
Romania	3,077,100	3,034,200	1,345,600	2,416,900	260,700	673,200	365,900	1,299,800	581,700	535,400	—
Hungary	1,789,400	1,772,000	1,110,900	2,263,000	92,200	590,900	265,900	949,000	675,300	638,700	88,400
Czech Republic	1,533,900	1,509,400	717,000	1,288,800	171,600	356,000	100,600	628,200	497,500	163,100	—
Slovakia	604,100	589,400	270,500	452,200	25,400	140,600	76,400	242,400	131,100	78,700	—
Total	45,222,300	44,934,300	22,007,300	45,793,700	6,309,000	11,367,400	808,800	18,485,200	14,917,400	12,391,100	6,448,200

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- (1) Homes Passed are homes, residential multiple dwelling units or commercial units that can be connected to our networks without materially extending the distribution plant, except for DTH homes. Certain of our Homes Passed counts are based on census data that can change based on either revisions to the data or from new census results. We do not count homes passed for DTH. Due to the fact that we do not own the partner networks (defined below) used in Switzerland (see note 11 below), we do not report homes passed for Switzerland's partner networks.
 - (2) Two-way Homes Passed are Homes Passed by those sections of our networks that are technologically capable of providing two-way services, including video, internet and telephony services.
 - (3) Cable Customer Relationships are the number of customers who receive at least one of our video, internet or telephony services that we count as Revenue Generating Units (**RGUs**), without regard to which or to how many services they subscribe. To the extent that RGU counts include equivalent billing unit (**EBU**) adjustments, we reflect corresponding adjustments to our Cable Customer Relationship counts. For further information regarding our EBU calculation, see *Additional General Notes to Tables* below. Cable Customer Relationships generally are counted on a unique premises basis. Accordingly, if an individual receives our services in two premises (e.g., a primary home and a vacation home), that individual generally will count as two Cable Customer Relationships. We exclude mobile-only customers from Cable Customer Relationships.
 - (4) RGU is separately a Basic Video Subscriber, Enhanced Video Subscriber, DTH Subscriber, Internet Subscriber or Telephony Subscriber (each as defined and described below). A home, residential multiple dwelling unit, or commercial unit may contain one or more RGUs. For example, if a residential customer in our U.K. market subscribed to our enhanced video service, fixed-line telephony service and broadband internet service, the customer would constitute three RGUs. Total RGUs is the sum of Basic Video, Enhanced Video, DTH, Internet and Telephony Subscribers. RGUs generally are counted on a unique premises basis such that a given premises does not count as more than one RGU for any given service. On the other hand, if an individual receives one of our services in two premises (e.g., a primary home and a vacation home), that individual will count as two RGUs for that service. Each bundled cable, internet or telephony service is counted as a separate RGU regardless of the nature of any bundling discount or promotion. Non-paying subscribers are counted as subscribers during their free promotional service period. Some of these subscribers may choose to disconnect after their free service period. Services offered without charge on a long-term basis (e.g., VIP subscribers or free service to employees) generally are not counted as RGUs. We do not include subscriptions to mobile services in our externally reported RGU counts. In this regard, our December 31, 2017 RGU counts exclude our separately reported postpaid and prepaid mobile subscribers.
 - (5) Basic Video Subscriber is a home, residential multiple dwelling unit or commercial unit that receives our video service over our broadband network either via an analog video signal or via a digital video signal without subscribing to any recurring monthly service that requires the use of encryption-enabling technology. Encryption-enabling technology includes conditional access security cards or "**smart cards**", or other integrated or virtual technologies that we use to provide our enhanced service offerings. With the exception of RGUs that we count on an EBU basis, we count RGUs on a unique premises basis. In other words, a subscriber with multiple outlets in one premises is counted as one RGU and a subscriber with two homes and a subscription to our video service at each home is counted as two RGUs. In Europe, we have approximately 192,700 "lifeline" customers that are counted on a per connection basis, representing the least expensive regulated tier of video cable service, with only a few channels.
 - (6) Enhanced Video Subscriber is a home, residential multiple dwelling unit or commercial unit that receives our video service over our broadband network or through a partner network via a digital video signal while subscribing to any recurring monthly service that requires the use of encryption-enabling technology. Enhanced Video Subscribers that are not counted on an EBU basis are counted on a unique premises basis. For example, a subscriber with one or more set-top boxes that receives our video service in one premises is generally counted as just one subscriber. An Enhanced Video Subscriber is not counted as a Basic Video Subscriber. As we migrate customers from basic to enhanced video services, we report a decrease in our Basic Video Subscribers equal to the increase in our Enhanced Video Subscribers. Subscribers to enhanced video services provided by our operations in Switzerland over partner networks receive basic video services from the partner networks as opposed to our operations.
 - (7) DTH Subscriber is a home, residential multiple dwelling unit or commercial unit that receives our video programming broadcast directly via a geosynchronous satellite.
 - (8) Internet Subscriber is a home, residential multiple dwelling unit or commercial unit that receives internet services over our networks, or that we service through a partner network. Our Internet Subscribers exclude 39,100 digital subscriber line (**DSL**) subscribers within Austria that are not serviced over our networks. Our Internet Subscribers do not include customers that receive services from dial-up connections. In Switzerland, we offer a 2 Mbps internet service to our Basic and Enhanced Video Subscribers without an incremental recurring fee. Our Internet Subscribers in Switzerland include 83,900 subscribers who have requested and received this service.
 - (9) Telephony Subscriber is a home, residential multiple dwelling unit or commercial unit that receives voice services over our networks, or that we service through a partner network. Telephony Subscribers exclude mobile telephony subscribers. Our Telephony Subscribers exclude 30,000 subscribers within Austria that are not serviced over our networks. In Switzerland, we offer a basic phone service to our Basic and Enhanced Video Subscribers without an incremental recurring fee. Our Telephony Subscribers in Switzerland include 131,000 subscribers who have requested and received this service.
 - (10) Our Mobile Subscriber count represents the number of active subscriber identification module (**SIM**) cards in service rather than services provided. For example, if a Mobile Subscriber has both a data and voice plan on a smartphone this would equate to one Mobile

Subscriber. Alternatively, a subscriber who has a voice and data plan for a mobile handset and a data plan for a laptop (via a dongle) would be counted as two Mobile Subscribers. Customers who do not pay a recurring monthly fee are excluded from our Mobile Subscriber counts after periods of inactivity ranging from 30 to 90 days, based on industry standards within the respective country. In a number of countries, our Mobile Subscribers receive mobile services pursuant to prepaid contracts. As of December 31, 2017, our Mobile Subscriber count included 515,200 and 514,300 prepaid Mobile Subscribers in Belgium and the U.K., respectively.

- (11) Pursuant to service agreements, Switzerland offers enhanced video, broadband internet and telephony services over networks owned by third-party cable operators (**partner networks**). A partner network RGU is only recognized if there is a direct billing relationship with the customer. At December 31, 2017, Switzerland's partner networks account for 138,100 Cable Customer Relationships, 315,800 RGUs, 113,700 Enhanced Video Subscribers, 116,000 Internet Subscribers and 86,100 Telephony Subscribers.

Additional General Notes to Table:

Most of our broadband communications subsidiaries provide telephony, broadband internet, data, video or other business services. Certain of our business service revenue is derived from small or home office (**SOHO**) subscribers that pay a premium price to receive enhanced service levels along with video, internet or telephony services that are the same or similar to the mass marketed products offered to our residential subscribers. All mass marketed products provided to SOHOs, whether or not accompanied by enhanced service levels and/or premium prices, are included in the respective RGU and customer counts of our broadband communications operations, with only those services provided at premium prices considered to be "SOHO RGUs" or "SOHO customers". To the extent our existing customers upgrade from a residential product offering to a SOHO product offering, the number of SOHO RGUs or SOHO customers will increase but there is no impact to our total RGU or customer counts. With the exception of our business SOHO subscribers, we generally do not count customers of business services as customers or RGUs for external reporting purposes.

Certain of our residential and commercial RGUs are counted on an EBU basis, including residential multiple dwelling units and commercial establishments (with the exception of Germany and Belgium, where we do not count any RGUs on an EBU basis). Our EBUs are generally calculated by dividing the bulk price charged to accounts in an area by the most prevalent price charged to non-bulk residential customers in that market for the comparable tier of service. As such, we may experience variances in our EBU counts solely as a result of changes in rates. In Germany, homes passed reflect the footprint and two-way homes passed reflect the technological capability of our network up to the street cabinet, with drops from the street cabinet to the building generally added, and in-home wiring generally upgraded, on an as needed or success-based basis. In Belgium, Telenet leases a portion of its network under a long-term capital lease arrangement. These tables include operating statistics for Telenet's owned and leased networks.

While we take appropriate steps to ensure that subscriber statistics are presented on a consistent and accurate basis at any given balance sheet date, the variability from country to country in (1) the nature and pricing of products and services, (2) the distribution platform, (3) billing systems, (4) bad debt collection experience and (5) other factors add complexity to the subscriber counting process. We periodically review our subscriber counting policies and underlying systems to improve the accuracy and consistency of the data reported on a prospective basis. Accordingly, we may from time to time make appropriate adjustments to our subscriber statistics based on those reviews.

Subscriber information for acquired entities is preliminary and subject to adjustment until we have completed our review of such information and determined that it is presented in accordance with our policies.

Network & Product Penetration Data (%) - December 31, 2017

	<u>U.K.</u>	<u>Germany</u>	<u>Belgium</u>	<u>Switzerland</u>	<u>Austria</u>	<u>Ireland</u>	<u>Poland</u>	<u>Hungary</u>	<u>Romania</u>	<u>Czech Republic</u>	<u>Slovakia</u>
Network Data:											
Two-way homes passed percentage (1)	100	99	100	100	100	96	98	99	99	98	98
Digital video availability percentage (2)	100	100 ⁽⁹⁾	99	100 ⁽⁹⁾	95	98	99	98	98	96	93
Broadband internet availability percentage (2)	100	99 ⁽⁹⁾	99	100 ⁽⁹⁾	100	96	98	99	97	96	94
Fixed-line telephony availability percentage (2)	100	99 ⁽⁹⁾	99	100 ⁽⁹⁾	100	95	98	99	97	96	93
Bandwidth percentage (3):											
at least 860 MHz	78	98	58	100	86	62	100	44	97	99	98
750 MHz to 859 MHz	19	—	—	—	—	33	-- ⁽¹⁰⁾	49	-- ⁽¹⁰⁾	-- ⁽¹⁰⁾	—
less than 750 MHz	3	2	42	—	14	5	-- ⁽¹⁰⁾	5	3	1	2
Product Penetration:											
Cable television penetration (4)	27	49	61	53	33	33	36	38	30	34	27
Enhanced video penetration (5)	100	26	88	57	80	92	84	87	72	67	85
Broadband internet penetration (6)	37	27	50	33	37	44	35	38	19	33	22
Fixed telephony penetration (6)	32	25	39	24	32	42	19	36	18	11	13
Double-play penetration (7)	19	13	20	17	26	35	30	11	10	48	17
Triple-play penetration (7)	64	35	54	42	47	45	39	46	35	16	25
Fixed-Mobile Convergence penetration (8)	21	5	40	10	5	8	-- ⁽¹¹⁾	9	—	—	—

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- (1) Percentage of total homes passed that are two-way homes passed.
 - (2) Percentage of total homes passed to which digital video, broadband internet or fixed-line telephony services, as applicable, are made available.
 - (3) Percentage of total homes passed served by a network with the indicated bandwidth.
 - (4) Percentage of total homes passed that subscribe to cable television services (Basic Video or Enhanced Video).
 - (5) Percentage of cable television subscribers (Basic Video and Enhanced Video Subscribers) that are Enhanced Video Subscribers.
 - (6) Percentage of two-way homes passed that subscribe to broadband internet or fixed-line telephony services, as applicable.
 - (7) Percentage of total customers that subscribe to two services (**double-play** customers) or three services (**triple-play** customers) offered by our operations (video, broadband internet and fixed-line telephony).
 - (8) Fixed-Mobile Convergence penetration represents the number of customers who subscribe to both our internet service and our postpaid mobile service, divided by the number of customers who subscribe to our internet service.
 - (9) Assuming the contractual right to serve the building exists in the case of multiple dwelling units.
 - (10) Less than 1%.
 - (11) Fixed-Mobile Convergence penetration in Hungary is less than 1%.

Video, Broadband Internet, Fixed-Line Telephony and Mobile Services - December 31, 2017

	<u>U.K.</u>	<u>Germany</u>	<u>Belgium</u>	<u>Switzerland</u>	<u>Austria</u>	<u>Ireland</u>	<u>Poland</u>	<u>Hungary</u>	<u>Romania</u>	<u>Czech Republic</u>	<u>Slovakia</u>
Video services (excluding DTH):											
Next Generation Video Platform	TiVo	Horizon	Digital TV ⁽⁵⁾	Horizon	Horizon	Horizon	Horizon	Horizon Lite ⁽⁵⁾	Horizon Lite ⁽⁵⁾	Horizon/Horizon Lite ⁽⁵⁾	Horizon Lite ⁽⁵⁾
Number of Next Generation Video percentage ⁽¹⁾	91	11	88	31	17	60	40	25	9	40	58
Number of out-of-home channels available (second screen)	110	117	91	123	50	95	59	43	83	72	64
Availability of Replay TV	—	—	X	X	X	X	X	X	X	X	X
Number of channels in basic digital tier	71	95	83	90	110	72	107	100	131	112	93
Broadband internet service:											
Maximum download speed offered (Mbps)	300 ⁽³⁾	400	400 ⁽³⁾	500	300	360 ⁽³⁾	500 ⁽³⁾⁽⁶⁾	500	500	500	500
Fixed-line telephony and mobile services:											
VoIP Fixed-line	⁽⁴⁾	X	X	X	X	X	X	X	X	X	X
Number of Mobile SIM cards (in 000's) ⁽²⁾	3,003	320	2,804	115	64	50	4 ⁽⁷⁾	88	—	—	—
Prepaid	514	—	515	—	—	—	—	—	—	—	—
Postpaid	2,489	320	2,289	115	64	50	4	88	—	—	—

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- (1) Percentage of total cable television subscribers that have next generation video.
 - (2) Represents the number of active SIM cards in service. See note 10 to *Consolidated Operating Data* table above for how these are counted.
 - (3) For business customers, speeds of up to: 350 Mbps in the U.K., 500 Mbps in Belgium, 400 Mbps in Ireland and 600 Mbps in Poland, are available.
 - (4) Voice-over-internet-protocol (**VoIP**) services are available only to business customers.
 - (5) Refers to an upgraded set-top box system that provides several features of Horizon TV (defined below) in the home.
 - (6) Speeds of up to 600 Mbps available in limited areas.
 - (7) Limited to legacy subscribers.

Products and Services

Video Services

Our video service is, and continues to be, one of the key foundations of our product offerings in our markets. Our cable operations offer multiple tiers of digital video programming and audio services starting with a basic video service. Subscribers to our basic video service pay a fixed monthly fee and receive digital or analog video channels (including a limited number of high definition (**HD**) channels) and several digital and analog radio channels and an electronic programming guide. In our markets where our basic digital service is unencrypted (Germany, Austria, Poland, Hungary, the Czech Republic and Romania), the cost of our digital service is the same cost as the monthly fee of our analog service. In the markets where we encrypt our basic digital service, our digital service is generally offered at an incremental cost equal to or slightly higher than the monthly fee for our basic analog service. We tailor our video services in each country of operation based on programming preferences, culture, demographics and local regulatory requirements.

We also offer a variety of premium channel packages to meet the special interests of our subscribers. For an additional monthly charge, a subscriber may upgrade to one of our extended digital tier services and receive an increased number of video and radio channels, including the channels in the basic tier service and additional HD channels. Digital subscribers may also subscribe to one or more packages of premium channels for an additional monthly charge. Our channel offerings include general entertainment, sports, movies, documentaries, lifestyles, news, adult, children and ethnic and foreign channels.

Subscribers to our digital services also receive the channels available through our analog service. We offer limited analog video services in all of our broadband markets, except in the U.K., Germany, Switzerland and Austria. In all of our broadband operations, we continue to upgrade our systems to expand our digital services and encourage our analog subscribers to convert to a digital or premium digital service.

Discounts to our monthly service fees are available to any subscriber who selects a bundle of two or more of our services (**Bundled services**): video, internet, fixed-line telephony and, in certain markets, mobile services. Bundled services consist of double-play for two services, triple-play for three services and, where available, quad-play for four services.

To meet customer demands, we have enhanced our video services with various products that enable our customers to control when, where and how they watch their programming. These products range from digital video recorders (**DVRs**) to multimedia home gateway systems such as "**Horizon TV**", as well as various mobile applications (**apps**). Horizon TV is a next generation multimedia home gateway (decoder box) based on a digital television platform that is capable of distributing video, voice and data content throughout the home and to multiple devices. It has a sophisticated user interface that enables customers to view and share, across multiple devices, linear channels, video-on-demand (**VoD**) programming and personal media content and to pause, replay and record programming. The Horizon TV gateway can act as an internet router that allows access to digital video content available on the television via other devices, such as laptops, smart phones and tablets.

For our Horizon TV subscribers, we offer various features and functionalities, including television apps for various online services (such as YouTube, Netflix, social platforms, sports experience, music, news and games). In almost all of our operations, we also offer an online mobile app for viewing on a second screen called "**Horizon Go**". Horizon Go is available on mobile devices (iOS, Android and Windows) and via an internet portal and allows video customers to view linear channels and VoD, with a substantial part of this content available outside of the home. For Horizon TV customers, when in the home the second screen device can act as a remote control. Through Horizon Go, customers have the ability to remotely schedule the recording of a television program on their Horizon TV box at home.

We offer Horizon TV in Germany, Switzerland, Austria, Ireland, Poland and the Czech Republic. In several of our other European operations, we provide a Horizon TV-like experience through a remote upgrade of the software on the customer's set-top box. After the upgrade, these boxes offer several features of the Horizon TV product. We refer to this upgrade as "**Horizon Lite**", although it is locally marketed as Horizon TV, except in Belgium where it is marketed as "Digital TV". Some of the Horizon TV features are not available on our Horizon Lite systems, such as recommendation-based content and the ability to access video content on other devices in the home. We intend to continue to improve the Horizon TV user experience with new functionality and software updates.

In the U.K., we offer a multimedia home gateway based on the TiVo platform under a strategic partnership agreement with TiVo Inc. The TiVo set-top boxes provide television and broadband internet capabilities. In late 2016, we launched a new set-top box in the U.K. called the Virgin Media V6 box. This device combines ultra high-definition 4K video, including high dynamic range, with improved streaming functionalities and more processing power. The Virgin Media V6 box allows customers to record six channels simultaneously while watching a seventh. Customers can also start watching programming on one television and pick up where they left off on other TiVo boxes in another room or through an app on their smart phones and tablets. In addition to the

video service on their TiVo gateway device, our customers in the U.K. also have access to a comprehensive internet streaming video service called “Virgin TV Go”. This service, which is available via a mobile app or an internet portal, allows our video customers to stream real-time TV channels and watch VoD content anywhere they have a broadband connection.

We intend to roll out a counterpart of the Virgin Media V6 in our other operations, which we call “EOS”. EOS will carry the next generation Horizon TV user interface and will be marketed under respective local brands where it is deployed.

In Belgium, the digital video product offered by Telenet is marketed as “Digital TV”. It functions similarly to our Horizon Lite service and is available to Telenet’s enhanced video subscribers for no additional charge. Telenet also offers customers access to live TV streaming and various other content sources such as VoD via the “**Yelo Play**” app, which is available via iOS, Android and Windows smart phones and tablets. Digital TV set-top boxes and Yelo Play offer a Horizon-like user interface that allow Telenet’s enhanced video customers to remotely manage their DVR, view programs remotely (up to seven days after the original broadcast) and access VoD with a laptop, smart phone or tablet in or out of the home.

One of our key video services is “**Replay TV**”. Replay TV records virtually all programs across numerous linear channels in the countries where this service is available. The recordings are available up to seven days after the original broadcast. This allows our customers to catch up on their favorite television shows without having to set their DVR or browse separate menus on their set-top boxes. Instead, customers can open the electronic programing guide, scroll back and replay linear programming instantly. Replay TV also allows our customers to replay a television program from the start even while the live broadcast is in progress. Replay TV is accessible in all of our markets, except in the U.K. and Germany, through Horizon TV or Horizon Lite, and in some of our markets also via Horizon Go.

In most of our markets, we offer transactional VoD giving subscribers access to thousands of movies and television series. In several of our markets, our subscription VoD service is included in our enhanced video services accessed through the Horizon TV platform. This service is tailored to the specific market based on available content, consumer preferences and competitive offers and includes various programming, such as music, kids, documentaries, adult, sports and TV series. In Germany, subscription VoD is available through a partnership with maxdome, and in Belgium, the service is marketed as “Play” and “Play More”. We continue to develop our VoD services to provide a growing collection of programming from local and international suppliers, such as ABC/Disney, A+E Networks, NBC/Universal, CBS/Paramount, Discovery, the BBC, Warner and Sony, among others. Customers who subscribe to an extended digital tier generally receive a VoD enabled set-top box without an additional monthly charge.

Subscribers access our enhanced video service by renting a set-top box with a smart card from our operators, or without a set-top box if a subscriber is only using our basic video service. Where Horizon TV is available, a subscriber to our enhanced video services has the option, for an incremental monthly charge, to upgrade the standard digital set-top box to a Horizon TV box (which has HD DVR capabilities and other additional features). No set-top box or smart card, however, is required to receive our basic digital services in our unencrypted footprints. In addition, expanded channel packages and premium channels and services are available for an incremental monthly fee in all of our markets.

WiFi and Internet Services

Connectivity is a building block for vibrant communities. As the largest international cable company, our fiber-rich broadband network is the backbone of our business and the basis of our connectivity strategy. To meet our customers’ expectations to be seamlessly connected, we are investing in the expansion of our broadband network, mobile and WiFi solutions and customer premises equipment.

Internet speed is of crucial importance to our customers, as they spend more time streaming video and other bandwidth-heavy services on multiple devices. Our extensive broadband network enables us to deliver ultra high-speed internet service across our markets. Our residential subscribers access the internet via cable modems connected to their internet capable devices, or wirelessly via a WiFi gateway device. We offer multiple tiers of broadband internet service ranging from a basic service of 10 Mbps in Germany and Switzerland to an ultra high-speed internet service of 500 Mbps in Switzerland, Poland, Hungary, Romania, Slovakia and the Czech Republic. The speed of service depends on the location and the tier of service selected. In addition, by leveraging our existing fiber-rich broadband networks and our Network Extension programs, we are in position to deliver gigabit services by deploying the next generation DOCSIS 3.1 technology. We plan to launch this technology in 2018. By using DOCSIS 3.1, we have the potential to extend our download speeds to at least 1 Gbps when fully deployed. DOCSIS technology is an international standard that defines the requirements for data transmission over a cable system. Currently, our ultra high-speed internet service is based primarily on DOCSIS 3.0 technology.

Our internet service generally includes email, address book and parental controls. We offer value-added broadband services in certain of our markets for an incremental charge. These services include security (e.g., anti-virus, anti-spyware, firewall and

spam protection) and online storage solutions and web spaces. In many of our markets, we offer mobile broadband services with internet access as described below. Subscribers to our internet service pay a monthly fee based on the tier of service selected. In addition to the monthly fee, customers pay an activation service fee upon subscribing to an internet service. This one-time fee may be waived for promotional reasons. We determine pricing for each different tier of internet service through an analysis of speed, market conditions and other factors.

Our "**Connect Box**" is a dedicated connectivity device that delivers superior in-home WiFi coverage. It is our next generation WiFi and telephony gateway that enables us to maximize the impact of our ultrafast broadband networks by providing reliable wireless connectivity anywhere in the home. It has an automatic WiFi optimization function, which selects the best possible wireless frequency at any given time. This gateway can be self-installed and allows customers to customize their home WiFi service. Our Connect Box is available in all our markets. Robust wireless connectivity is increasingly important with our customers spending more and more time using bandwidth-heavy services on multiple devices. In Belgium and Switzerland, we also offer a connect app that allows our customers to find their best WiFi access.

In almost all of our markets, we have deployed community WiFi via routers in the home (the **Community WiFi**), which provides a secure access to the internet for our customers. Community WiFi is enabled by a cable modem WiFi access point (**WiFi modem**) in the Connect Box, the set-top box or the Horizon TV box of our internet customers. The Community WiFi is created through the sharing of access to the public channel of our customers' home wireless routers. Use of the Community WiFi does not affect the internet speeds of our customers. The public channel is a separate network from the secure private network used by the customer within the home and is automatically enabled when the WiFi modem is installed. Access is free for our internet customers. At December 31, 2017, we had 9.1 million WiFi access points in our footprint. In addition, our internet customers continue to have access to the Community WiFi in the Netherlands. We continue to expand our Community WiFi service throughout our markets, including access points covering public places.

Public WiFi access points (covering train stations, hotels, bars, restaurants and other public places) are available to Virgin Media customers in the U.K., Unitymedia GmbH (**Unitymedia**) customers in Germany and to Telenet customers in Belgium. In Switzerland, Belgium, Hungary, Poland, Ireland and Romania, we are expanding our Community WiFi through access points covering public places. Our Community WiFi is branded as "Wi-Free" in most of our markets. Through an agreement with Comcast Corporation, our internet customers also have access to millions of WiFi access points in the U.S. and across various European countries for no additional cost.

Mobile Services

Mobile services are another key building block for us to provide customers with seamless connectivity. We offer mobile services as an MVNO over third-party networks in the U.K., Germany, Belgium, Switzerland, Austria, Ireland, Poland and Hungary. Following the February 2016 acquisition of BASE, Telenet became a mobile network provider in Belgium and is migrating its mobile subscribers to the BASE network prior to the termination of its MVNO agreement with a third-party provider at the end of 2018. Although, Telenet's MVNO arrangement continues through 2018, Telenet aims to complete the migration of its MVNO subscribers by the end of the first half of 2018. We plan to add MVNO arrangements and, where appropriate, acquire or partner with mobile service providers with their own networks in all our broadband communication markets.

In Switzerland, Austria, Ireland, Hungary and, through 2018, Belgium, we provide our mobile telephony services as full MVNOs through partnerships with a third-party mobile network operator in their respective footprints of our country operations. All of these operations lease the third-party's radio access network and own the core network, including switching, backbone and interconnections. These arrangements permit us to offer our customers in these markets mobile services without having to build and operate a cellular radio tower network. In 2017, our mobile operations in the U.K. moved from a light MVNO to a full MVNO arrangement due to a revised agreement with the third-party network provider. The migration of our U.K. mobile customers to the full MVNO arrangement is expected to be completed in 2019. In Germany and Poland, we provide mobile telephony as a light MVNO. In this case, we lease the core network as well as the radio access network from a mobile network operator. This arrangement permits our German customers to have access to the third-party mobile communications services while we maintain the customer relationship.

Our MVNO partners are:

<u>Country</u>	<u>Partner</u>
U.K.	EE
Switzerland	Salt (1)
Austria	Three (Hutchison)
Ireland	Three (Hutchison)
Hungary	Vodafone
Germany	Telefonica
Poland	Orange/Play

(1) UPC Switzerland will migrate to the Swisscom AG (**Swisscom**) network the beginning of 2019.

Where mobile services are available subscribers pay varying monthly fees depending on whether the mobile service is combined with our cable services or includes mobile data services via mobile phones, tablets or laptops. We offer our customers the option to purchase mobile handsets and, in most of our markets, make such purchase pursuant to a contract independent of their mobile services contract. We refer to these arrangements as split contracts. In Belgium, for those subscribers on Telenet's own network, it is offering more flexible bundles adjusted to customers' needs so they can use the full capacity of their package, regardless of their appetite to use either more data, minutes or text messages.

Our mobile services typically include voice, short message service (or **SMS**) and internet access. Calls, both within and out of network, incur a charge or are covered under a postpaid monthly service plan. Our mobile services are primarily on a postpaid basis with customers subscribing to services for periods ranging from activation for a SIM-only contract to up to 24 months (or 36 months in the U.K.), with the latter often taken with a subsidized mobile handset. In Belgium, Switzerland and Austria, however, our postpaid service is offered without a minimum contract term. In the U.K. and Belgium, we also offer a prepaid service, where the customers pay in advance for a pre-determined amount of airtime or data and generally have no minimum contract term. In almost all of our markets, subscribers to a double- or triple-play bundle receive a discount on their mobile service fee.

Telephony Services

Multi-feature telephony services are available through VoIP technology in most of our broadband communication markets. In the U.K. and Hungary, we also provide traditional circuit-switched telephony services. We pay interconnect fees to other telephony and internet providers when calls by our subscribers terminate on another network and receive similar fees from providers when calls by their users terminate on our network through interconnection points.

Our telephony service may be selected in several of our markets on a standalone basis and in all of our markets in combination with one or more of our other services. Our telephony service includes a basic fixed-line telephony product for line rental and various calling plans, which may consist of any of the following: unlimited network, national or international calling, unlimited off-peak calling and minute packages, including calls to fixed and mobile phones. We also offer value added services, such as a personal call manager, unified messaging and a second or third phone line at an incremental cost.

Multiple Dwelling Units and Partner Networks

Approximately two-thirds of Unitymedia's video customers are in multiple dwelling units where Unitymedia has the billing relationship with the landlord or housing association or with a third-party (**Professional Operator**) that operates and administers the in-building network on behalf of housing associations. Many of these agreements allow Unitymedia to offer its digital video, broadband internet and fixed-line telephony services directly to the end customer. Professional Operators may procure the basic video signals from Unitymedia at volume-based discounts and will generally resell them to housing associations with whom the operator maintains the customer relationship. Unitymedia has entered into agreements with Professional Operators, such as Tele Columbus Multimedia GmbH, that allow Unitymedia to market its digital video, broadband internet and fixed-line telephony services directly to the Professional Operator's subscriber base.

Pursuant to an agreement executed on June 28, 2008 (the **PICs Agreement**) with four associations of municipalities in Belgium (the pure intercommunales or **PICs**), Telenet leases the PICs broadband communications network and, accordingly, makes its services available to all of the homes passed by the cable network owned by the PICs. Telenet has a direct customer relationship with the basic and enhanced video subscribers on the PICs network. Pursuant to the PICs Agreement, Telenet has full rights to use substantially all of the PICs network under a long-term capital lease. Unless extended, the PICs Agreement will expire on

September 23, 2046, and cannot be terminated earlier (except in the case of non-payment or bankruptcy of Telenet). For additional information on the PICs Agreement, see note 17 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

For approximately two-thirds of the basic video subscribers in UPC Holding's Switzerland operations (**UPC Switzerland**), UPC Switzerland maintains billing relationships with landlords or housing associations and provides basic video service to the tenants. The landlord or housing association administers the billing for the basic video service with their tenants and manages service terminations for their rental units. When tenants select triple-play bundles with or without mobile service from UPC Switzerland, they then migrate to a direct billing relationship with us.

UPC Switzerland offers enhanced video, broadband internet and telephony services directly to the video cable subscribers of those partner networks that enter into service operating contracts with UPC Switzerland. UPC Switzerland has the direct customer billing relationship with these subscribers. By permitting UPC Switzerland to offer some or all of its enhanced video, broadband internet and telephony products directly to those partner network subscribers, UPC Switzerland's service operating contracts have expanded the addressable markets for UPC Switzerland's digital products. In exchange for the right to provide digital products directly to the partner network subscribers, UPC Switzerland pays to the partner network a share of the revenue generated from those subscribers. UPC Switzerland also provides network maintenance services and engineering and construction services to its partner networks.

Business Services

In addition to our residential services, we offer business services in all of our operations. For business and public sector organizations, we provide a complete range of voice, advanced data, video, wireless and cloud-based services, as well as mobile and converged fixed-mobile services. Our business customers include SOHO (generally up to five employees), small business and medium and large enterprises. We also provide business services on a wholesale basis to other operators.

Our business services are designed to meet the specific demands of our business customers with a wide range of services, including increased data transmission speeds and virtual private networks. These services fall into five broad categories:

- VoIP and circuit-switch telephony, hosted private branch exchange solutions and conferencing options;
- data services for internet access, virtual private networks and high capacity point-to-point services;
- wireless services for mobile voice and data, as well as managed WiFi networks;
- video programming packages and select channel lineups for targeted industries; and
- value added services, including webhosting, managed security systems and storage and cloud enabled software.

Our intermediate to long-term strategy is to enhance our capabilities and offerings in the business sector so we become a preferred provider in the business market. To execute this strategy, customer experience and strategic marketing play a key role.

Our business services are provided to customers at contractually established prices based on the size of the business, type of services received and the volume and duration of the service agreement. SOHO and small business customers pay business market prices on a monthly subscription basis to receive enhanced service levels and business features that support their needs. For more advanced business services, these customers generally enter into a service agreement. For medium to large business customers, we enter into individual agreements that address their needs. These agreements are generally for a period of at least one year.

Investments—VodafoneZiggo JV

We own a 50% interest in the VodafoneZiggo JV, which is a leading Dutch company that provides fixed, mobile and integrated communication and entertainment services to consumers and businesses in the Netherlands. In connection with the formation of the VodafoneZiggo JV, we entered into a shareholders agreement with Vodafone providing for the governance of the VodafoneZiggo JV, including decision-making process, information access, dividend policy and non-compete provisions. It also provides for restrictions on transfer of interests in the VodafoneZiggo JV and exit arrangements. Under the dividend policy, the VodafoneZiggo JV is required to distribute all unrestricted cash to Vodafone and us, subject to minimum cash requirements and financing arrangements. We also entered into a framework agreement with the VodafoneZiggo JV to provide access to each partner's expertise in the telecommunications business. For additional information on the above agreements, see note 6 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

The fiber-rich broadband network of the VodafoneZiggo JV passes 7.1 million homes. The VodafoneZiggo JV also offers nationwide mobile coverage. At December 31, 2017, the VodafoneZiggo JV had nearly 14.6 million subscribers of which nearly 4.0 million were video, over 3.0 million were fixed broadband internet, approximately 2.5 million were fixed-line telephony and

5.0 million were mobile (including 4.1 million postpaid). In addition to its residential services, the VodafoneZiggo JV offers extensive business services throughout the Netherlands. The operations of the VodafoneZiggo JV are subject to various regulations, which are described below under *Regulatory Matters —The Netherlands*.

The VodafoneZiggo JV's customers continue to have access to Horizon TV and its functionalities (marketed as Ziggo TV), including Replay TV, 400 Mbps nationwide broadband internet and an extensive WiFi Community network. They also have access to Vodafone's nationwide long-term evolution wireless service, also called "4G" (referred to herein as **LTE**) services, under either a prepaid or postpaid service plan. With its mobile services, the VodafoneZiggo JV is able to offer its customers quad-play bundles and converged services to residential and business customers.

For all its services, the VodafoneZiggo JV competes primarily with the provision of similar services from the incumbent telecommunications operator Koninklijke KPN N.V. (**KPN**). KPN offers (1) internet protocol television (**IPTV**) over fiber optic lines where the fiber is to the home, cabinet, or building or to the node networks (fiber-to-the-home/-cabinet/-building/-node is referred to herein as **FTTx**) networks and through broadband internet connections using DSL or very high-speed DSL technology (**VDSL**) or an enhancement to VDSL called "vectoring", (2) digital terrestrial television (**DTT**), and (3) LTE services. Where KPN has enhanced its VDSL system, it offers broadband internet with download speeds of up to 100 Mbps and on its FTTx networks, it offers download speeds of up to 500 Mbps. Its ability to offer a bundled triple-play of video, broadband internet and telephony services and fixed-mobile convergence services, creates significant competitive pressure on the VodafoneZiggo JV's operations, including the pricing and bundling of its video products. KPN's video services include many of the interactive features the VodafoneZiggo JV offers its subscribers. Portions of the VodafoneZiggo JV's network have been overbuilt by KPN's and other providers' FTTx networks and expansion of these networks is expected to continue.

Additional Business Information

Technology

In most of our markets, our video, broadband internet and fixed-line telephony services are transmitted over a hybrid fiber coaxial cable network. This network is composed primarily of national and regional fiber networks, which are connected to the home over the last few hundred meters by coaxial cable. Over 99% of our network allows for two-way communications and is flexible enough to support our current services as well as new services.

We closely monitor our network capacity and customer usage. Where necessary, we increase our capacity incrementally, for instance by splitting nodes in our cable network. We also continue to explore improvements to our services and new technologies that will enhance our customer's connected entertainment experience. These actions include:

- recapturing bandwidth and optimizing our networks by:
 - increasing the number of nodes in our markets;
 - increasing the bandwidth of our hybrid fiber coaxial cable network to 1 GHz;
 - converting analog channels to digital;
 - bonding additional DOCSIS 3.0 channels;
 - deploying VDSL over our fixed telephony network;
 - replacing copper lines with modern optic fibers; and
 - using digital compression technologies.
- freeing spectrum for high-speed internet, VoD and other services by encouraging customers to move from analog to digital services;
- increasing the efficiency of our networks by moving headend functions (encoding, transcoding and multiplexing) to cloud storage systems;
- enhancing our network to accommodate business services;
- using wireless technologies to extend our services outside of the home;
- offering remote access to our video services through laptops, smart phones and tablets;
- expanding the availability of Horizon TV and related products and developing and introducing online media sharing and streaming or cloud-based video; and
- testing new technologies.

As stated under *General Development of Business—Expansion and Acquisitions* above, we are expanding our hybrid fiber coaxial cable network through our Network Extension programs. In addition, we are seeking mobile service opportunities where we have established cable networks and expanding our fixed-line networks where we have a strong mobile offering. This will allow us to offer converged fixed-line and mobile services to our customers.

We deliver high-speed data and fixed-line telephony over our broadband network in our markets. The cable networks of our operations in Europe are connected to our "Aorta" backbone. The Aorta backbone is recognized as a Tier 1 Carrier, which permits us to serve our customers through settlement free collaboration with other carriers without the cost of using a third-party network.

In support of our connectivity strategy, we are moving our customers into a gigabit society. Almost all of our broadband networks are already capable of supporting the next generation of ultra high-speed internet service at gigabit speeds. To provide these speeds to our subscribers, we are launching our next generation gateways that will enable DOCSIS 3.1 technology throughout our footprint. The launch of DOCSIS 3.1 technology will provide us significantly higher efficiencies on our networks and allow us to offer faster speeds, in-home WiFi and better services. Our Unitymedia operations have already demonstrated that download speeds of 2 Gbps can be achieved on our network. The new gateways and the continued upgrades to our network in the coming years will allow us to maximize high-speed connectivity over our broadband networks and deliver gigabit services in a cost-effective manner. It will also allow us to meet the expectations of our customers for high-speed internet access both in cities and rural areas of our footprint.

Supply Sources

Content. With telecommunication companies increasingly offering similar services, content is one of the deciding factors for customers in selecting a video services provider. Therefore, in addition to providing services that allow our customers to view programming when and where they want, we are investing in content that customers want. Our content strategy is based on:

- proposition (exceeding our customers' entertainment desires and expectations);
- product (delivering the best content available);
- procurement (investment in the best brands, shows and sports); and
- partnering (strategic alignment, acquisitions and growth opportunities).

We license almost all of our programming and on-demand offerings from content providers and third-party rights holders, including broadcasters and cable programming networks. For such licenses, we generally pay a monthly fee on a per channel or per subscriber basis, with minimum pay guarantees in certain cases. We generally enter into long-term programming licenses with volume discounts and marketing support. For on-demand programming and streaming services, we generally enter into shorter-term agreements. For our distribution agreements, we seek to include the rights to offer the licensed programming to our customers through multiple delivery platforms and through our apps for smart phones and tablets.

In seeking licenses for content, our primary focus is on partnering with leading international providers, such as Disney, Time Warner (including HBO), Fox, the BBC and Discovery. We also seek to carry in each of our markets key public and private broadcasters and in some markets we acquire local premium programming through select relationships with companies such as Sky plc (**Sky**) (U.K., Ireland, Germany and Austria) and British Telecom (**BT**). For our VoD services, we license a variety of programming, including box sets of television series, movies, music, kids and documentaries. In addition, we have entered into a multi-year arrangement with Netflix Inc. (**Netflix**) to provide our customers with premium OTT services. Through this arrangement, Netflix's content is available via set-top boxes to our video customers across many of our markets. The Netflix app is available to our customers in the U.K., Germany, Ireland and Switzerland. It is also available to the VodafoneZiggo JV's customers.

Exclusive content is another element of our content strategy. To support this approach, we are investing in content assets. We have invested in various content companies, including ITV plc, All3Media Ltd., LionsGate Entertainment, STX, TV3 Group (Ireland, to be rebranded as Virgin Media TV in the first half of 2018) and De Vijver Media. We are also investing in sports, both as a broadcaster and as a rights owner. We have launched our own exclusive sports channels, *Play Sports* in Belgium, and *MySports* in Switzerland, and the VodafoneZiggo JV owns the *Ziggo Sport* channel, which is available exclusively to the VodafoneZiggo JV's customers.

In addition, we are commissioning our own exclusive drama series content. Through All3Media Ltd., which we own jointly with Discovery Communications Inc., we are co-producing television series for all our markets. The first of these series, *The Feed*, is expected to be released in 2019. In addition, we have produced the Swiss sitcom *Fassler-Kunz*, the Swiss series *Im Heimatland* and the original Belgium series *Chaussee d'Amour* with local production companies. With LionsGate Entertainment, we are a partner in the production of a new spy thriller series *The Rook*. For each of these programs, the content will be available on demand to our customers.

Customer Premises Equipment. We purchase each type of customer premises equipment from a number of different suppliers with at least two or more suppliers providing our high-volume products. Customer premises equipment includes set-top boxes, modems, WiFi routers, DVRs, tuners and similar devices. For each type of equipment, we retain specialists to provide customer support. For our broadband services, we use a variety of suppliers for our network equipment and the various services we offer. Similarly, we use a variety of suppliers for mobile handsets to offer our customers mobile services.

Software Licenses. We license software products, including email and security software, and content, such as news feeds, from several suppliers for our internet services. The agreements for these products require us to pay a per subscriber fee for software licenses and a share of advertising revenue for content licenses. For our TiVo service in the U.K., we have a partnership arrangement where TiVo is the exclusive provider of the user interface software for our next generation set-top boxes, which provides converged television and broadband internet capabilities, and we are the exclusive distributor of the TiVo services and technology in the U.K. In 2017, we entered into a multi-year extension of our agreements with Tivo. For our mobile network operations and our fixed-line telephony services, we license software products, such as voicemail, text messaging and caller ID, from a variety of suppliers. For these licenses we seek to enter into long-term contracts, which generally require us to pay based on usage of the services.

Access Arrangements. Through Unitymedia, we have entered into various long-term agreements with the incumbent telecommunications operator, Deutsche Telekom AG (**Deutsche Telekom**), for the lease of cable duct space and hubs, as well as use of fiber optic transmission systems, towers and facility space. In addition, Unitymedia purchases a portion of the electricity required for the operation of its networks through Deutsche Telekom under such agreements. Unitymedia's ability to offer its broadband communications services to customers is dependent on the agreements with Deutsche Telekom. These agreements are long-term and may only be terminated under certain limited exceptions. Any termination, however, would have a material adverse effect on the operations of Unitymedia. For information on a legal action that Unitymedia commenced against Deutsche Telekom in December 2012 regarding these agreements, see note 17 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

For our mobile services provided through MVNO arrangements, we are dependent on third-party wireless network providers. Each of our MVNO operations has an agreement with such a provider to carry the mobile communications traffic of our customers. We seek to enter into medium to long-term arrangements for these services. Any termination of these arrangements could significantly impact our mobile services.

Competition

All of our businesses operate in highly competitive and rapidly evolving markets. Technological advances and product innovations have increased and are likely to continue to increase giving customers several options for the provision of their telecommunications services. Our customers want access to high quality telecommunication services that allow for seamless connectivity. Accordingly, our ability to offer converged services (video, internet, fixed telephony and mobile) is a key component of our strategy. In many of our markets, we compete with companies that provide fixed-mobile convergence bundles, as well as companies that are established in one or more communication products and services. Consequently, our businesses face significant competition. In all markets, we seek to differentiate our telecommunication services by focusing on customer service, competitive pricing and offering quality high-speed internet. In this section, we begin with an overview on the competitive nature of the video, broadband internet, and mobile and fixed-line telephony services in our markets, and then provide information on key competitors in our more material markets.

We believe that our deep-fiber access provides us with several competitive advantages. For instance, our cable networks allow us to concurrently deliver internet access, together with real-time television and VoD content, without impairing our high-speed internet service. In addition, our cable infrastructure allows us to provide triple-play bundled services of broadband internet, television and fixed-line telephony services without relying on a third-party service provider or network. Where mobile is available, our mobile networks, together with our fixed fiber-rich networks, allow us to provide a comprehensive set of converged mobile and fixed-line services. Our capacity is designed to support peak consumer demand. In serving the business market, many aspects of the network can be leveraged at very low incremental costs given that business demand peaks at a time when consumer demand is low, and peaks at lower levels than consumer demand.

Overall, we are experiencing increased convergence as customers look to receive all their media and communication services from one provider. In our largest video markets, our key competitors for the the provision of converged services are: BT (U.K.), Deutsche Telekom (Germany), Proximus NV/SA (**Proximus**) (Belgium) and Swisscom (Switzerland). Each of these competitors have extensive resources allowing them to offer competitively priced bundled services. As a result, our ability to offer triple-play or quad-play bundles and fixed-mobile convergence bundles is one of our key strategies to attract and retain customers. We seek to distinguish ourselves through our multimedia gateway services, interactive services (such as Replay TV and VoD), expanded content offers (for both in and out of the home) and our download speeds.

Portions of our European systems have been overbuilt by FTTx networks and other cable operations. These systems are a significant competitive factor primarily for our Central and Eastern Europe operations. Based on research of various telecommunication publications, including by the Organization for Economic Cooperation and Development (**OECD**) and internal estimates, parts of our Central and Eastern Europe operations are overbuilt by FTTx networks, including almost all of our operations in Romania. Other fiber and cable operators have also overbuilt approximately three-quarters of our combined footprint in the Czech Republic and Slovakia, two-thirds of our foot print in Poland and half of our cable networks in Hungary. Although we have extensive FTTx overbuild in Switzerland, connectivity to the FTTx network is not available at all locations. In addition, government and quasi-government entities in certain of the countries in which we operate in Europe continue to invest in FTTx networks, creating another source of competition.

In order to achieve download speeds of up to 100 Mbps or greater for customers, incumbent telecommunications operators are adopting VDSL with vectoring and bonding technologies as a more cost efficient solution compared to FTTx initiatives. Our primary competitor in Germany, Deutsche Telekom, has implemented VDSL technology in almost all of our footprint in Germany and is currently in the process of implementing vectoring technology. Swisscom is also implementing vectoring in Switzerland.

Vectoring is a transmission method that coordinates line signals to reduce crosstalk levels and improve performance. Bonding is a method of taking channels on either DSL or cable plant and bonding those channels together for a higher bandwidth throughput.

Video Distribution

Our video services compete primarily with traditional free-to-air (FTA) broadcast television services, DTH satellite service providers and other fixed-line telecommunications carriers and broadband providers, including incumbent telephony operations offering (1) DTH satellite services, (2) IPTV over broadband internet connections using asymmetric DSL or VDSL or an enhancement to VDSL called "vectoring", (3) IPTV over FTTx networks, or (4) LTE Services. Many of these competitors have a national footprint and offer features, pricing and video services individually and in bundles comparable to what we offer. In certain markets, we also compete with other cable providers who have overbuilt portions of our systems. Mobile broadband has gained noticeable share of video subscribers, which is another competitive factor.

OTT video content aggregators utilizing our or our competitors' high-speed internet connections are also a significant competitive factor as are other video service providers that overlap our service areas. The OTT video aggregators (such as HBO Now, Amazon Prime and Netflix) offer VoD service for television series and movies, catch-up television and programming from broadcasters. Generally, the content libraries of such services are offered for a monthly fee. Typically these services are available on multiple devices in and out of the home. In some cases, OTT services are provided free-of-charge. To enhance our competitive position, we provide our subscribers with TV everywhere products and premium OTT video services through our online mobile apps, VoD and Replay TV services or our arrangement with Netflix. Our businesses also compete to varying degrees with other sources of information and entertainment, such as online entertainment, newspapers, magazines, books, live entertainment/concerts and sporting events.

Our ability to continue to attract and retain customers depends on our continued ability to acquire appealing content and services on acceptable terms and to have such content available on multiple devices and outside the home. Some competitors have obtained long-term exclusive contracts for certain programming, which limits the opportunities for other providers to offer such programs. Other competitors also have obtained long-term exclusive contracts for programs, but our operations have limited access to certain of such programming through select contracts with these companies, including Sky Deutschland AG, a subsidiary of Sky, in Germany and Austria and Sky and BT in the U.K. and Ireland. If exclusive content offerings increase through other providers, programming options could be a deciding factor for subscribers on selecting a video service.

Similar to our technological advances to enhance our video services, our competitors are also improving their video platforms with next generation set-top boxes, TV everywhere products and other interactive services. Similarly, VDSL, which is either provided directly by the owner of the network or by a third-party, is a significant part of the competitive environment in many of our markets as are FTTx networks. In all of our markets, competitive video services are offered by the incumbent telecommunications operator, whose video strategies include IPTV over DSL, VDSL and FTTx networks and, in some cases, DTH and DTT. The ability of incumbent operators to offer the triple-play of video, broadband internet and fixed-line telephony services and, in most countries, a quad-play with mobile services, is exerting competitive pressure on our operations, including the pricing and bundling of our video products. In order to gain video market share, the incumbent operators and alternative service providers in a number of our larger markets are pricing their DTT, IPTV or DTH video packages at a discount to the retail price of the comparable digital cable service.

In most of our Central and Eastern European markets, we face intense competition from DTH services. These DTH companies offer aggressively-priced packages of video content and in some cases offer triple-play packages. FTA broadcasters are also significant competitors in the Central and Eastern Europe markets. To stay competitive, UPC Holding's DTH operations offer advanced services and functionality, including DVR and premium content, in most of our Central and Eastern European markets. It has also expanded these services to include a triple-play offer in Hungary. Our cable operations stay competitive by offering enhanced digital services, such as HD channel offerings, Horizon Go and expanded VoD services. These operations have also increased broadband internet speeds in their triple-play bundles to up to 500 Mbps. Promotional discounts are available, particularly on bundled options.

We compete on value by offering advanced digital services, such as DVR functionality, HD, VoD, catch-up television, Replay TV, online mobile apps and multiscreen services and multimedia gateways. We also compete by accelerating the migration of our customers from analog to digital services, offering advanced digital features and attractive content packages, as well as bundled services, at reasonable prices. In each of the countries in which we operate, we also tailor our packages to include attractive channel offerings and offer recurring discounts for bundled services and loyalty contracts. In addition, from time to time, we modify our digital channel offerings to improve the quality of our programming. Where mobile voice and data are available, we focus on our converged service offerings at attractive prices. In our other operations, we use the triple-play bundle as a means of driving video, as well as other products where convenience and price can be leveraged across the portfolio of services. We also continue to

enhance our Horizon TV product to meet our customers desire to view programming anytime and anywhere, such as new applications and expanding its availability in our markets.

- Virgin Media. Virgin Media's digital television services compete primarily with FTA television and with Sky, the primary pay satellite television provider. Sky offers competitively priced triple-play and quad-play services in the U.K. and Ireland. Other significant competitors are BT and TalkTalk Telecom Group plc (**TalkTalk**) in the U.K. and Eircom Limited in Ireland, each of which offer triple-play services, as well as IPTV video services. Each of these competitors have multimedia home gateways.

Sky owns the U.K. rights to various entertainment, sports and movie programming content and channels. Sky is both a principal competitor in the pay-television market and an important supplier of content to us. Various Sky channels, including *Sky Sports*, are available over Sky's satellite system and our cable networks, as well as via Sky's apps and online players and other television platforms, and some of the channels are available on BT and TalkTalk platforms. Virgin Media distributes several basic and premium video channels supplied by Sky. BT is also both a principal competitor and an important supplier of content to us. BT owns premium BT Sport channels, providing a range of sports content, including football (soccer) from the English Premier League and exclusive rights to the UEFA Champions League and the UEFA Europa League. The BT Sport channels are available on our cable network as well as our competitors' networks.

In this competitive market, Virgin Media is expanding its broadband network and promotes its 4K enabled Virgin Media V6 set-top box in the UK. In Ireland it offers Horizon TV and its functionalities (marketed as Virgin TV). The on-line streaming service Virgin TV Go is available throughout the Virgin Media footprint. In addition, Virgin Media's ability to include mobile for its U.K. and Ireland customers for a low incremental fee creating a fixed-mobile convergence bundle is a key market offer.

- Unitymedia. Unitymedia's primary competition is from FTA television received via satellite. Unitymedia's primary competitor for pay TV services is the IPTV services over VDSL and FTTx and DTH of the incumbent telecommunications operator, Deutsche Telekom. Deutsche Telekom's VDSL network covers approximately 68% of German homes and it continues to expand this coverage with plans to reach approximately 80% of German homes in 2018.

Deutsche Telekom offers competitively-priced bundles, including fixed-mobile convergence, and since 2016 became more aggressive on price, significantly lowering their promotional prices for double-play offers. In addition, Vodafone, also a competitor in Germany, bundles its IPTV service with its broadband offerings through Deutsche Telekom's DSL network under a resell agreement making it a significant competitor in the double-play and triple-play market in our footprint. It also has expanded its bundle offers to include mobile products. These converged offerings may enable Deutsche Telekom and Vodafone to reduce churn and attract new customers.

Deutsche Telekom and Professional Operators compete with Unitymedia for housing association contracts. Professional Operators typically procure the broadcast signals they distribute from Unitymedia or from FTA television received via satellite. Certain Professional Operators may also use such opportunities to build their own distribution networks or to install their own head-ends for receiving satellite signals.

To enhance its competitive position, Unitymedia offers Horizon TV and the Horizon family of products, including Horizon Go. It also makes mobile available creating converged bundles. Mobile customers receive a discount when they also subscribe to certain bundles.

- Telenet. Telenet's principal competitor is Proximus, the incumbent telecommunications operator, which has interactive digital television, replay television, VoD and HD service as part of its video offer, as well as a remote access service. Proximus offers customers a wide range of both individual and bundled services at competitive prices. Also, Telenet and other Belgian cable operators must give alternative providers access to their cable networks. Orange Belgium N.V. (**Orange Belgium**) gained such access in 2016 and currently offers its mobile subscribers a dual play bundle, including enhanced video and broadband internet services. Telenet may face increased competition from other providers of video services who take advantage of the wholesale access and may be able to offer triple- and quad-play services. For more information on wholesale access, see *Regulatory Matters—Belgium*.

In order to compete effectively against alternative providers, Telenet leverages its extensive cable network, the broad acceptance of its basic cable television services and Yelo Play and its additional features, such as HD and DVR functionality, VoD offerings and its *Play Sports* channel. Telenet is able to offer international, national, regional and local content, including Dutch-language broadcasts, to its subscribers. It is also using mobile services to drive its other products through its converged offerings. In addition, Telenet continues to enhance its Yelo Play app and programming, including extending its rights to the English Premier League through 2019 and the addition of other sports rights.

- UPC Switzerland. Our main competitor in Switzerland is Swisscom, the incumbent telecommunications operator, which provides IPTV services over DSL, VDSL and FTTx networks. Swisscom offers VoD services, DVR and replay functionality and HD channels, as well as the functionality to allow remote access to its video services, and has exclusive rights to distribute certain sports programming. To compete effectively in Switzerland, UPC Switzerland promotes Horizon TV and its family of products together with Replay TV and VoD, giving subscribers the ability to personalize their programming and viewing preferences. It also uses its high-speed internet of up to 50, 200 or 500 Mbps to promote its extended digital tier bundles.

Internet

With respect to broadband internet services and online content, our businesses face competition in a rapidly evolving marketplace from incumbent and non-incumbent telecommunications companies, mobile operators and cable-based ISPs, many of which have substantial resources. The internet services offered by these competitors include both fixed-line broadband internet services using cable, DSL or FTTx networks and wireless broadband internet services. These competitors have a range of product offerings with varying speeds and pricing, as well as interactive services, data and other non-video services offered to homes and businesses. With the demand for mobile internet services increasing, competition from wireless services using various advanced technologies is a competitive factor. In several of our markets, competitors offer high-speed mobile data via LTE wireless networks. In addition, other wireless technologies, such as WiFi, are available in almost all of our markets. In this intense competitive environment, speed and pricing are key drivers for customers.

Our strategy is speed leadership. Our focus is on increasing the maximum speed of our connections as well as offering varying tiers of service, prices and a variety of bundled product offerings and a range of value added services. We update our bundles and packages on an ongoing basis to meet the needs of our customers. Our top download internet speeds range from up to 300 Mbps in the U.K. and Austria to speeds of up to 500 Mbps available in Switzerland, Poland, Hungary, Romania, Slovakia and the Czech Republic. We use our ultra high-speed internet services with access to Community WiFi and competitively priced bundles to encourage customers from other providers to switch to our services. The focus is on high-end internet products to safeguard our high-end customer base and allow us to become more aggressive at the low- and medium-end of the internet market. By fully utilizing the technical capabilities of DOCSIS 3.0 technology on our cable systems, we can compete with local FTTx initiatives and create a competitive advantage compared to DSL infrastructures and LTE initiatives on a national level. With the commercial deployment of our next generation gateways that will enable DOCSIS 3.1 on our cable networks, we plan to further improve our high-speed internet offers.

Across Europe, our key competition in this product market is from the offering of broadband internet products using various DSL-based technologies by the incumbent phone companies and third parties. The introduction of cheaper and ever faster fixed-line broadband offerings is further increasing the competitive pressure in this market. Wireless broadband services, such as LTE, are also significant competitors using high-speed mobile networks. We are expanding our ultra high-speed services and increasing our download speeds. In most of our markets, we offer our internet service on a standalone basis or through bundled offerings that include video, fixed-line telephony and mobile services. Mobile data is also increasingly important and we are addressing this through our wide range of mobile products, including expanding our LTE service area and offering SIM-only mobile products, as well as expanding our Community WiFi network.

- Virgin Media. In the U.K., we have a number of significant competitors in the market for broadband internet services, including fixed-line incumbent telecommunications providers. Of these broadband internet providers, BT is the largest, which provides broadband internet access services to both its own retail customers and third-party retail providers over its own DSL network. BT has announced its intention to rollout ultrafast speeds of up to at least 300 Mbps by the end of 2020 to up to 10.0 million premises using G.fast technology, a DSL standard applied over copper local loops. BT has also announced that it intends to rollout a FTTx service supporting 1 Gbps to two million homes and businesses by 2020. As a result of these objectives, BT recently launched a range of ultrafast packages offering speeds of up to 150 Mbps and 300 Mbps, respectively, using a combination of G.fast and FTTx technology, which are currently available to 250,000 U.K. homes.

Operators such as Sky and TalkTalk deploy their own network access equipment in BT exchanges via a process known as local loop unbundling (LLU). This allows an operator to reduce the recurring operating costs charged by BT by reducing the proportion of traffic that must travel directly over BT's network. LLU deployment requires a substantial capital investment to implement and requires a large customer base to deliver a return on investment. In addition to the competition and pricing pressure in the broadband market arising from LLU, competition from mobile broadband developments, such as LTE mobile services and WiFi services, is significant. Mobile providers continue to gain market share from fixed-line providers. These providers offer a range of mobile services.

- **Unitymedia.** In Germany, the market for broadband internet services is highly competitive. For broadband internet access, DSL is the dominant technology and Deutsche Telekom is the primary provider. Other major competitors to our services are resellers of Deutsche Telekom's DSL and VDSL services. We also face increased competition from mobile broadband operators, including Deutsche Telekom, and other network providers, many of which offer mobile services through LTE wireless systems and are increasing their coverage areas. Deutsche Telekom plans to cover approximately 80% of German homes with its VDSL network by 2018. Within its footprint, Deutsche Telekom is implementing vectoring technology, which increases broadband speeds to up to 100 Mbps from the current speeds of up to 50 Mbps. Deutsche Telekom further announced its ambition to implement super vectoring technology, enhancing broadband speeds to up to 250 Mbps. With its (vectoring) VDSL expansion plan, competition from Deutsche Telekom will increase.
- **Telenet.** In the Flanders region of Belgium, Telenet is the leading provider of residential broadband internet services. Telenet's primary competitor is the DSL service provider Proximus. Proximus is a well-established competitor offering quad-play bundles. Proximus' DSL and VDSL service provide download speeds up to 100 Mbps. Mobile broadband penetration is increasing as well, reaching nearly 66% of the total population based on the BIPT 2016 Annual Report. Similar to its video services, Telenet faces competition in the provision of internet services from other providers who have wholesale access to Telenet's cable network. Through such access, Orange Belgium currently offers its mobile subscribers a dual-play bundle including enhanced video and broadband internet services. In this competitive market, Telenet is using its fixed-mobile converged offers to promote its internet and other services.
- **UPC Switzerland.** In Switzerland, Swisscom is the largest provider of broadband internet services, and is our primary competitor. Swisscom internet customers have access to its basic video content free of charge through its internet portal. It is also expanding its FTTx network and rolling out G.fast technology. At year end 2016, it had 2.5 million new connections through these technologies. Swisscom offers download speeds ranging from 40 Mbps to up to 1 Gbps. Swisscom's internet speeds include 40 Mbps to 100 Mbps on its VDSL network and up to 1 Gbps in areas served by its FTTx network. Swisscom continues to expand its FTTx network to Switzerland households in our footprint, as well as in our partner network footprints. It has built its FTTH network in several cities in cooperation with municipality-owned utility companies and, where no cooperation agreement has been reached, Swisscom is building its own FTTH network. With respect to subscribers on partner networks, UPC Switzerland competes with other service providers for the contracts to serve these subscribers. In this competitive market, UPC Switzerland increased its introductory speed to 50 Mbps and is promoting its broadband services through its bundled offers.

Mobile and Telephony Services

Consumers are increasingly moving to mobile services. In Belgium, as a mobile network operator, and in the U.K. through an MVNO arrangement, we are one of the largest mobile providers in each of these countries based on number of SIM cards. In our other European markets, however, we currently have minimal mobile presence. In the markets where we are a large mobile provider, we continue to seek additional bandwidth to deliver our wide range of services to our customers and increase our LTE services. Where we are a small mobile provider, we face significant competition from other mobile telephony providers, many of whom offer LTE services and are making significant advances in obtaining customers. In all of our markets competition is intense. We offer various calling plans, such as unlimited network, national or international calling, unlimited off-peak calling and minute packages, including calls to fixed and mobile phones. In addition, we use our bundled offers with our video and ultra high-speed internet services to gain mobile subscribers. Our ability to offer fixed-mobile convergence services is a key driver. In several of our markets we provide converged services, including mobile, fixed-line, broadband and video. We are also exploring opportunities to offer mobile services in our other markets and mobility applications to our other services.

The market for fixed-line telephony services is mature in almost all of our markets. Changes in market share are driven by the combination of price and quality of services provided and the inclusion of telephony services in bundled offerings. Our fixed-line telephony services compete against the incumbent telecommunications operator in the applicable market. In these markets, the operators have substantially more experience in providing fixed-line telephony and mobile services, greater resources to devote to the provision of fixed-line telephony services and long-standing customer relationships. In all of our markets, we also compete with other VoIP operators offering service across broadband lines. OTT telephony is also a competitive factor. Our businesses also face competition from other cable telephony providers, FTTx-based providers or other indirect access providers.

Competition in both the residential and business fixed-line telephony markets is extremely competitive due to market trends, the offering of carrier pre-select services, number portability, the replacement of fixed-line with mobile telephony and the growth of VoIP services, as well as continued deregulation of telephony markets and general price competition. Carrier pre-select allows the end user to choose the voice services of operators other than the incumbent while using the incumbent's network. Our fixed-line telephony strategy is focused around value leadership, and we position our services as "anytime" or "any destination". Our portfolio of calling plans include a variety of innovative calling options designed to meet the needs of our subscribers. In many

of our markets, we provide product innovation, such as telephone apps that allow customers to make and receive calls from their fixed-line call packages on smart phones. In addition, we offer varying plans to meet customer needs and, similar to our mobile services, we use our telephony bundle options with our digital video and internet services to help promote our telephony services and flat rate offers are standard.

The incumbent telecommunication companies remain our key competitors but mobile operators and other VoIP operators, including ISPs, offering service across broadband lines are also significant competitors in these markets. Due to the maturity of the telephony market, competition is particularly intense in all our markets with price often the deciding factor. To maintain or increase market share, we and our competitors focus on bundling telephony services with quality broadband offerings and other services. In each of our markets, we face competition with a dominant fixed-line telephony provider, most of which also have competitive mobile offers based on LTE services. In our largest markets, the key dominant telephony providers are BT (UK), Deutsche Telekom (Germany), Proximus (Belgium) and Swisscom (Switzerland). These telephony competitors are also the largest mobile operators in these markets based on number of SIM cards, except in Germany where Telefonica O2 is the largest. These competitors include their mobile products in bundles with fixed-line services. Generally, we expect telephony markets to remain extremely competitive.

Regulatory Matters

Overview

Video distribution, broadband internet, fixed-line telephony and mobile businesses are regulated in each of the countries in which we operate. The scope of regulation varies from country to country, although in some significant respects regulation in European markets is harmonized under the regulatory structure of the European Union (E.U.).

Adverse regulatory developments could subject our businesses to a number of risks. Regulation, including conditions imposed on us by competition or other authorities as a requirement to close acquisitions or dispositions, could limit growth, revenue and the number and type of services offered and could lead to increased operating costs and property and equipment additions. In addition, regulation may restrict our operations and subject them to further competitive pressure, including pricing restrictions, interconnect and other access obligations, and restrictions or controls on content, including content provided by third parties. Failure to comply with current or future regulation could expose our businesses to various penalties.

Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the U.K. are the Member States of the E.U. as of December 31, 2017. As such, these countries are required to harmonize certain of their laws with certain E.U. rules. In addition, other types of E.U. rules are directly enforceable in those countries without any implementation at the national level. Certain E.U. rules are also applicable across the European Economic Area, whose Member States are the E.U. Member States (excluding Croatia) as well as Iceland, Liechtenstein and Norway as of December 31, 2017.

On June 23, 2016, the U.K. held a referendum in which U.K. citizens voted in favor of, on an advisory basis, an exit from the E.U. commonly referred to as “**Brexit**”. The terms of Brexit are subject to a negotiation period that could take until March 2019. The potential impacts, if any, of the uncertainty relating to Brexit or the resulting terms of Brexit on the free movement of goods, services and people and capital between the U.K. and the E.U., customer behavior, economic conditions, interest rates, currency exchange rates, availability of capital or other matters are unclear. In addition, the value of the British pound sterling relative to the U.S. dollar remains at levels that are significantly below pre-Brexit levels. The effects of Brexit could adversely affect our business, results of operations and financial condition.

In the broadcasting and communications sectors, there has been extensive E.U.-level legislative action. As a result, most of the markets in Europe in which our businesses operate have been significantly affected by the regulatory framework that has been developed by the E.U. Regulation in Switzerland, which is not a Member State of the E.U. and is not part of the European Economic Area, is discussed separately below, as well as regulation in certain Member States in which we face regulatory issues that may have a material impact on our business.

E.U. Communications Regulation

The body of E.U. law that deals with communications regulation consists of a variety of legal instruments and policies (collectively, the **Regulatory Framework**). The key elements of the Regulatory Framework are various legal measures and directives that require Member States to harmonize their laws, as well as certain other instruments and regulations that have direct effect without any specific adoption at the national level.

The Regulatory Framework primarily seeks open communication services in markets within Europe. It harmonizes the rules within the E.U. for the establishment and operation of electronic communication networks, including cable television and traditional telephony networks, and the offer of electronic communication services, such as telephony, internet and, to some degree, television services.

Set forth below are certain key provisions included in the current Regulatory Framework, as revised. This description is not intended to be a comprehensive or exhaustive description of all regulation in this area.

- Licensing and Exclusivity. The Regulatory Framework requires Member States to abolish exclusivities on communication networks and services in their territory and allow operators into their markets based on a simple registration. The Regulatory Framework sets forth an exhaustive list of conditions that may be imposed on communication networks and services. Possible obligations include, among other things, financial charges for universal service or for the costs of regulation, environmental requirements, data privacy and other consumer protection rules, “must carry” obligations, provision of customer information to law enforcement agencies and access obligations.
- Significant Market Power. Certain of the obligations allowed by the Regulatory Framework apply only to operators or service providers with “**Significant Market Power**” (defined below) in a relevant market. For example, the provisions of the Access Directive allow the National Regulatory Authority (NRA) in E.U. Member States to mandate certain access obligations only for those operators and service providers that are deemed to have Significant Market Power. For purposes of the Regulatory Framework, an operator or service provider will be deemed to have Significant Market Power where, either individually or jointly with others, it enjoys a position of significant economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and consumers.

As part of the implementation of certain provisions of the Regulatory Framework, each Member State’s NRA is required to analyze certain markets predefined by the European Commission to determine if any operator or service provider has Significant Market Power. The European Commission has currently recommended that there be four such predefined markets, which are subject to periodic review. NRAs may, however, perform analysis of markets not listed in the recommendation, which requires the NRA to prove that additional requirements, the so called three-criteria test, are met.

NRAs might seek to define us as having Significant Market Power in any of these predefined markets or they may define and analyze additional markets. In the event that we are found to have Significant Market Power in any particular market, an NRA could impose certain conditions on us. Under the Regulatory Framework, the European Commission has the power to veto a finding by an NRA of Significant Market Power (or the absence thereof), which power also applies with respect to market definition, in any market, regardless of whether it is a market predefined by the European Commission or an additional market defined by an NRA. We have been found to have Significant Market Power in certain markets in which we operate and further findings of Significant Market Power are possible. In particular, we have been found to have Significant Market Power in the market for termination of calls on our network.

- Video Services. The regulation of distribution, but not the content, of television services to the public is harmonized by the Regulatory Framework. Member States are allowed to impose on certain operators under their jurisdiction reasonable must carry obligations for the transmission of specified radio and television broadcast channels. Such obligations are required to be based on clearly defined general interest objectives, be proportionate and be transparent and subject to periodic review. We are subject to must carry regulations in all markets in which we operate. Must carry regulations are significantly different among Member States. In some cases, these obligations go beyond what we believe is allowable under the Regulatory Framework. To date, however, the European Commission has taken very limited steps to enforce E.U. law in this area, leaving must carry obligations intact in certain Member States. We do not expect the European Commission or the Member States to curtail such obligations in the foreseeable future.
- Net Neutrality/Traffic Management/Roaming. In October 2015, the European Parliament adopted the regulation on the first E.U.-wide net neutrality regime. The regulation, which is directly applicable in all Member States, permits the provision of specialized services, optimized for specific content and subjects operators to reasonable traffic management requirements. The regulation also abolished roaming tariffs beginning in June 2017.

On May 6, 2015, the European Commission published its Digital Single Market strategy document. The strategy is an aggregation of many different policy areas with the purpose of creating a digital single market to expand jobs and stimulate growth. The strategy includes policy review in the areas of E.U. communications regulation, broadcasting law, copyright reform and anti-competitive geo-blocking practices.

On September 14, 2016, the European Commission published a proposal for the European Electronic Communications Code, which would replace the Regulatory Framework. The proposal recognizes the need for greater incentives to boost private sector

investment in very high capacity networks. The proposal maintains the key elements of the Regulatory Framework, notably market analysis with remedies only being imposed on operators with Significant Market Power. The European Council and European Parliament are discussing other forms of access—extending the system of symmetrical access powers and the notion of joint Significant Market Power. The proposal captures all types of services that are relevant to consumers, not only the traditional electronic communication services as captured under the current Regulatory Framework but also OTT services. The proposal brings greater harmonization to the timetables for spectrum licensing and renewal that will encourage investment in mobile networks and will result in more advanced services. The negotiations among the European Commission, European Council and European Parliament on the proposal are currently in process. The adoption of the proposal for the European Electronic Communications Code and its implementation in to national laws by Member States is not expected before the third quarter of 2018.

Broadcasting Law

Although the distribution of video channels by a cable operator is within the scope of the Regulatory Framework, the activities of a broadcaster are harmonized by other elements of E.U. law, in particular the Audiovisual Media Services Directive (**AVMS**). Generally, broadcasts originating in and intended for reception within an E.U. Member State must respect the laws of that Member State. Pursuant to AVMS, however, E.U. Member States are required to allow broadcast signals of broadcasters established in another E.U. Member State to be freely transmitted within their territory, so long as the broadcaster complies with the law of their home state. This is referred to as the country of origin principle. Under AVMS, the country of origin principle applies also to non-linear services, such as VoD. Accordingly, we should be able, if we so elect, to offer our own VoD services across the European Economic Area based on the regulation of the country of origin. As a result, we could structure our business to have a single regulatory regime for all of our VoD services offered in Europe. In addition, when we offer third-party VoD services on our network, it should be the business of the third-party, in its capacity as provider of the services, and not us as the local distributor, that is regulated in respect of these services.

AVMS also establishes quotas for the transmission of European-produced programming and programs made by European producers who are independent of broadcasters.

In May 2016, as part of its Digital Single Market strategy, the European Commission proposed revisions to the AVMS. The proposal maintains key elements of AVMS, notably the country of origin principle and European works quota. The adoption of the proposal for the revision of the AVMS is expected in mid-2018. Once adopted, its implementation into national laws by Member States will take place 12 to 24 months thereafter.

According to the regulation of the European Commission addressing the portability of online audiovisual content services adopted in June 2017 and effective in April 2018, commercial providers of online content services (including OTT service providers) are required to enable subscribers who are temporarily present in any Member State with access and use of online content services in substantially the same manner as in the Member State of residence.

Other European Level Regulation

In addition to the industry-specific regimes discussed above, our operating companies must comply with both specific and general legislation concerning, among other matters, data retention and electronic commerce. In December 2015, the E.U. approved the E.U. General Data Protection Regulation (**GDPR**) with respect to data protection and retention. The GDPR enhanced existing legal requirements through several new rules and includes stiff penalties for organizations that fail to comply. The GDPR will be directly applicable in all Member States commencing in 2018. In addition, following the adoption of the GDPR, the European Commission published on January 11, 2017 a proposal for an e-Privacy regulation, replacing the current e-Privacy Directive that regulates privacy related issues in the electronic communications sector. The adoption of this proposal is not expected before June 2018.

Our operating companies are also subject to both national and European level regulations on competition and on consumer protection, which are broadly harmonized at the E.U. level. For example, while our operating companies may offer their services in bundled packages in European markets, they are sometimes not permitted to make a subscription to one service, such as cable television, conditional upon a subscription to another service, such as telephony. They may also face restrictions on the degree to which they may discount certain products included in the bundled packages.

The European Commission is imposing more mandatory requirements and encouraging voluntary solutions regarding energy consumption of the telecommunications equipment we provide our customers. We have been participating in discussions and studies regarding energy consumption with the European Commission and with experts working on their behalf. In addition, we are working with suppliers of our digital set-top boxes to lower power consumption, as well as looking at possibilities through software to lower the power consumption of the existing fleet of digital set-top boxes. We also worked with a large group of companies to create a voluntary agreement on set-top box power consumption as an alternative to regulation, which has been

formally recognized by the European Commission. Nevertheless, legislation in this area may be adopted that could adversely affect the cost and/or the functionality of equipment we deploy to customers.

Pursuant to an E.U. Regulation on standby power (the **Standby Regulation**), many devices are required to have either a low power standby mode or off mode, unless it is inappropriate to have either such mode on the device. Furthermore, the Networked Standby amendment to the Standby Regulation, effective as of January 1, 2015, regulates, among others, the maximum power consumption of networked consumer equipment while in the so-called “Networked Standby” mode. As a result, all of the devices we purchase and/or develop, including Horizon TV set-top boxes, Connect Boxes and certain other equipment, operate under the power management requirements of the Standby Regulation.

As part of the E.U.’s Radio Spectrum Policy Program, spectrum made available through the switch off of analog television has been approved for mobile broadband use beginning January 1, 2013. This spectrum, known as the “digital dividend”, is in the 700 - 862 MHz band. The terms under which this spectrum will become available will vary among the European countries in which we operate. Certain uses of this spectrum may interfere with services carried on our cable networks. If this occurs, we may need to: (1) avoid using certain frequencies on our cable networks for certain or all of our services, (2) make some changes to our networks, or (3) change the equipment that we deploy. In approving mobile broadband, however, the Radio Spectrum Policy Program states that the new mobile services must co-exist with existing services, such as cable and DTT, to avoid harmful interference. As a result, we are in ongoing discussions with relevant Member States and the European Commission to be included in LTE mobile trials in order to develop mitigation techniques and to engage NRAs to launch regulatory dialog with equipment manufacturers and mobile operators to develop co-existing networks. We have also requested Member States and the European Commission to prepare comprehensive national impact assessments when spectrum conditions are changed to ensure that the costs to prevent interference between the various services are balanced.

United Kingdom

In the U.K., the Regulatory Framework is implemented through (1) the Communications Act 2003, which regulates all forms of communications technology, whether used for telecommunications or broadcasting, and (2) the Wireless Telegraphy Act 2006, which regulates radio communications in the U.K. (including spectrum, licensing arrangements, usage conditions and charges, license bidding and trading and enforcement and penalties). In addition, the Privacy and Electronic Communications Regulations 2003, as amended, implemented E.U. Directive 2002/58, which regulates the processing of personal data and the protection of privacy in the electronic communications sector.

Telecommunications companies in the U.K., including Virgin Media, are also subject to regulation under the U.K. Broadcasting Acts 1990 and 1996 and other U.K. statutes and subordinate legislation, including the Competition Act 1998, the Enterprise Act 2002 and the Enterprise and Regulatory Reform Act 2013. The U.K. Office of Communications (**Ofcom**) regulates both linear and on-demand programming, with regulatory requirements derived from the AVMS.

Ofcom is the key regulatory authority for the communications sector in which Virgin Media operates in the U.K. It is responsible for furthering the interests of citizens in relation to communications matters and furthering the interests of consumers in relevant markets where appropriate by promoting competition. From April 1, 2017, Ofcom also assumed the responsibilities of regulating the BBC, a role previously undertaken by the BBC Trust. The U.K. Competition and Markets Authority has jurisdiction with respect to competition matters.

Broadband Expansion. At the end of 2017, super-fast broadband was available to almost 95% of the U.K. population. The U.K. government plans to reach 98% of the population by 2020. To stimulate private investment in this endeavor, the U.K. government is using money from the publicly funded BBC license fee, under-spend from the Analogue TV Switch-Off Project and other sources of public investment. The state aid measure permitting this subsidy was renewed (and amended) in 2016 and is expected, through amendments to its “underspend” provisions, to result in up to an additional 1% to 2% super-fast coverage.

The U.K. government supports the market rollout of full fiber and 5G services. Such support includes public funding for the creation of a match-funded “full fiber deployment” fund, business rate relief for the deployment of new full fiber networks and public funding for a strategic program of full fiber and 5G trials. As a result, the U.K. government’s November 2017 budget includes £190.0 million (\$257.0 million) for the first and second phases of its local full fiber deployment fund and £160.0 million (\$216.4 million) for the first phase of the 5G trials. The Telecommunications Infrastructure Bill, which establishes the funding for these objectives, is expected to receive Royal Assent in early 2018. This will give effect to the U.K. government’s plans to provide full business rate relief for new fiber infrastructure built for the 2017-2022 rating period. Secondary legislation is expected to follow, which will define what network assets are in scope. The U.K. government also announced in November 2017, a Telecoms Market Review to explore whether the conditions for investment in fiber are optimal in the U.K. and what policy changes it should consider to encourage greater investment in new digital infrastructure. The results of the review are expected in mid-2018.

In November 2015, the U.K. government announced that everyone will, by 2020, have a legal right to request a broadband connection of at least 10 Mbps regardless of where they live. The government intends to achieve this by introducing a broadband Universal Service Obligation (USO). The USO is aimed, in particular, at addressing the final 5% of the population in the U.K. without access to a broadband connection of a reasonable speed. The U.K. government introduced legislation in July 2017, to facilitate the introduction of a broadband USO in conjunction with the effect of the relevant provisions of the Digital Economy Act 2017. At the same time, BT made an alternative offer to invest approximately £600.0 million (\$811.5 million) to provide ubiquitous minimum broadband speeds of 10 Mbps by 2022. The U.K. government formally rejected BT's proposal in December 2017, favoring the imposition of a regulated USO. The U.K. government is expected to set out the design for the USO in secondary legislation in early 2018, with Ofcom's implementation expected to take two years from that point.

Television and VoD Services. In the U.K., Virgin Media is required to hold individual licenses under the Broadcasting Acts 1990 and 1996 for any television channels (including Barker channels and any electronic programme guides), which Virgin Media owns or operates and for the provision of certain other services on its cable television platform, such as electronic program guides. These television licensable content service (TLCS) licenses are granted and administered by Ofcom. Under these licenses, each covered service must comply with a number of Ofcom codes, including the Broadcasting Code, and with all directions issued by Ofcom. Breach of any of the terms of a TLCS license may result in the imposition of fines on the license holder and, ultimately, the license being revoked.

As a provider of an on-demand program service (ODPS), Virgin Media must comply with a number of statutory obligations in relation to "editorial content" and notify Ofcom of its intention to provide an ODPS. Failure to notify Ofcom or comply with the relevant statutory obligations may result in the imposition of fines or, ultimately, the prohibition on providing an ODPS.

Strategic Review of Digital Communications. In March 2015, Ofcom launched a strategic review of U.K. digital communications. A discussion document was published in July 2015, inviting stakeholder comment and input. Key focus areas of Ofcom were: investment and innovation, delivering widespread availability of services; sustainable competition; empowering consumers; and, targeted regulation where necessary and deregulation elsewhere. Virgin Media responded to the discussion document emphasizing the importance of investment for competition, innovation and consumer interest. A key area of consideration was the future regulatory treatment of BT, in particular whether BT should be fully (structurally) separated, with the Openreach network division becoming a separate, independent company. Openreach is the operator of the backbone of Britain's broadband internet network.

An "emerging thinking" document was published on February 25, 2016, setting out conclusions and Ofcom's proposed policy position relating to a number of aspects of the U.K. regulatory regime. Key conclusions included: no structural separation of BT at the present time; an intention to improve quality of service across all providers; a requirement for BT to enhance its wholesale duct and pole access product; and an intention to advance further consumer protection measures. These will be implemented through forthcoming market reviews and other specific activity.

On November 29, 2016, Ofcom issued an update on its plans to reform Openreach, stating that it intended to proceed with a formal notification to the European Commission to require the legal separation of Openreach from BT. In March 2017, Ofcom announced that it had reached a voluntary agreement with BT for the legal separation of Openreach. This means that Openreach will become a distinct company with its own staff and management, together with its own strategy and budget and a legal purpose to serve all of its customers equally. Assets will be controlled by Openreach, including the physical access network. Under the terms of the voluntary agreement, Openreach will be obliged to consult formally with customers, such as Sky, TalkTalk and Vodafone on large-scale investments. As a result of reaching a voluntary agreement, Ofcom will no longer need to impose these changes through regulation or seek the approval of the European Commission. To reach the agreement, the existing Crown Guarantee has been maintained in respect of the BT pension scheme. In addition, Ofcom released BT from its previous undertakings once its new commitments are fully in place and setting out how compliance with the new arrangements will be measured.

Regulation of Broadband Markets. In 2017, Ofcom commenced its next triennial review of the Fixed Access markets, including the Wholesale Local Access market (incorporating physical or passive network access via methods such as LLU and duct access) and the Wholesale Broadband Access market (virtual or active network access via methods such as provision of wholesale managed service products). A key area of focus is the regulation of BT's FTTx based wholesale products (specifically the pricing thereof) and improving the existing physical infrastructure access (allowing third parties access to BT's duct and pole estate). This followed Ofcom's issuance on December 6, 2016, of a consultation on making the physical infrastructure access remedy more effective. Ofcom is expected to publish its final statement on its Fixed Access markets review in early 2018, with new measures taking effect on April 1, 2018.

Ofcom Review of Business Connectivity Markets. Ofcom concluded its latest review of the U.K. business connectivity markets (leased lines and dedicated business connections, among others) in the spring of 2016. Ofcom found BT held Significant Market Power in certain markets and proposed consequential regulatory remedies. These remedies included an obligation on BT to provide

access to its dark fiber. BT, CityFibre and TalkTalk appealed Ofcom's decision, with Virgin Media intervening. In July 2017, the Competition Appeal Tribunal found against Ofcom on all grounds and remitted the matter back to Ofcom for reconsideration. In response, Ofcom published the following on November 23, 2017: (1) a statement introducing a new market for business circuits at 1 Gbps and below, with "standard" remedies (including charge controls) imposed on BT; and (2) a consultation on the introduction of a dark fiber remedy in this new market. Ofcom's consultation period closed on December 29, 2017, and a statement by Ofcom is expected early in 2018.

Mobile Service. As an MVNO, Virgin Media is subject to E.U. regulations relating to retail prices for roaming services. These regulations: set limits on certain wholesale and retail tariffs for international mobile voice roaming, SMS tariffs and data roaming within the E.U.; provide for greater levels of transparency of retail pricing information; impose measures to guard against bill shock in respect of data roaming; and set maximum roaming rates within the E.U. Effective June 2017, the E.U. abolished roaming tariffs.

Mobile termination charges applied by mobile network operators are regulated by Ofcom under a Significant Market Power charge control condition. Under Virgin Media's MVNO agreement, these changes in mobile termination charges are passed on to Virgin Media. Ofcom has set mobile termination charges for the period of 2015-2018, with rates reducing to approximately half of their starting levels by the end of this period. As a result, Virgin Media has experienced a reduction in revenue from such charges, although with some off-setting reductions in cost.

Fixed voice termination. Virgin Media has been designated as a provider with Significant Market Power on fixed voice termination. As a result, the rates it charges other providers for termination on its network are subject to regulation. This requires, among other things, the provision of termination on fair and reasonable terms, conditions and charges, which must be no higher than BT's regulated charges, unless certain conditions are met. Ofcom commenced a review of mobile termination charges in June 2017 and has proposed that, in the U.K., mobile call termination remain regulated, with the majority of providers subject to at least some obligations. Ofcom is expected to publish its final statement in the first quarter of 2018.

Germany

Germany has incorporated the E.U. laws into national laws, although under the German legal system competency is split between the Federal State (telecommunication law) and the German federal states (Bundesländer) (media law). The German Telecommunications Act broadly implemented the Regulatory Framework and covers the distribution of any signal by telecommunications networks encompassing television signals, internet data and telephony. The German Federal Network Agency (Bundesnetzagentur) is responsible *inter alia* for the regulation of the German telecommunications market. The Federal Cartel Office (the **FCO**), the national competition authority (Bundeskartellamt), plays an important role with respect to infrastructure and media regulation. The FCO has powers to address competition issues in all markets, although in some cases, competition issues will be addressed by the German Federal Network Agency.

Regulation of the media falls within the authority of the German federal states (Bundesländer). The media laws of all 16 federal states have been partially harmonized by the State Broadcasting Treaty (Rundfunkstaatsvertrag). The State Broadcasting Treaty establishes the main framework of the German regulation of broadcast. Nearly every German state has established its own independent regulatory body, the state media authority (Landesmedienanstalt) for the regulation of the private broadcasting sector. The state media authorities are primarily responsible for licensing and supervision of commercial broadcasters and the allocation of transmission capacities for radio and television channels. They also have authority with respect to the regulation of channel carriage fees, conditional access systems, interfaces, electronic programming guides, the bundling of programs and price regulation.

The allocation and use of analog cable transmission capacities for both radio and television channels in Germany is governed by the must carry rules of the respective German federal states. The allocation of digital transmission capacities for digital television and radio channels is primarily governed by the must carry rules of the State Broadcasting Treaty. Unitymedia has ceased the distribution of analog television channels in June 2017, but still continues to carry analog radio channels. Therefore, the media law in the states of Baden-Württemberg, North Rhine-Westphalia and Hesse, where Unitymedia operates, requires Unitymedia to carry several analog radio channels, until Unitymedia decides to cease distribution of analog radio channels.

The operation of conditional access systems for television services is governed by both the State Broadcasting Treaty and the German Telecommunications Act. Generally, operators must not unfairly obstruct or discriminate against broadcasters and other content providers through conditional access systems.

Unitymedia has been declared an operator with Significant Market Power on the market for call termination on an individual fixed public telephone network. Since November 2013, reciprocal termination rates for exchanging calls via Unitymedia's IP-interface have been imposed, which results in Unitymedia, like every other telecommunications provider in Germany, charging the interconnection rate of the incumbent telecommunications operator, Deutsche Telekom, when receiving traffic via the IP-

interface. The level of termination rates applicable to Unitymedia with respect to calls terminating on its IP-interface is currently set at €0.1 cents/minute, which rate will expire on December 31, 2018.

Belgium

Belgium has broadly transposed the Regulatory Framework into law. According to the electronic communications law of June 13, 2005, the Belgisch Instituut voor Post en Telecommunicatie (the **BIPT**), the Belgian NRA, should perform a market analysis to determine which, if any, operator or service provider has Significant Market Power. In addition, the Federal Parliament prepared legislation to transpose the 2009 revisions to the Regulatory Framework, which became effective as of August 4, 2012.

Telenet has been declared an operator with Significant Market Power on the market for call termination on an individual fixed public telephone network. Since April 1, 2012, reciprocal termination rates have been imposed, which results in Telenet charging the interconnection rate of the incumbent telecommunications operator, Proximus. Following a court annulment of a final decision on wholesale tariffs issued by BIPT in 2016, BIPT issued a new draft decision in 2017 that proposes a wholesale tariff of €0.103 cents per minute, subject to public comment.

Although no determination has been made on whether Telenet, as an MVNO, has Significant Market Power on the market for call termination on individual mobile networks, its rates have been affected by rate limitations implemented by BIPT. As of January 1, 2013, mobile termination rates have been set by BIPT at €1.08 cents per minute, and to date, 2015 rates have not been set. In May 2017, BIPT published its latest decision on the relevant market for “call termination on individual mobile networks”. Telenet, as a mobile network operator, has also been designated in the draft decision as having Significant Market Power by BIPT. In the draft decision, BIPT adopts a bottom-up long run incremental cost model to calculate tariffs for call termination on individual mobile networks, resulting in a nominal value of €0.99 cents per minute as of July 1, 2017.

In 2011, BIPT and the regional regulators for the media sectors (together, the **Belgium Regulatory Authorities**) found Telenet to have significant market power in the broadcasting market (the **2011 Decision**). The 2011 Decision imposed on Telenet an obligation to provide third-party operators, at specified tariff rates, with (1) a resale offer of an analog television package, (2) access to digital television platforms and (3) a resale offer of broadband internet access in combination with the digital television access obligation. We refer to the tariff portion of the 2011 Decision as the “**Retail Minus Rules**”. On November 12, 2014, the 2011 Decision was upheld by the Court of Appeal, and the Court of Appeal also accepted Proximus’ claim that Proximus should be allowed access to the digital television platforms of other operators, including Telenet, for the purpose of reselling bundles of digital video and broadband internet services. On November 30, 2015, Telenet filed an appeal of the Court of Appeal’s ruling with the Belgian Supreme Court. As required by the 2011 Decision, Telenet has implemented the access obligations at the rates specified by the Retail Minus Rules, and on March 1, 2016, Orange Belgium launched a commercial offer combining a cable TV package with broadband internet access for certain of their mobile customers. On October 2, 2017, in a separate action, the Court of Appeal annulled the Retail Minus Rules, but maintained the effects of the Retail Minus Rules until April 30, 2018. Accordingly, as of May 1, 2018, the tariff rates for Telenet’s resale obligations will be unregulated until a new decision from the Belgium Regulatory Authorities is adopted.

On July 7, 2017, the Belgium Regulatory Authorities published a draft market review decision (the **2017 Draft Decision**) that, once adopted, will replace the 2011 Decision. The 2017 Draft Decision proposed a finding of significant market power of Telenet in the wholesale broadband market. Proposed obligations include (1) providing third-party operators with access to the digital television platform (including basic digital video and analog video) and (2) making available to third-party operators a bitstream offer of broadband internet access (including fixed voice as an option). The 2017 Draft Decision is expected to be submitted to the European Commission in the first quarter of 2018. Telenet considers the 2017 Draft Decision to be inconsistent with the principle of technology-neutral regulation and the European Single Market Strategy to stimulate further investments in broadband networks.

The 2011 Decision and the 2017 Draft Decision aim to, and in their application, may strengthen Telenet’s competitors by granting them resale access to Telenet’s network to offer competing products and services notwithstanding Telenet’s substantial historical financial outlays in developing the infrastructure. In addition, any resale access granted to competitors could (1) limit the bandwidth available to Telenet to provide new or expanded products and services to the customers served by its network and (2) adversely impact Telenet’s ability to maintain or increase its revenue and cash flows. The extent of any such adverse impacts ultimately will be dependent on the extent that competitors take advantage of the resale access afforded to Telenet’s network, the rates that Telenet receives for such access and other competitive factors or market developments.

Switzerland

Switzerland has a regulatory system that partially reflects the principles of the E.U., but otherwise is distinct from the European regulatory system of telecommunications. The Telecommunications Act (*Fernmeldegesetz*) regulates, in general, the transmission

of information, including the transmission of radio and television signals. Most aspects of the distribution of radio and television, however, are regulated under the Radio and Television Act (*Bundesgesetz über Radio und Fernsehen*). In addition, the Competition Act, the Data Protection Act and the Act on the Surveillance of Post and Telecommunications are potentially relevant to our business. With respect to energy consumption of electronic home devices, the Energy Act and the Energy Ordinance are applicable to set-top boxes.

Under the Telecommunications Act, any provider of telecommunication services needs to register with the Federal Office of Communications. Dominant providers have to grant access to third parties, including LLU access; however, it is restricted to the copper wire network of the incumbent, Swisscom. Therefore, such unbundling obligations do not apply to our business in Switzerland and other cable operators. Also, any dominant provider has to grant access to its ducts, subject to sufficient capacity being available in the relevant duct. At this time, only Swisscom has been determined to be dominant in this regard. Dominant operators are obliged to provide interconnection and all providers of services forming part of the universal service in Switzerland have to ensure interoperability of services.

In regards to call termination as part of interconnection agreements, Swisscom as market dominant provider, must offer these services at cost-oriented prices and disclose the conditions and prices for their individual access services. In interconnection agreements with Swisscom, reciprocal termination rates are imposed.

In September 2017, a draft of the revised Telecommunications Act was published by the Federal Council. They plan to introduce measures to allow for easier access to the incumbent's network, better consumer and youth protection measures (such as decreasing roaming fees, measures to prevent spoofing) and a change to the regulatory regime giving the Federal Communications Commission partial *ex officio* rights to impose obligations on market dominant providers. In terms of net neutrality, the draft foresees more transparency for the customer—he/she must be informed of traffic if treated unequally. The proposal is now subject to parliamentary debates and will not be legally binding prior to 2020.

Under the Radio and Television Act and the corresponding ordinance, cable network operators are obliged to distribute certain programs that contribute in a particular manner to media diversity. The Federal Government and the Federal Office of Communications can select up to 25 programs that have to be distributed without the cable operator being entitled to compensation.

Public Service broadcasters in Switzerland (SRG and regional channels) are currently funded through both public funds (TV license fee called BILLAG) and commercial advertising revenue. This model is currently being challenged by a group that started an initiative to abolish the license fee. In March 2018, the Swiss population will vote on this matter. If the initiative gets accepted, this would change the Swiss TV landscape significantly.

In September 2016, the Intelligence Agencies Act was approved by the Swiss population and became effective in September 2017. For Telecommunications service providers, the Intelligence Agencies Act set forth new obligations regulating cable traffic.

The revised version of the Data Protection Act foresees more transparency regarding the processing of data. One example is by reinforcing the information duties when processing personal data. Furthermore, the new version follows the developments in the E.U. This revised version was subject to public consultation until April 2017. The Federal Council published the draft in September 2017. It is now up for discussion in parliament.

The Netherlands

The Netherlands' electronic communications law broadly implements the Regulatory Framework. Pursuant to the electronic communications law, the Autoriteit Consument & Markt (**ACM**), the Netherlands NRA, performed a market analysis to determine which, if any, operator or service provider has Significant Market Power. In December 2011, ACM completed its analysis of the television market and concluded that there were no grounds for regulation of that market. As a result, no new regulations relating to the television market may be proposed without a new analysis. Similar to our other operations, VodafoneZiggo JV is subject to must carry obligations, including a number of regional and local broadcasting channels, as well as public broadcasting channels.

On August 5, 2013, ACM published a market analysis decision on call termination, which combines both the fixed termination market and the mobile termination market. Following various administrative actions, which resulted in the Dutch Supreme Administrative Court upholding the ACM decision in July 2017, a new ACM market analysis decision on call termination became effective for the period 2017-2019. The new decision has been appealed by various operators, including Ziggo, with a hearing scheduled for March 22, 2018.

In July 2015, the Dutch incumbent telecommunications operator KPN filed an appeal against the European Commission regarding its decision to approve the acquisition of Ziggo, which we completed in November 2014. In October 2017, the court,

upheld the appeal; thereby annulling the European Commission's clearance of the Ziggo acquisition. We are currently in the process of re-notifying this merger and expect to finish this process in 2018. The annulment of the European Commission's decision does not have any effect on the VodafoneZiggo JV transaction and there is no impact on the day-to-day operations of the VodafoneZiggo JV.

On October 31, 2014, ACM published a draft of market analysis decision on LLU, which became final with certain revisions in December 2015. ACM concluded that KPN is dominant on the wholesale LLU market and imposed obligations on KPN. ACM concluded that Ziggo is not part of the relevant wholesale market. As a result, ACM imposed obligations on KPN only. ACM has indicated that as a result of the formation of the VodafoneZiggo JV, it started working on a new analysis of the LLU market. ACM intends to publish a draft decision for national consultation in the first quarter of 2018.

Employees

As of December 31, 2017, we, including our consolidated subsidiaries, had an aggregate of approximately 26,700 full-time equivalent employees, certain of whom belong to organized unions and works councils, and includes contractors and temporary employees. We believe that our employee relations are good.

Financial Information About Geographic Areas

Financial information related to the geographic areas in which we do business appears in note 18 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Available Information

All our filings with the SEC, including our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as amendments to such filings are available on our internet website free of charge generally within 24 hours after we file such material with the SEC. Our website address is www.libertyglobal.com. The information on our website is not part of this Annual Report and is not incorporated by reference herein.

Item 1A. RISK FACTORS

In addition to the other information contained in this Annual Report, you should consider the following risk factors in evaluating our results of operations, financial condition, business and operations or an investment in the shares of our company.

The risk factors described in this section have been separated into four groups:

- risks that relate to the competition we face and the technology used in our businesses;
- risks that relate to our operating in overseas markets and being subject to foreign regulation;
- risks that relate to certain financial matters; and
- other risks, including risks that, among other things, relate to the obstacles that may be faced by anyone who may seek to acquire us.

Although we describe below and elsewhere in this Annual Report the risks we consider to be the most material, there may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that also could have material adverse effects on our results of operations, financial condition, business or operations in the future. In addition, past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods.

If any of the events described below, individually or in combination, were to occur, our businesses, prospects, financial condition, results of operations and/or cash flows could be materially adversely affected.

Factors Relating to Competition and Technology

We operate in increasingly competitive markets, and there is a risk that we will not be able to effectively compete with other service providers. The markets for cable television, broadband internet, telephony and mobile services are highly competitive. In the provision of video services, we face competition from FTA and DTT broadcasters, video provided via satellite platforms, networks using DSL, VDSL or vectoring technology, multi-channel multipoint distribution system operators, FTTx networks, OTT video content aggregators, and, in some countries where parts of our systems are overbuilt, cable networks, among others. Our operating businesses are facing increasing competition from video services provided by, or over the networks of, incumbent telecommunications operators and other service providers. As the availability and speed of broadband internet increases, we also face competition from OTT video content providers utilizing our or our competitors' high-speed internet connections. In the provision of telephony and broadband internet services, we are experiencing increasing competition from the incumbent telecommunications operators and other service providers in each country in which we operate, as well as mobile providers of voice and data. The incumbent telecommunications operators typically dominate the market for these services and have the advantage of nationwide networks and greater resources than we have to devote to the provision of these services. Many of the incumbent operators offer double-play, triple-play and quadruple-play bundles of services. In many countries, we also compete with other operators using LLU to provide these services, other facilities-based operators and wireless providers. Developments in the DSL and other technology used by the incumbent telecommunications operators and alternative providers have improved the attractiveness of our competitors' products and services and strengthened their competitive position. Developments in wireless technologies, such as LTE and WiFi, are creating additional competitive challenges.

In some of our markets, national and local government agencies may seek to become involved, either directly or indirectly, in the establishment of FTTx networks, DTT systems or other communications systems. We intend to pursue available options to restrict such involvement or to ensure that such involvement is on commercially reasonable terms. There can be no assurance, however, that we will be successful in these pursuits. As a result, we may face competition from entities not requiring a normal commercial return on their investments. In addition, we may face more vigorous competition than would have been the case if there were no government involvement.

We expect the level and intensity of competition to continue to increase from both existing competitors and new market entrants as a result of changes in the regulatory framework of the industries in which we operate, advances in technology, the influx of new market entrants and strategic alliances and cooperative relationships among industry participants. Increased competition could result in increased customer churn, reductions of customer acquisition rates for some products and services and significant price and promotional competition in our markets. In combination with difficult economic environments, these competitive pressures could adversely impact our ability to increase or, in certain cases, maintain the revenue, average revenue per RGU or mobile

subscriber, as applicable (**ARPU**), RGUs, mobile subscribers, adjusted operating income before depreciation and amortization (**Adjusted OIBDA**), Adjusted OIBDA margins and liquidity of our operating segments.

Changes in technology may limit the competitiveness of and demand for our services. Technology in the video, telecommunications and data services industries is changing rapidly, including advances in current technologies and the emergence of new technologies. New technologies, products and services may impact consumer behavior and therefore demand for our products and services. The ability to anticipate changes in technology and consumer tastes and to develop and introduce new and enhanced products and services on a timely basis will affect our ability to continue to grow, increase our revenue and number of subscribers and remain competitive. New products and services, once marketed, may not meet consumer expectations or demand, can be subject to delays in development and may fail to operate as intended. A lack of market acceptance of new products and services that we may offer, or the development of significant competitive products or services by others, could have a material adverse impact on our revenue and Adjusted OIBDA.

Our significant property and equipment additions, namely in connection with our Network Extensions, may not generate a positive return. Significant additions to our property and equipment are, or in the future may be, required to add customers to our networks and to upgrade or expand our broadband communications networks and upgrade customer premises equipment to enhance our service offerings and improve the customer experience. Additions to our property and equipment, which are currently underway, including in connection with our Network Extensions, require significant capital expenditures for equipment and associated labor costs to build out and/or upgrade our networks as well as for related customer premises equipment. Additionally, significant competition, the introduction of new technologies, the expansion of existing technologies, such as FTTx and advanced DSL technologies, the impact of natural disasters, or adverse regulatory developments could cause us to decide to undertake previously unplanned builds or upgrades of our networks and customer premises equipment.

No assurance can be given that any rebuilds, upgrades or extensions of our network (including the Network Extensions) will increase penetration rates, increase average monthly subscription revenue per average cable RGU or mobile subscriber, as applicable, or otherwise generate positive returns as anticipated, or that we will have adequate capital available to finance such rebuilds, upgrades or extensions. Additionally, costs related to our Network Extensions and property and equipment additions could end up being greater than originally anticipated or planned. If this is the case, we may require additional financing sooner than anticipated or we may have to delay or abandon some or all of our development and expansion plans or otherwise forego market opportunities. Additional financing may not be available on favorable terms, if at all, and our ability to incur additional debt will be limited by our debt agreements. If we are unable to, or elect not to, pay for costs associated with adding new customers, expanding, extending or upgrading our networks or making our other planned or unplanned additions to our property and equipment, or are delayed in making such investments, our growth could be limited and our competitive position could be harmed.

We depend almost exclusively on our relationships with third-party programming providers and broadcasters for programming content, and a failure to acquire a wide selection of popular programming on acceptable terms could adversely affect our business. The success of our video subscription business depends, in large part, on our ability to provide a wide selection of popular programming to our subscribers. We generally do not produce our own content and we depend on our agreements, relationships and cooperation with public and private broadcasters and collective rights associations to obtain such content. If we fail to obtain a diverse array of popular programming for our pay television services, including a sufficient selection of HD channels as well as non-linear content (such as a selection of attractive VoD content and rights for ancillary services such as DVR and catch up or 'Replay' services), on satisfactory terms, we may not be able to offer a compelling video product to our customers at a price they are willing to pay. Additionally, we are frequently negotiating and renegotiating programming agreements and our annual costs for programming can vary. There can be no assurance that we will be able to renegotiate or renew the terms of our programming agreements on acceptable terms or at all. We expect that programming and copyright costs will continue to rise in future periods as a result of (1) higher costs associated with the expansion of our digital video content, including rights associated with ancillary product offerings and rights that provide for the broadcast of live sporting events, (2) rate increases and (3) growth in the number of our enhanced video subscribers.

If we are unable to obtain or retain attractively priced competitive content, demand for our existing and future television services could decrease, thereby limiting our ability to attract new customers, maintain existing customers and/or migrate customers from lower tier programming to higher tier programming, thereby inhibiting our ability to execute our business plans. Furthermore, we may be placed at a competitive disadvantage if certain of our competitors obtain exclusive programming rights, particularly with respect to popular sports and movie programming, and as certain entrants in the OTT market, for example Netflix, Amazon and even Disney, increasingly produce their own exclusive content.

We depend on third-party suppliers and licensors to supply necessary equipment, software and certain services required for our businesses. We rely on third-party vendors for the equipment, software and services that we require in order to provide services to our customers. Our suppliers often conduct business worldwide and their ability to meet our needs is subject to various risks, including political and economic instability, natural calamities, interruptions in transportation systems, terrorism and labor issues. As a result, we may not be able to obtain the equipment, software and services required for our businesses on a timely basis or on satisfactory terms. Any shortfall in customer premises equipment could lead to delays in completing extensions to our

networks and in connecting customers to our services and, accordingly, could adversely impact our ability to maintain or increase our RGUs, revenue and cash flows. Also, if demand exceeds the suppliers' and licensors' capacity or if they experience financial difficulties, the ability of our businesses to provide some services may be materially adversely affected, which in turn could affect our businesses' ability to attract and retain customers. Although we actively monitor the creditworthiness of our key third-party suppliers and licensors, the financial failure of a key third-party supplier or licensor could disrupt our operations and have an adverse impact on our revenue and cash flows. We rely upon intellectual property that is owned or licensed by us to use various technologies, conduct our operations and sell our products and services. Legal challenges could be made against our use of our or our licensed intellectual property rights (such as trademarks, patents and trade secrets) and we may be required to enter into licensing arrangements on unfavorable terms, incur monetary damages or be enjoined from use of the intellectual property rights in question.

Certain of our businesses that offer mobile telephony and data services rely on the radio access networks of third-party wireless network providers to carry our mobile communications traffic. Our services to mobile customers in many jurisdictions in which we operate rely on the use of MVNO arrangements in which we utilize the radio access networks of third-party wireless network providers to carry our mobile communications traffic. If any of our MVNO arrangements are terminated, or if the respective third-party wireless network provider fails to provide the services required under an MVNO arrangement, or if a third-party wireless network provider fails to deploy and maintain its network, and we are unable to find a replacement network operator on a timely and commercially reasonable basis or at all, we could be prevented from continuing the mobile services relying on such MVNO arrangement. Additionally, as our MVNO arrangements come to term, we may not be able to renegotiate renewal or replacement MVNO arrangements on the same or more favorable terms.

Failure in our technology or telecommunications systems or leakage of sensitive customer data could significantly disrupt our operations, which could reduce our customer base and result in lost revenue. Our success depends, in part, on the continued and uninterrupted performance of our information technology and network systems as well as our customer service centers. The hardware supporting a large number of critical systems for our cable network in a particular country or geographic region is housed in a relatively small number of locations. Our systems and equipment (including our routers and set-top boxes) are vulnerable to damage or security breach from a variety of sources, including telecommunications failures, power loss, malicious human acts, security flaws, and natural disasters. Moreover, despite security measures, our servers, systems and equipment are potentially vulnerable to physical or electronic break-ins, computer viruses, worms, phishing attacks and similar disruptive actions. Furthermore, our operating activities could be subject to risks caused by misappropriation, misuse, leakage, falsification or accidental release or loss of information maintained in our information technology systems and networks and those of our third-party vendors, including customer, personnel and vendor data. As a result of the increasing awareness concerning the importance of safeguarding personal information, the potential misuse of such information and legislation that has been adopted or is being considered across all of our markets regarding the protection, privacy and security of personal information, information-related risks are increasing, particularly for businesses like ours that handle a large amount of personal customer data. Failure to comply with these data protection laws may result in, among other consequences, fines.

Despite the precautions we have taken, unanticipated problems affecting our systems could cause failures in our information technology systems or disruption in the transmission of signals over our networks or similar problems. Any disruptive situation that causes loss, misappropriation, misuse or leakage of data could damage our reputation and the credibility of our operations. Further, sustained or repeated system failures that interrupt our ability to provide service to our customers or otherwise meet our business obligations in a timely manner could adversely affect our reputation and result in a loss of customers and an adverse impact on revenue.

The "Virgin" brand is used by our subsidiary Virgin Media under licenses from Virgin Enterprises Limited and is not under the control of Virgin Media. The activities of the group of companies utilizing the "Virgin" brand and other licensees could have a material adverse effect on the goodwill of customers towards Virgin Media as a licensee and the licenses from Virgin Enterprises Limited can be terminated in certain circumstances. The "Virgin" brand is integral to Virgin Media's corporate identity. Virgin Media is reliant on the general goodwill of consumers towards the Virgin brand. Consequently, adverse publicity in relation to the group of companies utilizing the "Virgin" brand or its principals, particularly Sir Richard Branson, who is closely associated with the brand, or in relation to another licensee of the "Virgin" name and logo (particularly in the U.K., where Virgin Media does business) could have a material adverse effect on Virgin Media's reputation and on Virgin Media's and our business and results of operations. In addition, the licenses from Virgin Enterprises Limited can be terminated in certain circumstances. For example, Virgin Enterprises Limited can terminate the licenses, after providing Virgin Media with an opportunity to cure, (1) if Virgin Media or any of its affiliates commits persistent and material breaches or a flagrant and material breach of the licenses, (2) if Virgin Enterprises Limited has reasonable grounds to believe that the use (or lack of use) of the licensed trademarks by Virgin Media has been or is likely to result in a long-term and material diminution in the value of the "Virgin" brand, or (3) if a third-party who is not (or one of whose directors is not) a "fit and proper person", such as a legally disqualified director or a

bankrupt entity, acquires “control” of Liberty Global. Such a termination could have a material adverse effect on Virgin Media’s and our business and results of operations.

Factors Relating to Overseas Operations and Foreign Regulation

Our businesses are conducted almost exclusively outside of the U.S., which gives rise to numerous operational risks. Our businesses operate almost exclusively in countries outside the U.S. and are thereby subject to the following inherent risks:

- fluctuations in foreign currency exchange rates;
- difficulties in staffing and managing international operations;
- potentially adverse tax consequences;
- export and import restrictions, custom duties, tariffs and other trade barriers;
- increases in taxes and governmental fees;
- economic and political instability; and
- changes in foreign and domestic laws and policies that govern operations of foreign-based companies.

Operational risks that we may experience in certain countries include disruptions of services or loss of property or equipment that are critical to overseas businesses due to expropriation, nationalization, war, insurrection, terrorism or general social or political unrest.

We are exposed to foreign currency exchange rate risk. We are exposed to foreign currency exchange rate risk with respect to our consolidated debt in situations where our debt is denominated in a currency other than the functional currency of the operations whose cash flows support our ability to repay or refinance such debt. Although we generally seek to match the denomination of our and our subsidiaries’ borrowings with the functional currency of the operations that are supporting the respective borrowings, market conditions or other factors may cause us to enter into borrowing arrangements that are not denominated in the functional currency of the underlying operations (unmatched debt). In these cases, our policy is to provide for an economic hedge against foreign currency exchange rate movements by using derivative instruments to synthetically convert unmatched debt into the applicable underlying currency. At December 31, 2017, substantially all of our debt was either directly or synthetically matched to the applicable functional currencies of the underlying operations.

In addition to the exposure that results from the mismatch of our borrowings and underlying functional currencies, we are exposed to foreign currency risk to the extent that we enter into transactions denominated in currencies other than our or our subsidiaries’ respective functional currencies (non-functional currency risk), such as equipment purchases, programming contracts, notes payable and notes receivable (including intercompany amounts). Changes in exchange rates with respect to amounts recorded in our consolidated balance sheets related to these items will result in unrealized (based upon period-end exchange rates) or realized foreign currency transaction gains and losses upon settlement of the transactions. Moreover, to the extent that our revenue, costs and expenses are denominated in currencies other than our respective functional currencies, we will experience fluctuations in our revenue, costs and expenses solely as a result of changes in foreign currency exchange rates. In this regard, we currently expect that during 2018, (1) less than 1% of our revenue, (2) approximately 2% to 4% of our direct costs of services and our other operating and SG&A expenses (exclusive of share-based compensation expense) and (3) approximately 10% to 12% of our property and equipment additions will be denominated in non-functional currencies, including amounts denominated in U.S. dollars, euros and British pound sterling. Our expectations with respect to our non-functional currency transactions in 2018 may differ from actual results. Generally, we will consider hedging non-functional currency risks when the risks arise from agreements with third parties that involve the future payment or receipt of cash or other monetary items to the extent that we can reasonably predict the timing and amount of such payments or receipts and the payments or receipts are not otherwise hedged. In this regard, we have entered into foreign currency forward contracts to hedge certain of these risks. Certain non-functional currency risks related to our revenue, direct costs of services and other operating and SG&A expenses and property and equipment additions were not hedged as of December 31, 2017. For additional information concerning our foreign currency forward contracts, see note 7 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

We also are exposed to unfavorable and potentially volatile fluctuations of the U.S. dollar (our reporting currency) against the currencies of our operating subsidiaries when their respective financial statements are translated into U.S. dollars for inclusion in our consolidated financial statements. Cumulative translation adjustments are recorded in accumulated other comprehensive earnings or loss as a separate component of equity. Any increase (decrease) in the value of the U.S. dollar against any foreign currency that is the functional currency of one of our operating subsidiaries will cause us to experience unrealized foreign currency

translation losses (gains) with respect to amounts already invested in such foreign currencies. Accordingly, we may experience a negative impact on our comprehensive earnings or loss and equity with respect to our holdings solely as a result of foreign currency translation. Our primary exposure to foreign currency translation risk during the three months ended December 31, 2017 was to the euro and British pound sterling as 44.8% and 39.5% of our reported revenue during the period was derived from subsidiaries whose functional currencies are the euro and British pound sterling, respectively. In addition, our reported operating results are impacted by changes in the exchange rates for the Swiss franc and other local currencies in Europe. We generally do not hedge against the risk that we may incur non-cash losses upon the translation of the financial statements of our subsidiaries and affiliates into U.S. dollars.

Our businesses are subject to risks of adverse regulation. Our businesses are subject to the unique regulatory regimes of the countries in which they operate. Video distribution, broadband internet, telephony and mobile businesses are subject to licensing or registration eligibility rules and regulations, which vary by country. The provision of electronic communications networks and services requires our licensing from, or registration with, the appropriate regulatory authorities and, for telephony services, entrance into interconnection arrangements with other phone companies, including the incumbent phone company. It is possible that countries in which we operate may adopt laws and regulations regarding electronic commerce, which could dampen the growth of the internet services being offered and developed by these businesses. In a number of countries, our ability to increase the prices we charge for our cable television service or make changes to the programming packages we offer is limited by regulation or conditions imposed by competition authorities or is subject to review by regulatory authorities or is subject to termination rights of customers. In addition, regulatory authorities may grant new licenses to third parties and, in any event, in most of our markets new entry is possible without a license, although there may be registration eligibility rules and regulations, resulting in greater competition in territories where our businesses may already be active. More significantly, regulatory authorities may require us to grant third parties access to our bandwidth, frequency capacity, facilities or services to distribute their own services or resell our services to end customers. Consequently, our businesses must adapt their ownership and organizational structure as well as their pricing and service offerings to satisfy the rules and regulations to which they are subject. A failure to comply with applicable rules and regulations could result in penalties, restrictions on our business or loss of required licenses or other adverse conditions.

Adverse changes in rules and regulations could:

- impair our ability to use our bandwidth in ways that would generate maximum revenue and Adjusted OIBDA;
- create a shortage of capacity on our networks, which could limit the types and variety of services we seek to provide our customers;
- impact our ability to access spectrum for our mobile services;
- strengthen our competitors by granting them access and lowering their costs to enter into our markets; and
- have a significant adverse impact on our results of operations.

Businesses, including ours, that offer multiple services, such as video distribution as well as internet, telephony, and/or mobile services, or that are vertically integrated and offer both video distribution and programming content, often face close regulatory scrutiny from competition authorities in several countries in which they operate. This is particularly the case with respect to any proposed business combinations, which will often require clearance from national competition authorities. The regulatory authorities in several countries in which we do business have considered from time to time what access rights, if any, should be afforded to third parties for use of existing cable television networks and have imposed access obligations in certain countries. This has resulted, for example, in obligations with respect to call termination for our telephony business in Europe, video must carry obligations in many markets in which we operate and video and broadband internet access obligations in Belgium.

When we acquire additional communications companies, these acquisitions may require the approval of governmental authorities (either at country or, in the case of the E.U., European level), which can block, impose conditions on, or delay an acquisition, thus hampering our opportunities for growth. In the event conditions are imposed and we fail to meet them in a timely manner, the governmental authority may impose fines and, if in connection with a merger transaction, may require restorative measures, such as mandatory disposition of assets or divestiture of operations.

New legislation may significantly alter the regulatory regime applicable to us, which could adversely affect our competitive position and profitability, and we may become subject to more extensive regulation if we are deemed to possess significant market power in any of the markets in which we operate. Significant changes to the existing regulatory regime applicable to the provision of cable television, telephony, internet and mobile services have been and are still being introduced. For example, in the E.U. a large element of regulation affecting our business derives from a number of Directives that are the basis of the regulatory regime concerning many of the services we offer across the E.U. The various Directives require Member States to harmonize their

laws on communications and cover issues such as access, user rights, privacy and competition. These Directives are reviewed by the E.U. from time to time and any changes to them could lead to substantial changes in the way in which our businesses are regulated and to which we would have to adapt. In addition, we are subject to review by competition or national regulatory authorities in certain countries concerning whether we exhibit Significant Market Power. A finding of Significant Market Power can result in our company becoming subject to pricing, open access, unbundling and other requirements that could provide a more favorable operating environment for existing and potential competitors.

The U.K. referendum advising for the exit of the U.K. from the E.U. could have a material adverse effect on our business, financial condition, results of operations or liquidity. On June 23, 2016, the U.K. held a referendum in which voters approved, on an advisory basis, an exit from the E.U., commonly referred to as “Brexit”. The terms of Brexit are subject to a negotiation period that could take until March 2019. The potential impacts, if any, of the uncertainty relating to Brexit or the resulting terms of the withdrawal of the U.K. from the E.U. on the free movement of goods, services, people and capital between the U.K. and the E.U., customer behavior, economic conditions, interest rates, currency exchange rates, availability of capital or other matters are unclear. Examples of the impact Brexit could have on our business, financial condition or results of operations include:

- changes in foreign currency exchange rates and disruptions in the capital markets. For example, a sustained period of weakness in the British pound sterling or the euro could have an adverse impact on our liquidity, including our ability to fund repurchases of our equity securities and other U.S. dollar-denominated liquidity requirements;
- legal uncertainty and potentially divergent national laws and regulations as the U.K. determines which E.U. laws and directives to replace or replicate, or where previously implemented by enactment of U.K. laws or regulations, to retain, amend or repeal; and
- various geopolitical forces may impact the global economy and our business, including, for example, other E.U. member states (in particular those member states where we have operations) proposing referendums to, or electing to, exit the E.U.

We cannot be certain that we will be successful in acquiring new businesses or integrating acquired businesses with our existing operations, or that we will achieve the expected returns on our acquisitions. Historically, our businesses have grown, in part, through selective acquisitions that enabled them to take advantage of existing networks, local service offerings and region-specific management expertise. We expect to seek to continue growing our businesses through acquisitions in selected markets, such as the BASE acquisition in February 2016, the acquisition of SFR BeLux in June 2017, and the pending acquisition of Multimedia. Our ability to acquire new businesses may be limited by many factors, including availability of financing, debt covenants, the prevalence of complex ownership structures among potential targets, government regulation and competition from other potential acquirers, including private equity funds. Even if we are successful in acquiring new businesses, the integration of these businesses, such as BASE, Multimedia and SFR BeLux, may present significant costs and challenges associated with: realizing economies of scale in interconnection, programming and network operations; eliminating duplicative overheads; integrating personnel, networks, financial systems and operational systems; greater than anticipated expenditures required for compliance with regulatory standards or for investments to improve operating results, and failure to achieve the business plan with respect to any such acquisition. We cannot be assured that we will be successful in acquiring new businesses or realizing the anticipated benefits of any completed acquisition, including, for example, the acquisitions of BASE and SFR BeLux, and the pending acquisition of Multimedia.

In addition, we anticipate that most, if not all, companies acquired by us will be located outside the U.S. Foreign companies may not have disclosure controls and procedures or internal controls over financial reporting that are as thorough or effective as those required by U.S. securities laws. While we intend to conduct appropriate due diligence and to implement appropriate controls and procedures as we integrate acquired companies, we may not be able to certify as to the effectiveness of these companies’ disclosure controls and procedures or internal controls over financial reporting until we have fully integrated them.

We may have exposure to additional tax liabilities. We are subject to income taxes as well as non-income based taxes, such as value added tax (VAT) in the U.K., the U.S. and many other jurisdictions around the world. In addition, most tax jurisdictions that we operate in have complex and subjective rules regarding the valuation of intercompany services, cross-border payments between affiliated companies and the related effects on income tax, VAT and transfer tax. Significant judgment is required in determining our worldwide provision for income taxes and other tax liabilities. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is uncertain. We are regularly under audit by tax authorities in many of the jurisdictions in which we operate. Although we believe that our tax estimates are reasonable, any material differences as a result of final determinations of tax audits or tax disputes could have an adverse effect on our financial position and results of operations in the period or periods for which determination is made.

We are subject to changing tax laws, treaties and regulations in and between countries in which we operate, including treaties between and among the U.K., the U.S. and many other jurisdictions in which we have a presence. Also, various income tax proposals in the jurisdictions in which we operate could result in changes to the existing laws on which our deferred taxes are calculated. A change in these tax laws, treaties or regulations, or in the interpretation thereof, could result in a materially higher income or non-income tax expense, and any such material changes could cause a material change in our effective tax rate. In this regard, on December 22, 2017, new U.S. federal tax reform legislation (the **2017 U.S. Tax Act**) was enacted, resulting in significant changes from previous U.S. tax law. Given the timing of the enactment as well as the effort and complexity involved in applying the provisions of the 2017 U.S. Tax Act, we are still in the process of evaluating the impact on us, including for example, the amount of taxes that might be imposed as a result of a one-time deemed mandatory repatriation of earnings and profits of foreign corporations. The 2017 U.S. Tax Act could have a material impact on our income tax expense. For additional information regarding the impact of the 2017 U.S. Tax Act, see note 11 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Further changes in the tax laws of the foreign jurisdictions in which we operate could arise as a result of the base erosion and profit shifting (**BEPS**) project being undertaken by the OECD or the European Commission Anti-Tax Avoidance Package. The OECD, which represents a coalition of member countries that encompass most of the jurisdictions in which we operate, and the European Commission have undertaken studies and are publishing action plans that include recommendations aimed at addressing what they believe are issues within tax systems that may lead to tax avoidance by companies. It is possible that jurisdictions in which we do business could react to these initiatives or their own concerns by enacting tax legislation that could adversely affect us or our shareholders through increasing our tax liabilities.

Factors Relating to Certain Financial Matters

Our substantial leverage could limit our ability to obtain additional financing and have other adverse effects. We seek to maintain our debt at levels that provide for attractive equity returns without assuming undue risk. In this regard, we generally seek to cause our operating subsidiaries to maintain their debt at levels that result in a consolidated debt balance that is between four and five times our consolidated Adjusted OIBDA. As a result, we are highly leveraged. At December 31, 2017, the outstanding principal amount of our consolidated debt, together with our capital lease obligations aggregated \$42.4 billion, including \$4,165.4 million that is classified as current in our consolidated balance sheet and \$37.3 billion that is not due until 2021 or thereafter. We believe that we have sufficient resources to repay or refinance the current portion of our debt and capital lease obligations and to fund our foreseeable liquidity requirements during the next 12 months. However, as our maturing debt grows in later years, we anticipate that we will seek to refinance or otherwise extend our debt maturities. In this regard, we completed refinancing transactions during 2017 that, among other things, resulted in the extension of certain of our subsidiaries' debt maturities. No assurance can be given that we will be able to complete these refinancing transactions or otherwise extend our debt maturities. In this regard, it is not possible to predict how political and economic conditions, sovereign debt concerns or any adverse regulatory developments could impact the credit and equity markets we access and, accordingly, our future liquidity and financial position.

Our ability to service or refinance our debt and to maintain compliance with the leverage covenants in the credit agreements and indentures of our borrowing groups is dependent primarily on our ability to maintain or increase the Adjusted OIBDA of our operating subsidiaries and to achieve adequate returns on our property and equipment additions and acquisitions. In addition, our ability to obtain additional debt financing is limited by the incurrence-based leverage covenants contained in the various debt instruments of our borrowing groups. For example, if the Adjusted OIBDA of our subsidiary, UPC Holding were to decline, our ability to obtain additional debt could be limited. Accordingly, if our cash provided by operations declines or we encounter other material liquidity requirements, we may be required to seek additional debt or equity financing in order to meet our debt obligations and other liquidity requirements as they come due. In addition, our current debt levels may limit our ability to incur additional debt financing to fund working capital needs, acquisitions, property and equipment additions, or other general corporate requirements. We can give no assurance that any additional debt or equity financing will be available on terms that are as favorable as the terms of our existing debt or at all. Further, our board of directors has approved share repurchase programs for Liberty Global Shares. Any cash used by our company in connection with any future purchases of our ordinary shares would not be available for other purposes, including the repayment of debt. For additional information concerning our share repurchase programs, see note 12 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

Certain of our subsidiaries are subject to various debt instruments that contain restrictions on how we finance our operations and operate our businesses, which could impede our ability to engage in beneficial transactions. Certain of our subsidiaries are subject to significant financial and operating restrictions contained in outstanding credit agreements, indentures and similar instruments of indebtedness. These restrictions will affect, and in some cases significantly limit or prohibit, among other things, the ability of those subsidiaries to:

- incur or guarantee additional indebtedness;

- pay dividends or make other upstream distributions;
- make investments;
- transfer, sell or dispose of certain assets, including subsidiary stock;
- merge or consolidate with other entities;
- engage in transactions with us or other affiliates; or
- create liens on their assets.

As a result of restrictions contained in these debt instruments, the companies party thereto, and their subsidiaries, could be unable to obtain additional capital in the future to:

- fund property and equipment additions or acquisitions that could improve their value;
- meet their loan and capital commitments to their business affiliates;
- invest in companies in which they would otherwise invest;
- fund any operating losses or future development of their business affiliates;
- obtain lower borrowing costs that are available from secured lenders or engage in advantageous transactions that monetize their assets; or
- conduct other necessary or prudent corporate activities.

In addition, most of the credit agreements to which these subsidiaries are parties include financial covenants that require them, in certain circumstances, to maintain certain leverage and other financial ratios. Their ability to meet these financial covenants may be affected by adverse economic, competitive, or regulatory developments and other events beyond their control, and we cannot assure you that these financial covenants will be met. In the event of a default under such subsidiaries' credit agreements or indentures, the lenders may accelerate the maturity of the indebtedness under those agreements or indentures, which could result in a default under other outstanding credit facilities or indentures. We cannot assure you that any of these subsidiaries will have sufficient assets to pay indebtedness outstanding under their credit agreements and indentures. Any refinancing of this indebtedness is likely to contain similar restrictive covenants.

We are exposed to interest rate risks. Shifts in such rates may adversely affect the debt service obligation of our subsidiaries. We are exposed to the risk of fluctuations in interest rates, primarily through the credit facilities of certain of our subsidiaries, which are indexed to EURIBOR, LIBOR or other base rates. Although we enter into various derivative transactions to manage exposure to movements in interest rates, there can be no assurance that we will be able to continue to do so at a reasonable cost or at all. If we are unable to effectively manage our interest rate exposure through derivative transactions, any increase in market interest rates would increase our interest rate exposure and debt service obligations, which would exacerbate the risks associated with our leveraged capital structure.

We are subject to increasing operating costs and inflation risks, which may adversely affect our results of operations. While our operations attempt to increase our subscription rates to offset increases in programming and operating costs, there is no assurance that they will be able to do so. In certain countries in which we operate, our ability to increase subscription rates is subject to regulatory controls. Also, our ability to increase subscription rates may be constrained by competitive pressures. Therefore, operating costs may rise faster than associated revenue, resulting in a material negative impact on our cash flow and net earnings (loss). We are also impacted by inflationary increases in salaries, wages, benefits and other administrative costs in certain of our markets.

Continuing uncertainties and challenging conditions in the global economy and in the countries in which we operate may adversely impact our business, financial condition and results of operations. The current macroeconomic environment is highly volatile, and continuing instability in global markets, including the ongoing struggles in Europe related to sovereign debt issues, the risk of deflation and the stability of the British pound sterling and the euro, has contributed to a challenging global economic environment. Future developments are dependent upon a number of political and economic factors, including the effectiveness of measures by the E.U. Commission to address debt burdens of certain countries in Europe and the overall stability of the eurozone. As a result, we cannot predict how long challenging conditions will exist or the extent to which the markets in which we operate may deteriorate. Additional risks arising from the ongoing economic challenges in Europe are described below under the Risk

Factor titled: *We are exposed to sovereign debt and currency instability risks in Europe that could have an adverse impact on our liquidity, financial condition and cash flows.*

Unfavorable economic conditions may impact a significant number of our subscribers and/or the prices we are able to charge for our products and services, and, as a result, it may be (1) more difficult for us to attract new subscribers, (2) more likely that subscribers will downgrade or disconnect their services and (3) more difficult for us to maintain ARPUs at existing levels. Countries may also seek new or increased revenue sources due to fiscal deficits. Such actions may further adversely affect our company. Accordingly, our ability to increase, or, in certain cases, maintain, the revenue, ARPUs, RGUs, mobile subscribers, Adjusted OIBDA, Adjusted OIBDA margins and liquidity of our operating segments could be adversely affected if the macroeconomic environment remains uncertain or declines further. We are currently unable to predict the extent of any of these potential adverse effects.

We are exposed to sovereign debt and currency instability risks that could have an adverse impact on our liquidity, financial condition and cash flows. Our operations are subject to macroeconomic and political risks that are outside of our control. For example, high levels of sovereign debt in the U.S. and several countries in which we or our affiliates operate, combined with weak growth and high unemployment, could potentially lead to fiscal reforms (including austerity measures), tax increases, sovereign debt restructurings, currency instability, increased counterparty credit risk, high levels of volatility and disruptions in the credit and equity markets, as well as other outcomes that might adversely impact our company. With regard to currency instability issues, concerns exist in the eurozone with respect to individual macro-fundamentals on a country-by-country basis, as well as with respect to the overall stability of the European monetary union and the suitability of a single currency to appropriately deal with specific fiscal management and sovereign debt issues in individual eurozone countries. The realization of these concerns could lead to the exit of one or more countries from the European monetary union and the re-introduction of individual currencies in these countries, or, in more extreme circumstances, the possible dissolution of the European monetary union entirely, which could result in the redenomination of a portion or, in the extreme case, all of our euro-denominated assets, liabilities and cash flows to the new currency of the country in which they originated. This could result in a mismatch in the currencies of our assets, liabilities and cash flows. Any such mismatch, together with the capital market disruption that would likely accompany any such redenomination event, could have a material adverse impact on our liquidity and financial condition. Furthermore, any redenomination event would likely be accompanied by significant economic dislocation, particularly within the eurozone countries, which in turn could have an adverse impact on demand for our products and services, and accordingly, on our revenue and cash flows. Moreover, any changes from euro to non-euro currencies within the countries in which we operate would require us to modify our billing and other financial systems. No assurance can be given that any required modifications could be made within a time frame that would allow us to timely bill our customers or prepare and file required financial reports. In light of the significant exposure that we have to the euro through our euro-denominated borrowings, derivative instruments, cash balances and cash flows, a redenomination event could have a material adverse impact on our company.

We may not freely access the cash of our operating companies. Our operations are conducted through our subsidiaries. Our current sources of corporate liquidity include (1) our cash and cash equivalents and (2) interest and dividend income received on our cash and cash equivalents and investments. From time to time, we also receive (1) proceeds in the form of distributions or loan repayments from our subsidiaries or affiliates, (2) proceeds upon the disposition of investments and other assets and (3) proceeds in connection with the incurrence of debt or the issuance of equity securities. The ability of our operating subsidiaries to pay dividends or to make other payments or advances to us depends on their individual operating results and any statutory, regulatory or contractual restrictions to which they may be or may become subject and in some cases our receipt of such payments or advances may be limited due to tax considerations or the presence of noncontrolling interests. Most of our operating subsidiaries are subject to credit agreements or indentures that restrict sales of assets and prohibit or limit the payment of dividends or the making of distributions, loans or advances to shareholders and partners, including us. In addition, because these subsidiaries are separate and distinct legal entities they have no obligation to provide us funds for payment obligations, whether by dividends, distributions, loans or other payments.

We are exposed to the risk of default by the counterparties to our derivative and other financial instruments, undrawn debt facilities and cash investments. Although we seek to manage the credit risks associated with our derivative and other financial instruments, cash investments and undrawn debt facilities, we are exposed to the risk that our counterparties will default on their obligations to us. Also, even though we regularly review our credit exposures, defaults may arise from events or circumstances that are difficult to detect or foresee. At December 31, 2017, our exposure to counterparty credit risk included (1) derivative assets with an aggregate fair value of \$330.8 million, (2) cash and cash equivalent and restricted cash balances of \$1,682.8 million and (3) aggregate undrawn debt facilities of \$3,239.3 million. While we currently have no specific concerns about the creditworthiness of any counterparty for which we have material credit risk exposures, we cannot rule out the possibility that one or more of our counterparties could fail or otherwise be unable to meet its obligations to us. Any such instance could have an adverse effect on our cash flows, results of operations, financial condition and/or liquidity. In this regard, (1) the financial failure of any of our counterparties could reduce amounts available under committed credit facilities and adversely impact our ability to access cash

deposited with any failed financial institution, thereby causing a default under one or more derivative contracts, and (2) tightening of the credit markets could adversely impact our ability to access debt financing on favorable terms, or at all. For additional information on our derivative contracts, see note 7 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

The risks we would face in the event of a default by a counterparty to one of our derivative instruments might be eliminated or substantially mitigated if we were able to novate the relevant derivative contracts to a new counterparty following the default of our counterparty. While we anticipate that, in the event of the insolvency of one of our derivative counterparties, we would seek to effect such novations, no assurance can be given that we would obtain the necessary consents to do so or that we would be able to do so on terms or pricing that would be acceptable to us or that any such novation would not result in substantial costs to us. Furthermore, the underlying risks that are the subject of the relevant derivative contracts would no longer be effectively hedged due to the insolvency of our counterparty, unless and until we novate or replace the derivative contract.

Our interest in the VodafoneZiggo JV is held pursuant to a Shareholders Agreement that contains provisions relating to governance as well as transfer and exit rights, which, depending on the circumstances, may not be in the best interest of our company. Our non-controlling interest in the VodafoneZiggo JV is held pursuant to a shareholders' agreement (the **Shareholders Agreement**), which provides the terms of the governance of the VodafoneZiggo JV, including among others, decision-making process, information access, dividend policy and non-compete provisions. These provisions may prevent the VodafoneZiggo JV from making decisions or taking actions that would protect or advance the interests of our company, and could even result in the VodafoneZiggo JV making decisions or taking actions that adversely impact our company. Further, our ability to access the cash of the VodafoneZiggo JV pursuant to the dividend policy contained in the Shareholders Agreement may be restricted in certain circumstances. The Shareholders Agreement also provides for restrictions on the transfer of interests in the VodafoneZiggo JV, which could adversely affect our ability to sell our interest in the VodafoneZiggo JV and/or the prices at which our interest may be sold, as well as certain exit arrangements, which could force us to sell our interest. For additional information on the VodafoneZiggo JV and the Shareholders Agreement, see note 6 to our consolidated financial statements included in Part II of this Annual Report on Form 10-K.

We may not report net earnings. We reported net earnings (loss) from continuing operations of (\$1,865.5 million), \$1,994.5 million and (\$1,101.2 million) during 2017, 2016 and 2015, respectively. In light of our historical financial performance, we cannot assure you that we will report net earnings in the near future.

Other Factors

We have not historically paid any cash dividends, and we may not pay dividends equally or at all on any class of our ordinary shares. We do not presently intend to pay cash dividends on any class of our ordinary shares for the foreseeable future. However, we have the right to pay dividends, effect securities distributions or make bonus issues on Liberty Global Shares. In addition, any dividends or distributions on, or repurchases of Liberty Global Shares will reduce our "distributable reserves" (defined as our accumulated, realized profits less accumulated, realized losses, as measured for U.K. statutory purposes) legally available to be paid as dividends by our company under English law on any of our ordinary shares.

The loss of certain key personnel could harm our business. We have experienced employees at both the corporate and operational levels who possess substantial knowledge of our business and operations. We cannot assure you that we will be successful in retaining their services or that we would be successful in hiring and training suitable replacements without undue costs or delays. As a result, the loss of any of these key employees could cause significant disruptions in our business operations, which could materially adversely affect our results of operations.

John C. Malone has significant voting power with respect to corporate matters considered by our shareholders. John C. Malone beneficially owns outstanding ordinary shares of Liberty Global representing 28.0% of our aggregate voting power as of February 7, 2018. By virtue of Mr. Malone's voting power in our company, as well as his position as Chairman of our board of directors, Mr. Malone may have significant influence over the outcome of any corporate transaction or other matters submitted to our shareholders for approval. For example, under English law and our articles of association, certain matters (including amendments to the articles of association) require the approval of 75% of the shareholders who vote (in person or by proxy) on the relevant resolution, and other certain corporate transactions or matters may require the approval of at least 75% of the outstanding shares of each class of our ordinary shares. Because Mr. Malone beneficially owns approximately 28.0% of our aggregate voting power and more than 75% of the outstanding Class B ordinary shares of Liberty Global, he has the ability to prevent the requisite approval threshold from being met even though the other shareholders may determine that such action or transaction is beneficial for the company. Mr. Malone's rights to vote or dispose of his equity interests in our company are not subject to any restrictions

in favor of us other than as may be required by applicable law and except for customary transfer restrictions pursuant to equity award agreements.

It may be difficult for a third-party to acquire us, even if doing so may be beneficial to our shareholders. Certain provisions of our articles of association and of English law may discourage, delay, or prevent a change in control of our company that a shareholder may consider favorable. These provisions include the following:

- authorizing a capital structure with multiple classes of ordinary shares; a Class B that entitles the holders to 10 votes per share; a Class A that entitles the holders to one vote per share; and a Class C that, except as otherwise required by applicable law, entitles the holders to no voting rights;
- authorizing the issuance of “blank check” shares (both ordinary and preference), which could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;
- classifying our board of directors with staggered three-year terms, which may lengthen the time required to gain control of our board of directors, although under English law, shareholders of our company can remove a director without cause by ordinary resolution;
- prohibiting shareholder action by written resolution, thereby requiring all shareholder actions to be taken at a meeting of the shareholders;
- requiring the approval of 75% in value of the shareholders (or class of shareholders) and/or English court approval for certain statutory mergers or schemes of arrangements; and
- establishing advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by shareholders at shareholder meetings.

Change in control provisions in our incentive plans and related award agreements or in executive employment agreements may also discourage, delay, or prevent a change in control of our company, even if such change of control would be in the best interests of our shareholders.

The enforcement of civil liabilities against us may be more difficult. Because we are a public limited company incorporated under the laws of England and Wales, investors could experience more difficulty enforcing judgments obtained against us in U.S. courts than would currently be the case for U.S. judgments obtained against a U.S. company. It may also be more difficult (or impossible) to bring some types of claims against us in courts sitting in England than it would be to bring similar claims against a U.S. company in a U.S. court. In particular, English law significantly limits the circumstances under which shareholders of English companies may bring derivative actions. Under English law generally, only the company can be the proper plaintiff in proceedings in respect of wrongful acts committed against us. Our articles of association provide for the exclusive jurisdiction of the English courts for shareholder lawsuits against us or our directors.

Item 1B. UNRESOLVED STAFF COMMENTS

None.

Item 2. PROPERTIES

We lease our corporate offices in London, U.K., in Denver, Colorado, U.S. and in Amsterdam, the Netherlands. All of our other real or personal property is owned or leased by our subsidiaries and affiliates.

Our subsidiaries and affiliates own or lease the fixed assets necessary for the operation of their respective businesses, including office space, transponder space, headend facilities, rights of way, cable television and telecommunications distribution equipment, telecommunications switches, base stations, cell towers and customer premises equipment and other property necessary for their operations. The physical components of their broadband networks require maintenance and periodic upgrades to support the new services and products they introduce. Subject to these maintenance and upgrade activities, our management believes that our current facilities are suitable and adequate for our business operations for the foreseeable future.

Item 3. LEGAL PROCEEDINGS

From time to time, our subsidiaries and affiliates have become involved in litigation relating to claims arising out of their operations in the normal course of business. For additional information, see note 17 to our consolidated financial statements in Part II of this Annual Report on Form 10-K.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

Item 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED SHAREHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

General

The capitalized terms used in Part II of this Annual Report on Form 10-K are defined in the notes to our consolidated financial statements. In the following text, the terms “we,” “our,” “our company” and “us” may refer, as the context requires, to Liberty Global or collectively to Liberty Global and its subsidiaries.

Market Information

Prior to the completion of the Split-off Transaction on December 29, 2017, our share capital comprised Liberty Global Class A, Class B and Class C ordinary shares and LiLAC Class A, Class B and Class C ordinary shares. Upon completion of the Split-off Transaction, our share capital no longer includes LiLAC Shares. Our Liberty Global Class A, Class B and Class C ordinary shares trade on the NASDAQ Global Select Market under the symbols “LBTYA,” “LBTYB,” and “LBTYK,” respectively. The following table sets forth the range of high and low sales prices of Liberty Global Class A, Class B and Class C and LiLAC Class A, Class B and Class C ordinary shares for the periods indicated.

	Class A		Class B		Class C	
	High	Low	High	Low	High	Low
Liberty Global Shares (a):						
Year ended December 31, 2017						
First quarter	\$ 37.69	\$ 30.43	\$ 39.85	\$ 32.32	\$ 37.00	\$ 29.58
Second quarter	\$ 36.26	\$ 28.17	\$ 37.30	\$ 29.05	\$ 35.41	\$ 27.36
Third quarter	\$ 35.01	\$ 31.10	\$ 36.55	\$ 31.30	\$ 33.86	\$ 30.22
Fourth quarter	\$ 35.90	\$ 29.13	\$ 35.55	\$ 30.50	\$ 34.18	\$ 28.17
Year ended December 31, 2016						
First quarter	\$ 36.97	\$ 26.91	\$ 43.54	\$ 31.34	\$ 35.27	\$ 26.19
Second quarter	\$ 34.99	\$ 26.19	\$ 40.42	\$ 27.34	\$ 33.88	\$ 26.24
Third quarter	\$ 34.63	\$ 26.16	\$ 44.39	\$ 27.60	\$ 33.58	\$ 25.86
Fourth quarter	\$ 34.65	\$ 28.50	\$ 37.52	\$ 29.95	\$ 33.50	\$ 27.82
LiLAC Shares (a):						
Year ended December 31, 2017						
First quarter	\$ 27.35	\$ 21.44	\$ 24.83	\$ 24.69	\$ 27.20	\$ 21.17
Second quarter	\$ 22.94	\$ 20.08	\$ 23.38	\$ 20.96	\$ 23.79	\$ 19.81
Third quarter	\$ 26.99	\$ 22.05	\$ 28.81	\$ 23.28	\$ 26.82	\$ 21.59
Fourth quarter	\$ 25.62	\$ 20.15	\$ 27.50	\$ 20.72	\$ 25.54	\$ 19.89
Year ended December 31, 2016						
First quarter	\$ 39.10	\$ 32.01	\$ 39.98	\$ 39.98	\$ 41.30	\$ 34.22
Second quarter	\$ 41.17	\$ 32.06	\$ 55.00	\$ 35.62	\$ 42.98	\$ 32.07
Third quarter	\$ 36.27	\$ 26.54	\$ 35.62	\$ 27.01	\$ 36.67	\$ 27.23
Fourth quarter	\$ 28.38	\$ 19.10	\$ 28.80	\$ 20.48	\$ 28.74	\$ 19.37

(a) On July 1, 2016, we completed the LiLAC Distribution. The share price information presented herein for periods prior to July 1, 2016 has not been retroactively revised. Prices for LiLAC Class B ordinary shares reflect inter-dealer prices without retail mark-up, mark-down or actual transactions.

Holders

As of February 7, 2018, there were 608, nine and 696 record holders of Liberty Global Class A, Class B and Class C ordinary shares, respectively. These amounts do not include the number of shareholders whose shares are nominally held by banks, brokerage houses or other institutions, but include each such institution as one record holder.

Dividends

We have not paid any cash dividends on any of our ordinary shares, and we have no present intention of doing so. Any future payment of cash dividends will be determined by our board of directors in light of our earnings, financial condition and other relevant considerations including applicable laws in England and Wales. The credit facilities to which certain of our subsidiaries are parties restrict our ability to access their cash for, among other things, our payment of cash dividends. There are currently no other contractual restrictions on our ability to pay dividends in cash or shares.

Recent Sales of Unregistered Securities; Use of Proceeds from Registered Securities

None.

Issuer Purchase of Equity Securities

The following table sets forth information regarding our company's purchase of its own equity securities during the three months ended December 31, 2017:

		Total number of shares repurchased	Average price paid per share (a)	Total number of shares repurchased as part of publicly-announced programs	Value of shares that may yet be repurchased under the programs
Liberty Global Shares:					
October 1, 2017 through October 31, 2017	Class A:	1,438,600	Class A: \$ 31.99	Class A: 1,438,600	(b)
	Class C:	3,901,600	Class C: \$ 31.21	Class C: 3,901,600	(b)
November 1, 2017 through November 30, 2017	Class A:	224,000	Class A: \$ 30.74	Class A: 224,000	(b)
	Class C:	3,692,400	Class C: \$ 29.54	Class C: 3,692,400	(b)
December 1, 2017 through December 31, 2017	Class A:	521,100	Class A: \$ 32.18	Class A: 521,100	(b)
	Class C:	118,800	Class C: \$ 32.58	Class C: 118,800	(b)
Total Liberty Global Shares — October 1, 2017 through December 31, 2017	Class A:	2,183,700	Class A: \$ 31.91	Class A: 2,183,700	(b)
	Class C:	7,712,800	Class C: \$ 30.43	Class C: 7,712,800	(b)

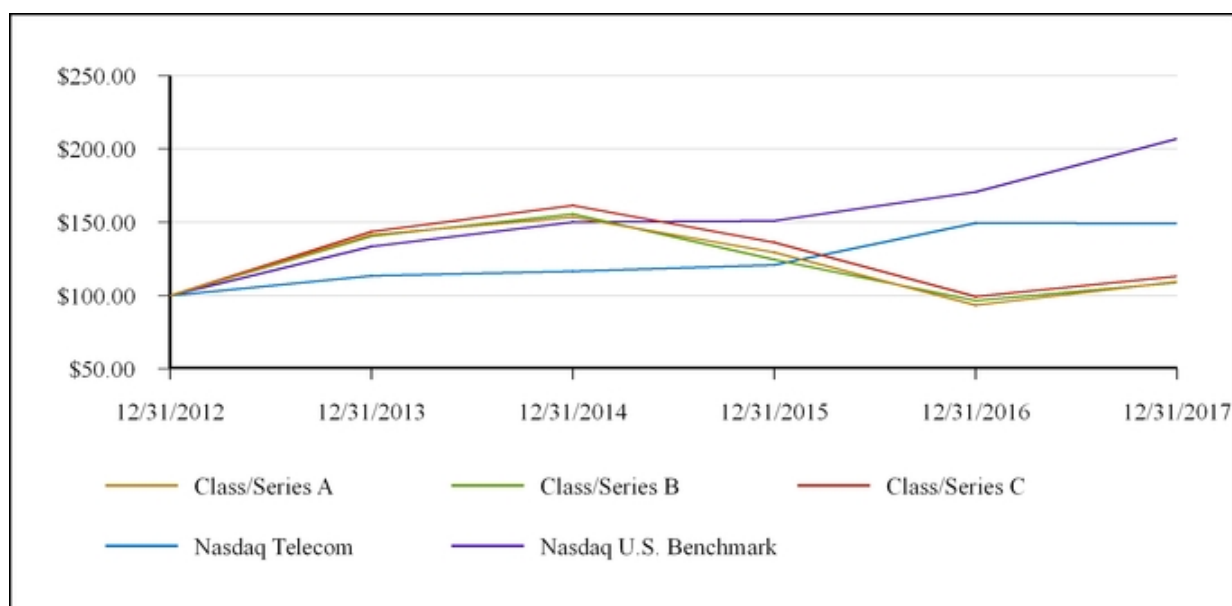
(a) Average price paid per share includes direct acquisition costs and the effects of derivative instruments, where applicable.

(b) As of December 31, 2017, the remaining amount authorized for repurchases of Liberty Global Shares was \$2.1 billion.

Stock Performance Graphs

Liberty Global Shares

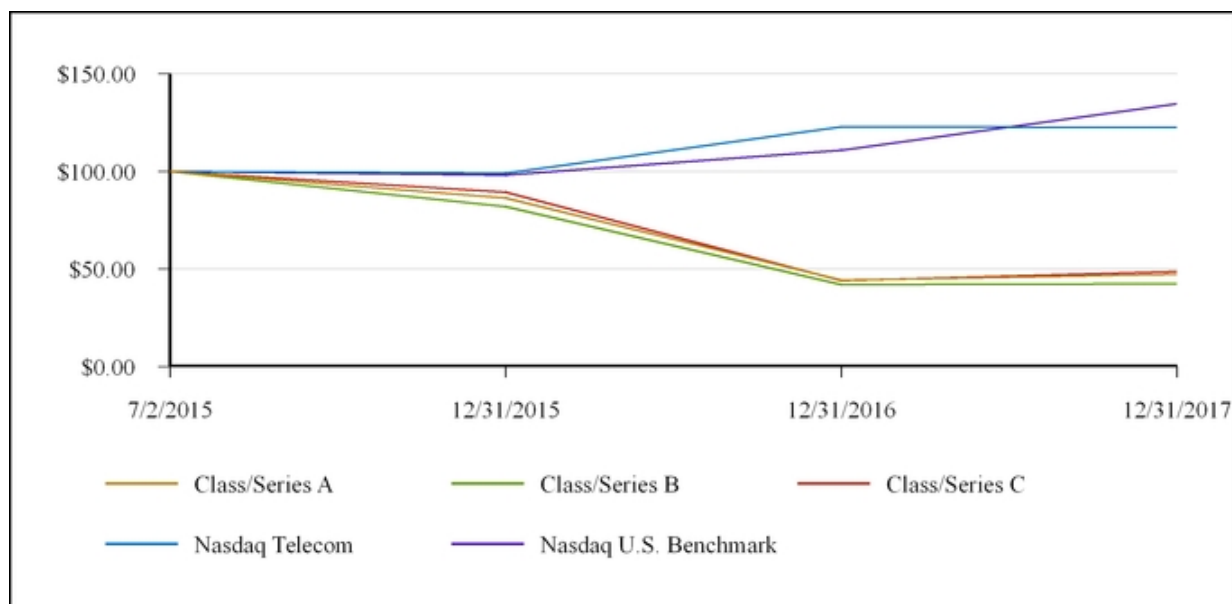
The following graph compares the changes in the cumulative total shareholder return on our Liberty Global Class A, Class B and Class C ordinary shares from January 1, 2013 to December 31, 2017, to the change in the cumulative total return on the ICB 6500 Telecommunications and the Nasdaq US Benchmark TR Index (assuming reinvestment of dividends, where applicable). The performance presented below includes (i) the share prices of Liberty Global Inc's Series A, Series B and Series C common stock prior to the June 7, 2013 acquisition of Virgin Media and (ii) the retrospective impact of the July 1, 2015 LiLAC Transaction. The performance presented below for periods prior to July 1, 2016 has not been retroactively revised for the LiLAC Distribution. The graph assumes that \$100 was invested on January 1, 2013.



	December 31,				
	2013	2014	2015	2016	2017
Liberty Global Shares - Class/Series A	\$ 141.36	\$ 153.38	\$ 129.41	\$ 93.45	\$ 109.49
Liberty Global Shares - Class/Series B	\$ 140.54	\$ 155.49	\$ 124.59	\$ 96.40	\$ 108.96
Liberty Global Shares - Class/Series C	\$ 143.52	\$ 161.49	\$ 136.28	\$ 99.28	\$ 113.12
ICB 6500 Telecommunications	\$ 113.40	\$ 116.49	\$ 120.68	\$ 149.37	\$ 149.23
Nasdaq US Benchmark TR Index	\$ 133.48	\$ 150.12	\$ 150.84	\$ 170.46	\$ 206.91

LiLAC Shares

The following graph compares the changes in the cumulative total shareholder return on our LiLAC Class A, Class B and Class C ordinary shares from July 2, 2015 (the day following the creation of the LiLAC Group tracking shares) to December 31, 2017, to the change in the cumulative total return on the ICB 6500 Telecommunications and the Nasdaq US Benchmark TR Index (assuming reinvestment of dividends, where applicable). The performance presented below for periods prior to July 1, 2016 has not been retroactively revised for the LiLAC Distribution. The graph assumes that \$100 was invested on July 2, 2015. Upon completion of the Split-off Transaction, our share capital no longer includes LiLAC Shares.



	December 31,		
	2015	2016	2017
LiLAC Shares - Class A	\$ 83.39	\$ 44.27	\$ 47.33
LiLAC Shares - Class B	\$ 81.93	\$ 41.97	\$ 42.46
LiLAC Shares - Class C	\$ 89.40	\$ 44.01	\$ 48.71
ICB 6500 Telecommunications	\$ 99.06	\$ 122.61	\$ 122.49
Nasdaq US Benchmark TR Index	\$ 98.05	\$ 110.81	\$ 134.50

Item 6. SELECTED FINANCIAL DATA

The following tables present the selected historical financial information of our continuing operations (unless otherwise indicated), which was derived from our consolidated financial statements as of and for the years ended December 31, 2017, 2016, 2015, 2014 and 2013. This information is only a summary and should be read together with our *Management's Discussion and Analysis of Financial Condition and Results of Operations* and consolidated financial statements included elsewhere herein.

	December 31,				
	2017	2016	2015	2014	2013
in millions					
<i>Summary Balance Sheet Data (a):</i>					
Investments	\$ 6,671.4	\$ 6,388.7	\$ 2,839.6	\$ 1,808.2	\$ 3,492.1
Property and equipment, net	\$ 19,535.4	\$ 17,249.3	\$ 20,840.5	\$ 23,016.0	\$ 22,733.6
Goodwill	\$ 18,547.4	\$ 17,063.7	\$ 26,244.8	\$ 28,214.3	\$ 22,180.9
Total assets (including discontinued operations)	\$ 57,596.8	\$ 68,684.1	\$ 67,559.0	\$ 72,496.4	\$ 67,321.5
Debt and capital lease obligations, including current portion	\$ 42,214.9	\$ 37,510.8	\$ 44,444.8	\$ 43,782.0	\$ 43,739.8
Total equity	\$ 6,393.0	\$ 14,732.0	\$ 10,174.3	\$ 14,116.0	\$ 11,541.5

	Year ended December 31,				
	2017	2016	2015	2014	2013
in millions, except per share amounts					
<i>Summary Statement of Operations Data (a):</i>					
Revenue	\$ 15,048.9	\$ 17,285.0	\$ 17,062.7	\$ 17,043.7	\$ 13,186.7
Operating income	\$ 1,947.5	\$ 2,482.2	\$ 2,101.1	\$ 1,999.8	\$ 1,989.2
Earnings (loss) from continuing operations (b)	\$ (1,865.5)	\$ 1,994.5	\$ (1,101.2)	\$ (990.6)	\$ (829.0)
Earnings (loss) from continuing operations attributable to Liberty Global shareholders	\$ (1,943.6)	\$ 1,960.8	\$ (1,196.4)	\$ (1,040.5)	\$ (898.5)
Basic earnings (loss) from continuing operations attributable to Liberty Global shareholders per share:					
Liberty Global Shares (c)	\$ (2.29)	\$ 2.20	\$ (0.19)		
Old Liberty Global Shares (d)			\$ (1.16)	\$ (1.30)	\$ (1.34)
Diluted earnings (loss) from continuing operations attributable to Liberty Global shareholders per share:					
Liberty Global Shares (c)	\$ (2.29)	\$ 2.18	\$ (0.19)		
Old Liberty Global Shares (d)			\$ (1.16)	\$ (1.30)	\$ (1.34)

(a) We acquired BASE on February 11, 2016, Ziggo on November 11, 2014 and Virgin Media on June 7, 2013. Our continuing operations also completed a number of less significant acquisitions during the years presented. On December 31, 2016, we completed the VodafoneZiggo JV Transaction, pursuant to which we contributed VodafoneZiggo Holding to the VodafoneZiggo JV. In addition, we acquired C&W on May 16, 2016 and a less significant cable and broadband services provider in Puerto Rico on June 3, 2015, each of which was attributed to the LiLAC Group. Effective December 31, 2017, we completed the Split-off Transaction, pursuant to which the businesses, assets and liabilities of the LiLAC Group were transferred to an independent publicly-traded company. On January 31, 2014, we sold substantially all of the assets of Chellomedia B.V. (the **Chellomedia Disposal Group**). Accordingly, the selected financial data included in this table presents the LiLAC Group and the Chellomedia Disposal Group as discontinued operations for all applicable periods. For information regarding our acquisitions and dispositions during the past three years, see notes 4 and 5, respectively, to our consolidated financial statements.

(b) Includes earnings from continuing operations attributable to noncontrolling interests of \$78.1 million, \$33.7 million, \$95.2 million, \$49.9 million and \$69.5 million, respectively.

(c) The amounts presented for 2015 relate to the period from July 1, 2015 through December 31, 2015.

(d) The amounts presented for 2015 relate to the period from January 1, 2015 through June 30, 2015.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis, which should be read in conjunction with our consolidated financial statements, is intended to assist in providing an understanding of our results of operations and financial condition and is organized as follows:

- *Overview.* This section provides a general description of our business and recent events.
- *Results of Operations.* This section provides an analysis of our results of operations for the years ended December 31, 2017, 2016 and 2015.
- *Liquidity and Capital Resources.* This section provides an analysis of our corporate and subsidiary liquidity, consolidated statements of cash flows and contractual commitments.
- *Critical Accounting Policies, Judgments and Estimates.* This section discusses those material accounting policies that involve uncertainties and require significant judgment in their application.
- *Quantitative and Qualitative Disclosures about Market Risk.* This section provides discussion and analysis of the foreign currency, interest rate and other market risk that our company faces.

Unless otherwise indicated, convenience translations into U.S. dollars are calculated, and operational data (including subscriber statistics) is presented, as of December 31, 2017.

Overview

General

We are an international provider of video, broadband internet, fixed-line telephony, mobile and other communications services to residential customers and businesses, with consolidated operations at December 31, 2017 in 12 European countries. We provide residential and B2B communication services in (i) the U.K. and Ireland through Virgin Media, (ii) Germany through Unitymedia, (iii) Belgium and Luxembourg through Telenet and (iv) seven other European countries through UPC Holding. In addition, through the December 31, 2016 completion of the VodafoneZiggo JV Transaction, we provided residential and B2B communications services in the Netherlands through VodafoneZiggo Holding. Following the completion of the VodafoneZiggo JV Transaction, we own a 50% noncontrolling interest in the VodafoneZiggo JV, which provides video, broadband internet, fixed-line telephony, mobile and B2B communications services in the Netherlands.

As further described in note 5, we completed the Split-off Transaction on December 29, 2017. Accordingly, the entities comprising the LiLAC Group are reflected as discontinued operations in our consolidated financial statements for all applicable periods presented. In the following discussion and analysis, the operating statistics, results of operations, cash flows and financial condition that we present and discuss are those of our continuing operations unless otherwise indicated.

Operations

At December 31, 2017, we owned and operated networks that passed 45,222,300 homes and served 45,793,700 revenue generating units (**RGUs**), consisting of 18,485,200 video subscribers, 14,917,400 broadband internet subscribers and 12,391,100 fixed-line telephony subscribers. In addition, at December 31, 2017, we served 6,448,200 mobile subscribers.

Video services. We provide video services, including various enhanced products that enable our customers to control when they watch their programming. These products range from digital video recorders to multimedia home gateway systems capable of distributing video, voice and data content throughout the home and to multiple devices.

Broadband internet services. We offer multiple tiers of broadband internet service with available maximum download speeds as high as 500 Mbps or more depending on location. We continue to invest in new technologies that allow us to increase the internet speeds we offer to our customers.

Fixed-line telephony services. We offer fixed-line telephony services via either voice-over-internet-protocol or "**VoIP**" technology or circuit-switched telephony, depending on location.

Mobile services. We offer voice and data mobile services through MVNO networks or our own networks. We offer mobile services as an MVNO over third-party networks in the U.K., Germany, Belgium, Switzerland, Austria, Ireland and Hungary. In connection with the BASE Acquisition, Telenet acquired BASE's mobile network in Belgium. As a result, Telenet is migrating its

mobile subscribers from an MVNO arrangement to the BASE mobile network and expects to complete this migration by the end of the first half of 2018. Telenet's MVNO agreement expires at the end of 2018.

B2B services. Our B2B services include voice, broadband internet, data, video, wireless and cloud services.

For additional information regarding the details of our products and services, see *Item 1. Business* included in Part I of this Annual Report on Form 10-K.

Strategy and management focus

From a strategic perspective, we are seeking to build broadband communications and mobile businesses that have strong prospects for future growth. As discussed further under *Liquidity and Capital Resources — Capitalization* below, we also seek to maintain our debt at levels that provide for attractive equity returns without assuming undue risk.

We strive to achieve organic revenue and customer growth in our operations by developing and marketing bundled entertainment and information and communications services, and extending and upgrading the quality of our networks where appropriate. As we use the term, organic growth excludes foreign currency translation effects (FX) and the estimated impact of acquisitions and dispositions. While we seek to increase our customer base, we also seek to maximize the average revenue we receive from each household by increasing the penetration of our digital video, broadband internet, fixed-line telephony and mobile services with existing customers through product bundling and upselling.

During 2015 and 2016, we initiated network extension programs in the U.K., Ireland, Central and Eastern Europe, Germany and certain other markets. We collectively refer to these network extension programs as the “**Network Extensions**.” During 2017, pursuant to the Network Extensions, our continuing operations connected approximately 1,177,000 additional residential and commercial premises (excluding upgrades) to our two-way networks, including approximately 536,000 residential and commercial premises connected by Virgin Media in the U.K. and Ireland. During 2017, we have experienced increased construction costs related to the Network Extensions in the U.K., and similar increases could occur in the U.K. and elsewhere in future periods. However, we will only continue to extend our footprint through new construction to the extent we believe we can obtain attractive returns on our investments. We expect to continue the Network Extensions in 2018. Depending on a variety of factors, including the financial and operational results of the programs, the Network Extensions may be continued, modified or cancelled at our discretion.

The capital costs associated with the Network Extensions, which include the costs to build out the networks and the purchase and installation of related customer premises equipment, are expected to be significant. For information regarding our expected property and equipment additions during 2018, see *Liquidity and Capital Resources — Consolidated Statements of Cash Flows* below.

Our assessment of the impacts of the Network Extensions are subject to competitive, economic, regulatory and other factors outside of our control.

Competition and other external factors

We are experiencing significant competition from incumbent telecommunications operators, DTH operators and/or other providers in all of our markets, particularly in Switzerland and the U.K. For additional information regarding the competition we face, see *Item 1. Business - Competition* and *- Regulatory Matters* included in Part I of this Annual Report on Form 10-K. The significant competition we are experiencing, together with macroeconomic factors, has adversely impacted our revenue, RGUs and/or average monthly subscription revenue per average cable RGU or mobile subscriber, as applicable (**ARPU**), particularly in Switzerland. In addition, the VodafoneZiggo JV is facing significant competition in the Netherlands, particularly with respect to its mobile operations. For additional information regarding the revenue impact of changes in the RGUs and ARPU of our consolidated reportable segments, see *Discussion and Analysis of our Reportable Segments* below.

In addition to competition, our operations are subject to macroeconomic, political and other risks that are outside of our control. For example, on June 23, 2016, the U.K. held a referendum in which U.K. citizens voted in favor of, on an advisory basis, an exit from the E.U. commonly referred to as “**Brexit**.” Brexit is currently scheduled to occur on March 29, 2019. The potential impacts, if any, of the uncertainty relating to Brexit or the resulting terms of Brexit on the free movement of goods, services, people and capital between the U.K. and the E.U., customer behavior, economic conditions, interest rates, currency exchange rates, availability of capital or other matters are unclear. In addition, the value of the British pound sterling relative to the U.S.

dollar remains at levels that are significantly below pre-Brexit levels. The effects of Brexit could adversely affect our business, results of operations, financial condition and liquidity.

In addition, high levels of sovereign debt in the U.S. and several countries in which we or our affiliates operate, combined with weak growth and high unemployment, could potentially lead to fiscal reforms (including austerity measures), tax increases, sovereign debt restructurings, currency instability, increased counterparty credit risk, high levels of volatility and disruptions in the credit and equity markets, as well as other outcomes that might adversely impact our company. The occurrence of any of these events, especially within the eurozone countries given our significant exposure to the euro and pound sterling, could have an adverse impact on, among other matters, our liquidity and cash flows.

Results of Operations

We have completed a number of transactions that impact the comparability of our 2017, 2016 and 2015 results of operations, including the SFR BeLux Acquisition on June 19, 2017, the BASE Acquisition on February 11, 2016 and a number of less significant acquisitions during 2017, 2016 and 2015. For additional information, see note 4 to our consolidated financial statements.

On December 31, 2016, we completed the VodafoneZiggo JV Transaction, whereby we contributed VodafoneZiggo Holding and its subsidiaries (including Ziggo Sport) to the VodafoneZiggo JV. Accordingly, our results of operations for 2016 and 2015 include the operations of VodafoneZiggo Holding and its subsidiaries. In our segment presentation for 2016 and 2015, VodafoneZiggo Holding (exclusive of Ziggo Sport, which became a subsidiary of VodafoneZiggo Holding in October 2016) is separately reported as “*The Netherlands*”, and Ziggo Sport is included in Central and Corporate. For additional information regarding the VodafoneZiggo JV Transaction, see note 5 to our consolidated financial statements.

For further information regarding our pending and completed acquisitions and dispositions, see notes 4 and 5, respectively, to our consolidated financial statements.

In the following discussion, we quantify the estimated impact of acquisitions (the **Acquisition Impact**) on our operating results. The Acquisition Impact represents our estimate of the difference between the operating results of the periods under comparison that is attributable to an acquisition. In general, we base our estimate of the Acquisition Impact on an acquired entity’s operating results during the first three to twelve months following the acquisition date, as adjusted to remove integration costs and any other material unusual or nonoperational items, such that changes from those operating results in subsequent periods are considered to be organic changes. Accordingly, in the following discussion, (i) organic variances attributed to an acquired entity during the first 12 months following the acquisition date represent differences between the Acquisition Impact and the actual results and (ii) the calculation of our organic change percentages includes the organic activity of an acquired entity relative to the Acquisition Impact of such entity. In the following discussion of organic changes, we also quantify the impact of the VodafoneZiggo JV Transaction on our results of operations. In this regard, the organic changes of Liberty Global are adjusted to exclude (a) the operations of VodafoneZiggo Holding and Ziggo Sport for 2016 and 2015, (b) the revenue earned during 2017 from services provided to VodafoneZiggo JV and (c) certain operating and SG&A expenses incurred during 2017 that were allocated to our Netherlands segment during 2016 and 2015.

Changes in foreign currency exchange rates have a significant impact on our reported operating results as all of our operating segments have functional currencies other than the U.S. dollar. Our primary exposure to FX risk during the three months ended December 31, 2017 was to the euro and British pound sterling as 44.8% and 39.5% of our reported revenue during the period was derived from subsidiaries whose functional currencies are the euro and British pound sterling, respectively. In addition, our reported operating results are impacted by changes in the exchange rates for other local currencies in Europe. The portions of the changes in the various components of our results of operations that are attributable to changes in FX are highlighted under *Discussion and Analysis of our Reportable Segments* and *Discussion and Analysis of our Consolidated Operating Results* below. For information regarding our foreign currency risks and the applicable foreign currency exchange rates in effect for the periods covered by this Annual Report on Form 10-K, see *Quantitative and Qualitative Disclosures about Market Risk — Foreign Currency Risk* below.

The amounts presented and discussed below represent 100% of each of our consolidated reportable segment’s revenue and Adjusted OIBDA. As we have the ability to control Telenet, we consolidate 100% of the revenue and expenses of this entity in our consolidated statements of operations despite the fact that third parties own significant interests in this entity. The noncontrolling owners’ interests in the operating results of Telenet and other less significant majority-owned subsidiaries are reflected in net earnings or loss attributable to noncontrolling interests in our consolidated statements of operations.

Discussion and Analysis of our Reportable Segments

General

All of the reportable segments set forth below derive their revenue primarily from residential and B2B communications services, including video, broadband internet, fixed-line telephony and mobile services. For detailed information regarding the composition of our reportable segments and how we define and categorize our revenue components, see note 18 to our consolidated financial statements. For more information regarding the results of operations of the VodafoneZiggo JV, refer to *Discussion and Analysis of our Consolidated Operating Results - Share of losses of affiliates* below.

The tables presented below in this section provide the details of the revenue and Adjusted OIBDA of our consolidated reportable segments for (i) 2017, as compared to 2016, and (ii) 2016, as compared to 2015. These tables present (a) the amounts reported for the current and comparative periods, (b) the reported U.S. dollar change and percentage change from period to period and (c) the organic U.S. dollar change and percentage change from period to period. The comparisons that exclude FX assume that exchange rates remained constant at the prior-year rate during the comparative periods that are included in each table. We also provide a table showing the Adjusted OIBDA margins of our consolidated reportable segments for 2017, 2016 and 2015 at the end of this section.

Most of our revenue is derived from jurisdictions that administer VAT or similar revenue-based taxes. Any increases in these taxes could have an adverse impact on our ability to maintain or increase our revenue to the extent that we are unable to pass such tax increases on to our customers. In the case of revenue-based taxes for which we are the ultimate taxpayer, we will also experience increases in our operating costs and expenses and corresponding declines in our Adjusted OIBDA and Adjusted OIBDA margins to the extent of any such tax increases.

We pay interconnection fees to other telephony providers when calls or text messages from our subscribers terminate on another network, and we receive similar fees from such providers when calls or text messages from their customers terminate on our networks or networks that we access through MVNO or other arrangements. The amounts we charge and incur with respect to fixed-line telephony and mobile interconnection fees are subject to regulatory oversight. To the extent that regulatory authorities introduce fixed-line or mobile termination rate changes, we would experience prospective changes and, in very limited cases, we could experience retroactive changes in our interconnect revenue and/or costs. The ultimate impact of any such changes in termination rates on our Adjusted OIBDA would be dependent on the call or text messaging patterns that are subject to the changed termination rates.

We are subject to inflationary pressures with respect to certain costs and foreign currency exchange risk with respect to costs and expenses that are denominated in currencies other than the respective functional currencies of our consolidated reportable segments (**non-functional currency expenses**). Any cost increases that we are not able to pass on to our subscribers through rate increases would result in increased pressure on our operating margins. For additional information regarding our foreign currency exchange risks see *Quantitative and Qualitative Disclosures about Market Risk — Foreign Currency Risk* below.

Revenue of our Reportable Segments

General. While not specifically discussed in the below explanations of the changes in the revenue of our consolidated reportable segments, we are experiencing significant competition in all of our markets. This competition has an adverse impact on our ability to increase or maintain our RGUs and/or ARPU.

Variances in the subscription revenue that we receive from our customers are a function of (i) changes in the number of RGUs or mobile subscribers outstanding during the period and (ii) changes in ARPU. Changes in ARPU can be attributable to (a) changes in prices, (b) changes in bundling or promotional discounts, (c) changes in the tier of services selected, (d) variances in subscriber usage patterns and (e) the overall mix of cable and mobile products within a segment during the period. In the following discussion, we discuss ARPU changes in terms of the net impact of the above factors on the ARPU that is derived from our video, broadband internet, fixed-line telephony and mobile products.

Revenue — 2017 compared to 2016

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
	in millions, except percentages					
U.K./Ireland	\$ 6,398.7	\$ 6,508.8	\$ (110.1)	(1.7)	\$ 151.8	2.3
Belgium	2,865.3	2,691.1	174.2	6.5	36.3	1.3
Germany	2,705.4	2,539.7	165.7	6.5	109.5	4.3
Switzerland/Austria	1,766.0	1,755.6	10.4	0.6	(5.0)	(0.3)
Central and Eastern Europe	1,183.6	1,088.4	95.2	8.7	57.6	5.2
The Netherlands	—	2,690.8	(2,690.8)	(100.0)	—	—
Central and Corporate (a)	144.8	73.2	71.6	97.8	3.4	2.5
Intersegment eliminations	(14.9)	(62.6)	47.7	N.M.	(0.6)	N.M.
Total	\$ 15,048.9	\$ 17,285.0	\$ (2,236.1)	(12.9)	\$ 353.0	2.4

(a) The amount presented for 2017 primarily includes the revenue earned from services provided to the VodafoneZiggo JV. For additional information, see note 6 to our consolidated financial statements. The amount presented for 2016 primarily includes the revenue of Ziggo Sport, which was contributed to the VodafoneZiggo JV as part of the VodafoneZiggo JV Transaction.

N.M. — Not Meaningful.

U.K./Ireland. The details of the decrease in U.K./Ireland's revenue during 2017, as compared to 2016, are set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ 80.0	\$ —	\$ 80.0
ARPU (b)	18.2	—	18.2
Increase in residential cable non-subscription revenue (c)	—	18.9	18.9
Total increase in residential cable revenue	98.2	18.9	117.1
Increase (decrease) in residential mobile revenue (d)	(52.9)	38.9	(14.0)
Increase in B2B revenue (e)	34.6	7.0	41.6
Increase in other revenue (f)	—	7.1	7.1
Total organic increase	79.9	71.9	151.8
Impact of acquisitions	—	31.4	31.4
Impact of disposals	—	(2.9)	(2.9)
Impact of FX	(230.0)	(60.4)	(290.4)
Total	\$ (150.1)	\$ 40.0	\$ (110.1)

- (a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is primarily attributable to (i) increases in the average number of broadband internet, video and fixed-line telephony RGUs in the U.K. and (ii) a decrease in the average number of video RGUs in Ireland.
- (b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) the net effect of (a) higher ARPU from broadband internet services and (b) lower ARPU from video and fixed-line telephony services and (ii) an improvement in RGU mix. In addition, ARPU from video, broadband internet and fixed-line telephony services was adversely impacted by an aggregate revenue decrease of \$12.4 million associated with an April 2016 change in the regulations governing payment handling fees that Virgin Media charges to its customers in the U.K.
- (c) The increase in residential cable non-subscription revenue is primarily attributable to the net effect of (i) an increase in installation revenue in the U.K. and (ii) a decrease in early termination fees in the U.K.
- (d) The decrease in residential mobile subscription revenue is primarily attributable to the net effect of (i) a decrease in the U.K., due primarily to lower ARPU, and (ii) an increase in Ireland, mainly due to an increase in the average number of mobile subscribers. The lower ARPU in the U.K. includes the net effect of (a) a decline of \$104.8 million attributable to a lower number of customers under higher-ARPU subsidized handset contracts and (b) an increase of \$42.5 million attributable to growth in the number of customers under the lower-ARPU Split-contract Program. For additional information regarding Split-contract Programs, see note 3 to our consolidated financial statements. The increase in residential mobile non-subscription revenue is primarily due to (1) an increase in revenue from mobile handset sales in the U.K. and (2) a decrease in interconnect revenue, as a decrease in the U.K. was only partially offset by a volume-related increase in Ireland. The decrease in interconnect revenue in the U.K. is primarily due to (I) a decline in mobile short message service or "SMS" termination volumes and (II) lower mobile termination rates and volumes.
- (e) The increase in B2B subscription revenue is primarily due to an increase in the average number of broadband internet SOHO RGUs in the U.K. The increase in B2B non-subscription revenue is primarily due to the net effect of (i) an increase in early termination fees in the U.K. and (ii) lower revenue from data services in the U.K.
- (f) The increase in other revenue is largely due to an increase in broadcasting revenue in Ireland.

For information regarding certain regulatory developments that could have an adverse impact on our revenue in the U.K., see note 17 to our consolidated financial statements.

Belgium. The details of the increase in Belgium's revenue during 2017, as compared to 2016, are set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase (decrease) in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ (35.7)	\$ —	\$ (35.7)
ARPU (b)	23.3	—	23.3
Increase in residential cable non-subscription revenue (c)	—	6.7	6.7
Total increase (decrease) in residential cable revenue	(12.4)	6.7	(5.7)
Decrease in residential mobile revenue (d)	(28.4)	(25.6)	(54.0)
Increase in B2B revenue (e)	46.7	49.5	96.2
Decrease in other revenue	—	(0.2)	(0.2)
Total organic increase	5.9	30.4	36.3
Impact of acquisitions	74.9	33.7	108.6
Impact of disposals	(21.0)	(9.0)	(30.0)
Impact of FX	44.9	14.4	59.3
Total	<u>\$ 104.7</u>	<u>\$ 69.5</u>	<u>\$ 174.2</u>

- (a) The decrease in residential cable subscription revenue related to a change in the average number of RGUs is attributable to decreases in the average number of video, broadband internet and fixed-line telephony RGUs.
- (b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) the net effect of (a) higher ARPU from video and broadband internet services and (b) lower ARPU from fixed-line telephony services and (ii) an improvement in RGU mix.
- (c) The increase in residential cable non-subscription revenue is attributable to the net effect of (i) an increase of \$5.8 million due to adjustments recorded during 2017 to reflect the expected recovery of certain prior-period VAT payments and (ii) a decrease in revenue from services provided over third-party networks.
- (d) The decrease in residential mobile subscription revenue is primarily due to the net effect of (i) a decline in the average number of mobile subscribers, as a decrease in the average number of prepaid mobile subscribers was only partially offset by an increase in the average number of postpaid mobile subscribers, and (ii) higher ARPU. The decrease in residential mobile non-subscription revenue is primarily due to (a) a decrease in revenue from sales of mobile handsets and other devices and (b) a decrease in interconnect revenue due to the net effect of lower SMS termination volumes, higher roaming revenue and lower mobile termination rates.
- (e) The increase in B2B subscription revenue is attributable to increases in the average number of broadband internet, video, mobile and fixed-line telephony SOHO subscribers. The increase in B2B non-subscription revenue is primarily due to (i) higher revenue from wholesale services, (ii) an increase in interconnect revenue driven by higher mobile volumes and (iii) an increase in revenue from hosting and managed security services.

For information concerning certain regulatory developments that could have an adverse impact on our revenue in Belgium, see note 17 to our consolidated financial statements.

Germany. The details of the increase in Germany's revenue during 2017, as compared to 2016, are set forth below.

	Subscription revenue (a)	Non-subscription revenue	Total
	in millions		
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (b)	\$ 45.0	\$ —	\$ 45.0
ARPU (c)	27.7	—	27.7
Decrease in residential cable non-subscription revenue (d)	—	(14.9)	(14.9)
Total increase (decrease) in residential cable revenue	72.7	(14.9)	57.8
Increase (decrease) in residential mobile revenue (e)	(3.4)	26.7	23.3
Increase in B2B revenue (f)	14.6	15.2	29.8
Decrease in other revenue	—	(1.4)	(1.4)
Total organic increase	83.9	25.6	109.5
Impact of FX	50.4	5.8	56.2
Total	\$ 134.3	\$ 31.4	\$ 165.7

- (a) Residential cable subscription revenue includes revenue from multi-year bulk agreements with landlords or housing associations or with third parties that operate and administer the in-building networks on behalf of housing associations. These bulk agreements, which generally allow for the procurement of the basic video signals at volume-based discounts, provide access to approximately two-thirds of Germany's video subscribers. Germany's bulk agreements are, to a significant extent, medium- and long-term contracts. As of December 31, 2017, bulk agreements covering approximately 36% of the video subscribers that Germany serves expire by the end of 2018 or are terminable on 30-days notice. During the three months ended December 31, 2017, Germany's 20 largest bulk agreement accounts generated approximately 9% of its total revenue (including estimated amounts billed directly to the building occupants for digital video, broadband internet and fixed-line telephony services). No assurance can be given that Germany's bulk agreements will be renewed or extended on financially equivalent terms, or at all.
- (b) The increase in residential cable subscription revenue related to a change in the average number of RGUs is attributable to the net effect of (i) increases in the average number of broadband internet and fixed-line telephony RGUs and (ii) a decline in the average number of video RGUs.
- (c) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) an improvement in RGU mix and (ii) a net increase due to (a) higher ARPU from video and broadband internet services and (b) lower ARPU from fixed-line telephony services.
- (d) The decrease in residential cable non-subscription revenue is primarily due to the net effect of (i) a decrease in channel carriage fee revenue, (ii) a decrease in interconnect revenue, primarily due to a decline in fixed-line telephony termination rates and volumes, and (iii) an increase in installation revenue. Channel carriage revenue relates to fees received for the carriage of certain channels included in Germany's basic and enhanced video offerings. This channel carriage fee revenue is subject to contracts that expire or are otherwise terminable by either party on various dates ranging from 2018 through 2022. The aggregate amount of revenue related to these channel carriage contracts represented approximately 4% of Germany's total revenue during the three months ended December 31, 2017. No assurance can be given that these contracts will be renewed or extended on financially equivalent terms, or at all. The decrease in channel carriage fee revenue is primarily due to the June 2017 discontinuation of our analog video service in Germany, which resulted in a revenue decrease of \$17.5 million.
- (e) The increase in residential mobile non-subscription revenue is primarily due to an increase in revenue from mobile handset sales of \$26.4 million associated with the fourth quarter 2016 launch of a wholesale handset program. These mobile handset sales typically generate relatively low margins. Beginning in 2018, Germany's wholesale handset program will be included within a broader program that will be administered by a subsidiary within Central and Corporate. Accordingly, Germany's low-margin mobile handset sales are expected to decline significantly in 2018.
- (f) The increase in B2B subscription revenue is primarily attributable to increases in the average number of fixed-line telephony

and broadband internet SOHO RGUs. The increase in B2B non-subscription revenue is partially due to (i) higher interconnect revenue, mainly due to higher fixed-line telephony volumes, and (ii) an increase in revenue from data services.

Switzerland/Austria. The details of the increase in Switzerland/Austria's revenue during 2017, as compared to 2016, are set forth below.

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Decrease in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ (4.5)	\$ —	\$ (4.5)
ARPU (b)	(43.6)	—	(43.6)
Increase in residential cable non-subscription revenue (c)	—	14.9	14.9
Total increase (decrease) in residential cable revenue	(48.1)	14.9	(33.2)
Increase in residential mobile revenue (d)	16.8	0.4	17.2
Increase in B2B revenue (e)	4.4	6.6	11.0
Total organic increase (decrease)	(26.9)	21.9	(5.0)
Impact of acquisitions	1.6	4.8	6.4
Impact of FX	6.9	2.1	9.0
Total	<u>\$ (18.4)</u>	<u>\$ 28.8</u>	<u>\$ 10.4</u>

- (a) The decrease in residential cable subscription revenue related to a change in the average number of RGUs is attributable to the net effect of (i) a decline in the average number of video RGUs and (ii) increases in the average number of fixed-line telephony and broadband internet RGUs.
- (b) The decrease in residential cable subscription revenue related to a change in ARPU is attributable to (i) a decrease due to lower ARPU from fixed-line telephony, broadband internet and video services and (ii) an adverse change in RGU mix.
- (c) The increase in residential cable non-subscription revenue is primarily attributable to the net effect of (i) a \$19.3 million increase associated with distribution revenue that we earned following the September 2017 launch of our Swiss sports channels, (ii) a decrease in installation revenue in Switzerland and (iii) a decrease in equipment sales in Switzerland. In addition, the increase in residential cable non-subscription revenue includes a \$6.5 million favorable impact of the release of unclaimed customer credits in Switzerland during the first half of 2017.
- (d) The increase in residential mobile subscription revenue is due to the net impact of (i) an increase in the average number of mobile subscribers and (ii) lower ARPU from mobile services.
- (e) The increase in B2B subscription revenue is primarily attributable to an increase in the average number of broadband internet SOHO RGUs. The increase in B2B non-subscription revenue is primarily due to (i) higher revenue from data services, primarily in Switzerland, (ii) higher revenue from construction services provided to our partner networks in Switzerland and (iii) an increase in interconnect revenue in Switzerland.

Central and Eastern Europe. The details of the increase in Central and Eastern Europe's revenue during 2017, as compared to 2016, are set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase (decrease) in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ 29.7	\$ —	\$ 29.7
ARPU (b)	(9.8)	—	(9.8)
Increase in residential cable non-subscription revenue (c)	—	6.3	6.3
Total increase in residential cable revenue	19.9	6.3	26.2
Increase in residential mobile revenue (d)	2.9	0.5	3.4
Increase in B2B revenue (e)	8.3	19.5	27.8
Increase in other revenue	—	0.2	0.2
Total organic increase	31.1	26.5	57.6
Impact of FX	33.8	3.8	37.6
Total	\$ 64.9	\$ 30.3	\$ 95.2

- (a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is attributable to (i) an increase in the average number of broadband internet RGUs, primarily due to increases in Hungary, the Czech Republic, Romania and Poland, (ii) an increase in the average number of video RGUs, primarily due to increases in the Czech Republic, Hungary and Romania that were only partially offset by decreases in Slovakia and UPC DTH and (iii) an increase in the average number of fixed-line telephony RGUs, due primarily to increases in Hungary and Romania.
- (b) The decrease in residential cable subscription revenue related to a change in ARPU is primarily attributable to (i) the net effect of (a) higher ARPU from video services, primarily due to increases in Poland, Hungary and UPC DTH that were only partially offset by a decrease in the Czech Republic, (b) lower ARPU from fixed-line telephony services, primarily driven by decreases in Poland, Romania and Hungary and (c) lower ARPU from broadband internet services, as decreases in Poland and Hungary were only partially offset by an increase in Romania, and (ii) an improvement in RGU mix.
- (c) The increase in residential cable non-subscription revenue is primarily attributable to increases in Hungary, Poland and UPC DTH.
- (d) The increase in residential mobile subscription revenue is primarily due to an increase in the average number of mobile subscribers in Hungary.
- (e) The increase in B2B subscription revenue is primarily attributable to (i) an increase in the average number of broadband internet SOHO RGUs, most notably in Hungary and Poland, and (ii) an increase in the average number of video SOHO RGUs. The increase in B2B non-subscription revenue is primarily due to (a) higher revenue from fixed-line telephony services, primarily in the Czech Republic, (b) higher interconnect revenue, primarily due to higher volumes in Poland and Hungary, and (c) higher revenue from data services, primarily in Poland and Romania.

Revenue — 2016 compared to 2015

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 6,508.8	\$ 7,058.7	\$ (549.9)	(7.8)	\$ 195.5	2.8
Belgium (a)	2,691.1	2,021.0	670.1	33.2	97.8	3.8
The Netherlands	2,690.8	2,745.3	(54.5)	(2.0)	(45.9)	(1.7)
Germany	2,539.7	2,399.5	140.2	5.8	148.4	6.2
Switzerland/Austria	1,755.6	1,758.2	(2.6)	(0.1)	29.1	1.7
Central and Eastern Europe	1,088.4	1,066.6	21.8	2.0	40.2	3.8
Central and Corporate (b)	73.2	51.5	21.7	42.1	34.2	86.6
Intersegment eliminations	(62.6)	(38.1)	(24.5)	N.M.	(25.0)	N.M.
Total	\$ 17,285.0	\$ 17,062.7	\$ 222.3	1.3	\$ 474.3	2.7

(a) The amount presented for 2016 includes the post-acquisition revenue of BASE, which was acquired on February 11, 2016.

(b) The amounts presented for 2016 and 2015 primarily include the revenue of Ziggo Sport, which was contributed to the VodafoneZiggo JV as part of the VodafoneZiggo JV Transaction.

N.M. — Not Meaningful.

U.K./Ireland. The details of the decrease in U.K./Ireland's revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ 89.7	\$ —	\$ 89.7
ARPU (b)	92.6	—	92.6
Increase in residential cable non-subscription revenue (c)	—	16.1	16.1
Total increase in residential cable revenue	182.3	16.1	198.4
Increase (decrease) in residential mobile revenue (d)	(86.8)	41.7	(45.1)
Increase in B2B revenue (e)	12.5	16.8	29.3
Increase in other revenue (f)	—	12.9	12.9
Total organic increase	108.0	87.5	195.5
Impact of acquisitions	—	44.7	44.7
Impact of disposals	—	(11.8)	(11.8)
Impact of FX	(616.7)	(161.6)	(778.3)
Total	\$ (508.7)	\$ (41.2)	\$ (549.9)

(a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is primarily attributable to the net effect of (i) increases in the average number of broadband internet and fixed-line telephony RGUs in the U.K. and (ii) a decline in the average number of video RGUs.

- (b) The increase in residential cable subscription revenue related to a change in ARPU is primarily attributable to the net effect of (i) a net increase primarily due to the net effect of (a) higher ARPU from broadband internet and video services and (b) lower ARPU from fixed-line telephony services in the U.K. and (ii) an adverse change in RGU mix. In addition, ARPU was adversely impacted by an April 2016 change in the regulations governing payment handling fees that Virgin Media charges to its customers in the U.K., which reduced revenue by \$29.4 million.
- (c) The increase in residential cable non-subscription revenue is primarily related to (i) an increase in installation revenue, (ii) an increase in early termination fees and (iii) higher revenue from late fees.
- (d) The decrease in residential mobile subscription revenue is primarily attributable to the net effect of (i) a decrease in the U.K., due primarily to lower ARPU, and (ii) an increase in Ireland, mainly due to an increase in the average number of mobile subscribers. The lower ARPU in the U.K. includes the net effect of (a) a decline of \$158.8 million attributable to a lower number of customers under higher-ARPU subsidized handset contracts, (b) an increase of \$61.6 million attributable to growth in the number of customers under the lower-ARPU Split-contract Program, (c) an increase of \$15.7 million attributable to growth in the number of customers under subscriber identification module or “SIM”-only contracts and (d) a decrease in revenue due to the impact of a \$4.2 million favorable adjustment to VAT recorded during the fourth quarter of 2015. The increase in residential mobile non-subscription revenue is primarily due to the net effect of (1) an increase in revenue from mobile handset sales, primarily attributable to an increase of \$63.5 million associated with the U.K. Split-contract Program, (2) a decrease in interconnect revenue in the U.K., primarily due to (A) a decline in mobile SMS termination volumes and (B) lower fixed-line telephony termination volumes, and (3) a decrease in early termination fees in the U.K. The increase in revenue from mobile handset sales pursuant to the U.K. Split-contract Program is due to the net effect of (I) increased volume and (II) lower average revenue per handset sold.
- (e) The increase in B2B subscription revenue is primarily due to an increase in the average number of broadband internet SOHO RGUs, primarily in the U.K. The increase in B2B non-subscription revenue is primarily due to the net effect of (i) lower revenue from fixed-line telephony services in the U.K., due in part to the impact of a \$17.4 million favorable adjustment recorded during the fourth quarter of 2015 related to the settlement of disputes with mobile operators over amounts charged for voice traffic, including \$15.6 million related to years prior to 2015, (ii) an increase in data services, including an increase of \$13.1 million in the U.K.’s amortization of deferred upfront fees on B2B contracts, and (iii) an increase in installation revenue in the U.K.
- (f) The increase in other revenue is primarily attributable to higher broadcasting revenue in Ireland.

Belgium. The details of the increase in Belgium's revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase (decrease) in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ (11.3)	\$ —	\$ (11.3)
ARPU (b)	38.4	—	38.4
Increase in residential cable non-subscription revenue (c)	—	1.8	1.8
Total increase in residential cable revenue	27.1	1.8	28.9
Increase in residential mobile revenue (d)	3.2	8.4	11.6
Increase in B2B revenue (e)	44.9	12.4	57.3
Total organic increase	75.2	22.6	97.8
Impact of acquisitions	348.4	231.1	579.5
Impact of FX	(4.9)	(2.3)	(7.2)
Total	\$ 418.7	\$ 251.4	\$ 670.1

- (a) The decrease in residential cable subscription revenue related to a change in the average number of RGUs is attributable to the net effect of (i) decreases in the average number of video and broadband internet RGUs and (ii) an increase in the average number of fixed-line telephony RGUs.

- (b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) higher ARPU from video, broadband internet and fixed-line telephony services and (ii) an improvement in RGU mix.
- (c) The increase in residential cable non-subscription revenue is attributable to the net effect of (i) an increase in equipment sales, (ii) a decrease in interconnect revenue and (iii) a decrease in installation revenue.
- (d) The increase in residential mobile subscription revenue is due to the net effect of (i) an increase in the average number of postpaid mobile subscribers and (ii) lower ARPU, primarily due to (a) a decline of \$12.4 million in mobile services revenue due to the June 2015 introduction of a Split-contract Program and (b) a decline in usage. The increase in residential mobile non-subscription revenue is primarily due to higher revenue from sales of mobile handsets and other devices.
- (e) The increase in B2B subscription revenue is largely attributable to increases in the average number of video, broadband internet and mobile SOHO RGUs. The increase in B2B non-subscription revenue is primarily due to higher revenue from managed security services and related equipment sales.

The Netherlands. The details of the decrease in the Netherlands' revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Decrease in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ (51.8)	\$ —	\$ (51.8)
ARPU (b)	(17.1)	—	(17.1)
Increase in residential cable non-subscription revenue	—	0.2	0.2
Total increase (decrease) in residential cable revenue	(68.9)	0.2	(68.7)
Increase in residential mobile revenue (c)	3.3	0.8	4.1
Increase (decrease) in B2B revenue (d)	19.0	(0.3)	18.7
Total organic increase (decrease)	(46.6)	0.7	(45.9)
Impact of FX	(7.8)	(0.8)	(8.6)
Total	\$ (54.4)	\$ (0.1)	\$ (54.5)

- (a) The decrease in residential cable subscription revenue related to a change in the average number of RGUs is attributable to declines in the average number of video and fixed-line telephony RGUs that were only partially offset by an increase in the average number of broadband internet RGUs.
- (b) The decrease in residential cable subscription revenue related to a change in ARPU is attributable to the net effect of (i) a net decrease due to (a) lower ARPU from fixed-line telephony and broadband internet services and (b) higher ARPU from video services and (ii) an improvement in RGU mix.
- (c) The increase in residential mobile subscription revenue is due to the net effect of (i) an increase in the average number of mobile subscribers and (ii) lower ARPU.
- (d) The increase in B2B subscription revenue is primarily due to increases in the average number of video and broadband internet SOHO RGUs.

Germany. The details of the increase in Germany's revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ 51.3	\$ —	\$ 51.3
ARPU (b)	72.8	—	72.8
Decrease in residential cable non-subscription revenue (c)	—	(1.7)	(1.7)
Total increase (decrease) in residential cable revenue	124.1	(1.7)	122.4
Increase in residential mobile revenue (d)	1.7	10.7	12.4
Increase in B2B revenue (e)	10.2	4.3	14.5
Decrease in other revenue	—	(0.9)	(0.9)
Total organic increase	136.0	12.4	148.4
Impact of FX	(7.0)	(1.2)	(8.2)
Total	\$ 129.0	\$ 11.2	\$ 140.2

- (a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is attributable to increases in the average number of broadband internet and fixed-line telephony RGUs that were only partially offset by a decline in the average number of video RGUs.
- (b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) a net increase due to (a) higher ARPU from video and broadband internet services and (b) lower ARPU from fixed-line telephony services and (ii) an adverse change in RGU mix.
- (c) The decrease in residential cable non-subscription revenue is largely due to the net effect of (i) an increase in installation revenue and (ii) a decrease due to legislative developments that have reduced the fees Germany can charge late-paying customers.
- (d) The increase in residential mobile non-subscription revenue is primarily due to an increase of \$11.5 million in mobile handset sales associated with the fourth quarter 2016 launch of a wholesale handset program.
- (e) The increase in B2B subscription revenue is primarily due to increases in the average number of broadband internet and fixed-line telephony SOHO RGUs. The increase in B2B non-subscription revenue is primarily due to higher revenue from data services.

Switzerland/Austria. The details of the decrease in Switzerland/Austria's revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase (decrease) in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ (10.4)	\$ —	\$ (10.4)
ARPU (b)	10.9	—	10.9
Decrease in residential cable non-subscription revenue (c)	—	(5.3)	(5.3)
Total increase (decrease) in residential cable revenue	0.5	(5.3)	(4.8)
Increase in residential mobile revenue (d)	16.5	11.3	27.8
Increase in B2B revenue (e)	4.8	1.4	6.2
Decrease in other revenue	—	(0.1)	(0.1)
Total organic increase	21.8	7.3	29.1
Impact of acquisitions	—	1.6	1.6
Impact of FX	(26.8)	(6.5)	(33.3)
Total	\$ (5.0)	\$ 2.4	\$ (2.6)

- (a) The decrease in residential cable subscription revenue related to a change in the average number of RGUs is primarily attributable to a decline in the average number of video RGUs that was mostly offset by increases in the average number of broadband internet and fixed-line telephony RGUs.
- (b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to the net effect of (i) a net increase due to (a) higher ARPU from video and broadband internet services and (b) lower ARPU from fixed-line telephony services and (ii) an adverse change in RGU mix.
- (c) The decrease in residential cable non-subscription revenue is primarily attributable to (i) lower revenue from late fees and (ii) a decrease in revenue from services provided through third-party networks.
- (d) The increase in residential mobile subscription revenue is due to the net effect of (i) an increase in the average number of mobile subscribers and (ii) lower ARPU. The increase in residential mobile non-subscription revenue is primarily due to (a) an increase in revenue from mobile handset sales and (b) an increase in mobile interconnect revenue.
- (e) The increase in B2B subscription revenue is primarily attributable to an increase in the average number of broadband internet SOHO RGUs.

Central and Eastern Europe. The details of the increase in Central and Eastern Europe's revenue during 2016, as compared to 2015, is set forth below:

	Subscription revenue	Non-subscription revenue	Total
	in millions		
Increase (decrease) in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	\$ 53.7	\$ —	\$ 53.7
ARPU (b)	(34.7)	—	(34.7)
Increase in residential cable non-subscription revenue	—	3.4	3.4
Total increase in residential cable revenue	19.0	3.4	22.4
Increase in residential mobile revenue	3.9	0.9	4.8
Increase in B2B revenue (c)	8.5	4.5	13.0
Total organic increase	31.4	8.8	40.2
Impact of acquisitions	3.1	0.3	3.4
Impact of FX	(19.7)	(2.1)	(21.8)
Total	\$ 14.8	\$ 7.0	\$ 21.8

- (a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is primarily attributable to (i) an increase in the average number of broadband internet RGUs, primarily due to increases in Poland, Hungary and Romania, (ii) an increase in the average number of video RGUs, primarily due to increases in Poland, UPC DTH, Romania, the Czech Republic and Hungary, and (iii) an increase in the average number of fixed-line telephony RGUs, primarily due to increases in Poland, Hungary and Romania.
- (b) The decrease in residential cable subscription revenue related to a change in ARPU is attributable to (i) a net decrease due to (a) lower ARPU from broadband internet services, primarily due to a decrease in Poland that was only partially offset by an increase in Romania, (b) lower ARPU from fixed-line telephony services, primarily due to decreases in Poland, Romania and Hungary, and (c) higher ARPU from video services, as increases in Poland, Hungary, UPC DTH and Romania were only partially offset by decreases in the Czech Republic and Slovakia, and (ii) an adverse change in RGU mix.
- (c) The increase in B2B subscription revenue is primarily attributable to an increase in broadband internet SOHO RGUs, mainly in Poland and the Czech Republic.

Programming and Other Direct Costs of Services, Other Operating Expenses and SG&A Expenses of our Reportable Segments

For information regarding the changes in our (i) programming and other direct costs of services, (ii) other operating expenses and (iii) SG&A expenses, see *Discussion and Analysis of our Consolidated Operating Results* below.

Adjusted OIBDA of our Reportable Segments

Adjusted OIBDA is the primary measure used by our chief operating decision maker to evaluate segment operating performance. For the definition of this performance measure and for a reconciliation of total Adjusted OIBDA of our consolidated reportable segments to our earnings (loss) from continuing operations before income taxes, see note 18 to our consolidated financial statements.

Adjusted OIBDA — 2017 compared to 2016

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 2,894.5	\$ 2,930.9	\$ (36.4)	(1.2)	\$ 93.0	3.2
Belgium	1,299.7	1,173.4	126.3	10.8	71.0	5.9
Germany	1,700.3	1,586.4	113.9	7.2	77.2	4.9
Switzerland/Austria	1,054.3	1,069.3	(15.0)	(1.4)	(23.6)	(2.2)
Central and Eastern Europe	516.2	471.5	44.7	9.5	25.1	5.4
The Netherlands	—	1,472.7	(1,472.7)	(100.0)	—	—
Central and Corporate	(379.4)	(540.5)	161.1	(29.8)	49.6	7.4
Total	\$ 7,085.6	\$ 8,163.7	\$ (1,078.1)	(13.2)	\$ 292.3	4.3

Adjusted OIBDA — 2016 compared to 2015

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 2,930.9	\$ 3,162.1	\$ (231.2)	(7.3)	\$ 138.5	4.4
Belgium (a)	1,173.4	990.3	183.1	18.5	49.3	4.4
The Netherlands	1,472.7	1,519.5	(46.8)	(3.1)	(42.1)	(2.8)
Germany	1,586.4	1,502.1	84.3	5.6	89.0	5.9
Switzerland/Austria	1,069.3	1,040.1	29.2	2.8	50.0	4.8
Central and Eastern Europe	471.5	474.0	(2.5)	(0.5)	6.7	1.4
Central and Corporate	(540.5)	(511.8)	(28.7)	5.6	(35.2)	(6.6)
Total	\$ 8,163.7	\$ 8,176.3	\$ (12.6)	(0.2)	\$ 256.2	3.1

(a) The amount presented for 2016 includes the post-acquisition Adjusted OIBDA of BASE, which was acquired on February 11, 2016.

Adjusted OIBDA Margin — 2017, 2016 and 2015

The following table sets forth the Adjusted OIBDA margins (Adjusted OIBDA divided by revenue) of each of our reportable segments:

	Year ended December 31,		
	2017	2016	2015
	%		
U.K./Ireland	45.2	45.0	44.8
Belgium	45.4	43.6	49.0
Germany	62.8	62.5	62.6
Switzerland/Austria	59.7	60.9	59.2
Central and Eastern Europe	43.6	43.3	44.4
The Netherlands	—	54.7	55.3

In addition to organic changes in the revenue, operating and SG&A expenses of our consolidated reportable segments, the Adjusted OIBDA margins presented above include the impact of acquisitions, the most significant of which was the BASE Acquisition in February 2016. In this regard, the Adjusted OIBDA margins of Belgium during 2017 and 2016 have been adversely impacted by the inclusion since February 2016 of BASE, which generates lower margins than Telenet's legacy operations. For discussion of the factors contributing to other changes in the Adjusted OIBDA margins of our reportable segments, see the analysis of our revenue included in *Discussion and Analysis of our Reportable Segments* above and the analysis of our expenses included in *Discussion and Analysis of our Consolidated Operating Results* below.

Discussion and Analysis of our Consolidated Operating Results

General

For more detailed explanations of the changes in our revenue, see *Discussion and Analysis of our Reportable Segments* above.

2017 compared to 2016

Revenue

Our revenue by major category is set forth below:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
in millions, except percentages						
Residential revenue:						
Residential cable revenue (a):						
Subscription revenue (b):						
Video	\$ 4,437.8	\$ 5,655.6	\$ (1,217.8)	(21.5)	\$ (65.6)	(1.5)
Broadband internet	4,019.9	4,523.4	(503.5)	(11.1)	240.8	6.3
Fixed-line telephony	2,176.8	2,709.3	(532.5)	(19.7)	(44.9)	(2.0)
Total subscription revenue	10,634.5	12,888.3	(2,253.8)	(17.5)	130.3	1.2
Non-subscription revenue	504.9	516.4	(11.5)	(2.2)	32.1	6.8
Total residential cable revenue	11,139.4	13,404.7	(2,265.3)	(16.9)	162.4	1.5
Residential mobile revenue (c):						
Subscription revenue (b)	1,035.2	1,135.2	(100.0)	(8.8)	(65.0)	(5.8)
Non-subscription revenue	656.3	608.4	47.9	7.9	40.9	6.6
Total residential mobile revenue	1,691.5	1,743.6	(52.1)	(3.0)	(24.1)	(1.4)
Total residential revenue	12,830.9	15,148.3	(2,317.4)	(15.3)	138.3	1.1
B2B revenue (d):						
Subscription revenue	498.3	476.5	21.8	4.6	108.6	28.5
Non-subscription revenue	1,492.4	1,569.6	(77.2)	(4.9)	98.5	6.9
Total B2B revenue	1,990.7	2,046.1	(55.4)	(2.7)	207.1	11.3
Other revenue (e)						
Total	\$ 15,048.9	\$ 17,285.0	\$ (2,236.1)	(12.9)	\$ 353.0	2.4

- (a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment.
- (b) Residential subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.
- (c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices. Residential mobile interconnect revenue was \$279.1 million and \$281.9 million during 2017 and 2016, respectively.

- (d) B2B subscription revenue represents revenue from SOHO subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. A portion of the increases in our B2B subscription revenue is attributable to the conversion of certain residential subscribers to SOHO subscribers. B2B non-subscription revenue includes revenue from business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.
- (e) Other revenue includes, among other items, revenue earned from services provided to the VodafoneZiggo JV.

Total revenue. Our consolidated revenue decreased \$2,236.1 million during 2017, as compared to 2016. This decrease includes (i) a decrease of \$2,577.8 million attributable to the impact of the VodafoneZiggo JV Transaction, (ii) an increase of \$146.6 million attributable to the impact of the BASE Acquisition and other less significant acquisitions and (iii) a decrease of \$33.0 million attributable to the impact of dispositions. On an organic basis, our consolidated revenue increased \$353.0 million.

Residential revenue. The details of the changes in our consolidated residential revenue for 2017, as compared to 2016, are as follows (in millions):

Organic increase (decrease) in residential cable subscription revenue due to change in:

Average number of RGUs	\$	157.5
ARPU		(27.2)
Organic increase in residential cable non-subscription revenue		32.1
Total organic increase in residential cable revenue		162.4
Organic decrease in residential mobile subscription revenue		(65.0)
Organic increase in residential mobile non-subscription revenue		40.9
Total organic increase in residential revenue		138.3
Impact of acquisitions		57.2
Impact of the VodafoneZiggo JV Transaction and disposals		(2,408.9)
Impact of FX		(104.0)
Total decrease in residential revenue	\$	(2,317.4)

On an organic basis, our consolidated residential cable subscription revenue increased \$130.3 million or 1.2% during 2017, as compared to 2016. This increase is attributable to the net effect of (i) an increase from broadband internet services of \$240.8 million or 6.3%, attributable to an increase in the average number of RGUs and higher ARPU, (ii) a decrease from video services of \$65.6 million or 1.5%, attributable to a decrease in the average number of RGUs and lower ARPU, and (iii) a decrease from fixed-line telephony services of \$44.9 million or 2.0%, attributable to the net effect of lower ARPU and an increase in the average number of RGUs.

On an organic basis, our consolidated residential cable non-subscription revenue increased \$32.1 million or 6.8% during 2017, as compared to 2016. This increase is primarily attributable to the net effect of (i) increases in the U.K., Switzerland and Belgium and (ii) a decrease in Germany.

On an organic basis, our consolidated residential mobile subscription revenue decreased \$65.0 million or 5.8% during 2017, as compared to 2016. This decrease is primarily due the net effect of (i) declines in the U.K. and Belgium and (ii) an increase in Switzerland.

On an organic basis, our consolidated residential mobile non-subscription revenue increased \$40.9 million or 6.6% during 2017, as compared to 2016. This increase is primarily due to increases in the U.K. and Germany that were only partially offset by a decrease in Belgium.

B2B revenue. On an organic basis, our consolidated B2B subscription revenue increased \$108.6 million or 28.5% during 2017 respectively, as compared to 2016. This increase is primarily due to increases in SOHO revenue in Belgium, the U.K. and Germany.

On an organic basis, our consolidated B2B non-subscription revenue increased \$98.5 million or 6.9% during 2017 respectively, as compared to 2016. This increase is primarily due to increases in Belgium, Germany and the Czech Republic.

For additional information concerning the changes in our residential, B2B and other revenue, see *Discussion and Analysis of our Reportable Segments* above. For information regarding the competitive environment in certain of our markets, see *Overview* above.

Programming and other direct costs of services

Programming and other direct costs of services include programming and copyright costs, interconnect and access costs, costs of mobile handsets and other devices and other direct costs related to our operations. Programming and copyright costs, which represent a significant portion of our operating costs, are expected to rise in future periods as a result of (i) higher costs associated with the expansion of our digital video content, including rights associated with ancillary product offerings and rights that provide for the broadcast of live sporting events, (ii) rate increases and (iii) growth in the number of our enhanced video subscribers.

The details of our programming and other direct costs of services are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 1,868.8	\$ 1,946.4	\$ (77.6)	(4.0)	\$ (8.1)	(0.4)
Belgium	743.6	734.9	8.7	1.2	(20.7)	(2.8)
Germany	262.5	228.7	33.8	14.8	27.8	12.2
Switzerland/Austria	274.8	245.4	29.4	12.0	27.4	11.1
Central and Eastern Europe	299.1	254.8	44.3	17.4	35.1	13.8
The Netherlands	—	509.1	(509.1)	(100.0)	—	—
Central and Corporate	4.7	64.6	(59.9)	(92.7)	1.6	61.5
Intersegment eliminations	(4.1)	(54.9)	50.8	N.M.	2.8	N.M.
Total	\$ 3,449.4	\$ 3,929.0	\$ (479.6)	(12.2)	\$ 65.9	1.9

N.M. — Not Meaningful.

Our programming and other direct costs of services decreased \$479.6 million or 12.2% during 2017, as compared to 2016. This decrease includes (i) a decrease of \$522.7 million attributable to the impact of the VodafoneZiggo JV Transaction, (ii) an increase of \$51.1 million attributable to the BASE Acquisition and other less significant acquisitions and (iii) a decrease of \$18.3 million attributable to the impact of dispositions. On an organic basis, our programming and other direct costs of services increased \$65.9 million or 1.9%. This increase includes the following factors:

- An increase in programming and copyright costs of \$89.3 million or 4.9%, primarily due to increases in U.K./Ireland, Switzerland/Austria and Hungary. These increases are primarily due to (i) higher costs for certain premium and/or basic content, including higher costs for sports rights, primarily in U.K./Ireland and Switzerland, and (ii) growth in the number of enhanced video subscribers, primarily due to increases in Germany, Hungary, U.K./Ireland, Romania and Poland that were only partially offset by a decrease in Belgium. The cost for sports rights increased by \$28.9 million in Switzerland due to the acquisition of the rights to carry live sporting events in connection with the September 2017 launch of our Swiss sports channels. Approximately half of these programming costs and the operating and capital costs associated with the production of the related Swiss sports channels are recovered from the revenue earned from the distribution of these sports channels to other cable operators;
- A decrease in interconnect and access costs of \$56.7 million or 5.7%. The lower costs are primarily due to the net effect of (i) a \$42.1 million decrease (including \$32.3 million and \$9.8 million recorded in the second and fourth quarters of 2017, respectively) in U.K./Ireland, primarily associated with a telecommunications operator's agreement to compensate communications providers, including Virgin Media, for certain contractual breaches related to network charges, (ii) lower MVNO costs, as decreases in Belgium and U.K./Ireland were only partially offset by an increase in Switzerland/Austria, (iii) a decline resulting from lower interconnect rates, primarily in Germany, (iv) an increase of \$6.8 million due to the release of an accrual during the second quarter of 2016 related to the settlement of an operational contingency in Belgium

and (v) slightly lower fixed-line telephony call volumes, as declines in U.K./Ireland, Switzerland/Austria and Germany were largely offset by an increase in the Czech Republic; and

- An increase in mobile handset and other device costs of \$23.1 million or 6.7%, primarily due to the net effect of (i) a higher average cost per handset sold in U.K./Ireland and (ii) lower mobile handset and other device sales volume, primarily due to decreases in Belgium and U.K./Ireland that were largely offset by an increase in Germany.

Other operating expenses

Other operating expenses include network operations, customer operations, customer care, share-based compensation and other costs related to our operations. We do not include share-based compensation in the following discussion and analysis of the other operating expenses of our reportable segments as share-based compensation expense is not included in the performance measures of our reportable segments. Share-based compensation expense is discussed below.

The details of our other operating expenses are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 859.5	\$ 836.9	\$ 22.6	2.7	\$ 58.6	7.0
Belgium	395.5	361.9	33.6	9.3	10.8	2.9
Germany	363.0	350.9	12.1	3.4	4.6	1.3
Switzerland/Austria	221.4	225.1	(3.7)	(1.6)	(6.6)	(2.9)
Central and Eastern Europe	192.0	195.5	(3.5)	(1.8)	(7.5)	(3.8)
The Netherlands	—	346.9	(346.9)	(100.0)	—	—
Central and Corporate	170.7	144.6	26.1	18.0	4.1	3.2
Intersegment eliminations	4.9	4.8	0.1	N.M.	(0.9)	N.M.
Total other operating expenses excluding share-based compensation expense	2,207.0	2,466.6	(259.6)	(10.5)	\$ 63.1	2.9
Share-based compensation expense	4.8	3.3	1.5	45.5		
Total	\$ 2,211.8	\$ 2,469.9	\$ (258.1)	(10.4)		

N.M. — Not Meaningful.

Our other operating expenses (exclusive of share-based compensation expense) decreased \$259.6 million or 10.5% during 2017, as compared to 2016. This decrease includes (i) a decrease of \$327.6 million attributable to the impact of the VodafoneZiggo JV Transaction and (ii) an increase of \$23.0 million attributable to the impact of the BASE Acquisition and other less significant acquisitions. On an organic basis, our other operating expenses increased \$63.1 million or 2.9%. This increase includes the following factors:

- An increase in network-related expenses of \$65.2 million or 8.6%, primarily due to the net effect of (i) an increase of \$34.0 million in U.K./Ireland related to network infrastructure charges following an April 1, 2017 increase in the rateable value of existing assets, (ii) higher network maintenance costs, primarily in Belgium, Central and Corporate and U.K./Ireland, (iii) higher energy costs, primarily in U.K./Ireland and Germany, (iv) a \$5.9 million increase in U.K./Ireland associated with the impact of the settlement of an operational contingency during the first quarter of 2016 and (v) lower expenses resulting from the capitalization of UPC DTH's satellite capacity costs following the April 2017 renegotiation of the underlying agreement. For additional information regarding the increased network infrastructure charges in U.K./Ireland, see note 17 to our consolidated financial statements;
- A decrease in personnel costs of \$34.0 million or 4.9%, due primarily to the net effect of (i) lower staffing levels, as decreases in Germany, Central and Corporate and U.K./Ireland were only partially offset by an increase in Belgium, (ii) annual wage increases, (iii) decreased costs in U.K./Ireland and Belgium resulting from higher capitalized labor costs,

(iv) lower incentive compensation costs, primarily in U.K./Ireland, (v) higher costs related to certain employee benefits in Belgium and Central and Corporate and (vi) lower costs for employee vehicles related to the impact of the conversion of certain operating leases on company vehicles to capital leases, primarily in Central and Corporate and Germany. The higher capitalized labor costs in U.K./Ireland are associated with (a) the Network Extensions and (b) increased installations of new customer premises equipment. The higher capitalized labor costs in Belgium are primarily associated with a project to upgrade Telenet's mobile network;

- An increase in outsourced labor and professional fees of \$16.8 million or 6.3%, as higher call center costs in U.K./Ireland and Germany were only partially offset by lower consulting costs, primarily in U.K./Ireland. The higher call center costs were largely driven by increased call volumes;
- A decrease in vehicle expenses of \$9.4 million or 47.1%, a portion of which is due to the impact of the conversion of certain operating leases on company vehicles to capital leases, primarily in U.K./Ireland; and
- An increase in information technology-related expenses of \$8.7 million or 8.0%, primarily due to higher software and other information technology-related maintenance costs in U.K./Ireland and Central and Corporate.

SG&A expenses

SG&A expenses include human resources, information technology, general services, management, finance, legal, external sales and marketing costs, share-based compensation and other general expenses. We do not include share-based compensation in the following discussion and analysis of the SG&A expenses of our reportable segments as share-based compensation expense is not included in the performance measures of our reportable segments. Share-based compensation expense is discussed below.

The details of our SG&A expenses are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2017	2016	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 775.9	\$ 794.6	\$ (18.7)	(2.4)	\$ 8.3	1.0
Belgium	426.5	420.9	5.6	1.3	(24.8)	(5.6)
Germany	379.6	373.7	5.9	1.6	(0.1)	—
Switzerland/Austria	215.5	215.8	(0.3)	(0.1)	(2.2)	(1.0)
Central and Eastern Europe	176.3	166.6	9.7	5.8	4.9	2.9
The Netherlands	—	362.1	(362.1)	(100.0)	—	—
Central and Corporate	348.8	404.5	(55.7)	(13.8)	(51.9)	(13.0)
Intersegment eliminations	(15.7)	(12.5)	(3.2)	N.M.	(2.5)	N.M.
Total SG&A expenses excluding share-based compensation expense	2,306.9	2,725.7	(418.8)	(15.4)	\$ (68.3)	(2.9)
Share-based compensation expense	169.1	278.2	(109.1)	(39.2)		
Total	\$ 2,476.0	\$ 3,003.9	\$ (527.9)	(17.6)		

N.M. — Not Meaningful.

Supplemental SG&A expense information:

	Year ended December 31,		Decrease		Organic decrease	
	2017	2016	\$	%	\$	%
in millions, except percentages						
General and administrative (a)	\$ 1,591.5	\$ 1,905.4	\$ (313.9)	(16.5)	\$ (68.0)	(4.1)
External sales and marketing	715.4	820.3	(104.9)	(12.8)	(0.3)	—
Total	\$ 2,306.9	\$ 2,725.7	\$ (418.8)	(15.4)	\$ (68.3)	(2.9)

(a) General and administrative expenses include all personnel-related costs within our SG&A expenses, including personnel-related costs associated with our sales and marketing function.

Our SG&A expenses (exclusive of share-based compensation expense) decreased \$418.8 million or 15.4% during 2017, as compared to 2016. This decrease includes (i) a decrease of \$368.0 million attributable to the impact of the VodafoneZiggo JV Transaction and (ii) an increase of \$32.4 million attributable to the impact of the BASE Acquisition and other less significant acquisitions. On an organic basis, our SG&A expenses decreased \$68.3 million or 2.9%. This decrease includes the following factors:

- A decrease in outsourced labor and professional fees of \$36.6 million or 17.3%, primarily due to the net effect of (i) a decrease in consulting costs, primarily in Belgium and Central and Corporate, (ii) an increase in call center costs, primarily in U.K./Ireland, and (iii) lower audit and legal fees. The decrease in consulting costs in Belgium includes an aggregate decrease of \$6.3 million related to costs incurred during 2016 associated with the integration of BASE with our operations in Belgium; and
- A decrease in personnel costs of \$36.3 million or 3.5% due primarily to the net effect of (i) decreased staffing levels, as decreases in Central and Corporate and Belgium were only partially offset by increases in Germany and Switzerland/Austria, (ii) lower incentive compensation costs, primarily due to decreases in Central and Corporate, U.K./Ireland and Germany that were only partially offset by increases in Belgium and Switzerland/Austria, and (iii) annual wage increases. The lower incentive compensation costs include a decrease of \$12.5 million, primarily in Central and Corporate, attributable to our decision to issue Liberty Global Shares to settle a portion of our 2017 annual incentive compensation.

Share-based compensation expense (included in other operating and SG&A expenses)

Our share-based compensation expense primarily relates to the share-based incentive awards issued by Liberty Global to its employees and employees of its subsidiaries. A summary of our aggregate share-based compensation expense is set forth below:

	Year ended December 31,	
	2017	2016
	in millions	
Liberty Global:		
Performance-based incentive awards (a)	\$ 29.0	\$ 160.8
Non-performance based share-based incentive awards	108.6	108.1
Other (b)	14.2	—
Total Liberty Global shares (c)	151.8	268.9
Telenet share-based incentive awards (d)	20.7	12.2
Other	1.4	0.4
Total	<u>\$ 173.9</u>	<u>\$ 281.5</u>
Included in:		
Other operating expenses	\$ 4.8	\$ 3.3
Total SG&A expenses	169.1	278.2
Total	<u>\$ 173.9</u>	<u>\$ 281.5</u>

- (a) Includes share-based compensation expense related to PSUs, the Challenge Performance Awards and PGUs.
- (b) Represents annual incentive compensation and defined contribution plan liabilities that have been or will be settled with Liberty Global Shares.
- (c) Amounts include incremental expense of \$8.2 million and \$16.1 million, respectively, related to the 2015 Award Modifications.
- (d) Represents the share-based compensation expense associated with Telenet's share-based incentive awards, which, at December 31, 2017, included performance- and non-performance-based stock option awards with respect to 3,693,753 Telenet shares. These stock option awards had a weighted average exercise price of €48.26 (\$58.02).

For additional information concerning our share-based compensation, see note 13 to our consolidated financial statements.

Depreciation and amortization expense

Our depreciation and amortization expense was \$4,857.0 million and \$5,213.8 million during 2017 and 2016, respectively. Excluding the effects of FX, depreciation and amortization expense decreased \$301.8 million or 5.8% during 2017, as compared to 2016. This decrease is primarily due to the net effect of (i) an increase associated with property and equipment additions related to the installation of customer premises equipment, the expansion and upgrade of our networks and other capital initiatives, (ii) a decrease associated with certain assets becoming fully depreciated, primarily in U.K./Ireland, Central and Corporate, Germany and, to a lesser extent, Switzerland/Austria and Belgium, (iii) a decrease associated with the VodafoneZiggo JV Transaction and (iv) an increase due to accelerated depreciation, primarily in U.K./Ireland.

Impairment, restructuring and other operating items, net

We recognized impairment, restructuring and other operating items, net, of \$107.2 million during 2017, as compared to \$186.2 million during 2016.

The total for 2017 primarily includes (i) restructuring charges of \$69.2 million, including \$56.0 million of employee severance and termination costs related to certain reorganization activities, primarily in U.K./Ireland, Germany and Central and Corporate and (ii) a \$40.0 million legal settlement recorded during the third quarter of 2017.

As further discussed in note 14 to our consolidated financial statements, the migration of Telenet's mobile subscribers will

result in additional charges under the MVNO agreement in excess of usage-based charges. These incremental charges will be recognized as restructuring costs during 2018, and are expected to range between \$30 million and \$40 million.

The total for 2016 primarily includes (i) restructuring charges of \$154.7 million, including (a) \$127.1 million of employee severance and termination costs related to certain reorganization activities, primarily in Germany, U.K./Ireland, Central and Corporate and the Netherlands, and (b) \$24.2 million of contract termination charges, primarily in Central and Corporate and (ii) direct acquisition costs of \$45.3 million, related to the VodafoneZiggo JV Transaction and the BASE Acquisition.

If, among other factors, (i) our equity values were to decline significantly or (ii) the adverse impacts of economic, competitive, regulatory or other factors were to cause our results of operations or cash flows to be worst than anticipated, we could conclude in future periods that impairment charges are required in order to reduce the carrying values of our goodwill and, to a lesser extent, other long-lived assets. Any such impairment charges could be significant.

For information regarding our acquisitions, see note 4 to our consolidated financial statements. For information regarding the VodafoneZiggo JV Transaction, see note 5 to our consolidated financial statements.

For additional information regarding our restructuring charges, see note 14 to our consolidated financial statements. For additional information regarding our impairments, see *Critical Accounting Policies, Judgments and Estimates — Impairment of Property and Equipment and Intangible Assets* below.

Interest expense

We recognized interest expense of \$1,889.6 million and \$2,324.4 million during 2017 and 2016, respectively. Excluding the effects of FX, interest expense decreased \$417.7 million or 18.0% during 2017, as compared to 2016. This decrease is primarily attributable to (i) lower average outstanding debt balances, largely due to a decrease related to the VodafoneZiggo JV Transaction and (ii) lower weighted average interest rates related to the completion of certain refinancing transactions that resulted in extended maturities and decreases to certain of our interest rates. For additional information regarding our outstanding indebtedness, see note 10 to our consolidated financial statements.

It is possible that the interest rates on (i) any new borrowings could be higher than the current interest rates on our existing indebtedness and (ii) our variable-rate indebtedness could increase in future periods. As further discussed in note 7 to our consolidated financial statements and under *Qualitative and Quantitative Disclosures about Market Risk* below, we use derivative instruments to manage our interest rate risks.

Realized and unrealized gains (losses) on derivative instruments, net

Our realized and unrealized gains or losses on derivative instruments include (i) unrealized changes in the fair values of our derivative instruments that are non-cash in nature until such time as the derivative contracts are fully or partially settled and (ii) realized gains or losses upon the full or partial settlement of the derivative contracts. The details of our realized and unrealized gains (losses) on derivative instruments, net, are as follows:

	Year ended December 31,	
	2017	2016
	in millions	
Cross-currency and interest rate derivative contracts (a)	\$ (1,506.1)	\$ 716.2
Equity-related derivative instruments:		
ITV Collar	215.0	351.5
Sumitomo Collar	(77.4)	(25.6)
Lionsgate Forward	(11.4)	10.1
Other	(3.9)	1.6
Total equity-related derivative instruments (b)	122.3	337.6
Foreign currency forward and option contracts	(29.0)	18.1
Other	0.8	(0.9)
Total	\$ (1,412.0)	\$ 1,071.0

- (a) The loss during 2017 is primarily attributable to the net effect of (i) a net loss associated with changes in the relative value of certain currencies and (ii) a net gain associated with changes in certain market interest rates. In addition, the loss during 2017 includes a net gain of \$233.7 million resulting from changes in our credit risk valuation adjustments. The gain during 2016 is attributable to the net effect of (a) a net gain associated with changes in the relative value of certain currencies and (b) a net loss associated with changes in certain market interest rates. In addition, the gain during 2016 includes a net loss of \$28.1 million resulting from changes in our credit risk valuation adjustments.
- (b) For information concerning the factors that impact the valuations of our equity-related derivative instruments, see note 8 to our consolidated financial statements.

For additional information concerning our derivative instruments, see notes 7 and 8 to our consolidated financial statements and *Quantitative and Qualitative Disclosures about Market Risk* below.

Foreign currency transaction gains (losses), net

Our foreign currency transaction gains or losses primarily result from the remeasurement of monetary assets and liabilities that are denominated in currencies other than the underlying functional currency of the applicable entity. Unrealized foreign currency transaction gains or losses are computed based on period-end exchange rates and are non-cash in nature until such time as the amounts are settled. The details of our foreign currency transaction gains (losses), net, are as follows:

	Year ended December 31,	
	2017	2016
	in millions	
U.S. dollar denominated debt issued by euro functional currency entities	\$ 892.0	\$ (481.6)
Intercompany payables and receivables denominated in a currency other than the entity's functional currency (a)	(874.5)	731.6
U.S. dollar denominated debt issued by British pound sterling functional currency entities	351.9	(954.4)
British pound sterling denominated debt issued by a U.S. dollar functional currency entity	(125.5)	251.2
Cash and restricted cash denominated in a currency other than the entity's functional currency	(104.8)	203.5
Yen denominated debt issued by a U.S. dollar functional currency entity	(20.9)	(40.3)
Euro denominated debt issued by British pound sterling functional currency entities	20.2	(75.7)
Other	28.0	(34.4)
Total	<u>\$ 166.4</u>	<u>\$ (400.1)</u>

(a) Amounts primarily relate to (i) loans between certain of our non-operating subsidiaries in the U.S. and Europe and (ii) loans between certain of our non-operating and operating subsidiaries in Europe, which generally are denominated in the currency of the applicable operating subsidiary.

For information regarding how we manage our exposure to foreign currency risk, see *Quantitative and Qualitative Disclosures about Market Risk — Foreign Currency Risk* below.

Realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net

Our realized and unrealized gains or losses due to changes in fair values of certain investments and debt include unrealized gains or losses associated with changes in fair values that are non-cash in nature until such time as these gains or losses are realized through cash transactions. For additional information regarding our investments, fair value measurements and debt, see notes 6, 8 and 10, respectively, to our consolidated financial statements. The details of our realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net, are as follows:

	Year ended December 31,	
	2017	2016
	in millions	
Investments:		
Sumitomo	\$ 238.2	\$ 67.2
ITV	(123.5)	(608.6)
Casa	47.9	23.9
Lionsgate	35.3	(33.4)
Other, net (a)	30.2	112.0
Total investments	<u>228.1</u>	<u>(438.9)</u>
Debt	(191.2)	(22.6)
Total	<u>\$ 36.9</u>	<u>\$ (461.5)</u>

(a) Amounts for 2017 and 2016 include gains of \$12.7 million and \$84.4 million, respectively, related to investments that were sold during the respective year.

Losses on debt modification and extinguishment, net

We recognized net losses on debt modification and extinguishment of \$343.3 million and \$238.1 million during 2017 and 2016, respectively.

The loss during 2017 is primarily attributable to (i) the payment of \$214.1 million of redemption premiums and (ii) the write-off of \$130.8 million of net unamortized deferred financing costs, discounts and premiums.

The loss during 2016 is primarily attributable to (i) the payment of \$132.2 million of redemption premiums and (ii) the write-off of \$96.3 million of net unamortized deferred financing costs, discounts and premiums.

For additional information concerning our losses on debt modification and extinguishment, net, see note 10 to our consolidated financial statements.

Share of losses of affiliates, net

The following table sets forth the details of our share of losses of affiliates, net:

	Year ended December 31,	
	2017	2016
	in millions	
VodafoneZiggo JV (a)	\$ 70.1	\$ —
Other	25.1	111.6
Total	<u>\$ 95.2</u>	<u>\$ 111.6</u>

- (a) Amount in 2017 includes the net effect of (i) \$64.3 million, representing 100% of the interest income earned on the VodafoneZiggo JV Receivable, (ii) 100% of the share-based compensation expense associated with Liberty Global awards held by VodafoneZiggo JV employees who were formerly employees of Liberty Global, as these awards remain our responsibility, and (iii) our 50% share of the remaining results of operations of the VodafoneZiggo JV. During 2017, the VodafoneZiggo JV generated (a) revenue of \$4,537.7 million, (b) Adjusted OIBDA of \$1,908.8 million, (c) operating income of \$217.0 million, (d) net non-operating expenses of \$588.9 million (including \$643.7 million of interest expense) and (e) a net loss of \$265.7 million. The VodafoneZiggo JV's operating income includes depreciation and amortization of \$1,677.3 million.

The mobile and fixed-line operations of the VodafoneZiggo JV are experiencing significant competition. In particular, the mobile operations of the VodafoneZiggo JV continue to experience competitive pressure on pricing, characterized by aggressive promotion campaigns, heavy marketing efforts and increasing or unlimited data bundles. If the adverse impacts of economic, competitive, regulatory or other factors were to cause significant deterioration of the results of operations or cash flows of the VodafoneZiggo JV, we could conclude in future periods that our investment in the VodafoneZiggo JV is impaired or management of the VodafoneZiggo JV could conclude that an impairment of the VodafoneZiggo JV goodwill and, to a lesser extent, long-lived assets, is required. Any such impairment of the VodafoneZiggo JV's goodwill or our investment in the VodafoneZiggo JV would be reflected as a component of share of results of affiliates, net, in our consolidated statement of operations. Our share of any such impairment charges could be significant.

For additional information regarding our equity method investments, see note 6 to our consolidated financial statements.

Gain on VodafoneZiggo JV Transaction

In connection with the VodafoneZiggo JV Transaction, we recognized a pre-tax gain during 2016 of \$520.8 million, net of the recognition of a cumulative foreign currency translation loss of \$714.5 million. In connection with the finalization of the equalization payment from Vodafone associated with the VodafoneZiggo JV Transaction, we recognized an additional pre-tax gain of \$4.5 million during the second quarter of 2017. For additional information, see note 5 to our consolidated financial statements.

Other income, net

We recognized other income, net, of \$28.8 million and \$109.2 million during 2017 and 2016, respectively. These amounts include interest and dividend income of \$31.0 million and \$36.4 million, respectively. In addition, the 2016 amount includes income of \$69.8 million, representing our share of the settlement of certain litigation.

Income tax benefit (expense)

We recognized income tax benefit (expense) of (\$309.5 million) and \$1,347.0 million during 2017 and 2016, respectively.

The income tax expense during 2017 differs from the expected income tax benefit of \$299.5 million (based on the U.K. statutory income tax rate of 19.25%), primarily due to the net negative impact of (i) an increase in valuation allowances, (ii) non-deductible or non-taxable foreign currency exchange results, (iii) certain permanent differences between the financial and tax accounting treatment of interest and other items and (iv) certain permanent differences between the financial and tax accounting treatment of items associated with investments in subsidiaries. The net negative impact of these items was partially offset by the net positive impact of statutory tax rates in certain jurisdictions in which we operate that are different than the U.K. statutory income tax rate.

The income tax benefit during 2016 differs from the expected income tax expense of \$129.5 million (based on the U.K. statutory income tax rate of 20.0%) primarily due to the net positive impact of (i) a decrease in valuation allowances, including tax benefits of \$1.1 billion recognized in the Netherlands upon the release of valuation allowances in the fourth quarter of 2016, (ii) the recognition of previously unrecognized tax benefits, (iii) non-deductible or non-taxable foreign currency exchange results, (iv) the tax effect of intercompany financing and (v) statutory tax rates in certain jurisdictions in which we operate that are different than the U.K. statutory income tax rate. The release of valuation allowances in the Netherlands is attributable to a significant improvement in our forecast of taxable income in the Netherlands, due to, among other factors, the impacts of contributing VodafoneZiggo Holding to the VodafoneZiggo JV on December 31, 2016, as further described in note 5 to our consolidated financial statements. The net positive impact of these items was partially offset by the net negative impact of a reduction in net deferred tax assets in the U.K. and other countries due to enacted changes in tax law.

For additional information concerning our income taxes, see note 11 to our consolidated financial statements.

Earnings (loss) from continuing operations

During 2017 and 2016, we reported earnings (loss) from continuing operations of (\$1,865.5 million) and \$1,994.5 million, respectively, consisting of (i) operating income of \$1,947.5 million and \$2,482.2 million, respectively, (ii) net non-operating expense of \$3,503.5 million and \$1,834.7 million, respectively, and (iii) income tax benefit (expense) of (\$309.5 million) and \$1,347.0 million, respectively.

Gains or losses associated with (i) changes in the fair values of derivative instruments, (ii) movements in foreign currency exchange rates and (iii) the disposition of assets and changes in ownership are subject to a high degree of volatility and, as such, any gains from these sources do not represent a reliable source of income. In the absence of significant gains in the future from these sources or from other non-operating items, our ability to achieve earnings is largely dependent on our ability to increase our aggregate Adjusted OIBDA to a level that more than offsets the aggregate amount of our (a) share-based compensation expense, (b) depreciation and amortization, (c) impairment, restructuring and other operating items, (d) interest expense, (e) other non-operating expenses and (f) income tax expenses.

Due largely to the fact that we seek to maintain our debt at levels that provide for attractive equity returns, as discussed under *Material Changes in Financial Condition — Capitalization* below, we expect that we will continue to report significant levels of interest expense for the foreseeable future. For information concerning our expectations with respect to trends that may affect certain aspects of our operating results in future periods, see the discussion under *Overview* above. For information concerning the reasons for changes in specific line items in our consolidated statements of operations, see *Discussion and Analysis of our Reportable Segments* and *Discussion and Analysis of our Consolidated Operating Results* above.

Earnings (loss) from discontinued operations, net of taxes

Our loss from discontinued operations, net of taxes, of \$855.1 million and \$227.2 million during 2017 and 2016, respectively, relates to the operations of the LiLAC Group. For additional information, see note 5 to our consolidated financial statements.

Net earnings attributable to noncontrolling interests

Net earnings attributable to noncontrolling interests includes the noncontrolling interests' share of the results of our continuing and discontinued operations. Our net earnings attributable to noncontrolling interests were \$57.5 million and \$62.0 million during 2017 and 2016, respectively. The decrease is primarily attributable to the net effect of an improvement in the results of operations of Telenet and declines in the results of operations of Liberty Puerto Rico and certain C&W subsidiaries.

2016 compared to 2015

Revenue

Our revenue by major category is set forth below:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
Residential revenue:						
Residential cable revenue (a):						
Subscription revenue (b):						
Video	\$ 5,655.6	\$ 5,786.4	\$ (130.8)	(2.3)	\$ 69.2	1.2
Broadband internet	4,523.4	4,495.1	28.3	0.6	267.3	5.9
Fixed-line telephony	2,709.3	2,926.0	(216.7)	(7.4)	(52.5)	(1.8)
Total subscription revenue	12,888.3	13,207.5	(319.2)	(2.4)	284.0	2.1
Non-subscription revenue	516.4	521.0	(4.6)	(0.9)	14.6	2.8
Total residential cable revenue	13,404.7	13,728.5	(323.8)	(2.4)	298.6	2.2
Residential mobile revenue (c):						
Subscription revenue (b)	1,135.2	993.3	141.9	14.3	(58.1)	(4.6)
Non-subscription revenue	608.4	432.1	176.3	40.8	73.8	12.9
Total residential mobile revenue	1,743.6	1,425.4	318.2	22.3	15.7	0.9
Total residential revenue	15,148.3	15,153.9	(5.6)	—	314.3	2.0
B2B revenue (d):						
Subscription revenue	476.5	304.9	171.6	56.3	100.0	26.2
Non-subscription revenue	1,569.6	1,572.0	(2.4)	(0.2)	35.5	2.1
Total B2B revenue	2,046.1	1,876.9	169.2	9.0	135.5	6.6
Other revenue						
Total	\$ 17,285.0	\$ 17,062.7	\$ 222.3	1.3	\$ 474.3	2.7

- (a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment.
- (b) Residential subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.
- (c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices. Residential mobile interconnect revenue was \$281.9 million and \$209.1 million during 2016 and 2015, respectively.

- (d) B2B subscription revenue represents revenue from SOHO subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. A portion of the increases in our B2B subscription revenue is attributable to the conversion of certain residential subscribers to SOHO subscribers. B2B non-subscription revenue includes revenue from business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.

Total revenue. Our consolidated revenue increased \$222.3 million during 2016, as compared to 2015. This increase includes (i) an increase of \$575.9 million attributable to the impact of acquisitions and (ii) a decrease of \$29.5 million attributable to the non-cable subscribers in the U.K. that we sold in the fourth quarter of 2014 and migrated to a third party during the first nine months of 2015 (the **U.K. Non-Cable Disposal**) and another less significant disposition. On an organic basis, our consolidated revenue increased \$474.3 million or 2.7%.

Residential revenue. The details of the change in our consolidated residential revenue for 2016, as compared to 2015, are as follows (in millions):

Organic increase in residential cable subscription revenue due to change in:

Average number of RGUs	\$	189.4
ARPU		94.6
Organic increase in residential cable non-subscription revenue		14.6
Total organic increase in residential cable revenue		298.6
Organic decrease in residential mobile subscription revenue		(58.1)
Organic increase in residential mobile non-subscription revenue		73.8
Total organic increase in residential revenue		314.3
Impact of acquisitions		428.9
Impact of disposals		(17.5)
Impact of FX		(731.3)
Total decrease in residential revenue	\$	(5.6)

On an organic basis, our consolidated residential cable subscription revenue increased \$284.0 million or 2.1% during 2016, as compared to 2015. This increase is attributable to (i) an increase from broadband internet services of \$267.3 million or 5.9%, attributable to an increase in the average number of RGUs and higher ARPU, (ii) an increase from video services of \$69.2 million or 1.2%, attributable to the net effect of higher ARPU and a decrease in the average number of RGUs, and (iii) a decrease from fixed-line telephony services of \$52.5 million or 1.8%, attributable to the net effect of lower ARPU and an increase in the average number of RGUs.

On an organic basis, our consolidated residential cable non-subscription revenue increased \$14.6 million or 2.8% during 2016, as compared to 2015. This increase is primarily attributable to the net effect of (i) an increase in the U.K. and (ii) a decrease in Switzerland.

On an organic basis, our consolidated residential mobile subscription revenue decreased \$58.1 million or 4.6% during 2016, as compared to 2015. This decrease is primarily due the net effect of (i) a decline in the U.K. and (ii) increases in Switzerland, Hungary and Belgium.

On an organic basis, our consolidated residential mobile non-subscription revenue increased \$73.8 million or 12.9% during 2016, as compared to 2015. This increase is primarily due to an increase in the U.K., Germany, Switzerland and Belgium.

B2B revenue. On an organic basis, our consolidated B2B subscription revenue increased \$100.0 million or 26.2% during 2016, as compared to 2015. This increase is primarily due to increases in SOHO revenue in Belgium, the U.K. and Germany.

On an organic basis, our consolidated B2B non-subscription revenue increased \$35.5 million or 2.1% during 2016, as compared to 2015. This increase is primarily due to increases in the U.K., Belgium and Germany.

For additional information concerning the changes in our residential, B2B and other revenue, see *Discussion and Analysis of our Reportable Segments* above.

Programming and other direct costs of services

The details of our programming and other direct costs of services are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 1,946.4	\$ 2,070.7	\$ (124.3)	(6.0)	\$ 86.1	4.1
Belgium (a)	734.9	526.8	208.1	39.5	4.0	0.5
The Netherlands	509.1	468.6	40.5	8.6	42.3	9.0
Germany	228.7	203.5	25.2	12.4	25.9	12.7
Switzerland/Austria	245.4	236.9	8.5	3.6	12.8	5.4
Central and Eastern Europe	254.8	234.1	20.7	8.8	24.8	10.5
Central and Corporate	64.6	52.1	12.5	24.0	26.0	66.7
Intersegment eliminations	(54.9)	(26.4)	(28.5)	N.M.	(27.8)	N.M.
Total	\$ 3,929.0	\$ 3,766.3	\$ 162.7	4.3	\$ 194.1	4.9

(a) The amount presented for 2016 includes the post-acquisition direct costs of BASE, which was acquired on February 11, 2016.

N.M. — Not Meaningful.

Our programming and other direct costs of services increased \$162.7 million or 4.3% during 2016, as compared to 2015. This increase includes (i) an increase of \$241.1 million attributable to the impact of the BASE Acquisition and other less significant acquisitions and (ii) a decrease of \$21.6 million attributable to the U.K. Non-Cable Disposal and another less significant disposition. On an organic basis, our programming and other direct costs of services increased \$194.1 million or 4.9%. This increase includes the following factors:

- An increase in programming and copyright costs of \$234.7 million or 10.9%, primarily due to increases in U.K./Ireland, the Netherlands and, to a lesser extent, Central and Corporate, Belgium and Germany. These increases are primarily attributable to higher costs for certain premium and/or basic content, including increases of (i) \$55.1 million associated with a sports programming contract entered into in August 2015 in U.K./Ireland and (ii) \$19.2 million associated with a new Europe-wide programming contract that was entered into in June 2016 with retrospective impact to January 1, 2016. The increase in programming and copyright costs also includes the net effect of (a) higher costs at Ziggo Sport, (b) an increase of \$5.6 million in the Netherlands resulting from adjustments related to the settlement of operational contingencies recorded during the third and fourth quarters of 2015 and (c) a decrease of \$3.5 million in U.K./Ireland associated with the reassessment of an accrual during the fourth quarter of 2016. In addition, growth in the number of enhanced video subscribers contributed to the increases in Germany and Belgium;
- A decrease in interconnect and access costs of \$53.1 million or 4.8%, primarily due to the net effect of (i) lower fixed-line telephony call volumes in U.K./Ireland and, to a lesser extent, the Netherlands, Belgium and Germany, (ii) a decline resulting from lower rates, primarily in U.K./Ireland, (iii) higher mobile usage in Switzerland/Austria and Belgium, (iv) a \$6.6 million decrease in Belgium due to the release of an accrual during the second quarter of 2016 as a result of the settlement of an operational contingency, (v) a decrease of \$4.2 million in U.K./Ireland related to the settlement of disputes with mobile operators over amounts charged for voice traffic during the fourth quarter of 2015, (vi) an increase of \$3.9 million in Switzerland/Austria related to the settlement of an operational contingency during the third quarter of 2015 and (vii) slightly lower MVNO costs, as decreases in U.K./Ireland and Belgium were largely offset by increases in Switzerland/Austria, Hungary and the Netherlands; and
- An increase in mobile handset and other device costs of \$17.2 million, primarily due to the net effect of (i) higher mobile handset and other device sales volumes, as increases in U.K./Ireland and, to a lesser extent, Germany and Switzerland/Austria were only partially offset by lower handset sales in Belgium and (ii) a lower average cost per handset sold in

U.K./Ireland. The lower number of handsets sold in Belgium is primarily attributable to a reduction in subsidized handset promotions.

Other operating expenses

The details of our other operating expenses are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
<i>in millions, except percentages</i>						
U.K./Ireland	\$ 836.9	\$ 961.7	\$ (124.8)	(13.0)	\$ (39.1)	(4.0)
Belgium (a)	361.9	248.3	113.6	45.8	16.3	4.7
The Netherlands	346.9	373.9	(27.0)	(7.2)	(26.2)	(7.0)
Germany	350.9	357.8	(6.9)	(1.9)	(5.1)	(1.4)
Switzerland/Austria	225.1	252.8	(27.7)	(11.0)	(24.2)	(9.6)
Central and Eastern Europe	195.5	195.6	(0.1)	(0.1)	2.5	1.3
Central and Corporate	144.6	118.7	25.9	21.8	28.2	20.7
Intersegment eliminations	4.8	(4.8)	9.6	N.M.	9.5	N.M.
Total other operating expenses excluding share-based compensation expense	2,466.6	2,504.0	(37.4)	(1.5)	\$ (38.1)	(1.5)
Share-based compensation expense	3.3	3.1	0.2	6.5		
Total	\$ 2,469.9	\$ 2,507.1	\$ (37.2)	(1.5)		

(a) The amount presented for 2016 includes the post-acquisition other operating expenses of BASE, which was acquired on February 11, 2016.

N.M. — Not Meaningful.

Our other operating expenses (exclusive of share-based compensation expense) decreased \$37.4 million or 1.5% during 2016, as compared to 2015. This decrease includes an increase of \$109.5 million attributable to the impact of the BASE Acquisition and other less significant acquisitions. On an organic growth basis, our other operating expenses decreased \$38.1 million or 1.5%. This decrease includes the following factors:

- A decrease in personnel costs of \$29.9 million or 3.2%, due primarily to the net effect of (i) decreased staffing levels, as decreases in Switzerland/Austria, U.K./Ireland and the Netherlands were only partially offset by increases in Central and Corporate and Belgium, (ii) annual wage increases, (iii) decreased costs in U.K./Ireland resulting from higher proportions of capitalized labor costs, primarily associated with the Network Extensions, (iv) lower costs related to certain employee benefits in U.K./Ireland and Central and Corporate and (v) lower incentive compensation costs, primarily in U.K./Ireland;
- An increase in outsourced labor and professional fees of \$17.0 million or 5.4%, primarily due to (i) an increase in call center costs, as higher costs in U.K./Ireland were only partially offset by lower costs in Switzerland/Austria and the Netherlands, and (ii) higher consulting costs, as increases in Switzerland/Austria, Central and Corporate and the Netherlands were only partially offset by decreases in Poland and Belgium. The lower call center costs in the Netherlands are attributable to a decrease of \$12.7 million associated with third-party costs related to network and product harmonization activities and certain other third-party customer care costs following the acquisition of Ziggo;
- A decrease in bad debt and collection expenses of \$13.8 million or 9.9%, primarily related to declines in U.K./Ireland, the Netherlands, Belgium, Hungary and Switzerland/Austria that were only partially offset by increases in Germany and Poland;

- An increase in network-related expenses of \$13.2 million or 1.7%, primarily due to the net effect of (i) an \$18.1 million increase resulting from retroactive adjustments recorded during the first and second quarters of 2015 to reflect lower local authority charges for certain elements of network infrastructure in the U.K., (ii) lower outsourced labor costs primarily associated with customer-facing activities in Germany and U.K./Ireland, (iii) higher network maintenance costs, as increases in Belgium, U.K./Ireland, Hungary and Poland were only partially offset by decreases in the Netherlands and Switzerland/Austria, (iv) a \$6.2 million decrease in U.K./Ireland associated with the settlement of an operational contingency during the first quarter of 2016, (v) higher energy costs, as increases in Belgium, the Netherlands and Germany were only partially offset by lower costs in U.K./Ireland, (vi) a net decrease of \$5.5 million in Germany associated with certain reassessments of an accrual during 2016 and 2015 and (vii) a decrease of \$2.5 million as a result of costs incurred during the first half of 2015 associated with network harmonization activities following the acquisition of Ziggo;
- A decrease in facilities expenses of \$7.1 million or 12.7%, primarily due to lower costs in U.K./Ireland and the Netherlands; and
- A decrease in vehicle expenses of \$4.8 million or 10.7%, primarily related to lower costs for company vehicles in U.K./Ireland, the Netherlands, Switzerland/Austria and Hungary due largely to fewer vehicles and the impact of the conversion of certain operating leases to capital leases.

SG&A expenses

The details of our SG&A expenses are as follows:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
U.K./Ireland	\$ 794.6	\$ 864.2	\$ (69.6)	(8.1)	\$ 10.0	1.1
Belgium	420.9	255.6	165.3	64.7	28.2	7.2
The Netherlands	362.1	383.3	(21.2)	(5.5)	(19.9)	(5.2)
Germany	373.7	336.1	37.6	11.2	38.6	11.5
Switzerland/Austria	215.8	228.4	(12.6)	(5.5)	(9.5)	(4.2)
Central and Eastern Europe	166.6	162.9	3.7	2.3	6.2	3.8
Central and Corporate	404.5	392.5	12.0	3.1	15.2	4.5
Intersegment eliminations	(12.5)	(6.9)	(5.6)	N.M.	(6.7)	N.M.
Total SG&A expenses excluding share-based compensation expense	2,725.7	2,616.1	109.6	4.2	\$ 62.1	2.4
Share-based compensation expense	278.2	312.7	(34.5)	(11.0)		
Total	\$ 3,003.9	\$ 2,928.8	\$ 75.1	2.6		

(a) The amount presented for 2016 includes the post-acquisition SG&A expenses of BASE, which was acquired on February 11, 2016.

N.M. — Not Meaningful.

Supplemental SG&A expense information:

	Year ended December 31,		Increase (decrease)		Organic increase (decrease)	
	2016	2015	\$	%	\$	%
in millions, except percentages						
General and administrative (a)	\$ 1,905.4	\$ 1,766.0	\$ 139.4	7.9	\$ 62.9	3.5
External sales and marketing	820.3	850.1	(29.8)	(3.5)	(0.8)	(0.1)
Total	\$ 2,725.7	\$ 2,616.1	\$ 109.6	4.2	\$ 62.1	2.4

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- (a) General and administrative expenses include all personnel-related costs within our SG&A expenses, including personnel-related costs associated with our sales and marketing function.

Our SG&A expenses (exclusive of share-based compensation expense) increased \$109.6 million or 4.2% during 2016, as compared to 2015. This increase includes \$152.8 million attributable to the impact of the BASE Acquisition and other less significant acquisitions. On an organic basis, our SG&A expenses increased \$62.1 million or 2.4%. This increase includes the following factors:

- An increase in personnel costs of \$57.7 million or 5.2%, primarily due to (i) increased staffing levels, as increases in Central and Corporate, U.K./Ireland, Germany and, to a lesser extent, Switzerland/Austria were only partially offset by decreased staffing levels in the Netherlands and (ii) annual wage increases;
- A decrease in external sales and marketing costs of \$12.5 million or 1.5%, primarily due to the net effect of (i) lower costs associated with advertising campaigns, as decreases in U.K./Ireland, the Netherlands and Switzerland/Austria were only partially offset by higher costs in Belgium, (ii) higher third-party sales commissions, as increases in Germany and U.K./Ireland were only partially offset by a decline in the Netherlands, and (iii) lower third-party costs in the Netherlands of \$4.0 million related to the impact of rebranding costs incurred during 2015 following the acquisition of Ziggo;
- An increase in facilities expenses of \$9.5 million or 4.6%, primarily due to higher rent and other facilities-related expenses, as increases in Central and Corporate, Germany, U.K./Ireland, Belgium and the Netherlands were only partially offset by a decrease in Switzerland/Austria;
- An increase in information technology-related expenses of \$9.2 million or 12.4%, primarily due to higher software and other information technology-related maintenance costs in Germany, Central and Corporate and Belgium that were only partially offset by a decrease in the Netherlands;
- An increase of \$8.4 million due to the impact of an accrual release during the second quarter of 2015 related to the resolution of a contingency associated with universal service obligations in Belgium; and
- A decrease in outsourced labor and professional fees of \$4.9 million or 1.8%, due to the net effect of (i) increased legal costs in Central and Corporate and Belgium, (ii) a decrease in consulting costs, as decreases in Central and Corporate and U.K./Ireland were only partially offset by increases in Belgium and the Netherlands, and (iii) an increase in call center costs, primarily in the Netherlands and Belgium. The decrease in consulting costs includes (a) a decrease of \$8.3 million associated with declines in the integration costs incurred in connection with the acquisitions of Ziggo and BASE and (b) a decrease of \$2.6 million in U.K./Ireland associated with consulting fees incurred during the fourth quarter of 2015 in connection with the settlement of disputes with mobile operators over amounts charged for voice traffic.

Share-based compensation expense (included in other operating and SG&A expenses)

A summary of our aggregate share-based compensation expense is set forth below:

	Year ended December 31,	
	2016	2015
in millions		
Liberty Global:		
Performance-based incentive awards (a)	\$ 160.8	\$ 157.6
Other share-based incentive awards	108.1	148.2
Total Liberty Global shares (b)	268.9	305.8
Telenet share-based incentive awards (c)	12.2	9.2
Other	0.4	0.8
Total	<u>\$ 281.5</u>	<u>\$ 315.8</u>
Included in:		
Other operating expenses	\$ 3.3	\$ 3.1
Total SG&A expenses	278.2	312.7
Total	<u>\$ 281.5</u>	<u>\$ 315.8</u>

- (a) Includes share-based compensation expense related to PSUs, the Challenge Performance Awards and PGUs.
- (b) Amounts include incremental expense of \$16.1 million and \$69.3 million, respectively, related to the 2015 Award Modifications.
- (c) Represents the share-based compensation expense associated with Telenet's share-based incentive awards.

For additional information concerning our share-based compensation, see note 13 to our consolidated financial statements.

Depreciation and amortization expense

Our depreciation and amortization expense was \$5,213.8 million and \$5,609.4 million during 2016 and 2015, respectively. Excluding the effects of FX, depreciation and amortization expense decreased \$97.8 million or 1.7% during 2016, as compared to 2015. This decrease is primarily due to the net effect of (i) an increase associated with property and equipment additions related to the installation of customer premises equipment, the expansion and upgrade of our networks and other capital initiatives, (ii) a decrease associated with certain assets becoming fully depreciated, primarily in U.K./Ireland, the Netherlands and, to a lesser extent, Switzerland/Austria, Belgium and Germany, (iii) a decrease in the Netherlands as a result of the held-for-sale presentation of VodafoneZiggo Holding and Ziggo Sport from August 3, 2016 through the December 31, 2016 completion of the VodafoneZiggo JV Transaction, and (iv) an increase associated with acquisitions, primarily as a result of the BASE Acquisition.

Impairment, restructuring and other operating items, net

We recognized impairment, restructuring and other operating items, net, of \$186.2 million during 2016, as compared to \$150.0 million during 2015.

The total for 2016 primarily includes (i) restructuring charges of \$154.7 million, including (a) \$127.1 million of employee severance and termination costs related to certain reorganization activities, primarily in Germany, U.K./Ireland, Central and Corporate and the Netherlands, and (b) \$24.2 million of contract termination charges, primarily in Central and Corporate, and (ii) direct acquisition costs of \$45.3 million related to the VodafoneZiggo JV Transaction and the BASE Acquisition.

The total for 2015 primarily includes (i) restructuring charges of \$90.2 million, including (a) \$99.2 million of employee severance and termination costs related to certain reorganization activities, primarily in the Netherlands, U.K./Ireland, Germany, and Switzerland/Austria, (b) contract termination charges of \$8.2 million, primarily in Belgium, and (c) a credit of \$17.0 million recorded by Telenet during the fourth quarter following the settlement of its DTT capacity contract obligations, the fair value of which were originally recorded during 2014 when Telenet discontinued the provision of DTT services, (ii) direct acquisition costs of \$42.4 million, primarily related to the BASE Acquisition and our acquisition of additional shares of ITV and Ziggo, (iii)

impairment charges of \$23.1 million, primarily in U.K./Ireland, the Netherlands and Switzerland/Austria, and (iv) a \$23.1 million loss on the divestiture of our Film1 channels.

For additional information regarding our restructuring charges, see note 14 to our consolidated financial statements.

Interest expense

We recognized interest expense of \$2,324.4 million and \$2,284.1 million during 2016 and 2015, respectively. Excluding the effects of FX, interest expense increased \$149.9 million or 6.6% during 2016, as compared to 2015. This increase is primarily attributable to the net effect of (i) higher average outstanding debt balances, largely due to debt incurred in connection with the BASE Acquisition and debt issued by Ziggo Group Holding B.V. in advance of the our acquisition of Ziggo, and (ii) lower weighted average interest rates related to the completion of certain financing transactions that resulted in extended maturities and decreases to certain of our interest rates. For additional information regarding our outstanding indebtedness, see note 10 to our consolidated financial statements.

Realized and unrealized gains (losses) on derivative instruments, net

The details of our realized and unrealized gains on derivative instruments, net, are as follows:

	Year ended December 31,	
	2016	2015
	in millions	
Cross-currency and interest rate derivative contracts (a)	\$ 716.2	\$ 855.7
Equity-related derivative instruments:		
ITV Collar	351.5	(222.6)
Sumitomo Collar	(25.6)	(20.3)
Lionsgate Forward	10.1	14.5
Other	1.6	0.7
Total equity-related derivative instruments (b)	337.6	(227.7)
Foreign currency forward and option contracts	18.1	(9.0)
Other	(0.9)	0.9
Total	\$ 1,071.0	\$ 619.9

(a) The gain during 2016 is primarily attributable to the net effect of (i) a net gain associated with changes in the relative value of certain currencies and (ii) a net loss associated with changes in certain market interest rates. In addition, the gain during 2016 includes a net loss of \$28.1 million resulting from changes in our credit risk valuation adjustments. The gain during 2015 is primarily attributable to net gains associated with (a) changes in the relative value of certain currencies and (b) changes in certain market interest rates. In addition, the gain during 2015 includes a net loss of \$8.3 million resulting from changes in our credit risk valuation adjustments.

(b) For information concerning the factors that impact the valuations of our equity-related derivative instruments, see note 8 to our consolidated financial statements.

For additional information concerning our derivative instruments, see notes 7 and 8 to our consolidated financial statements and *Quantitative and Qualitative Disclosures about Market Risk* below.

Foreign currency transaction gains (losses), net

The details of our foreign currency transaction losses, net, are as follows:

	Year ended December 31,	
	2016	2015
in millions		
U.S. dollar denominated debt issued by British pound sterling functional currency entities	\$ (954.4)	\$ (210.0)
Intercompany payables and receivables denominated in a currency other than the entity's functional currency (a)	731.6	(98.4)
U.S. dollar denominated debt issued by euro functional currency entities	(481.6)	(715.7)
British pound sterling denominated debt issued by a U.S. dollar functional currency entity	251.2	89.6
Cash and restricted cash denominated in a currency other than the entity's functional currency	203.5	22.9
Euro denominated debt issued by British pound sterling functional currency entities	(75.7)	8.1
Yen denominated debt issued by a U.S. dollar functional currency entity	(40.3)	2.0
Other	(34.4)	(24.3)
Total	<u>\$ (400.1)</u>	<u>\$ (925.8)</u>

- (a) Amounts primarily relate to (i) loans between certain of our non-operating and operating subsidiaries in Europe, which generally are denominated in the currency of the applicable operating subsidiary, and (ii) loans between certain of our non-operating subsidiaries in the U.S. and Europe.

For information regarding how we manage our exposure to foreign currency risk, see *Quantitative and Qualitative Disclosures about Market Risk — Foreign Currency Risk* below.

Realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net

The details of our realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net, are as follows:

	Year ended December 31,	
	2016	2015
in millions		
Investments:		
ITV	\$ (608.6)	\$ 165.6
Sumitomo	67.2	(2.0)
Lionsgate	(33.4)	(33.2)
Other, net (a)	135.9	(5.9)
Total investments	<u>(438.9)</u>	<u>124.5</u>
Debt	<u>(22.6)</u>	<u>—</u>
Total	<u>\$ (461.5)</u>	<u>\$ 124.5</u>

- (a) The amount for 2016 includes a gain of \$84.4 million related to an investment that was sold during the third quarter of 2016.

Losses on debt modification and extinguishment, net

We recognized net losses on debt modification and extinguishment of \$238.1 million and \$388.0 million during 2016 and 2015, respectively.

The loss during 2016 is primarily attributable to (i) the payment of \$132.2 million of redemption premiums and (ii) the write-off of \$96.3 million of net unamortized deferred financing costs, discounts and premiums.

The loss during 2015 is primarily attributable to (i) the payment of \$310.8 million of redemption premiums and (ii) the write-off of \$76.4 million of net unamortized deferred financing costs, discounts and premiums.

For additional information concerning our losses on debt modification and extinguishment, net, see note 10 to our consolidated financial statements.

Share of losses of affiliates

We recognized share of losses of affiliates, net, of \$111.6 million and \$54.3 million during 2016 and 2015, respectively.

Other income, net

We recognized other income, net, of \$109.2 million and \$29.8 million during 2016 and 2015, respectively. These amounts include interest and dividend income of \$36.4 million and \$33.5 million, respectively. In addition, the 2016 amount includes income of \$69.8 million, representing our share of the settlement of certain litigation.

Income tax benefit (expense)

We recognized income tax benefit (expense) of \$1,347.0 million and (\$324.3 million) during 2016 and 2015, respectively.

The income tax benefit during 2016 differs from the expected income tax expense of \$129.5 million (based on the U.K. statutory income tax rate of 20.0%) primarily due to the net positive impact of (i) a decrease in valuation allowances, including tax benefits of \$1.1 billion recognized in the Netherlands upon the release of valuation allowances in the fourth quarter of 2016, (ii) the recognition of previously unrecognized tax benefits, (iii) non-deductible or non-taxable foreign currency exchange results, (iv) the tax effect of intercompany financing and (v) statutory tax rates in certain jurisdictions in which we operate that are different than the U.K. statutory income tax rate. The release of valuation allowances in the Netherlands is attributable to a significant improvement in our forecast of taxable income in the Netherlands, due to, among other factors, the impacts of contributing VodafoneZiggo Holding to the VodafoneZiggo JV on December 31, 2016, as further described in note 5 to our consolidated financial statements. The net positive impact of these items was partially offset by the net negative impact of a reduction in net deferred tax assets in the U.K. and other countries due to enacted changes in tax law.

The income tax expense during 2015 differs from the expected income tax benefit of \$157.3 million (based on the blended U.K. statutory income tax rate of 20.25%) primarily due to the net negative impact of (i) an increase in valuation allowances, (ii) a reduction in net deferred tax assets in the U.K. due to enacted changes in tax law and (iii) certain permanent differences between the financial and tax accounting treatment of items associated with investments in subsidiaries and affiliates. The net negative impact of these items was partially offset by the net positive impact of (a) the tax effect of intercompany financing and (b) statutory tax rates in certain jurisdictions in which we operate that are different than the U.K. statutory income tax rate.

For additional information concerning our income taxes, see note 11 to our consolidated financial statements.

Earnings (loss) from continuing operations

During 2016 and 2015, we reported earnings (loss) from continuing operations of \$1,994.5 million and (\$1,101.2 million), respectively, consisting of (i) operating income of \$2,482.2 million and \$2,101.1 million, respectively, (ii) net non-operating expense of \$1,834.7 million and \$2,878.0 million, respectively, and (iii) income tax benefit (expense) of \$1,347.0 million and (\$324.3 million), respectively.

Earnings (loss) from discontinued operations, net of taxes

Our earnings (loss) from discontinued operations, net of taxes, of (\$227.2 million) and \$51.7 million during 2016 and 2015 relates to the operations of the LiLAC Group. For additional information, see note 5 to our consolidated financial statements.

Net earnings attributable to noncontrolling interests

Our net earnings attributable to noncontrolling interests were \$62.0 million and \$103.0 million during 2016 and 2015, respectively. The decrease is primarily attributable to the net effect of a decline in the results of operations of Telenet and improvements in the results of operations of certain C&W subsidiaries and Liberty Puerto Rico.

Liquidity and Capital Resources

Sources and Uses of Cash

We are a holding company that is dependent on the capital resources of our subsidiaries to satisfy our liquidity requirements at the corporate level. Each of our significant operating subsidiaries is separately financed within one of our four subsidiary “borrowing groups.” These borrowing groups include the respective restricted parent and subsidiary entities within Virgin Media, Unitymedia, UPC Holding and Telenet. Our borrowing groups, which typically generate cash from operating activities, accounted for a significant portion of our consolidated cash and cash equivalents at December 31, 2017. The terms of the instruments governing the indebtedness of these borrowing groups may restrict our ability to access the liquidity of these subsidiaries. In addition, our ability to access the liquidity of these and other subsidiaries may be limited by tax and legal considerations, the presence of noncontrolling interests and other factors.

Cash and cash equivalents

The details of the U.S. dollar equivalent balances of our consolidated cash and cash equivalents at December 31, 2017 are set forth in the following table (in millions):

Cash and cash equivalents held by:	
Liberty Global and unrestricted subsidiaries:	
Liberty Global (a)	\$ 73.2
Unrestricted subsidiaries (b)	1,484.4
Total Liberty Global and unrestricted subsidiaries	<u>1,557.6</u>
Borrowing groups (c):	
Telenet	46.9
UPC Holding	33.1
Virgin Media (d)	32.0
Unitymedia	2.8
Total borrowing groups	<u>114.8</u>
Total cash and cash equivalents	<u>\$ 1,672.4</u>

- (a) Represents the amount held by Liberty Global on a standalone basis.
- (b) Represents the aggregate amount held by subsidiaries that are outside of our borrowing groups.
- (c) Except as otherwise noted, represents the aggregate amounts held by the parent entity and restricted subsidiaries of our borrowing groups.
- (d) The Virgin Media borrowing group includes certain subsidiaries of Virgin Media, but excludes the parent entity, Virgin Media Inc.

Liquidity of Liberty Global and its unrestricted subsidiaries

The \$73.2 million of cash and cash equivalents held by Liberty Global and, subject to certain tax and legal considerations, the \$1,484.4 million of aggregate cash and cash equivalents held by unrestricted subsidiaries, represented available liquidity at the corporate level at December 31, 2017. Our remaining cash and cash equivalents of \$114.8 million at December 31, 2017 were held by our borrowing groups as set forth in the table above. As noted above, various factors may limit our ability to access the cash of our borrowing groups. For information regarding certain limitations imposed by our subsidiaries’ debt instruments at December 31, 2017, see note 10 to our consolidated financial statements.

Our current sources of corporate liquidity include (i) cash and cash equivalents held by Liberty Global and, subject to certain tax and legal considerations, Liberty Global’s unrestricted subsidiaries, and (ii) interest and dividend income received on our and, subject to certain tax and legal considerations, our unrestricted subsidiaries’ cash and cash equivalents and investments.

From time to time, Liberty Global and its unrestricted subsidiaries may also receive (i) proceeds in the form of distributions or loan repayments from Liberty Global's borrowing groups or affiliates (including amounts from the VodafoneZiggo JV) upon (a) the completion of recapitalizations, refinancings, asset sales or similar transactions by these entities or (b) the accumulation of excess cash from operations or other means, (ii) proceeds upon the disposition of investments and other assets of Liberty Global and its unrestricted subsidiaries and (iii) proceeds in connection with the incurrence of debt by Liberty Global or its unrestricted subsidiaries or the issuance of equity securities by Liberty Global, including equity securities issued to satisfy subsidiary obligations. No assurance can be given that any external funding would be available to Liberty Global or its unrestricted subsidiaries on favorable terms, or at all. In connection with the completion of the VodafoneZiggo JV Transaction, our company received cash of €2.2 billion (\$2.4 billion at the transaction date). For additional information, see note 5 to our consolidated financial statements.

At December 31, 2017, our consolidated cash and cash equivalents balance included \$1,585.3 million held by entities that are domiciled outside of the U.K. Based on our assessment of the liquidity of our subsidiaries on a tax efficient basis, our expectations with respect to our corporate liquidity requirements and our preliminary assessment of the 2017 U.S. Tax Act, we do not anticipate that tax considerations will adversely impact our corporate liquidity over the next 12 months. Our ability to access the liquidity of our subsidiaries on a tax efficient basis is a consideration in assessing the extent of our share repurchase program.

In addition, the amount of cash we receive from our subsidiaries to satisfy U.S. dollar-denominated liquidity requirements is impacted by fluctuations in exchange rates, particularly with regard to the translation of British pounds sterling and euros into U.S. dollars. In this regard, the strengthening (weakening) of the U.S. dollar against these currencies will result in decreases (increases) in the U.S. dollars received from the applicable subsidiaries to fund the repurchase of our equity securities and other U.S. dollar-denominated liquidity requirements. The U.S. dollar has significantly strengthened against the British pound sterling during the period following Brexit.

Our corporate liquidity requirements include (i) corporate general and administrative expenses, (ii) interest payments on the ITV Collar Loan, the Sumitomo Collar Loan and the Sumitomo Share Loan and (iii) principal payments on the ITV Collar Loan, the Sumitomo Collar Loan, the Sumitomo Share Loan and the Lionsgate Loan to the extent not settled through the delivery of the underlying shares. In addition, Liberty Global and its unrestricted subsidiaries may require cash in connection with (a) the repayment of third-party and intercompany debt, (b) the satisfaction of contingent liabilities, (c) acquisitions, (d) the repurchase of equity and debt securities, (e) other investment opportunities, (f) any funding requirements of our consolidated subsidiaries or (g) income tax payments. In addition, our parent entity uses available liquidity to make interest and principal payments on notes payable to certain of our unrestricted subsidiaries (aggregate outstanding principal of \$10,718.8 million at December 31, 2017 with varying maturity dates). For information regarding our commitments and contingencies, see note 17 to our consolidated financial statements.

During 2017, we repurchased Liberty Global Shares and LiLAC Shares for an aggregate purchase price of \$2,894.7 million and \$53.5 million, respectively, including direct acquisition costs. At December 31, 2017, the remaining amount authorized for repurchases of Liberty Global Shares was \$2.1 billion. As a U.K. incorporated company, we may only elect to repurchase shares or pay dividends to the extent of our Distributable Reserves. For additional information regarding our share repurchase programs and Distributable Reserves, see note 12 to our consolidated financial statements.

Liquidity of borrowing groups

The cash and cash equivalents of our borrowing groups are detailed in the table above. In addition to cash and cash equivalents, the primary sources of liquidity of our borrowing groups are cash provided by operations and borrowing availability under their respective debt instruments. For the details of the borrowing availability of such entities at December 31, 2017, see note 10 to our consolidated financial statements. The aforementioned sources of liquidity may be supplemented in certain cases by contributions and/or loans from Liberty Global and its unrestricted subsidiaries. The liquidity of our borrowing groups generally is used to fund property and equipment additions, debt service requirements and income tax payments. From time to time, our borrowing groups may also require liquidity in connection with (i) acquisitions and other investment opportunities, (ii) loans to Liberty Global, (iii) capital distributions to Liberty Global and other equity owners or (iv) the satisfaction of contingent liabilities. No assurance can be given that any external funding would be available to our borrowing groups on favorable terms, or at all. For information regarding our borrowing groups' commitments and contingencies, see note 17 to our consolidated financial statements.

For additional information regarding our consolidated cash flows, see the discussion under *Consolidated Statements of Cash Flows* below.

Capitalization

We seek to maintain our debt at levels that provide for attractive equity returns without assuming undue risk. In this regard, we generally seek to cause our operating subsidiaries to maintain their debt at levels that result in a consolidated debt balance (excluding the ITV Collar Loan, Sumitomo Collar Loan, Sumitomo Share Loan, Lionsgate Loan and certain debt collateralized by cash and measured using subsidiary debt figures at swapped foreign currency exchange rates, consistent with the covenant calculation requirements of our subsidiary debt agreements) that is between four and five times our consolidated Adjusted OIBDA, although the timing of our acquisitions and financing transactions and the interplay of average and spot foreign currency rates may impact this ratio. The ratio of our December 31, 2017 consolidated debt to our annualized consolidated Adjusted OIBDA for the quarter ended December 31, 2017 was 5.1x. In addition, the ratio of our December 31, 2017 consolidated net debt (debt, as defined above, less cash and cash equivalents) to our annualized consolidated Adjusted OIBDA for the quarter ended December 31, 2017 was 4.9x.

When it is cost effective, we generally seek to match the denomination of the borrowings of our subsidiaries with the functional currency of the operations that support the respective borrowings. As further discussed under *Quantitative and Qualitative Disclosures about Market Risk* below and in note 7 to our consolidated financial statements, we also use derivative instruments to mitigate foreign currency and interest rate risk associated with our debt instruments.

Our ability to service or refinance our debt and to maintain compliance with the leverage covenants in the credit agreements and indentures of our borrowing groups is dependent primarily on our ability to maintain or increase the Adjusted OIBDA of our operating subsidiaries and to achieve adequate returns on our property and equipment additions and acquisitions. In addition, our ability to obtain additional debt financing is limited by the incurrence-based leverage covenants contained in the various debt instruments of our borrowing groups. For example, if the Adjusted OIBDA of UPC Holding were to decline, our ability to obtain additional debt could be limited. No assurance can be given that we would have sufficient sources of liquidity, or that any external funding would be available on favorable terms, or at all, to fund any such required repayment. At December 31, 2017, each of our borrowing groups was in compliance with its debt covenants. In addition, we do not anticipate any instances of non-compliance with respect to the debt covenants of our borrowing groups that would have a material adverse impact on our liquidity during the next 12 months.

At December 31, 2017, the outstanding principal amount of our consolidated debt, together with our capital lease obligations, aggregated \$42.4 billion, including \$4,165.4 million that is classified as current in our consolidated balance sheet and \$37.3 billion that is not due until 2021 or thereafter. All of our consolidated debt and capital lease obligations have been borrowed or incurred by our subsidiaries at December 31, 2017. For additional information concerning our debt maturities, see note 10 to our consolidated financial statements.

Notwithstanding our negative working capital position at December 31, 2017, we believe that we have sufficient resources to repay or refinance the current portion of our debt and capital lease obligations and to fund our foreseeable liquidity requirements during the next 12 months. However, as our maturing debt grows in later years, we anticipate that we will seek to refinance or otherwise extend our debt maturities. No assurance can be given that we will be able to complete these refinancing transactions or otherwise extend our debt maturities. In this regard, it is not possible to predict how political and economic conditions, sovereign debt concerns or any adverse regulatory developments could impact the credit and equity markets we access and, accordingly, our future liquidity and financial position. Our ability to access debt financing on favorable terms, or at all, could be adversely impacted by (i) the financial failure of any of our counterparties which could (a) reduce amounts available under committed credit facilities and (b) adversely impact our ability to access cash deposited with any failed financial institution and (ii) tightening of the credit markets. In addition, any weakness in the equity markets could make it less attractive to use our shares to satisfy contingent or other obligations, and sustained or increased competition, particularly in combination with adverse economic or regulatory developments, could have an unfavorable impact on our cash flows and liquidity.

For additional information concerning our debt and capital lease obligations, see note 10 to our consolidated financial statements.

Consolidated Statements of Cash Flows

General. Our cash flows are subject to significant variations due to FX. See related discussion under *Quantitative and Qualitative Disclosures about Market Risk — Foreign Currency Risk* below.

Summary. The 2017 and 2016 consolidated statements of cash flows of our continuing operations are summarized as follows:

	Year ended December 31,		Change
	2017	2016	
	in millions		
Net cash provided by operating activities	\$ 5,134.6	\$ 5,471.7	\$ (337.1)
Net cash provided (used) by investing activities	79.4	(3,475.2)	3,554.6
Net cash used by financing activities	(4,720.9)	(1,638.8)	(3,082.1)
Effect of exchange rate changes on cash	102.7	11.3	91.4
Net increase in cash and cash equivalents	\$ 595.8	\$ 369.0	\$ 226.8

Operating Activities. The decrease in net cash provided by our operating activities is primarily attributable to the net effect of (i) a decrease in the cash provided by our Adjusted OIBDA and related working capital items, including a decrease due to the impact of the VodafoneZiggo JV Transaction, (ii) an increase in cash provided due to lower payments of interest, including lower payments due to the impact of the VodafoneZiggo JV Transaction, and (iii) an increase in cash provided due to higher cash dividends received, primarily from the VodafoneZiggo JV.

Investing Activities. The change in net cash provided (used) by our investing activities is primarily attributable to an increase in cash of (i) \$1,569.4 million related to distributions received from affiliates in 2017, (ii) \$980.6 million associated with lower cash paid in connection with acquisitions, (iii) \$845.3 million associated with the equalization payment received in 2017 in connection with the completion of the VodafoneZiggo JV Transaction and (iv) \$200.8 million due to lower capital expenditures. Capital expenditures decreased from \$2,153.9 million during 2016 to \$1,953.1 million during 2017 due to the net effect of (a) a decrease due to the impact of the VodafoneZiggo JV Transaction and (b) a net increase in the local currency capital expenditures of our subsidiaries, including an increase associated with related working capital movements and a decrease associated with higher capital-related vendor financing.

The capital expenditures that we report in our consolidated statements of cash flows do not include amounts that are financed under capital-related vendor financing or capital lease arrangements. Instead, these amounts are reflected as non-cash additions to our property and equipment when the underlying assets are delivered and as repayments of debt when the principal is repaid. In this discussion, we refer to (i) our capital expenditures as reported in our consolidated statements of cash flows, which exclude amounts financed under capital-related vendor financing or capital lease arrangements, and (ii) our total property and equipment additions, which include our capital expenditures on an accrual basis and amounts financed under capital-related vendor financing or capital lease arrangements. For further details regarding our property and equipment additions, see note 18 to our consolidated financial statements. A reconciliation of our consolidated property and equipment additions to our consolidated capital expenditures, as reported in our consolidated statements of cash flows, is set forth below:

	Year ended December 31,	
	2017	2016
	in millions	
Property and equipment additions	\$ 4,764.8	\$ 4,638.6
Assets acquired under capital-related vendor financing arrangements	(2,635.8)	(2,018.7)
Assets acquired under capital leases	(169.8)	(104.2)
Changes in current liabilities related to capital expenditures	(6.1)	(361.8)
Capital expenditures	\$ 1,953.1	\$ 2,153.9

The increase in our property and equipment additions during 2017 is due to the net effect of (i) a decrease due to the impact of the VodafoneZiggo JV Transaction, (ii) an increase in expenditures for new build and upgrade projects, (iii) an increase in expenditures for the purchase and installation of customer premises equipment and (iv) an increase in expenditures to support new customer products and operational efficiency initiatives. During 2017 and 2016, our property and equipment additions represented 31.7% and 26.8% of revenue, respectively.

We expect our aggregate 2018 property and equipment additions will be around \$5.1 billion (based on exchange rates in effect on February 13, 2018). The actual amount of our 2018 property and equipment additions may vary from expected amounts for a

variety of reasons, including (i) changes in (a) the competitive or regulatory environment, (b) business plans, (c) our expected future operating results or (d) foreign currency exchange rates and (ii) the availability of sufficient capital. Accordingly, no assurance can be given that our actual property and equipment additions will not vary materially from our expectations.

Financing Activities. The increase in net cash used by our financing activities is primarily attributable to the net effect of (i) an increase in cash used of \$1,208.2 million associated with lower net borrowings of debt, (ii) an increase in cash used of \$1,027.9 million due to higher cash payments associated with the repurchase of Liberty Global ordinary shares, (iii) an increase in cash used of \$791.8 million associated with an increase in cash collateral, primarily due to a UPC Holding refinancing transaction, as further described in note 10 to our consolidated financial statements, (iv) an increase in cash used of \$162.6 million related to VAT paid on behalf of the VodafoneZiggo JV, (v) a decrease in cash used of \$149.0 million due to lower payments related to derivative instruments and (vi) an increase in cash used of \$123.0 million due to higher payments for financing costs and debt premiums.

Consolidated Statements of Cash Flows — 2016 compared to 2015

Summary. The 2016 and 2015 consolidated statements of cash flows of our continuing operations are summarized as follows:

	Year ended December 31,		Change
	2016	2015	
in millions			
Net cash provided by operating activities	\$ 5,471.7	\$ 5,422.3	\$ 49.4
Net cash used by investing activities	(3,475.2)	(3,429.0)	(46.2)
Net cash used by financing activities	(1,638.8)	(2,334.3)	695.5
Effect of exchange rate changes on cash	11.3	(2.8)	14.1
Net increase (decrease) in cash and cash equivalents	<u>\$ 369.0</u>	<u>\$ (343.8)</u>	<u>\$ 712.8</u>

Operating Activities. The increase in net cash provided by our operating activities is primarily attributable to the net effect of (i) a decrease in cash provided due to higher payments of interest, (ii) an increase in the cash provided by our Adjusted OIBDA and related working capital items, (iii) an increase in cash provided due to higher cash receipts related to derivative instruments, (iv) a decrease in the reported net cash provided by operating activities due to FX and (v) a decrease in cash provided due to higher payments for taxes.

Investing Activities. The increase in net cash used by our investing activities is primarily attributable to the net effect of (i) an increase in cash used of \$1,288.2 million associated with higher cash paid in connection with acquisitions, (ii) a decrease in cash used of \$858.4 million associated with lower cash paid related to investments in and loans to affiliates and others, (iii) \$147.3 million of cash proceeds received during 2016 from the sale of investments and (iv) a decrease in cash used of \$118.4 million due to lower capital expenditures. Capital expenditures decreased from \$2,272.3 million during 2015 to \$2,153.9 million during 2016 due to the net effect of (a) a net decrease in the local currency capital expenditures of our subsidiaries, including a decrease associated with related working capital movements and a decrease associated with higher capital-related vendor financing, (b) a decrease resulting from FX and (c) an increase related to the BASE Acquisition.

A reconciliation of our consolidated property and equipment additions to our consolidated capital expenditures as reported in our consolidated statements of cash flows is set forth below:

	Year ended December 31,	
	2016	2015
in millions		
Property and equipment additions	\$ 4,638.6	\$ 3,910.2
Assets acquired under capital-related vendor financing arrangements	(2,018.7)	(1,481.5)
Assets acquired under capital leases	(104.2)	(106.1)
Changes in current liabilities related to capital expenditures	(361.8)	(50.3)
Capital expenditures	<u>\$ 2,153.9</u>	<u>\$ 2,272.3</u>

The increase in the our property and equipment additions during 2016 is due to the net effect of (i) an increase in expenditures for new build and upgrade projects, (ii) an increase in expenditures for support capital, such as information technology upgrades

and general support systems, (iii) a decrease due to FX, (iv) an increase due to the impact of the BASE Acquisition and (v) an increase in expenditures for the purchase and installation of customer premises equipment. During 2016 and 2015, our property and equipment additions represented 26.8% and 22.9% of revenue, respectively.

Financing Activities. The decrease in net cash used by our financing activities is primarily attributable to the net effect of (i) a decrease in cash used of \$372.2 million due to lower cash payments associated with the repurchase of Liberty Global ordinary shares, (ii) an increase in cash used of \$316.4 million related to lower net borrowings of debt, (iii) a decrease in cash used of \$195.7 million due to lower payments for financing costs, debt premiums and exchange offer consideration, (iv) a decrease in cash used of \$173.7 million due to changes in cash collateral and (v) a decrease in cash used of \$142.4 million related to lower purchases of additional shares of our subsidiaries.

Adjusted Free Cash Flow

We define adjusted free cash flow as net cash provided by our operating activities, plus (i) cash payments for third-party costs directly associated with successful and unsuccessful acquisitions and dispositions and (ii) expenses financed by an intermediary, less (a) capital expenditures, as reported in our consolidated statements of cash flows, (b) principal payments on amounts financed by vendors and intermediaries and (c) principal payments on capital leases (exclusive of the portions of the network lease in Belgium and the duct leases in Germany that we assumed in connection with certain acquisitions), with each item excluding any cash provided or used by our discontinued operations. We believe that our presentation of adjusted free cash flow provides useful information to our investors because this measure can be used to gauge our ability to service debt and fund new investment opportunities. Adjusted free cash flow should not be understood to represent our ability to fund discretionary amounts, as we have various mandatory and contractual obligations, including debt repayments, which are not deducted to arrive at this amount. Investors should view adjusted free cash flow as a supplement to, and not a substitute for, U.S. GAAP measures of liquidity included in our consolidated statements of cash flows. We changed our definition of adjusted free cash flow effective January 1, 2017 to remove the add-back of excess tax benefits from share-based compensation. This change, which was given effect for all periods presented, was made to accommodate our January 1, 2017 adoption of ASU 2016-09, pursuant to which we retrospectively revised the presentation of our consolidated statements of cash flows to remove the operating cash outflows and financing cash inflows associated with excess tax benefits from share-based compensation. For additional information, see note 2 to our consolidated financial statements.

The following table provides the details of our adjusted free cash flow:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Net cash provided by operating activities of our continuing operations	\$ 5,134.6	\$ 5,471.7	\$ 5,422.3
Cash payments for direct acquisition and disposition costs	8.7	29.3	259.3
Expenses financed by an intermediary (a)	1,506.9	812.0	294.2
Capital expenditures	(1,953.1)	(2,153.9)	(2,272.3)
Principal payments on amounts financed by vendors and intermediaries	(3,059.3)	(2,074.7)	(1,125.4)
Principal payments on certain capital leases	(86.6)	(105.5)	(146.0)
Adjusted free cash flow	<u>\$ 1,551.2</u>	<u>\$ 1,978.9</u>	<u>\$ 2,432.1</u>

- (a) For purposes of our consolidated statements of cash flows, expenses financed by an intermediary are treated as hypothetical operating cash outflows and hypothetical financing cash inflows when the expenses are incurred. When we pay the financing intermediary, we record financing cash outflows in our consolidated statements of cash flows. For purposes of our adjusted free cash flow definition, we add back the hypothetical operating cash outflow when these financed expenses are incurred and deduct the financing cash outflows when we pay the financing intermediary.

Contractual Commitments

The following table sets forth the U.S. dollar equivalents of our commitments as of December 31, 2017:

	Payments due during:						Total
	2018	2019	2020	2021	2022	Thereafter	
	in millions						
Debt (excluding interest)	\$ 4,194.4	\$ 195.3	\$ 330.2	\$ 3,019.6	\$ 751.0	\$ 32,527.1	\$ 41,017.6
Capital leases (excluding interest)	140.6	120.2	113.7	112.8	116.4	816.8	1,420.5
Network and connectivity commitments	833.4	378.6	307.8	267.5	76.4	952.1	2,815.8
Programming commitments	1,040.8	626.5	275.7	96.0	48.4	64.7	2,152.1
Purchase commitments	1,092.1	237.6	165.5	48.2	21.5	59.0	1,623.9
Operating leases	104.2	89.7	73.8	60.8	50.6	201.1	580.2
Other commitments	27.0	9.0	2.7	0.5	0.3	0.1	39.6
Total (a)	\$ 7,432.5	\$ 1,656.9	\$ 1,269.4	\$ 3,605.4	\$ 1,064.6	\$ 34,620.9	\$ 49,649.7
Projected cash interest payments on debt and capital lease obligations (b)	\$ 1,768.3	\$ 1,712.7	\$ 1,729.2	\$ 1,686.8	\$ 1,592.6	\$ 5,784.0	\$ 14,273.6

- (a) The commitments included in this table do not reflect any liabilities that are included in our December 31, 2017 consolidated balance sheet other than debt and capital lease obligations. Our liability for uncertain tax positions in the various jurisdictions in which we operate (\$214.0 million at December 31, 2017) has been excluded from the table as the amount and timing of any related payments are not subject to reasonable estimation.
- (b) Amounts are based on interest rates, interest payment dates, commitment fees and contractual maturities in effect as of December 31, 2017. These amounts are presented for illustrative purposes only and will likely differ from the actual cash payments required in future periods. In addition, the amounts presented do not include the impact of our interest rate derivative contracts, deferred financing costs, original issue premiums or discounts.

For information concerning our debt and capital lease obligations, see note 10 to our consolidated financial statements. For information concerning our commitments, see note 17 to our consolidated financial statements.

In addition to the commitments set forth in the table above, we have significant commitments under (i) derivative instruments and (ii) defined benefit plans and similar agreements, pursuant to which we expect to make payments in future periods. For information regarding projected cash flows associated with these derivative instruments, see *Quantitative and Qualitative Disclosures about Market Risk — Projected Cash Flows Associated with Derivative Instruments* below. For information regarding our derivative instruments, including the net cash paid or received in connection with these instruments during 2017, 2016 and 2015, see note 7 to our consolidated financial statements. For information concerning our defined benefit plans, see note 15 to our consolidated financial statements.

Critical Accounting Policies, Judgments and Estimates

In connection with the preparation of our consolidated financial statements, we make estimates and assumptions that affect the reported amounts of assets and liabilities, revenue and expenses and related disclosure of contingent assets and liabilities. Critical accounting policies are defined as those policies that are reflective of significant judgments, estimates and uncertainties, which would potentially result in materially different results under different assumptions and conditions. We believe the following accounting policies are critical in the preparation of our consolidated financial statements because of the judgment necessary to account for these matters and the significant estimates involved, which are susceptible to change:

- Impairment of property and equipment and intangible assets (including goodwill);
- Costs associated with construction and installation activities;
- Fair value measurements; and
- Income tax accounting.

We have discussed the selection of the aforementioned critical accounting policies with the audit committee of our board of directors. For additional information concerning our significant accounting policies, see note 3 to our consolidated financial statements.

Impairment of Property and Equipment and Intangible Assets

Carrying Value. The aggregate carrying value of our property and equipment and intangible assets (including goodwill) that was held for use comprised 69.5% of our total assets at December 31, 2017.

When circumstances warrant, we review the carrying amounts of our property and equipment and our intangible assets (other than goodwill and other indefinite-lived intangible assets) to determine whether such carrying amounts continue to be recoverable. Such changes in circumstance may include (i) an expectation of a sale or disposal of a long-lived asset or asset group, (ii) adverse changes in market or competitive conditions, (iii) an adverse change in legal factors or business climate in the markets in which we operate and (iv) operating or cash flow losses. For purposes of impairment testing, long-lived assets are grouped at the lowest level for which cash flows are largely independent of other assets and liabilities, generally at or below the reporting unit level (see below). If the carrying amount of the asset or asset group is greater than the expected undiscounted cash flows to be generated by such asset or asset group, an impairment adjustment is recognized. Such adjustment is measured by the amount that the carrying value of such asset or asset group exceeds its fair value. We generally measure fair value by considering (a) sale prices for similar assets, (b) discounted estimated future cash flows using an appropriate discount rate and/or (c) estimated replacement cost. Assets to be disposed of are recorded at the lower of their carrying amount or fair value less costs to sell.

We evaluate goodwill and other indefinite-lived intangible assets for impairment at least annually on October 1 and whenever facts and circumstances indicate that their carrying amounts may not be recoverable. For impairment evaluations with respect to both goodwill and other indefinite-lived intangibles, we first make a qualitative assessment to determine if the goodwill or other indefinite-lived intangible may be impaired. In the case of goodwill, if it is more-likely-than-not that a reporting unit's fair value is less than its carrying value, we then compare the fair value of the reporting unit to its respective carrying amount. Any excess of the carrying amount over the fair value would be charged to operations as an impairment loss. A reporting unit is an operating segment or one level below an operating segment (referred to as a "component"). With respect to other indefinite-lived intangible assets, if it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying value, we then estimate its fair value and any excess of the carrying value over the fair value is also charged to operations as an impairment loss.

When required, considerable management judgment is necessary to estimate the fair value of reporting units and underlying long-lived and indefinite-lived assets. The equity of one of our reporting units, Telenet, is publicly traded in an active market. For this reporting unit, our fair value determination is based on quoted market prices. For other reporting units, we typically determine fair value using an income-based approach (discounted cash flows) based on assumptions in our long-range business plans and, in some cases, a combination of an income-based approach and a market-based approach. With respect to our discounted cash flow analysis used in the income-based approach, the timing and amount of future cash flows under these business plans require estimates of, among other items, subscriber growth and retention rates, rates charged per product, expected gross margins and Adjusted OIBDA margins and expected property and equipment additions. The development of these cash flows, and the discount rate applied to the cash flows, is subject to inherent uncertainties, and actual results could vary significantly from such estimates. Our determination of the discount rate is based on a weighted average cost of capital approach, which uses a market participant's cost of equity and after-tax cost of debt and reflects the risks inherent in the cash flows. Based on the results of our 2017 qualitative assessment of our reporting unit carrying values, we determined that it was more-likely-than-not that fair value exceeded carrying value for all of our reporting units.

During the three years ended December 31, 2017, we did not record any significant impairment charges with respect to our property and equipment and intangible assets. For additional information regarding our long-lived assets, see note 9 to our consolidated financial statements.

If, among other factors, (i) our equity values were to decline significantly or (ii) the adverse impacts of economic, competitive, regulatory or other factors were to cause our results of operations or cash flows to be worse than anticipated, we could conclude in future periods that impairment charges are required in order to reduce the carrying values of our goodwill and, to a lesser extent, other long-lived assets. Any such impairment charges could be significant.

Costs Associated with Construction and Installation Activities

We capitalize costs associated with the construction of new cable and mobile transmission and distribution facilities and the installation of new cable services. Installation activities that are capitalized include (i) the initial connection (or drop) from our cable system to a customer location, (ii) the replacement of a drop and (iii) the installation of equipment for additional services, such as digital cable, telephone or broadband internet service. The costs of other customer-facing activities, such as reconnecting customer locations where a drop already exists, disconnecting customer locations and repairing or maintaining drops, are expensed as incurred.

The nature and amount of labor and other costs to be capitalized with respect to construction and installation activities involves significant judgment. In addition to direct external and internal labor and materials, we also capitalize other costs directly attributable to our construction and installation activities, including dispatch costs, quality-control costs, vehicle-related costs and certain warehouse-related costs. The capitalization of these costs is based on time sheets, time studies, standard costs, call tracking systems and other verifiable means that directly link the costs incurred with the applicable capitalizable activity. We continuously monitor the appropriateness of our capitalization policies and update the policies when necessary to respond to changes in facts and circumstances, such as the development of new products and services and changes in the manner that installations or construction activities are performed.

Fair Value Measurements

U.S. GAAP provides guidance with respect to the recurring and nonrecurring fair value measurements and for a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. Level 1 inputs are quoted market prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 2 inputs are inputs other than quoted market prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability.

Recurring Valuations. We perform recurring fair value measurements with respect to our derivative instruments, our fair value method investments and certain instruments that we classify as debt, each of which are carried at fair value. We use (i) cash flow valuation models to determine the fair values of our interest rate and foreign currency derivative instruments and (ii) a binomial option pricing model to determine the fair values of our equity-related derivative instruments. We use quoted market prices when available and, when not available, we use a combination of an income approach (discounted cash flows) and a market approach (market multiples of similar businesses) to determine the fair value of our fair value method investments. For a detailed discussion of the inputs we use to determine the fair value of our derivative instruments and fair value method investments, see note 8 to our consolidated financial statements. See also notes 6 and 7 to our consolidated financial statements for information concerning our fair value method investments and derivative instruments, respectively.

Changes in the fair values of our derivative instruments, fair value method investments and certain instruments that we classify as debt have had, and we believe will continue to have, a significant and volatile impact on our results of operations. During 2017, 2016 and 2015, we recognized net gains (losses) of (\$1,375.1 million), \$609.5 million and \$744.4 million, respectively, attributable to changes in the fair values of these items.

As further described in note 8 to our consolidated financial statements, actual amounts received or paid upon the settlement or disposition of these investments and instruments may differ materially from the recorded fair values at December 31, 2017.

For information concerning the sensitivity of the fair value of certain of our more significant derivative instruments to changes in market conditions, see *Quantitative and Qualitative Disclosures About Market Risk — Sensitivity Information* below.

Nonrecurring Valuations. Our nonrecurring valuations are primarily associated with (i) the application of acquisition accounting and (ii) impairment assessments, both of which require that we make fair value determinations as of the applicable valuation date. In making these determinations, we are required to make estimates and assumptions that affect the recorded amounts,

including, but not limited to, expected future cash flows, market comparables and discount rates, remaining useful lives of long-lived assets, replacement or reproduction costs of property and equipment and the amounts to be recovered in future periods from acquired net operating losses and other deferred tax assets. To assist us in making these fair value determinations, we may engage third-party valuation specialists. Our estimates in this area impact, among other items, the amount of depreciation and amortization, impairment charges and income tax expense or benefit that we report. Our estimates of fair value are based upon assumptions we believe to be reasonable, but which are inherently uncertain. A significant portion of our long-lived assets were initially recorded through the application of acquisition accounting and all of our long-lived assets are subject to impairment assessments. For additional information, including the specific weighted average discount rates that we used to complete certain nonrecurring valuations, see note 8 to our consolidated financial statements. For information regarding our acquisitions and long-lived assets, see notes 4 and 9 to our consolidated financial statements, respectively.

Income Tax Accounting

We are required to estimate the amount of tax payable or refundable for the current year and the deferred tax assets and liabilities for the future tax consequences attributable to differences between the financial statement carrying amounts and income tax basis of assets and liabilities and the expected benefits of utilizing net operating loss and tax credit carryforwards, using enacted tax rates in effect for each taxing jurisdiction in which we operate for the year in which those temporary differences are expected to be recovered or settled. This process requires our management to make assessments regarding the timing and probability of the ultimate tax impact of such items.

Net deferred tax assets are reduced by a valuation allowance if we believe it more-likely-than-not such net deferred tax assets will not be realized. Establishing or reducing a tax valuation allowance requires us to make assessments about the timing of future events, including the probability of expected future taxable income and available tax planning strategies. At December 31, 2017, the aggregate valuation allowance provided against deferred tax assets was \$4,665.1 million. The actual amount of deferred income tax benefits realized in future periods will likely differ from the net deferred tax assets reflected in our December 31, 2017 consolidated balance sheet due to, among other factors, possible future changes in income tax law or interpretations thereof in the jurisdictions in which we operate and differences between estimated and actual future taxable income. Any such factors could have a material effect on our current and deferred tax positions as reported in our consolidated financial statements. A high degree of judgment is required to assess the impact of possible future outcomes on our current and deferred tax positions.

Tax laws in jurisdictions in which we have a presence are subject to varied interpretation, and many tax positions we take are subject to significant uncertainty regarding whether the position will be ultimately sustained after review by the relevant tax authority. We recognize the financial statement effects of a tax position when it is more-likely-than-not, based on technical merits, that the position will be sustained upon examination. The determination of whether the tax position meets the more-likely-than-not threshold requires a facts-based judgment using all information available. In a number of cases, we have concluded that the more-likely-than-not threshold is not met and, accordingly, the amount of tax benefit recognized in our consolidated financial statements is different than the amount taken or expected to be taken in our tax returns. As of December 31, 2017, the amount of unrecognized tax benefits for financial reporting purposes, but taken or expected to be taken in our tax returns, was \$528.5 million, of which \$317.3 million would have a favorable impact on our effective income tax rate if ultimately recognized, after considering amounts that we would expect to be offset by valuation allowances.

We are required to continually assess our tax positions, and the results of tax examinations or changes in judgment can result in substantial changes to our unrecognized tax benefits.

The 2017 U.S. Tax Act, which contains significant changes to the U.S. income tax regime, was signed into law on December 22, 2017. While we have limited U.S. operations, certain aspects of the 2017 U.S. Tax Act could have a meaningful impact on our income tax expense. For additional information regarding the 2017 U.S. Tax Act and our income taxes, see note 11 to our consolidated financial statements.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risk in the normal course of our business operations due to our investments in various foreign countries and ongoing investing and financing activities. Market risk refers to the risk of loss arising from adverse changes in foreign currency exchange rates, interest rates and stock prices. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. As further described below, we have established policies, procedures and processes governing our management of market risks and the use of derivative instruments to manage our exposure to such risks.

Cash and Investments

We invest our cash in highly liquid instruments that meet high credit quality standards. We are exposed to exchange rate risk to the extent that the denominations of our cash and cash equivalent balances, revolving lines of credit and other short-term sources of liquidity do not correspond to the denominations of our and our subsidiaries' short-term liquidity requirements. In order to mitigate this risk, we actively manage the denominations of our cash balances in light of our and our subsidiaries' forecasted liquidity requirements. At December 31, 2017, \$1,171.0 million or 70.0%, \$307.5 million or 18.4%, and \$100.4 million or 6.0% of our consolidated cash balances were denominated in U.S. dollars, British pounds sterling and euros, respectively.

We are exposed to market price fluctuations related to our investments in ITV, Sumitomo and Lionsgate shares. At December 31, 2017, the aggregate fair value of these investments was \$892.0 million, \$776.5 million and \$163.9 million, respectively. All of our ITV shares are held through the ITV Collar, and 50% of our Lionsgate shares are held through the Lionsgate Forward. In addition, 20% of our Sumitomo shares are held through the Sumitomo Collar and 80% of our Sumitomo shares secure the Sumitomo Share Loan. For information concerning the terms of (i) the ITV Collar and ITV Collar Loan, (ii) the Sumitomo Collar, Sumitomo Collar Loan and Sumitomo Share Loan and (iii) the Lionsgate Forward and Lionsgate Loan, see note 7 to our consolidated financial statements. For those shares that are held through the ITV Collar, the Sumitomo Collar and the Lionsgate Forward and the Sumitomo shares that secure the Sumitomo Share Loan, our exposure to market risk is limited. For additional information concerning our investments in ITV, Sumitomo and Lionsgate shares, see note 6 to our consolidated financial statements.

Foreign Currency Risk

We are exposed to foreign currency exchange rate risk with respect to our consolidated debt in situations where our debt is denominated in a currency other than the functional currency of the operations whose cash flows support our ability to repay or refinance such debt. Although we generally seek to match the denomination of our and our subsidiaries' borrowings with the functional currency of the operations that are supporting the respective borrowings, market conditions or other factors may cause us to enter into borrowing arrangements that are not denominated in the functional currency of the underlying operations (unmatched debt). In these cases, our policy is to provide for an economic hedge against foreign currency exchange rate movements by using derivative instruments to synthetically convert unmatched debt into the applicable underlying currency. At December 31, 2017, substantially all of our debt was either directly or synthetically matched to the applicable functional currencies of the underlying operations. For additional information concerning the terms of our derivative instruments, see note 7 to our consolidated financial statements.

In addition to the exposure that results from the mismatch of our borrowings and underlying functional currencies, we are exposed to foreign currency risk to the extent that we enter into transactions denominated in currencies other than our or our subsidiaries' respective functional currencies (non-functional currency risk), such as equipment purchases, programming contracts, notes payable and notes receivable (including intercompany amounts). Changes in exchange rates with respect to amounts recorded in our consolidated balance sheets related to these items will result in unrealized (based upon period-end exchange rates) or realized foreign currency transaction gains and losses upon settlement of the transactions. Moreover, to the extent that our revenue, costs and expenses are denominated in currencies other than our respective functional currencies, we will experience fluctuations in our revenue, costs and expenses solely as a result of changes in foreign currency exchange rates. In this regard, we currently expect that during 2018, (i) less than 1% of our revenue, (ii) approximately 2% to 4% of our direct costs of services and our other operating and SG&A expenses (exclusive of share-based compensation expense) and (iii) approximately 10% to 12% of our property and equipment additions will be denominated in non-functional currencies, including amounts denominated in U.S. dollars, euros and British pound sterling. Our expectations with respect to our non-functional currency transactions in 2018 may differ from actual results. Generally, we will consider hedging non-functional currency risks when the risks arise from agreements with third parties that involve the future payment or receipt of cash or other monetary items to the extent that we can reasonably predict the timing and amount of such payments or receipts and the payments or receipts are not otherwise hedged. In this regard, we have entered into foreign currency forward contracts to hedge certain of these risks. Certain non-functional currency risks related to our revenue, direct costs of services and other operating and SG&A expenses and property and equipment additions were not hedged as of December 31, 2017. For additional information concerning our foreign currency forward contracts, see note 7 to our consolidated financial statements.

We also are exposed to unfavorable and potentially volatile fluctuations of the U.S. dollar (our reporting currency) against the currencies of our operating subsidiaries when their respective financial statements are translated into U.S. dollars for inclusion in our consolidated financial statements. Cumulative translation adjustments are recorded in accumulated other comprehensive earnings or loss as a separate component of equity. Any increase (decrease) in the value of the U.S. dollar against any foreign currency that is the functional currency of one of our operating subsidiaries will cause us to experience unrealized foreign currency translation losses (gains) with respect to amounts already invested in such foreign currencies. Accordingly, we may experience a negative impact on our comprehensive earnings or loss and equity with respect to our holdings solely as a result of FX. Our primary exposure to FX risk during the three months ended December 31, 2017 was to the euro and British pound sterling as 44.8% and 39.5% of our reported revenue during the period was derived from subsidiaries whose functional currencies are the euro and British pound sterling, respectively. In addition, our reported operating results are impacted by changes in the exchange rates for the Swiss franc and other local currencies in Europe. We generally do not hedge against the risk that we may incur non-cash losses upon the translation of the financial statements of our subsidiaries and affiliates into U.S. dollars. For information regarding certain currency instability risks with respect to the British pound sterling and euro, see *Management's Discussion and Analysis of Financial Condition and Results of Operations — Overview* above.

The relationships between the primary currencies of the countries in which we operate and the U.S. dollar, which is our reporting currency, are shown below, per one U.S. dollar:

	As of December 31,	
	2017	2016
Spot rates:		
Euro	0.8318	0.9481
British pound sterling	0.7394	0.8100
Swiss franc	0.9736	1.0172
Hungarian forint	258.41	293.29
Polish zloty	3.4730	4.1769
Czech koruna	21.243	25.623
Romanian lei	3.8830	4.3077

	Year ended December 31,		
	2017	2016	2015
Average rates:			
Euro	0.8852	0.9035	0.9009
British pound sterling	0.7767	0.7407	0.6545
Swiss franc	0.9847	0.9852	0.9630
Hungarian forint	274.34	281.52	279.39
Polish zloty	3.7766	3.9441	3.7717
Czech koruna	23.374	24.437	24.593
Romanian lei	4.0514	4.0594	4.0079

Inflation and Foreign Investment Risk

We are subject to inflationary pressures with respect to labor, programming and other costs. While we attempt to increase our revenue to offset increases in costs, there is no assurance that we will be able to do so. Therefore, costs could rise faster than associated revenue, thereby resulting in a negative impact on our operating results, cash flows and liquidity. The economic environment in the respective countries in which we operate is a function of government, economic, fiscal and monetary policies and various other factors beyond our control that could lead to inflation. We are unable to predict the extent that price levels might be impacted in future periods by the current state of the economies in the countries in which we operate.

Interest Rate Risks

We are exposed to changes in interest rates primarily as a result of our borrowing activities, which include fixed-rate and variable-rate borrowings by our borrowing groups. Our primary exposure to variable-rate debt is through the EURIBOR-indexed and LIBOR-indexed debt of Unitymedia, UPC Holding and Telenet, the LIBOR-indexed debt of Virgin Media, and the variable-rate debt of certain of our other subsidiaries.

In general, we seek to enter into derivative instruments to protect against increases in the interest rates on our variable-rate debt. Accordingly, we have entered into various derivative transactions to manage exposure to increases in interest rates. We use interest rate derivative contracts to exchange, at specified intervals, the difference between fixed and variable interest rates calculated by reference to an agreed-upon notional principal amount. We also use interest rate cap and collar agreements and swaptions that lock in a maximum interest rate if variable rates rise, but also allow our company to benefit, to a limited extent in the case of collars, from declines in market rates. Under our current guidelines, we use various interest rate derivative instruments to mitigate interest rate risk, generally for five years, with the later years covered primarily by swaptions. As such, the final maturity dates of our various portfolios of interest rate derivative instruments generally fall short of the respective maturities of the underlying variable-rate debt. In this regard, we use judgment to determine the appropriate composition and maturity dates of our portfolios of interest rate derivative instruments, taking into account the relative costs and benefits of different maturity profiles in light of current and expected future market conditions, liquidity issues and other factors. For additional information concerning the impacts of these interest rate derivative instruments, see note 7 to our consolidated financial statements.

Weighted Average Variable Interest Rate. At December 31, 2017, the outstanding principal amount of our variable-rate indebtedness aggregated \$17.9 billion, and the weighted average interest rate (including margin) on such variable-rate indebtedness was approximately 3.6%, excluding the effects of interest rate derivative contracts, deferred financing costs, original issue premiums or discounts and commitment fees, all of which affect our overall cost of borrowing. Assuming no change in the amount outstanding, and without giving effect to any interest rate derivative contracts, deferred financing costs, original issue premiums or discounts and commitment fees, a hypothetical 50 basis point (0.50%) increase (decrease) in our weighted average variable interest rate would increase (decrease) our annual consolidated interest expense and cash outflows by \$89.5 million. As discussed above and in note 7 to our consolidated financial statements, we use interest rate derivative contracts to manage our exposure to increases in variable interest rates. In this regard, increases in the fair value of these contracts generally would be expected to offset most of the economic impact of increases in the variable interest rates applicable to our indebtedness to the extent and during the period that principal amounts are matched with interest rate derivative contracts.

Counterparty Credit Risk

We are exposed to the risk that the counterparties to the derivative instruments, undrawn debt facilities and cash investments of our subsidiary borrowing groups will default on their obligations to us. We manage these credit risks through the evaluation and monitoring of the creditworthiness of, and concentration of risk with, the respective counterparties. In this regard, credit risk associated with our derivative instruments and undrawn debt facilities is spread across a relatively broad counterparty base of banks and financial institutions. With the exception of a limited number of instances where we have required a counterparty to post collateral, neither party has posted collateral under the derivative instruments of our subsidiary borrowing groups. Collateral is generally not posted by either party under the derivative instruments of our subsidiary borrowing groups. Most of our cash currently is invested in either (i) AAA credit rated money market funds, including funds that invest in government obligations, or (ii) overnight deposits with banks having a minimum credit rating of A by Standard & Poor's or an equivalent rating by Moody's Investor Service. To date, neither the access to nor the value of our cash and cash equivalent balances have been adversely impacted by liquidity problems of financial institutions.

At December 31, 2017, our exposure to counterparty credit risk included (i) derivative assets with an aggregate fair value of \$330.8 million, (ii) cash and cash equivalent and restricted cash balances of \$1,682.8 million and (iii) aggregate undrawn debt facilities of \$3,239.3 million.

Each of our subsidiary borrowing groups have entered into derivative instruments under master agreements with each counterparty that contain master netting arrangements that are applicable in the event of early termination by either party to such derivative instrument. The master netting arrangements are limited to the derivative instruments, and derivative-related debt instruments, governed by the relevant master agreement within each individual borrowing group and are independent of similar arrangements of our other subsidiary borrowing groups.

Under our derivative contracts, it is generally only the non-defaulting party that has a contractual option to exercise early termination rights upon the default of the other counterparty and to set off other liabilities against sums due upon such termination. However, in an insolvency of a derivative counterparty, under the laws of certain jurisdictions, the defaulting counterparty or its

insolvency representatives may be able to compel the termination of one or more derivative contracts and trigger early termination payment liabilities payable by us, reflecting any mark-to-market value of the contracts for the counterparty. Alternatively, or in addition, the insolvency laws of certain jurisdictions may require the mandatory set off of amounts due under such derivative contracts against present and future liabilities owed to us under other contracts between us and the relevant counterparty. Accordingly, it is possible that we may be subject to obligations to make payments, or may have present or future liabilities owed to us partially or fully discharged by set off as a result of such obligations, in the event of the insolvency of a derivative counterparty, even though it is the counterparty that is in default and not us. To the extent that we are required to make such payments, our ability to do so will depend on our liquidity and capital resources at the time. In an insolvency of a defaulting counterparty, we will be an unsecured creditor in respect of any amount owed to us by the defaulting counterparty, except to the extent of the value of any collateral we have obtained from that counterparty.

In addition, where a counterparty is in financial difficulty, under the laws of certain jurisdictions, the relevant regulators may be able to (i) compel the termination of one or more derivative instruments, determine the settlement amount and/or compel, without any payment, the partial or full discharge of liabilities arising from such early termination that are payable by the relevant counterparty or (ii) transfer the derivative instruments to an alternative counterparty.

While we currently have no specific concerns about the creditworthiness of any counterparty for which we have material credit risk exposures, we cannot rule out the possibility that one or more of our counterparties could fail or otherwise be unable to meet its obligations to us. Any such instance could have an adverse effect on our cash flows, results of operations, financial condition and/or liquidity.

Although we actively monitor the creditworthiness of our key vendors, the financial failure of a key vendor could disrupt our operations and have an adverse impact on our revenue and cash flows.

Sensitivity Information

Information concerning the sensitivity of the fair value of certain of our more significant derivative instruments to changes in market conditions is set forth below. The potential changes in fair value set forth below do not include any amounts associated with the remeasurement of the derivative asset or liability into the applicable functional currency. For additional information, see notes 7 and 8 to our consolidated financial statements.

Virgin Media Cross-currency and Interest Rate Derivative Contracts

Holding all other factors constant, at December 31, 2017:

- (i) an instantaneous increase (decrease) of 10% in the value of the British pound sterling relative to the U.S. dollar would have decreased (increased) the aggregate fair value of the Virgin Media cross-currency and interest rate derivative contracts by approximately £605 million (\$818 million); and
- (ii) an instantaneous increase (decrease) in the relevant base rate of 50 basis points (0.50%) would have increased (decreased) the aggregate fair value of the Virgin Media cross-currency and interest rate derivative contracts by approximately £61 million (\$82 million).

UPC Holding Cross-currency and Interest Rate Derivative Contracts

Holding all other factors constant, at December 31, 2017:

- (i) an instantaneous increase (decrease) of 10% in the value of the Swiss franc, Polish zloty, Hungarian forint, Czech koruna and Romanian lei relative to the euro would have decreased (increased) the aggregate fair value of the UPC Holding cross-currency and interest rate derivative contracts by approximately €518 million (\$623 million);
- (ii) an instantaneous increase (decrease) of 10% in the value of the euro relative to the U.S. dollar would have decreased (increased) the aggregate fair value of the UPC Holding cross-currency and interest rate derivative contracts by approximately €285 million (\$343 million); and
- (iii) an instantaneous increase (decrease) of 10% in the value of the Swiss franc relative to the U.S. dollar would have decreased (increased) the aggregate fair value of the UPC Holding cross-currency and interest rate derivative contracts by approximately €91 million (\$109 million).

Unitymedia Cross-currency and Interest Rate Derivative Contracts

Holding all other factors constant, at December 31, 2017, an instantaneous increase (decrease) of 10% in the value of the euro relative to the U.S. dollar would have decreased (increased) the aggregate value of the Unitymedia cross-currency derivative contracts by approximately €342 million (\$411 million).

Telenet Cross-currency and Interest Rate Derivative Contracts

Holding all other factors constant, at December 31, 2017:

- (i) an instantaneous increase (decrease) of 10% in the value of the euro relative to the U.S. dollar would have decreased (increased) the aggregate fair value of the Telenet cross-currency derivative contracts by approximately €254 million (\$305 million); and
- (ii) an instantaneous increase (decrease) in the relevant base rate of 50 basis points (0.50%) would have increased (decreased) the aggregate fair value of the Telenet cross currency, interest rate cap and swap contracts by approximately €81 million (\$98 million).

ITV Collar

Holding all other factors constant, at December 31, 2017, an instantaneous increase (decrease) of 10% in the per share market price of ITV's ordinary shares would have decreased (increased) the fair value of the ITV Collar by approximately £64 million (\$87 million).

Projected Cash Flows Associated with Derivative Instruments

The following table provides information regarding the projected cash flows associated with our derivative instruments. The U.S. dollar equivalents presented below are based on interest rates and exchange rates that were in effect as of December 31, 2017. These amounts are presented for illustrative purposes only and will likely differ from the actual cash payments required in future periods. For additional information regarding our derivative instruments, see note 7 to our consolidated financial statements. For information concerning the counterparty credit risk associated with our derivative instruments, see the discussion under *Counterparty Credit Risk* above.

	Payments (receipts) due during:						Total
	2018	2019	2020	2021	2022	Thereafter	
	in millions						
Projected derivative cash payments (receipts), net:							
Interest-related (a)	\$ (268.0)	\$ 60.9	\$ (57.8)	\$ (48.2)	\$ (89.2)	\$ (146.3)	\$ (548.6)
Principal-related (b)	—	6.1	86.3	(146.2)	(206.7)	(552.8)	(813.3)
Other (c)	—	—	17.0	41.7	(22.3)	(505.1)	(468.7)
Total	<u>\$ (268.0)</u>	<u>\$ 67.0</u>	<u>\$ 45.5</u>	<u>\$ (152.7)</u>	<u>\$ (318.2)</u>	<u>\$ (1,204.2)</u>	<u>\$ (1,830.6)</u>

- (a) Includes (i) the cash flows of our interest rate cap, swaption, collar and swap contracts and (ii) the interest-related cash flows of our cross-currency and interest rate swap contracts.
- (b) Includes the principal-related cash flows of our cross-currency swap contracts.
- (c) Includes amounts related to our equity-related derivative instruments and foreign currency forward contracts. We may elect to use cash or the collective value of the related shares and equity-related derivative instrument to settle the ITV Collar Loan, the Sumitomo Collar Loan and the Lionsgate Loan.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The consolidated financial statements of Liberty Global are filed under this Item, beginning on page II-65. Financial statement schedules are filed under Item 15 of this Annual Report on Form 10-K.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

Item 9A. CONTROLS AND PROCEDURES***Evaluation of disclosure controls and procedures***

In accordance with Exchange Act Rule 13a-15, we carried out an evaluation, under the supervision and with the participation of management, including our chief executive officer and chief financial officer (the Executives), of the effectiveness of our disclosure controls and procedures as of December 31, 2017. In designing and evaluating the disclosure controls and procedures, the Executives recognize that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is necessarily required to apply judgment in evaluating the cost-benefit relationship of possible controls and objectives. Based on that evaluation, the Executives concluded that our disclosure controls and procedures are effective as of December 31, 2017, to provide reasonable assurance that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms.

Internal control over financial reporting***(a) Management's Annual Report on Internal Control over Financial Reporting***

Management's annual report on internal control over financial reporting is included herein on page II-63.

(b) Attestation Report of the Independent Registered Public Accounting Firm

The attestation report of KPMG LLP is included herein on page II-64.

(c) Changes in Internal Control over Financial Reporting

There have been no changes in our internal controls over financial reporting identified in connection with the evaluation described above that occurred during the fourth fiscal quarter covered by this Annual Report on Form 10-K that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. OTHER INFORMATION

Not applicable.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) of the Securities Exchange Act of 1934. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of internal control over financial reporting as of December 31, 2017, using the criteria in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management believes that our internal control over financial reporting was effective as of December 31, 2017. The effectiveness of our internal control over financial reporting has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report included herein. Our evaluation of internal control over financial reporting did not include the internal control of Coditel Brabant sprl, operating under the SFR brand (**SFR BeLux**), which was acquired in 2017. The amount of total assets and revenue included in our consolidated financial statements as of and for the year ended December 31, 2017 that is attributable to SFR BeLux was \$496.5 million and \$36.0 million, respectively.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Global plc:

Opinion on Internal Control Over Financial Reporting

We have audited Liberty Global plc and subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive earnings (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related notes and financial statement schedules I and II (collectively, the "consolidated financial statements"), and our report dated February 14, 2018 expressed an unqualified opinion on those consolidated financial statements.

The Company acquired Coditel Brabant sprl, operating under the SFR brand ("SFR BeLux") during 2017, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, SFR BeLux's internal control over financial reporting associated with total assets of \$496.5 million and total revenue of \$36.0 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2017. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of SFR BeLux.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Denver, Colorado
February 14, 2018

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Liberty Global plc:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Liberty Global plc and subsidiaries (the “Company”) as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive earnings (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related notes and financial statement schedules I and II (collectively, the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 14, 2018 expressed an unqualified opinion on the effectiveness of the Company’s internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ **KPMG LLP**

We have served as the Company’s auditor since 2004.

Denver, Colorado
February 14, 2018

LIBERTY GLOBAL PLC
CONSOLIDATED BALANCE SHEETS

	December 31,	
	2017	2016
	in millions	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 1,672.4	\$ 1,076.6
Trade receivables, net	1,540.4	1,374.9
Derivative instruments (note 7)	576.0	405.5
Prepaid expenses	144.4	122.8
Current assets held for sale (note 5)	34.9	—
Receivable from the VodafoneZiggo JV (note 6)	—	2,346.6
Current assets of discontinued operations (note 5)	—	1,487.8
Other current assets:		
Third-party	325.4	206.8
Related-party (note 6)	38.1	30.8
Total current assets	4,331.6	7,051.8
Investments and related note receivables (including \$2,315.3 million and \$2,057.2 million, respectively, measured at fair value on a recurring basis) (note 6)	6,671.4	6,388.7
Property and equipment, net (note 9)	19,535.4	17,249.3
Goodwill (note 9)	18,547.4	17,063.7
Intangible assets subject to amortization, net (note 9)	1,935.4	2,423.2
Deferred tax assets (note 11)	3,157.2	2,826.4
Long-term assets held for sale (note 5)	1,187.3	—
Long-term assets of discontinued operations (note 5)	—	12,678.4
Other assets, net (notes 7, 9 and 11)	2,231.1	3,002.6
Total assets	\$ 57,596.8	\$ 68,684.1

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED BALANCE SHEETS — (Continued)

	December 31,	
	2017	2016
in millions		
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	\$ 1,046.6	\$ 954.5
Deferred revenue and advance payments from subscribers and others	1,101.1	1,059.0
Current portion of debt and capital lease obligations (note 10)	4,165.4	2,624.3
Accrued capital expenditures	718.9	677.8
Accrued interest	515.2	555.8
Accrued income taxes	472.3	431.8
Current liabilities held for sale (note 5)	78.5	—
Current liabilities of discontinued operations (note 5)	—	1,325.5
Other accrued and current liabilities (notes 7 and 14)	1,867.8	2,094.1
Total current liabilities	9,965.8	9,722.8
Long-term debt and capital lease obligations (note 10)	38,049.5	34,886.5
Long-term liabilities held for sale (note 5)	77.8	—
Long-term liabilities of discontinued operations (note 5)	—	7,107.3
Other long-term liabilities (notes 7, 11, 14 and 15)	3,110.7	2,235.5
Total liabilities	51,203.8	53,952.1
Commitments and contingencies (notes 4, 7, 10, 11, 15 and 17)		
Equity (note 12):		
Liberty Global shareholders:		
Liberty Global Shares — Class A, \$0.01 nominal value. Issued and outstanding 219,668,579 and 253,827,604 shares, respectively	2.2	2.5
Liberty Global Shares — Class B, \$0.01 nominal value. Issued and outstanding 11,102,619 and 10,805,850 shares, respectively	0.1	0.1
Liberty Global Shares — Class C, \$0.01 nominal value. Issued and outstanding 584,332,055 and 634,391,072 shares, respectively	5.8	6.3
LiLAC Shares — Class A, \$0.01 nominal value. Issued and outstanding nil and 50,317,930 shares, respectively	—	0.5
LiLAC Shares — Class B, \$0.01 nominal value. Issued and outstanding nil and 1,888,323 shares, respectively	—	—
LiLAC Shares — Class C, \$0.01 nominal value. Issued and outstanding nil and 120,889,034 shares, respectively	—	1.2
Additional paid-in capital	11,358.6	17,578.2
Accumulated deficit	(6,217.6)	(3,454.8)
Accumulated other comprehensive earnings (loss), net of taxes	1,656.0	(372.4)
Treasury shares, at cost	(0.1)	(0.3)
Total Liberty Global shareholders	6,805.0	13,761.3
Noncontrolling interests	(412.0)	970.7
Total equity	6,393.0	14,732.0
Total liabilities and equity	\$ 57,596.8	\$ 68,684.1

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year ended December 31,		
	2017	2016	2015
in millions, except per share amounts			
Revenue (notes 6 and 18)	\$ 15,048.9	\$ 17,285.0	\$ 17,062.7
Operating costs and expenses (exclusive of depreciation and amortization, shown separately below):			
Programming and other direct costs of services	3,449.4	3,929.0	3,766.3
Other operating (note 13)	2,211.8	2,469.9	2,507.1
Selling, general and administrative (SG&A) (note 13)	2,476.0	3,003.9	2,928.8
Depreciation and amortization (note 9)	4,857.0	5,213.8	5,609.4
Impairment, restructuring and other operating items, net (notes 4, 14 and 15)	107.2	186.2	150.0
	<u>13,101.4</u>	<u>14,802.8</u>	<u>14,961.6</u>
Operating income	1,947.5	2,482.2	2,101.1
Non-operating income (expense):			
Interest expense	(1,889.6)	(2,324.4)	(2,284.1)
Realized and unrealized gains (losses) on derivative instruments, net (note 7)	(1,412.0)	1,071.0	619.9
Foreign currency transaction gains (losses), net	166.4	(400.1)	(925.8)
Realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net (notes 6, 8 and 10)	36.9	(461.5)	124.5
Losses on debt modification and extinguishment, net (note 10)	(343.3)	(238.1)	(388.0)
Share of losses of affiliates, net (note 6)	(95.2)	(111.6)	(54.3)
Gain on the VodafoneZiggo JV Transaction (note 5)	4.5	520.8	—
Other income, net	28.8	109.2	29.8
	<u>(3,503.5)</u>	<u>(1,834.7)</u>	<u>(2,878.0)</u>
Earnings (loss) from continuing operations before income taxes	(1,556.0)	647.5	(776.9)
Income tax benefit (expense) (note 11)	(309.5)	1,347.0	(324.3)
Earnings (loss) from continuing operations	(1,865.5)	1,994.5	(1,101.2)
Earnings (loss) from discontinued operations, net of taxes (note 5)	(855.1)	(227.2)	51.7
Net earnings (loss)	(2,720.6)	1,767.3	(1,049.5)
Net earnings attributable to noncontrolling interests	(57.5)	(62.0)	(103.0)
Net earnings (loss) attributable to Liberty Global shareholders	<u>\$ (2,778.1)</u>	<u>\$ 1,705.3</u>	<u>\$ (1,152.5)</u>
Basic earnings (loss) from continuing operations attributable to Liberty Global shareholders per share (notes 1 and 3):			
Liberty Global Shares	<u>\$ (2.29)</u>	<u>\$ 2.20</u>	<u>\$ (0.19)</u>
Old Liberty Global Shares			<u>\$ (1.16)</u>
Diluted earnings (loss) from continuing operations attributable to Liberty Global shareholders per share (notes 1 and 3):			
Liberty Global Shares	<u>\$ (2.29)</u>	<u>\$ 2.18</u>	<u>\$ (0.19)</u>
Old Liberty Global Shares			<u>\$ (1.16)</u>

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF COMPREHENSIVE EARNINGS (LOSS)

	Year ended December 31,		
	2017	2016	2015
	in millions		
Net earnings (loss)	\$ (2,720.6)	\$ 1,767.3	\$ (1,049.5)
Other comprehensive earnings (loss), net of taxes (note 16):			
Continuing operations:			
Foreign currency translation adjustments	1,971.4	(1,908.3)	(762.4)
Reclassification adjustments included in net earnings (loss) (note 5)	(1.4)	714.6	1.5
Pension-related adjustments and other	18.7	(5.8)	(20.3)
Other comprehensive earnings (loss) from continuing operations	1,988.7	(1,199.5)	(781.2)
Other comprehensive earnings (loss) from discontinued operations	(43.9)	(71.9)	31.0
Other comprehensive earnings (loss)	1,944.8	(1,271.4)	(750.2)
Comprehensive earnings (loss)	(775.8)	495.9	(1,799.7)
Comprehensive earnings attributable to noncontrolling interests	(59.2)	(58.9)	(103.5)
Comprehensive earnings (loss) attributable to Liberty Global shareholders	\$ (835.0)	\$ 437.0	\$ (1,903.2)

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF EQUITY

	Liberty Global shareholders									
	Liberty Global Shares	LiLAC Shares	Old Liberty Global Shares	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive earnings, net of taxes	Treasury shares, at cost	Total Liberty Global shareholders	Non- controlling interests	Total equity
in millions										
Balance at January 1, 2015	\$ —	\$ —	\$ 8.9	\$17,070.8	\$ (4,007.6)	\$ 1,646.6	\$ (4.2)	\$ 14,714.5	\$ (598.5)	\$14,116.0
Net loss	—	—	—	—	(1,152.5)	—	—	(1,152.5)	103.0	(1,049.5)
Other comprehensive loss, net of taxes (note 16)	—	—	—	—	—	(750.7)	—	(750.7)	0.5	(750.2)
Repurchase and cancellation of Liberty Global ordinary shares (note 12)	(0.1)	—	(0.1)	(2,344.3)	—	—	—	(2,344.5)	—	(2,344.5)
Share-based compensation (note 13)	—	—	—	284.3	—	—	—	284.3	—	284.3
Impact of the LiLAC Transaction (note 1)	8.7	0.4	(8.7)	(0.4)	—	—	—	—	—	—
Adjustments due to changes in subsidiaries' equity and other, net (note 12)	(0.1)	—	(0.1)	(102.3)	—	—	3.8	(98.7)	16.9	(81.8)
Balance at December 31, 2015	<u>\$ 8.5</u>	<u>\$ 0.4</u>	<u>\$ —</u>	<u>\$14,908.1</u>	<u>\$ (5,160.1)</u>	<u>\$ 895.9</u>	<u>\$ (0.4)</u>	<u>\$ 10,652.4</u>	<u>\$ (478.1)</u>	<u>\$10,174.3</u>

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF EQUITY — (Continued)

	Liberty Global shareholders								
	Liberty Global Shares	LiLAC Shares	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive earnings (loss), net of taxes	Treasury shares, at cost	Total Liberty Global shareholders	Non- controlling interests	Total equity
	in millions								
Balance at January 1, 2016	\$ 8.5	\$ 0.4	\$14,908.1	\$ (5,160.1)	\$ 895.9	\$ (0.4)	\$ 10,652.4	\$ (478.1)	\$10,174.3
Net earnings	—	—	—	1,705.3	—	—	1,705.3	62.0	1,767.3
Other comprehensive loss, net of taxes (notes 5 and 16)	—	—	—	—	(1,268.3)	—	(1,268.3)	(3.1)	(1,271.4)
Impact of the C&W Acquisition (note 4)	1.1	0.1	4,488.9	—	—	—	4,490.1	1,451.8	5,941.9
Repurchase and cancellation of Liberty Global ordinary shares (note 12)	(0.6)	—	(2,088.9)	—	—	—	(2,089.5)	—	(2,089.5)
Share-based compensation (note 13)	—	—	269.0	—	—	—	269.0	—	269.0
Liberty Global call option contracts (note 12)	—	—	119.1	—	—	—	119.1	—	119.1
Impact of the LiLAC Distribution (note 4)	—	1.2	(1.2)	—	—	—	—	—	—
Adjustments due to changes in subsidiaries' equity and other, net (note 12)	(0.1)	—	(116.8)	—	—	0.1	(116.8)	(61.9)	(178.7)
Balance at December 31, 2016	<u>\$ 8.9</u>	<u>\$ 1.7</u>	<u>\$17,578.2</u>	<u>\$ (3,454.8)</u>	<u>\$ (372.4)</u>	<u>\$ (0.3)</u>	<u>\$ 13,761.3</u>	<u>\$ 970.7</u>	<u>\$14,732.0</u>

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF EQUITY — (Continued)

	Liberty Global shareholders								
	Liberty Global Shares	LiLAC Shares	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive earnings (loss), net of taxes	Treasury shares, at cost	Total Liberty Global shareholders	Non- controlling interests	Total equity
in millions									
Balance at January 1, 2017, before effect of accounting change	\$ 8.9	\$ 1.7	\$17,578.2	\$ (3,454.8)	\$ (372.4)	\$ (0.3)	\$ 13,761.3	\$ 970.7	\$14,732.0
Accounting change (note 2)	—	—	—	15.3	—	—	15.3	—	15.3
Balance at January 1, 2017, as adjusted for accounting change	8.9	1.7	17,578.2	(3,439.5)	(372.4)	(0.3)	13,776.6	970.7	14,747.3
Net loss	—	—	—	(2,778.1)	—	—	(2,778.1)	57.5	(2,720.6)
Other comprehensive earnings, net of taxes (note 16)	—	—	—	—	1,943.1	—	1,943.1	1.7	1,944.8
Impact of the Split-off Transaction (note 5)	—	(1.7)	(3,346.8)	—	85.3	—	(3,263.2)	(1,360.9)	(4,624.1)
Repurchase and cancellation of Liberty Global ordinary shares (note 12)	(0.8)	—	(2,947.4)	—	—	—	(2,948.2)	—	(2,948.2)
Share-based compensation (note 13)	—	—	155.9	—	—	—	155.9	—	155.9
Adjustments due to changes in subsidiaries' equity and other, net	—	—	(81.3)	—	—	0.2	(81.1)	(81.0)	(162.1)
Balance at December 31, 2017	<u>\$ 8.1</u>	<u>\$ —</u>	<u>\$11,358.6</u>	<u>\$ (6,217.6)</u>	<u>\$ 1,656.0</u>	<u>\$ (0.1)</u>	<u>\$ 6,805.0</u>	<u>\$ (412.0)</u>	<u>\$ 6,393.0</u>

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year ended December 31,		
	2017	2016	2015
in millions			
Cash flows from operating activities:			
Net earnings (loss)	\$ (2,720.6)	\$ 1,767.3	\$ (1,049.5)
Earnings (loss) from discontinued operations	(855.1)	(227.2)	51.7
Earnings (loss) from continuing operations	(1,865.5)	1,994.5	(1,101.2)
Adjustments to reconcile earnings (loss) from continuing operations to net cash provided by operating activities:			
Share-based compensation expense	173.9	281.5	315.8
Depreciation and amortization	4,857.0	5,213.8	5,609.4
Impairment, restructuring and other operating items, net	107.2	186.2	150.0
Amortization of deferred financing costs and non-cash interest	67.7	76.2	76.5
Realized and unrealized losses (gains) on derivative instruments, net	1,412.0	(1,071.0)	(619.9)
Foreign currency transaction losses (gains), net	(166.4)	400.1	925.8
Realized and unrealized losses (gains) due to changes in fair values of certain investments and debt, net	(36.9)	461.5	(124.5)
Losses on debt modification and extinguishment, net	343.3	238.1	388.0
Gain on the VodafoneZiggo JV Transaction	(4.5)	(520.8)	—
Share of losses of affiliates, net	95.2	111.6	54.3
Deferred income tax expense (benefit)	31.9	(1,465.0)	(31.5)
Changes in operating assets and liabilities, net of the effects of acquisitions and dispositions:			
Receivables and other operating assets	500.1	395.2	452.3
Payables and accruals	(679.9)	(869.6)	(701.9)
Dividends from affiliates and others	299.5	39.4	29.2
Net cash provided by operating activities of continuing operations	5,134.6	5,471.7	5,422.3
Net cash provided by operating activities of discontinued operations	573.9	468.2	310.2
Net cash provided by operating activities	5,708.5	5,939.9	5,732.5
Cash flows from investing activities:			
Capital expenditures	(1,953.1)	(2,153.9)	(2,272.3)
Distributions received from affiliates	1,569.4	—	—
Equalization payment related to the VodafoneZiggo JV Transaction	845.3	—	—
Cash paid in connection with acquisitions, net of cash acquired	(420.9)	(1,401.5)	(113.3)
Investments in and loans to affiliates and others	(118.3)	(140.2)	(998.6)
Sale of investments	25.5	147.3	—
Other investing activities, net	131.5	73.1	(44.8)
Net cash provided (used) by investing activities of continuing operations	79.4	(3,475.2)	(3,429.0)
Net cash used by investing activities of discontinued operations	(638.7)	(442.5)	(400.4)
Net cash used by investing activities	\$ (559.3)	\$ (3,917.7)	\$ (3,829.4)

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
CONSOLIDATED STATEMENTS OF CASH FLOWS — (Continued)

	Year ended December 31,		
	2017	2016	2015
in millions			
Cash flows from financing activities:			
Borrowings of debt	\$ 10,070.3	\$ 12,160.2	\$ 14,969.3
Repayments and repurchases of debt and capital lease obligations	(10,506.2)	(11,387.9)	(13,880.6)
Repurchase of Liberty Global ordinary shares	(2,976.2)	(1,948.3)	(2,320.5)
Change in cash collateral	(674.2)	117.6	(56.1)
Payment of financing costs and debt premiums	(345.4)	(222.4)	(418.1)
Value-added taxes (VAT) paid on behalf of the VodafoneZiggo JV	(162.6)	—	—
Net cash paid related to derivative instruments	(102.5)	(251.5)	(301.2)
Purchase of additional shares of subsidiaries	—	—	(142.4)
Other financing activities, net	(24.1)	(106.5)	(184.7)
Net cash used by financing activities of continuing operations	(4,720.9)	(1,638.8)	(2,334.3)
Net cash provided by financing activities of discontinued operations	40.4	248.7	269.8
Net cash used by financing activities	(4,680.5)	(1,390.1)	(2,064.5)
Effect of exchange rate changes on cash:			
Continuing operations	102.7	11.3	(2.8)
Discontinued operations	1.7	3.7	(12.2)
Total	104.4	15.0	(15.0)
Net increase (decrease) in cash and cash equivalents:			
Continuing operations	595.8	369.0	(343.8)
Discontinued operations	(22.7)	278.1	167.4
Net increase (decrease) in cash and cash equivalents	573.1	647.1	(176.4)
Cash and cash equivalents — continuing operations:			
Beginning of year	1,076.6	707.6	1,051.4
End of year	1,672.4	1,076.6	707.6
Cash paid for interest:			
Continuing operations	\$ 1,893.3	\$ 2,303.4	\$ 2,024.0
Discontinued operations	393.1	304.6	146.4
Total	\$ 2,286.4	\$ 2,608.0	\$ 2,170.4
Net cash paid for taxes:			
Continuing operations	\$ 302.2	\$ 309.7	\$ 213.8
Discontinued operations	110.9	131.0	22.5
Total	\$ 413.1	\$ 440.7	\$ 236.3

The accompanying notes are an integral part of these consolidated financial statements.

LIBERTY GLOBAL PLC
Notes to Consolidated Financial Statements
December 31, 2017, 2016 and 2015

(1) Basis of Presentation

Liberty Global plc (**Liberty Global**) is a public limited company organized under the laws of England and Wales. In these notes, the terms “we,” “our,” “our company” and “us” may refer, as the context requires, to Liberty Global or collectively to Liberty Global and its subsidiaries. We are an international provider of video, broadband internet, fixed-line telephony, mobile and other communications services to residential customers and businesses, with consolidated operations at December 31, 2017 in 12 European countries.

We provide residential and business-to-business (**B2B**) communication services in (i) the United Kingdom (**U.K.**) and Ireland through Virgin Media Inc. (**Virgin Media**), (ii) Germany through Unitymedia GmbH (**Unitymedia**), (iii) Belgium and Luxembourg through Telenet Group Holding N.V. (**Telenet**), a 57.4%-owned subsidiary, and (iv) seven other European countries through UPC Holding B.V. (**UPC Holding**). Virgin Media, Unitymedia and UPC Holding are each wholly-owned subsidiaries of Liberty Global. In addition, through the December 31, 2016 completion of the VodafoneZiggo JV Transaction (as defined and described in note 5), we provided residential and B2B services in the Netherlands through VodafoneZiggo Holding B.V. (**VodafoneZiggo Holding**). Following the completion of the VodafoneZiggo JV Transaction, we own a 50% noncontrolling interest in the VodafoneZiggo JV (as defined in note 5), which provides video, broadband internet, fixed-line telephony, mobile and B2B services in the Netherlands.

Prior to the completion of the Split-off Transaction (as defined and described in note 5), we also provided residential and B2B services in (i) 18 countries, predominantly in Latin America and the Caribbean, through Cable & Wireless Communications Limited (**C&W**), (ii) Chile through VTR.com SpA (**VTR**) and (iii) Puerto Rico through Liberty Cablevision of Puerto Rico LLC (**Liberty Puerto Rico**). C&W and VTR were wholly-owned subsidiaries, and Liberty Puerto Rico was an entity in which we held a 60.0% ownership interest. C&W also provided (a) B2B services in certain other countries in Latin America and the Caribbean and (b) wholesale services over its sub-sea and terrestrial networks that connected over 40 markets in that region. The operations of C&W, VTR, Liberty Puerto Rico and certain other entities that were associated with our businesses in Latin America and the Caribbean are collectively referred to here as the “**LiLAC Group**.” As a result of the Split-off Transaction, the entities attributed to the LiLAC Group are reflected as discontinued operations in our December 31, 2016 consolidated balance sheet and our consolidated statements of operations and cash flows for all periods presented. Unless otherwise noted, the amounts presented in these notes relate only to our continuing operations.

On July 1, 2015, we completed the approved steps of the “**LiLAC Transaction**” whereby we (i) reclassified our then outstanding Class A, Class B and Class C Liberty Global ordinary shares into corresponding classes of new Liberty Global ordinary shares (collectively, the **Liberty Global Shares**) and (ii) capitalized a portion of our share premium account and distributed as a dividend (or a “bonus issue” under U.K. law) our LiLAC Class A, Class B and Class C ordinary shares (collectively, the **LiLAC Shares**). In these notes, the term “**Old Liberty Global Shares**” refers to our previously-outstanding Class A, Class B and Class C Liberty Global ordinary shares. Pursuant to the LiLAC Transaction, each holder of Class A, Class B and Class C Old Liberty Global Shares remained a holder of the same amount and class of Liberty Global Shares and received one share of the corresponding class of LiLAC Shares for each 20 Old Liberty Global Shares held as of the record date for such distribution. Accordingly, we issued 12,625,362 Class A, 523,626 Class B and 30,776,883 Class C LiLAC Shares. Cash was issued in lieu of fractional LiLAC Shares. The impact of the LiLAC Transaction on our capitalization and earnings (loss) per share presentation has been reflected in these consolidated financial statements prospectively from July 1, 2015. Accordingly, (a) our net earnings (loss) attributed to Liberty Global Shares and LiLAC Shares relates to periods subsequent to July 1, 2015 and (b) our net loss attributed to Old Liberty Global Shares relates to periods prior to July 1, 2015. Pursuant to the Split-off Transaction, the LiLAC Shares were redesignated as deferred shares (with virtually no economic rights) and transferred to a third party. For additional information regarding the Split-off Transaction, see note 5.

Unless otherwise indicated, ownership percentages and convenience translations into United States (**U.S.**) dollars are calculated as of December 31, 2017.

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Notes to Consolidated Financial Statements — (Continued)
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(2) Accounting Changes and Recent Accounting Pronouncements

Accounting Changes

In March 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2016-09, *Compensation — Stock Compensation, Improvements to Employee Share-Based Payment Accounting (ASU 2016-09)*, which simplifies several aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities and classification within the statement of cash flows. We adopted ASU 2016-09 on January 1, 2017. As a result of adopting this standard, we (i) recognized a cumulative effect adjustment to our accumulated deficit as of January 1, 2017 and (ii) retrospectively revised the presentation of our consolidated statements of cash flows to remove the operating cash outflows and financing cash inflows associated with excess tax benefits from share-based compensation. The cumulative effect adjustment, which totaled \$15.3 million, represents the tax effect of deductions in excess of the financial reporting expense for share-based compensation that were not previously recognized for financial reporting purposes as these tax benefits were not realized as a reduction of income taxes payable.

In January 2017, the FASB issued ASU No. 2017-04, *Simplifying the Test for Goodwill Impairment (ASU 2017-04)*, which eliminates the requirement to estimate the implied fair value of a reporting unit's goodwill as determined following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Instead, a company should recognize any goodwill impairment by comparing the fair value of a reporting unit to its carrying amount. We early-adopted ASU 2017-04 effective January 1, 2017. The adoption of ASU 2017-04 reduces the complexity surrounding the evaluation of our goodwill for impairment.

Recent Accounting Pronouncements

ASU 2014-09

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (ASU 2014-09)*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. ASU 2014-09, as amended by ASU No. 2015-14, will replace existing revenue recognition guidance when it becomes effective for annual and interim reporting periods beginning after December 15, 2017. This new standard permits the use of either the retrospective or cumulative effect transition method. We will adopt ASU 2014-09 effective January 1, 2018 using the cumulative effect transition method. The most significant impacts of ASU 2014-09 on our revenue recognition policies relate to our accounting for (i) time-limited discounts and free service periods provided to our customers and (ii) certain upfront fees charged to our customers, as follows:

- When we enter into contracts to provide services to our customers, we often provide time-limited discounts or free service periods. Under current accounting standards, we recognize revenue net of discounts during the promotional periods and do not recognize any revenue during free service periods. Under ASU 2014-09, revenue recognition for those contracts that contain substantive termination penalties will be accelerated, as the impact of the discounts or free service periods will be recognized uniformly over the contractual period. For contracts that do not have substantive termination penalties, we will continue to record the impacts of partial or full discounts during the applicable promotional periods.
- When we enter into contracts to provide services to our customers, we often charge installation or other upfront fees. Under current accounting rules, installation fees related to services provided over our cable networks are recognized as revenue during the period in which the installation occurs to the extent these fees are equal to or less than direct selling costs. Under ASU 2014-09, these fees will generally be deferred and recognized as revenue over the contractual period, or longer if the upfront fee results in a material renewal right.

As the above revenue recognition changes have offsetting impacts and both result in a relatively minor shift in the timing of revenue recognition, we do not expect ASU 2014-09 to have a material impact on our consolidated revenue.

ASU 2014-09 will also impact our accounting for certain upfront costs directly associated with obtaining and fulfilling customer contracts. Under our current policy, these costs are expensed as incurred unless the costs are in the scope of another accounting topic that allows for capitalization. Under ASU 2014-09, the upfront costs associated with contracts that have substantive termination penalties and a term of one year or more will be recognized as assets and amortized to operating costs and expenses over the

LIBERTY GLOBAL PLC
Notes to Consolidated Financial Statements — (Continued)
December 31, 2017, 2016 and 2015

applicable period benefited. Based on the current practices and contracts in effect in our various markets, we do not expect the initial impact of this accounting change to be significant.

We do not expect the adoption of ASU 2014-09 to have a significant impact on our revenue, operating expenses or financial position. In addition, we do not expect to make any significant changes to our internal control environment as a result of the adoption of ASU 2014-09.

ASU 2016-02

In February 2016, the FASB issued ASU No. 2016-02, *Leases (ASU 2016-02)*, which, for most leases, will result in lessees recognizing right-of-use assets and lease liabilities on the balance sheet with additional disclosures about leasing arrangements. ASU 2016-02 requires lessees and lessors to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach, although the FASB has proposed an additional transition method to simplify the modified retrospective approach. The modified retrospective approach also includes a number of optional practical expedients an entity may elect to apply. ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2018, including interim periods within those fiscal years, with early adoption permitted. We will adopt ASU 2016-02 on January 1, 2019. Although we are currently evaluating the effect that ASU 2016-02 will have on our consolidated financial statements, the main impact of the adoption of this standard will be the recognition of right-of-use assets and lease liabilities in our consolidated balance sheets for those leases classified as operating leases under current accounting principles generally accepted in the U.S. (**U.S. GAAP**). For a summary of our undiscounted future minimum lease payments under operating leases as of December 31, 2017, see note 17. We currently do not expect ASU 2016-02 to have a significant impact on our consolidated statements of operations or cash flows.

ASU 2017-07

In March 2017, the FASB issued ASU No. 2017-07, *Improving the Presentation of the Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost (ASU 2017-07)*, which changes the presentation of periodic benefit cost components. Under ASU 2017-07, we will continue to present the service component of our net benefit cost as a component of operating income but will now present the other components of our net benefit cost, which can include credits, within non-operating income (expense) in our consolidated statements of operations. We will adopt ASU 2017-07 on January 1, 2018 on a retrospective basis. For information regarding our defined benefit plans, see note 15.

(3) Summary of Significant Accounting Policies

Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Estimates and assumptions are used in accounting for, among other things, the valuation of acquisition-related assets and liabilities, allowances for uncollectible accounts, programming and copyright expenses, deferred income taxes and related valuation allowances, loss contingencies, fair value measurements, impairment assessments, capitalization of internal costs associated with construction and installation activities, useful lives of long-lived assets, share-based compensation and actuarial liabilities associated with certain benefit plans. Actual results could differ from those estimates.

Reclassifications

Certain prior year amounts have been reclassified to conform to the current year presentation, including the reclassification of certain costs between programming and other direct costs of services, other operating and SG&A expenses.

Principles of Consolidation

The accompanying consolidated financial statements include our accounts and the accounts of all voting interest entities where we exercise a controlling financial interest through the ownership of a direct or indirect controlling voting interest and variable interest entities for which our company is the primary beneficiary. All significant intercompany accounts and transactions have been eliminated in consolidation.

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Cash and Cash Equivalents and Restricted Cash

Cash equivalents consist of money market funds and other investments that are readily convertible into cash and have maturities of three months or less at the time of acquisition. We record money market funds at the net asset value as there are no restrictions on our ability, contractual or otherwise, to redeem our investments at the stated net asset value.

Restricted cash consists of cash held in restricted accounts, including cash held as collateral for debt and other compensating balances. Restricted cash amounts that are required to be used to purchase long-term assets or repay long-term debt are classified as long-term assets. All other cash that is restricted to a specific use is classified as current or long-term based on the expected timing of the disbursement.

Our significant non-cash investing and financing activities are disclosed in our consolidated statements of equity and in notes 4, 5, 7, 9, and 10.

Trade Receivables

Our trade receivables are reported net of an allowance for doubtful accounts. Such allowance aggregated \$96.1 million and \$77.2 million at December 31, 2017 and 2016, respectively. The allowance for doubtful accounts is based upon our assessment of probable loss related to uncollectible accounts receivable. We use a number of factors in determining the allowance, including, among other things, collection trends, prevailing and anticipated economic conditions and specific customer credit risk. The allowance is maintained until either payment is received or the likelihood of collection is considered to be remote.

Concentration of credit risk with respect to trade receivables is limited due to the large number of customers and their dispersion across many different countries worldwide. We also manage this risk by disconnecting services to customers whose accounts are delinquent.

Investments

We make elections, on an investment-by-investment basis, as to whether we measure our investments at fair value. Such elections are generally irrevocable. With the exception of those investments over which we exercise significant influence, we generally elect the fair value method. For those investments over which we exercise significant influence, we generally elect the equity method.

Under the fair value method, investments are recorded at fair value and any changes in fair value are reported in realized and unrealized gains or losses due to changes in fair values of certain investments and debt, net, in our consolidated statements of operations. All costs directly associated with the acquisition of an investment to be accounted for using the fair value method are expensed as incurred. Under the equity method of accounting, investments are recorded at cost and are subsequently increased or reduced to reflect our share of income or losses of the investee. All costs directly associated with the acquisition of an investment to be accounted for using the equity method are included in the carrying amount of the investment. For additional information regarding our fair value and equity method investments, see notes 6 and 8.

Under the equity method, investments, originally recorded at cost, are adjusted to recognize our share of net earnings or losses of the affiliates as they occur rather than as dividends or other distributions are received, with our recognition of losses generally limited to the extent of our investment in, and advances and commitments to, the investee. The portion of the difference between our investment and our share of the net assets of the investee that represents goodwill is not amortized, but continues to be considered for impairment. Intercompany profits on transactions with equity affiliates for which assets remain on our or our investee's balance sheet are eliminated to the extent of our ownership in the investee.

Dividends from publicly-traded investees that are not accounted for under the equity method are recognized when declared as dividend income in our consolidated statements of operations. Dividends from our equity method investees and all of our privately-held investees are reflected as reductions of the carrying values of the applicable investments. Dividends that are deemed to be (i) returns on our investments are included in cash flows from operating activities in our consolidated statements of cash flows and (ii) returns of our investments are included in cash flows from investing activities in our consolidated statements of cash flows.

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We continually review all of our equity and cost method investments to determine whether a decline in fair value below the cost basis is other-than-temporary. The primary factors we consider in our determination are the extent and length of time that the fair value of the investment is below our company's carrying value and the financial condition, operating performance and near-term prospects of the investee, changes in the stock price or valuation subsequent to the balance sheet date, and the impacts of exchange rates, if applicable. If the decline in fair value of an equity or cost method investment is deemed to be other-than-temporary, the cost basis of the security is written down to fair value.

Realized gains and losses are determined on an average cost basis. Securities transactions are recorded on the trade date.

Financial Instruments

Due to the short maturities of cash and cash equivalents, restricted cash, short-term liquid investments, trade and other receivables, other current assets, accounts payable, accrued liabilities and other accrued and current liabilities, their respective carrying values approximate their respective fair values. For information concerning the fair values of certain of our investments, derivatives and debt, see notes 6, 7 and 10, respectively. For information regarding how we arrive at certain of our fair value measurements, see note 8.

Derivative Instruments

All derivative instruments, whether designated as hedging relationships or not, are recorded on the balance sheet at fair value. If the derivative instrument is not designated as a hedge, changes in the fair value of the derivative instrument are recognized in earnings. If the derivative instrument is designated as a cash flow hedge, the effective portions of changes in the fair value of the derivative instrument are recorded in other comprehensive earnings or loss and subsequently reclassified into our consolidated statements of operations when the hedged forecasted transaction affects earnings. Ineffective portions of changes in the fair value of cash flow hedges are recognized in earnings. With the exception of a limited number of our foreign currency forward contracts, we do not apply hedge accounting to our derivative instruments.

The net cash received or paid related to our derivative instruments is classified as an operating, investing or financing activity in our consolidated statements of cash flows based on the objective of the derivative instrument and the classification of the applicable underlying cash flows. For foreign currency forward contracts that are used to hedge capital expenditures, the net cash received or paid is classified as an adjustment to capital expenditures in our consolidated statements of cash flows. For derivative contracts that are terminated prior to maturity, the cash paid or received upon termination that relates to future periods is classified as a financing activity in our consolidated statement of cash flows.

For information regarding our derivative instruments, see note 7.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. We capitalize costs associated with the construction of new cable and mobile transmission and distribution facilities and the installation of new cable services. Capitalized construction and installation costs include materials, labor and other directly attributable costs. Installation activities that are capitalized include (i) the initial connection (or drop) from our cable system to a customer location, (ii) the replacement of a drop and (iii) the installation of equipment for additional services, such as digital cable, telephone or broadband internet service. The costs of other customer-facing activities, such as reconnecting customer locations where a drop already exists, disconnecting customer locations and repairing or maintaining drops, are expensed as incurred. Interest capitalized with respect to construction activities was not material during any of the periods presented.

Capitalized internal-use software is included as a component of property and equipment. We capitalize internal and external costs directly associated with the development of internal-use software. We also capitalize costs associated with the purchase of software licenses. Maintenance and training costs, as well as costs incurred during the preliminary stage of an internal-use software development project, are expensed as incurred.

Depreciation is computed using the straight-line method over the estimated useful life of the underlying asset. Equipment under capital leases is amortized on a straight-line basis over the shorter of the lease term or estimated useful life of the asset. Useful lives used to depreciate our property and equipment are assessed periodically and are adjusted when warranted. The useful lives of cable and mobile distribution systems that are undergoing a rebuild are adjusted such that property and equipment to be

LIBERTY GLOBAL PLC
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retired will be fully depreciated by the time the rebuild is completed. For additional information regarding the useful lives of our property and equipment, see note 9.

Additions, replacements and improvements that extend the asset life are capitalized. Repairs and maintenance are charged to operations.

We recognize a liability for asset retirement obligations in the period in which it is incurred if sufficient information is available to make a reasonable estimate of fair values. Asset retirement obligations may arise from the loss of rights of way that we obtain from local municipalities or other relevant authorities, as well as our obligations under certain lease arrangements to restore the property to its original condition at the end of the lease term. Given the nature of our operations, most of our rights of way and certain leased premises are considered integral to our business. Accordingly, for most of our rights of way and certain lease agreements, the possibility is remote that we will incur significant removal costs in the foreseeable future and, as such, we do not have sufficient information to make a reasonable estimate of fair value for these asset retirement obligations.

As of December 31, 2017 and 2016, the recorded value of our asset retirement obligations was \$66.3 million and \$61.1 million, respectively.

Intangible Assets

Our primary intangible assets relate to goodwill and customer relationships. Goodwill represents the excess purchase price over the fair value of the identifiable net assets acquired in a business combination. Customer relationships are initially recorded at their fair value in connection with business combinations.

Goodwill and other intangible assets with indefinite useful lives are not amortized, but instead are tested for impairment at least annually. Intangible assets with finite lives are amortized on a straight-line basis over their respective estimated useful lives to their estimated residual values and reviewed for impairment.

For additional information regarding the useful lives of our intangible assets, see note 9.

Impairment of Property and Equipment and Intangible Assets

When circumstances warrant, we review the carrying amounts of our property and equipment and our intangible assets (other than goodwill and other indefinite-lived intangible assets) to determine whether such carrying amounts continue to be recoverable. Such changes in circumstance may include (i) an expectation of a sale or disposal of a long-lived asset or asset group, (ii) adverse changes in market or competitive conditions, (iii) an adverse change in legal factors or business climate in the markets in which we operate and (iv) operating or cash flow losses. For purposes of impairment testing, long-lived assets are grouped at the lowest level for which cash flows are largely independent of other assets and liabilities, generally at or below the reporting unit level (see below). If the carrying amount of the asset or asset group is greater than the expected undiscounted cash flows to be generated by such asset or asset group, an impairment adjustment is recognized. Such adjustment is measured by the amount that the carrying value of such asset or asset group exceeds its fair value. We generally measure fair value by considering (a) sale prices for similar assets, (b) discounted estimated future cash flows using an appropriate discount rate and/or (c) estimated replacement cost. Assets to be disposed of are recorded at the lower of their carrying amount or fair value less costs to sell.

We evaluate goodwill and other indefinite-lived intangible assets for impairment at least annually on October 1 and whenever facts and circumstances indicate that their carrying amounts may not be recoverable. For impairment evaluations with respect to both goodwill and other indefinite-lived intangibles, we first make a qualitative assessment to determine if the goodwill or other indefinite-lived intangible may be impaired. In the case of goodwill, if it is more-likely-than-not that a reporting unit's fair value is less than its carrying value, we then compare the fair value of the reporting unit to its respective carrying amount. Any excess of the carrying amount over the fair value would be charged to operations as an impairment loss. A reporting unit is an operating segment or one level below an operating segment (referred to as a "component"). With respect to other indefinite-lived intangible assets, if it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is less than its carrying value, we then estimate its fair value and any excess of the carrying value over the fair value is also charged to operations as an impairment loss.

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Income Taxes

Income taxes are accounted for under the asset and liability method. We recognize deferred tax assets and liabilities for the future tax consequences attributable to differences between the financial statement carrying amounts and income tax basis of assets and liabilities and the expected benefits of utilizing net operating loss and tax credit carryforwards, using enacted tax rates in effect for each taxing jurisdiction in which we operate for the year in which those temporary differences are expected to be recovered or settled. We recognize the financial statement effects of a tax position when it is more-likely-than-not, based on technical merits, that the position will be sustained upon examination. Net deferred tax assets are then reduced by a valuation allowance if we believe it is more-likely-than-not such net deferred tax assets will not be realized. Certain of our valuation allowances and tax uncertainties are associated with entities that we acquired in business combinations. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in earnings in the period that includes the enactment date. Deferred tax liabilities related to investments in foreign subsidiaries and foreign corporate joint ventures that are essentially permanent in duration are not recognized until it becomes apparent that such amounts will reverse in the foreseeable future. In order to be considered essentially permanent in duration, sufficient evidence must indicate that the foreign subsidiary has invested or will invest its undistributed earnings indefinitely, or that earnings will be remitted in a tax-free manner. Interest and penalties related to income tax liabilities are included in income tax benefit or expense in our consolidated statements of operations.

The Tax Cuts and Jobs Act (the **2017 U.S. Tax Act**), which contains significant changes to the U.S. income tax regime, was signed into law on December 22, 2017. While we have limited U.S. operations, certain aspects of the 2017 U.S. Tax Act could have a meaningful impact on our income tax expense. For additional information regarding the 2017 U.S. Tax Act and our income taxes, see note 11.

Foreign Currency Translation and Transactions

The reporting currency of our company is the U.S. dollar. The functional currency of our foreign operations generally is the applicable local currency for each foreign subsidiary and equity method investee. Assets and liabilities of foreign subsidiaries (including intercompany balances for which settlement is not anticipated in the foreseeable future) are translated at the spot rate in effect at the applicable reporting date. With the exception of certain material transactions, the amounts reported in our consolidated statements of operations are translated at the average exchange rates in effect during the applicable period. The resulting unrealized cumulative translation adjustment, net of applicable income taxes, is recorded as a component of accumulated other comprehensive earnings or loss in our consolidated statements of equity. With the exception of certain material transactions, the cash flows from our operations in foreign countries are translated at the average rate for the applicable period in our consolidated statements of cash flows. The impacts of material transactions generally are recorded at the applicable spot rates in our consolidated statements of operations and cash flows. The effect of exchange rates on cash balances held in foreign currencies are separately reported in our consolidated statements of cash flows.

Transactions denominated in currencies other than our or our subsidiaries' functional currencies are recorded based on exchange rates at the time such transactions arise. Changes in exchange rates with respect to amounts recorded in our consolidated balance sheets related to these non-functional currency transactions result in transaction gains and losses that are reflected in our consolidated statements of operations as unrealized (based on the applicable period end exchange rates) or realized upon settlement of the transactions.

Revenue Recognition

Service Revenue — Cable Networks. We recognize revenue from the provision of video, broadband internet and fixed-line telephony services over our cable network to customers in the period the related services are provided. Installation revenue (including reconnect fees) related to services provided over our cable network is recognized as revenue in the period during which the installation occurs to the extent these fees are equal to or less than direct selling costs, which costs are expensed as incurred. To the extent installation revenue exceeds direct selling costs, the excess revenue is deferred and amortized over the average expected life of the subscriber relationship.

Sale of Multiple Products and Services. We sell video, broadband internet, fixed-line telephony and, in most of our markets, mobile services to our customers in bundled packages at a rate lower than if the customer purchased each product on a standalone basis. Revenue from bundled packages generally is allocated proportionally to the individual services based on the relative standalone price for each respective service.

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Mobile Revenue — General. Consideration from mobile contracts is allocated to the airtime service element and the handset service element based on the relative standalone prices of each element. The amount of consideration allocated to the handset is limited to the amount that is not contingent upon the delivery of future airtime services. Certain of our operations that provide mobile services offer handsets under a subsidized contract model, whereby upfront revenue recognition is limited to the upfront cash collected from the customer as the remaining monthly fees to be received from the customer, including fees that may be associated with the handset, are contingent upon delivering future airtime services. At certain of our operations, mobile customers may choose to enter into two distinct contractual relationships: (i) a mobile handset contract and (ii) a mobile airtime services contract (a **Split-contract Program**). Under the mobile handset contract, the customer takes full title to the handset upon delivery and typically has the option to either (a) pay for the handset in cash upon delivery or (b) pay for the handset in installments over a contractual period. Under these arrangements, the handset installment payments are not contingent upon delivering future airtime services and the consideration allocated to the handset is not limited to the upfront cash collected.

Mobile Revenue — Airtime Services. We recognize revenue from mobile services in the period the related services are provided. Revenue from pre-pay customers is recorded as deferred revenue prior to the commencement of services and revenue is recognized as the services are rendered or usage rights expire.

Mobile Revenue — Handset Revenue. Arrangement consideration allocated to handsets is recognized as revenue when the goods have been delivered and title has passed. For customers under a mobile handset installment contract that is independent of a mobile airtime services contract, revenue is recognized upon delivery only if collectibility is reasonably assured. Our assessment of collectibility is based principally on internal and external credit assessments as well as historical collection information for similar customers. To the extent that collectibility of installment payments from the customer is not reasonably assured upon delivery of the handset, handset revenue is recognized on a cash basis as customer payments are received. Imputed interest attributable to installment payments for delivered goods is included in revenue.

B2B Revenue. We defer upfront installation and certain nonrecurring fees received on B2B contracts where we maintain ownership of the installed equipment. The deferred fees are amortized into revenue on a straight-line basis over the term of the arrangement or the expected period of performance.

Promotional Discounts. For subscriber promotions, such as discounted or free services during an introductory period, revenue is recognized only to the extent of the discounted monthly fees charged to the subscriber, if any.

Subscriber Advance Payments and Deposits. Payments received in advance for the services we provide are deferred and recognized as revenue when the associated services are provided.

Sales, Use and Other Value-Added Taxes. Revenue is recorded net of applicable sales, use and other value-added taxes.

Share-based Compensation

We recognize all share-based payments to employees, including grants of employee share-based incentive awards, based on their grant-date fair values and our estimates of forfeitures. We recognize the grant-date fair value of outstanding awards as a charge to operations over the vesting period. Payroll taxes incurred in connection with the vesting or exercise of our share-based incentive awards are recorded as a component of share-based compensation expense in our consolidated statements of operations.

We use the straight-line method to recognize share-based compensation expense for our outstanding share awards that do not contain a performance condition and the accelerated expense attribution method for our outstanding share awards that contain a performance condition and vest on a graded basis.

The grant date fair values for options, share appreciation rights (**SARs**) and performance-based share appreciation rights (**PSARs**) are estimated using the Black-Scholes option pricing model, and the grant date fair values for restricted share units (**RSUs**) and performance-based restricted share units (**PSUs**) are based upon the closing share price of Liberty Global ordinary shares on the date of grant. We calculate the expected life of options and SARs granted by Liberty Global to employees based on historical exercise trends. The expected volatility for options and SARs related to Liberty Global Shares is generally based on a combination of (i) historical volatilities of Liberty Global Shares for a period equal to the expected average life of the awards and (ii) volatilities implied from publicly-traded options for Liberty Global Shares.

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We generally issue new Liberty Global ordinary shares when Liberty Global options or SARs are exercised and when RSUs and PSUs vest. Although we repurchase Liberty Global ordinary shares from time to time, the parameters of our share purchase and redemption activities are not established solely with reference to the dilutive impact of our share-based compensation plans.

For additional information regarding our share-based compensation, see note 13.

Litigation Costs

Legal fees and related litigation costs are expensed as incurred.

Earnings or Loss per Share

Basic earnings or loss per share (**EPS**) is computed by dividing net earnings or loss by the weighted average number of shares outstanding for the period. Diluted earnings or loss per share presents the dilutive effect, if any, on a per share basis of potential shares (e.g., options, SARs, PSARs, RSUs and convertible securities) as if they had been exercised, vested or converted at the beginning of the periods presented.

The details of our net earnings (loss) from continuing operations attributable to holders of Liberty Global Shares and Old Liberty Global Shares are set forth below:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Liberty Global Shares (a):			
Earnings (loss) from continuing operations	\$ (1,865.5)	\$ 1,994.5	\$ (137.9)
Net earnings from continuing operations attributable to noncontrolling interests	(78.1)	(33.7)	(29.6)
Net earnings (loss) from continuing operations attributable to Liberty Global shareholders	<u>\$ (1,943.6)</u>	<u>\$ 1,960.8</u>	<u>\$ (167.5)</u>
Old Liberty Global Shares (b):			
Loss from continuing operations			\$ (963.3)
Net earnings from continuing operations attributable to noncontrolling interests			(65.6)
Net loss from continuing operations attributable to Liberty Global shareholders			<u>\$ (1,028.9)</u>

(a) The amounts presented for the year ended December 31, 2015 relate to the period from July 1, 2015 through December 31, 2015.

(b) The amounts presented relate to the period from January 1, 2015 through June 30, 2015.

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The details of our weighted average shares outstanding are set forth below:

	Year ended December 31,		
	2017	2016	2015
Weighted average shares outstanding:			
Liberty Global Shares (a):			
Basic	847,894,601	889,790,968	864,721,483
Diluted	847,894,601	899,969,654	864,721,483
Old Liberty Global Shares — basic and diluted (b)			884,040,481

(a) The amounts presented for the year ended December 31, 2015 relate to the period from July 1, 2015 through December 31, 2015.

(b) The amount presented relates to the period from January 1, 2015 through June 30, 2015.

Liberty Global Shares

We reported a loss from continuing operations attributable to holders of Liberty Global Shares for the year ended December 31, 2017. Therefore, the potentially dilutive effect at December 31, 2017 of certain share awards was not included in the computation of diluted loss per share attributable to holders of Liberty Global Shares because their inclusion would have been anti-dilutive to the computation or, in the case of certain PSUs, because such awards had not yet met the applicable performance criteria, including (i) approximately 53.7 million shares issuable pursuant to outstanding options, SARs and RSUs and (ii) approximately 6.2 million shares issuable pursuant to PSUs.

The details of the calculation of EPS with respect to Liberty Global Shares for the year ended December 31, 2016 are set forth in the table below:

Numerator:	
Net earnings attributable to holders of Liberty Global Shares (basic EPS computation) (in millions)	\$ 1,960.8
Interest expense on Virgin Media's 6.50% convertible senior notes	1.7
Net earnings attributable to holders of Liberty Global Shares (diluted EPS computation) (in millions)	\$ 1,962.5
Denominator:	
Weighted average ordinary shares (basic EPS computation)	889,790,968
Incremental shares attributable to the assumed exercise and vesting of share incentive awards (treasury stock method)	7,819,514
Virgin Media's 6.50% convertible senior notes	2,359,172
Weighted average ordinary shares (diluted EPS computation)	899,969,654

We reported a loss from continuing operations attributable to holders of Liberty Global Shares for the period from July 1, 2015 through December 31, 2015. Therefore, the potentially dilutive effect at December 31, 2015 of certain items was not included in the computation of diluted loss per share attributable to holders of Liberty Global Shares because their inclusion would have been anti-dilutive to the computation or, in the case of certain PSUs and performance grant units (PGUs), because such awards had not yet met the applicable performance criteria, including (i) approximately 43.3 million shares issuable pursuant to outstanding options, SARs, PSARs and RSUs, (ii) approximately 4.5 million shares issuable pursuant to PSUs and PGUs and (iii) approximately 2.7 million shares issuable pursuant to obligations that may be settled in cash or shares.

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Old Liberty Global Shares

We reported a loss from continuing operations attributable to holders of Old Liberty Global Shares for the period from January 1, 2015 through June 30, 2015. Therefore, the potentially dilutive effect at June 30, 2015 of the certain items was not included in the computation of diluted loss per share attributable to holders of Old Liberty Global Shares because their inclusion would have been anti-dilutive to the computation or, in the case of certain PSUs and PGUs, because such awards had not yet met the applicable performance criteria, including (i) approximately 42.1 million shares issuable pursuant to outstanding options, SARs, PSARs and outstanding RSUs, (ii) approximately 5.3 million shares issuable pursuant to PSUs and PGUs and (iii) approximately 2.6 million shares issuable pursuant to obligations that may be settled in cash or shares.

(4) Acquisitions

Pending Acquisition

Multimedia. On October 18, 2016, our subsidiary UPC Polska SP Z.o.o. entered into a definitive agreement to acquire the cable business of Multimedia Polska S.A. (**Multimedia**), the third-largest cable operator in Poland, for cash consideration of 3.0 billion Polish zlotys (\$863.8 million), which is equal to the enterprise value assigned to Multimedia for purposes of this transaction. We intend to finance the acquisition of Multimedia with existing liquidity. The transaction is subject to customary closing conditions, including regulatory approval. On October 18, 2017, the Polish regulator issued a statement of objection against the proposed transaction on the basis that such transaction could restrict competition in a number of cities across the country. We are in the process of responding to the Polish regulator's statement of objections and, as part of that response, we are discussing possible binding commitments, including potential asset disposals, that we would enter into to secure the regulator's approval of the transaction. The final purchase price is subject to further downward adjustments for (i) any such remedy disposals that are required to be made and (ii) the operational and financial performance of Multimedia prior to closing. We are currently uncertain as to the timing of closing this transaction.

2017 Acquisition

SFR BeLux. On June 19, 2017, Telenet acquired Coditel Brabant sprl, operating under the SFR brand (**SFR BeLux**), for a cash and debt free purchase price of €369.0 million (\$410.3 million at the applicable rates) (the **SFR BeLux Acquisition**), after post-closing adjustments. SFR BeLux provides cable services to households and businesses in Belgium (Brussels and Wallonia regions) and Luxembourg and offers mobile services in Belgium through a mobile virtual network operator (**MVNO**) agreement with BASE, as defined and described below. The SFR BeLux Acquisition was funded through a combination of €210.0 million (\$234.3 million at the transaction date) of borrowings under the Telenet Credit Facility (as defined and described in note 10) and existing liquidity of Telenet.

2016 Acquisitions

BASE. On February 11, 2016, Telenet acquired Telenet Group BVBA, formerly known as BASE Company NV (**BASE**), for a cash purchase price of €1,318.9 million (\$1,494.3 million at the transaction date) (the **BASE Acquisition**). At the time, BASE was the third-largest mobile network operator in Belgium. Telenet completed the BASE Acquisition in order to gain cost-effective long-term mobile access to effectively compete for future growth opportunities in the Belgium mobile market. The BASE Acquisition was funded through a combination of €1.0 billion (\$1.1 billion at the transaction date) of new debt facilities and existing liquidity of Telenet. The acquisition was approved by the European Commission subject to Telenet's agreement to divest both the JIM Mobile prepaid customer base and BASE's 50% stake in Viking Co NV (**Viking**). In February 2016, Telenet completed the sale of its stake in Viking, and in October 2017, Telenet completed the sale of the JIM Mobile customer base.

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We have accounted for the BASE Acquisition using the acquisition method of accounting, whereby the total purchase price was allocated to the acquired identifiable net assets of BASE based on assessments of their respective fair values, and the excess of the purchase price over the fair values of these identifiable net assets was allocated to goodwill. A summary of the purchase price and the opening balance sheet of BASE at the February 11, 2016 acquisition date is presented in the following table. The opening balance sheet presented below reflects our final purchase price allocation (in millions):

Cash and cash equivalents	\$	160.1
Other current assets		148.3
Property and equipment, net		811.4
Goodwill (a)		330.7
Intangible assets subject to amortization, net:		
Mobile spectrum (b)		261.0
Customer relationships (b)		115.0
Trademarks (b)		40.7
Other assets, net		10.5
Accrued and current liabilities		(290.0)
Long-term liabilities		(93.4)
Total purchase price (c)	\$	<u>1,494.3</u>

- (a) The goodwill recognized in connection with the BASE Acquisition is primarily attributable to (i) the ability to take advantage of BASE's existing mobile network to gain immediate access to potential customers and (ii) estimated synergy benefits through the integration of BASE with Telenet.
- (b) As of February 11, 2016, the weighted average useful life of BASE's mobile spectrum, customer relationships and trademarks was approximately 11 years, seven years and 20 years, respectively.
- (c) Excludes direct acquisition costs of \$17.1 million, including \$7.1 million and \$10.0 million incurred during 2016 and 2015, respectively, which are included in impairment, restructuring and other operating items, net, in our consolidated statements of operations.

C&W. On May 16, 2016, we acquired C&W for shares of Liberty Global (the **C&W Acquisition**). Under the terms of the transaction, C&W shareholders received in the aggregate: 31,607,008 Class A Liberty Global Shares, 77,379,774 Class C Liberty Global Shares, 3,648,513 Class A LiLAC Shares and 8,939,316 Class C LiLAC Shares. Further, immediately prior to the acquisition, C&W declared a special cash dividend (the **Special Dividend**) to its shareholders in the amount of £0.03 (\$0.04 at the transaction date) per C&W share. C&W was attributed to the LiLAC Group and, accordingly, as a result of the Split-off Transaction (as defined and described in note 5), is included within our discontinued operations for all applicable periods presented in these consolidated financial statements.

For accounting purposes, the C&W Acquisition was treated as the acquisition of C&W by Liberty Global. In this regard, the equity and cash consideration paid to acquire C&W is set forth below (in millions):

Class A Liberty Global Shares (a)	\$	1,167.2
Class C Liberty Global Shares (a)		2,803.5
Class A LiLAC Shares (a)		144.1
Class C LiLAC Shares (a)		375.3
Special Dividend (b)		193.8
Total	\$	<u>4,683.9</u>

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- (a) Represents the fair value of the 31,607,008 Class A Liberty Global Shares, 77,379,774 Class C Liberty Global Shares, 3,648,513 Class A LiLAC Shares and 8,939,316 Class C LiLAC Shares issued to C&W shareholders in connection with the C&W Acquisition. These amounts are based on the market price per share at closing on May 16, 2016 of \$36.93, \$36.23, \$39.50 and \$41.98, respectively.
- (b) Represents the Special Dividend of £0.03 (\$0.04 at the transaction date) per C&W share paid pursuant to the scheme of arrangement based on 4,433,222,313 outstanding shares of C&W on May 16, 2016.

Due to the fact that C&W was attributed to the LiLAC Group, the use of Liberty Global Shares as partial consideration for the C&W Acquisition created an inter-group interest in the LiLAC Group representing the fair value (as determined by our board of directors) of the Liberty Global Shares issued as part of the purchase consideration. On July 1, 2016, we distributed (as a bonus issue) 117,430,965 LiLAC Shares to shareholders of Liberty Global Shares on a pro-rata basis (the **LiLAC Distribution**), thereby eliminating this inter-group interest. The LiLAC Distribution was accounted for prospectively effective July 1, 2016.

Pro Forma Information

The following unaudited pro forma consolidated operating results give effect to the BASE Acquisition as if it had been completed as of January 1, 2015. These pro forma amounts, which relate only to our continuing operations, are not necessarily indicative of the operating results that would have occurred if this transaction had occurred on such date. The pro forma adjustments are based on certain assumptions that we believe are reasonable.

	Year ended December 31,	
	2016	2015
	in millions, except per share amounts	
Revenue	\$ 17,359.4	\$ 17,743.0
Net earnings (loss) from continuing operations attributable to Liberty Global shareholders:		
Liberty Global Shares (a)	\$ 1,957.3	\$ (127.7)
Old Liberty Global Shares (b)	—	(1,045.7)
Total	\$ 1,957.3	\$ (1,173.4)
Basic earnings (loss) from continuing operations attributable to Liberty Global shareholders per share:		
Liberty Global Shares (a):		
Basic	\$ 2.20	\$ (0.15)
Diluted	\$ 2.18	\$ (0.15)
Old Liberty Global Shares (b):		
Basic and diluted		\$ (1.18)

(a) The amounts presented for the year ended December 31, 2015 relate to the period from July 1, 2015 through December 31, 2015.

(b) The amounts presented for the year ended December 31, 2015 relate to the period from January 1, 2015 through June 30, 2015.

Our consolidated statement of operations for 2016 includes revenue and net loss of \$597.1 million and \$2.1 million, respectively, attributable to BASE.

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(5) Disposals, Discontinued Operations and the VodafoneZiggo JV Transaction

Pending Disposal

On December 22, 2017, we reached an agreement to sell our Austrian operations, “UPC Austria,” to a third party for a total enterprise value of approximately €1.9 billion (\$2.3 billion), subject to customary debt and working capital adjustments at completion. Closing of the transaction is subject to regulatory approval, which is not expected until the second half of 2018. The proceeds from the sale are expected to be used for general corporate purposes, which may include leverage reduction for the remaining UPC Holding borrowing group, re-investment into our business and support for our share repurchase program. In our segment presentation, UPC Austria is included in our Switzerland/Austria segment.

In addition, we have agreed to provide certain transitional services for a period of up to four years. These services principally comprise network and information technology-related functions. The annual charges will depend on the actual level of services required by the purchaser. Liberty Global will also allow the use of the UPC brand for a transitional period of up to three years as part of the transaction.

Effective with the signing of the agreement, we began accounting for UPC Austria as held for sale. Accordingly, we no longer depreciate or amortize the long-lived assets of UPC Austria. We have not presented UPC Austria as a discontinued operation as this transaction does not represent a strategic shift that will have a major effect on our financial results or operations. Long-lived assets classified as held for sale are measured at the lower of carrying amount or fair value less cost to sell. Since the aggregate carrying value of UPC Austria is less than the estimated fair value less cost to sell, no adjustment to the carrying value was necessary. The carrying amounts of the major classes of assets and liabilities that are classified as held for sale at December 31, 2017 are summarized below (in millions):

Assets:	
Current assets other than cash	\$ 29.2
Property and equipment, net	451.9
Goodwill	732.2
Other assets, net	3.2
Total assets	\$ 1,216.5
Liabilities:	
Current portion of debt and capital lease obligations	\$ 0.8
Other accrued and current liabilities	77.7
Other long-term liabilities	77.8
Total liabilities	\$ 156.3

Our consolidated statements of operations include aggregate earnings before income taxes attributable to UPC Austria of \$130.3 million, \$125.1 million and \$115.8 million for 2017, 2016 and 2015, respectively, and aggregate earnings before income taxes attributable to Liberty Global shareholders of \$123.8 million, \$118.2 million and \$111.5 million, respectively.

Discontinued Operations

On December 29, 2017, in order to effect the split-off of the LiLAC Group (the **Split-off Transaction**), we distributed 100% of the common shares (the **Distribution**) of Liberty Latin America Ltd. (**Liberty Latin America**) to the holders of LiLAC Shares. Just prior to the completion of the Split-off Transaction, all of the businesses, assets and liabilities of the LiLAC Group were transferred to Liberty Latin America, which was then a wholly-owned subsidiary of Liberty Global. Following the Distribution, the LiLAC Shares were redesignated as deferred shares (with virtually no economic rights) and Liberty Latin America became an independent publicly-traded company that is no longer consolidated by Liberty Global. Accordingly, the entities comprising the LiLAC Group are reflected as discontinued operations in (i) our December 31, 2016 consolidated balance sheet and (ii) our consolidated statements of operations and cash flows for all periods presented. No gain or loss has been recognized in connection with the Split-off Transaction.

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In connection with the Split-off Transaction, we entered into several agreements with Liberty Latin America (the **Split-off Agreements**). The following summarizes the material agreements:

- a reorganization agreement (the **Reorganization Agreement**), which provides for, among other things, the principal corporate transactions (including the internal restructuring) required to effect the Split-off Transaction, certain conditions to the Split-off Transaction and provisions governing the relationship between Liberty Global and Liberty Latin America with respect to and resulting from the Split-off Transaction;
- a tax sharing agreement (the **Tax Sharing Agreement**), which governs the parties' respective rights, responsibilities and obligations with respect to taxes and tax benefits, the filing of tax returns, the control of audits and other tax matters;
- a services agreement (the **Services Agreement**), pursuant to which, for up to two years following the Split-off Transaction, with the option to renew for a one-year period, Liberty Global will provide Liberty Latin America with specified services, including access to Liberty Global's procurement team and tools to leverage scale and take advantage of joint purchasing opportunities, certain management services, other services to support Liberty Latin America's legal, tax, accounting and finance departments, and certain technical and information technology services (including software development services associated with Horizon TV, our next generation multimedia home gateway, management information systems, computer, data storage, and network and telecommunications services);
- a sublease agreement (the **Sublease Agreement**), pursuant to which Liberty Latin America will sublease office space from Liberty Global in Denver, Colorado until May 31, 2031, subject to customary termination and notice provisions; and
- a facilities sharing agreement (the **Facilities Sharing Agreement**), pursuant to which, for as long as the Sublease Agreement remains in effect, Liberty Latin America will pay a fee for the usage of certain facilities at the office space in Denver, Colorado.

The summarized financial position of the LiLAC Group as of December 31, 2016 is as follows (in millions):

Assets:	
Cash and cash equivalents	\$ 552.6
Trade receivables, net	531.6
Other current assets	403.6
Total current assets	1,487.8
Property and equipment, net	3,860.9
Goodwill	6,302.6
Intangible assets subject to amortization, net	1,234.5
Other assets	1,280.4
Total assets (a)	\$ 14,166.2
Liabilities:	
Current liabilities	\$ 1,325.5
Long-term debt and capital lease obligations	5,897.1
Other long-term liabilities	1,210.2
Total liabilities (a)	\$ 8,432.8

(a) Excludes intercompany payables and receivables that are eliminated within Liberty Global's consolidated financial statements.

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The operating results of the LiLAC Group are classified as discontinued operations in our consolidated statement of operations and are summarized in the following table:

	Year ended December 31,		
	2017 (a)	2016 (a)	2015 (a)
	in millions, except per share amounts		
Revenue	\$ 3,590.0	\$ 2,723.8	\$ 1,217.3
Operating income (loss)	\$ (148.4)	\$ 319.1	\$ 248.1
Earnings (loss) before income taxes and noncontrolling interests	\$ (651.1)	\$ (98.1)	\$ 92.3
Income tax expense	\$ (204.0)	\$ (129.1)	\$ (40.6)
Net (earnings) loss attributable to noncontrolling interests	\$ 20.6	\$ (28.3)	\$ (7.8)
Net earnings (loss) attributable to Liberty Global shareholders, net of taxes, attributable to holders of:			
LiLAC Shares	\$ (834.5)	\$ (255.5)	\$ 17.2
Old Liberty Global Shares			\$ 26.7
Basic and diluted earnings (loss) attributable to Liberty Global shareholders per share:			
LiLAC Shares	\$ (4.86)	\$ (2.30)	\$ 0.39
Old Liberty Global Shares			\$ 0.03

(a) Excludes the LiLAC Group's intercompany revenue and expenses that are eliminated within Liberty Global's consolidated financial statements.

The weighted average shares outstanding used in the computation of basic and diluted earnings or loss attributable to Liberty Global shareholders per share are set forth below:

	Year ended December 31,		
	2017	2016	2015
LiLAC Shares:			
Basic	171,846,133	110,868,650	43,915,757
Diluted	171,846,133	110,868,650	44,235,275
Old Liberty Global Shares — basic and diluted			884,040,481

We reported losses attributable to holders of LiLAC Shares during the years ended December 31, 2017 and 2016. Therefore, the potentially dilutive effect of certain share-based incentive awards with respect to LiLAC Shares was not included in the computation of diluted loss per share attributable to holders of LiLAC Shares because their inclusion would have been anti-dilutive to the computation or, in the case of certain PSUs and PGUs, because such awards had not yet met the applicable performance criteria.

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The details of the calculation of EPS with respect to LiLAC Shares for the period from July 1, 2015 through December 31, 2015 are set forth in the following table:

Numerator:	
Net earnings attributable to holders of LiLAC Shares (basic and diluted EPS computation) (in millions)	\$ 17.2
Denominator:	
Weighted average ordinary shares (basic EPS computation)	43,915,757
Incremental shares attributable to the assumed exercise of outstanding options, SARs and PSARs and the release of share units upon vesting (treasury stock method)	319,518
Weighted average ordinary shares (diluted EPS computation)	44,235,275

VodafoneZiggo JV Transaction

On December 31, 2016, pursuant to a Contribution and Transfer Agreement with Vodafone Group plc (**Vodafone**) and one of its wholly-owned subsidiaries, we and Liberty Global Europe Holding B.V., our wholly-owned subsidiary, contributed VodafoneZiggo Holding and its subsidiaries (including Liberty Global Netherlands Content B.V., referred to herein as “**Ziggo Sport**”) to VodafoneZiggo Group Holding B.V., a 50:50 joint venture (referred to herein as the “**VodafoneZiggo JV**”). Ziggo Sport, which became a subsidiary of VodafoneZiggo Holding during the fourth quarter of 2016, operates premium sports channels in the Netherlands. The VodafoneZiggo JV combined VodafoneZiggo Holding with Vodafone’s mobile businesses in the Netherlands to create a national unified communications provider in the Netherlands with complementary strengths across video, broadband internet, fixed-line telephony, mobile and B2B services (the **VodafoneZiggo JV Transaction**). As a result of the VodafoneZiggo JV Transaction, effective December 31, 2016, we no longer consolidate VodafoneZiggo Holding. For additional information regarding our investment in the VodafoneZiggo JV, see note 6.

On January 4, 2017, in connection with the completion of the VodafoneZiggo JV Transaction, our company received cash of €2.2 billion (\$2.4 billion at the transaction date) comprising (i) our 50% share of the €2.8 billion (\$2.9 billion at the transaction date) of net proceeds from the various debt financing arrangements entered into by certain subsidiaries of VodafoneZiggo Holding during the third quarter of 2016, which proceeds were held in escrow through December 31, 2016, and (ii) an equalization payment from Vodafone of €802.9 million (\$840.8 million at the transaction date) that was subject to post-closing adjustments. At December 31, 2016, our right to receive this cash is reflected as a current receivable from the VodafoneZiggo JV in our consolidated balance sheet. During the second quarter of 2017, the equalization payment amount was finalized, resulting in the receipt of an additional €3.9 million (\$4.5 million at the transaction date) from Vodafone.

In connection with the VodafoneZiggo JV Transaction, we recognized a pre-tax gain during 2016 of \$520.8 million, net of the recognition of a cumulative foreign currency translation loss of \$714.5 million. This gain, which was calculated by deducting the carrying value of VodafoneZiggo Holding (including the related foreign currency translation loss) from the sum of (i) the fair value assigned to our 50% interest in the VodafoneZiggo JV and (ii) the cash received pursuant to the equalization payment, includes \$260.4 million related to the remeasurement of our retained investment in VodafoneZiggo Holding. In connection with the aforementioned finalization of the equalization payment, we recognized an additional pre-tax gain of \$4.5 million during the second quarter of 2017. For information regarding our approach to the valuation of our interest in the VodafoneZiggo JV, see note 8.

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Our consolidated statements of operations include aggregate losses before income taxes attributable to VodafoneZiggo Holding and Ziggo Sport of \$276.4 million and \$534.5 million during 2016 and 2015, respectively. The December 31, 2016 carrying amounts of the major classes of assets and liabilities associated with VodafoneZiggo Holding, which was contributed into the VodafoneZiggo JV, are summarized below (in millions):

Assets:	
Cash and cash equivalents	\$ 6.1
Current restricted cash	3,144.0
Current assets other than cash	259.0
Property and equipment, net	3,201.2
Goodwill	7,637.2
Intangible assets subject to amortization, net	3,406.7
Other assets, net	578.8
Total assets	\$ 18,233.0

Liabilities:	
Current portion of debt and capital lease obligations	\$ 290.3
Other accrued and current liabilities	2,396.4
Long-term debt and capital lease obligations	11,812.8
Other long-term liabilities	991.7
Total liabilities	\$ 15,491.2

(6) Investments

The details of our investments are set forth below:

Accounting Method	December 31,	
	2017	2016
in millions		
Equity (a):		
VodafoneZiggo JV (b)	\$ 4,162.8	\$ 4,186.6
Other	161.8	140.9
Total — equity	4,324.6	4,327.5
Fair value:		
ITV plc (ITV) — subject to re-use rights	892.0	1,015.4
Sumitomo Corporation (Sumitomo)	776.5	538.4
Lions Gate Entertainment Corp (Lionsgate)	163.9	128.6
ITI Neovision S.A. (ITI Neovision)	161.9	129.3
Casa Systems, Inc. (Casa)	76.3	39.1
Other	244.7	206.4
Total — fair value	2,315.3	2,057.2
Cost	31.5	4.0
Total	\$ 6,671.4	\$ 6,388.7

(a) At December 31, 2017 and 2016, the aggregate carrying amounts of our equity method investments did not materially exceed our proportionate share of the respective investees' net assets.

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- (b) Amounts include a related-party note receivable (the **VodafoneZiggo JV Receivable**) with a principal amount of \$1,081.9 million and \$1,054.7 million, respectively, due from a subsidiary of the VodafoneZiggo JV (as defined below) to a subsidiary of Liberty Global. The VodafoneZiggo JV Receivable bears interest at 5.55% and requires €100.0 million (\$120.2 million) of principal to be paid annually during the first three years of the agreement, with the remaining principal due on January 16, 2027. In this regard, we received a €100.0 million (\$118.5 million at the transaction date) principal payment on the VodafoneZiggo JV Receivable in December 2017. The accrued interest on the VodafoneZiggo JV Receivable will be payable in a manner mutually agreed upon by Liberty Global and the VodafoneZiggo JV. During 2017, interest accrued on the VodafoneZiggo JV Receivable was \$64.3 million, all of which has been cash settled.

Equity Method Investments

The following table sets forth the details of our share of losses of affiliates, net:

	December 31,		
	2017	2016	2015
	in millions		
VodafoneZiggo JV (a)	\$ 70.1	\$ —	\$ —
Other	25.1	111.6	54.3
Total	<u>\$ 95.2</u>	<u>\$ 111.6</u>	<u>\$ 54.3</u>

- (a) Amounts include the net effect of (i) 100% of the interest income earned on the VodafoneZiggo JV Receivable, (ii) 100% of the share-based compensation expense associated with Liberty Global awards held by VodafoneZiggo JV employees who were formerly employees of Liberty Global, as these awards remain our responsibility, and (iii) our 50% share of the remaining results of operations of the VodafoneZiggo JV.

VodafoneZiggo JV. On December 31, 2016, we completed the VodafoneZiggo JV Transaction. Each of Liberty Global and Vodafone (each a “**Shareholder**”) holds 50% of the issued share capital of the VodafoneZiggo JV. The Shareholders intend for the VodafoneZiggo JV to be funded solely from its net cash flow from operations and third-party financing. We account for our 50% interest in the VodafoneZiggo JV as an equity method investment. We consider the VodafoneZiggo JV to be a related party. For additional information regarding the formation of the VodafoneZiggo JV, see note 5.

In connection with the formation of the VodafoneZiggo JV, the Shareholders entered into a shareholders agreement (the **Shareholders Agreement**). The Shareholders Agreement contains customary provisions for the governance of a 50:50 joint venture that result in Liberty Global and Vodafone having joint control over decision making with respect to the VodafoneZiggo JV.

The Shareholders Agreement also provides (i) for a dividend policy that requires the VodafoneZiggo JV to distribute all unrestricted cash to the Shareholders every two months (subject to the VodafoneZiggo JV maintaining a minimum amount of cash and complying with the terms of its financing arrangements) and (ii) that the VodafoneZiggo JV will be managed with a leverage ratio of between 4.5 and 5.0 times EBITDA (as calculated pursuant to its existing financing arrangements) with the VodafoneZiggo JV undertaking periodic recapitalizations and/or refinancings accordingly.

Each Shareholder has the right to initiate an initial public offering (**IPO**) of the VodafoneZiggo JV after December 31, 2019, with the opportunity for the other Shareholder to sell shares in the IPO on a pro rata basis. Subject to certain exceptions, the Shareholders Agreement prohibits transfers of interests in the VodafoneZiggo JV to third parties until December 31, 2020. After December 31, 2020, each Shareholder will be able to initiate a sale of all of its interest in the VodafoneZiggo JV to a third party and, under certain circumstances, initiate a sale of the entire VodafoneZiggo JV, subject, in each case, to a right of first offer in favor of the other Shareholder.

During the first quarter of 2017, we paid \$162.6 million of VAT on behalf of the VodafoneZiggo JV associated with the termination of a services agreement with Ziggo Group Holding B.V. that was in effect prior to the closing of the VodafoneZiggo JV Transaction. This advance was repaid during the first quarter of 2017. In addition, during 2017, we received dividends from the VodafoneZiggo JV aggregating \$252.8 million, which were accounted for as returns on capital for purposes of our consolidated statement of cash flows.

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Pursuant to an agreement entered into in connection with the formation of the VodafoneZiggo JV (the **Framework Agreement**), Liberty Global provides certain services to the VodafoneZiggo JV on a transitional or ongoing basis (collectively, the **JV Services**). Pursuant to the terms of the Framework Agreement, the ongoing services will be provided for a period of four to six years depending on the type of service, while transitional services may be terminated by either party, subject to specified notice periods. The JV Services provided by Liberty Global consist primarily of (i) technology and other services and (ii) capital-related expenditures for assets that will be used by, or will otherwise benefit, the VodafoneZiggo JV. Liberty Global charges both fixed and usage-based fees to the VodafoneZiggo JV for the JV Services provided during the term of the Framework Agreement. During 2017, we recorded revenue of \$132.4 million related to the JV Services. In addition, at December 31, 2017, \$33.3 million was due from the VodafoneZiggo JV, primarily related to (a) services performed under the Framework Agreement and (b) amounts incurred by Liberty Global for certain equipment and licenses purchased on behalf of the VodafoneZiggo JV. This amount, which is periodically cash settled, is included in other current assets in our consolidated balance sheet. The minimum fees related to the JV Services are expected to be approximately €100 million (\$120 million) and €75 million (\$90 million) during 2018 and 2019, respectively.

The mobile and fixed-line operations of the VodafoneZiggo JV are experiencing significant competition. In particular, the mobile operations of the VodafoneZiggo JV continue to experience competitive pressure on pricing, characterized by aggressive promotion campaigns, heavy marketing efforts and increasing or unlimited data bundles. If the adverse impacts of economic, competitive, regulatory or other factors were to cause significant deterioration of the results of operations or cash flows of the VodafoneZiggo JV, we could conclude in future periods that our investment in the VodafoneZiggo JV is impaired or management of the VodafoneZiggo JV could conclude that an impairment of the VodafoneZiggo JV goodwill and, to a lesser extent, long-lived assets, is required. Any such impairment of the VodafoneZiggo JV's goodwill or our investment in the VodafoneZiggo JV would be reflected as a component of share of results of affiliates, net, in our consolidated statement of operations. Our share of any such impairment charges could be significant.

The summarized results of operations of the VodafoneZiggo JV for the year ended December 31, 2017 are set forth below (in millions):

Revenue	\$	4,537.7
Loss before income taxes	\$	(371.8)
Net loss	\$	(265.7)

The summarized financial position of the VodafoneZiggo JV is set forth below:

	December 31,	
	2017	2016
in millions		
Current assets	\$ 823.4	\$ 3,785.1
Long-term assets	24,076.8	22,109.0
Total assets	\$ 24,900.2	\$ 25,894.1
Current liabilities	\$ 2,631.7	\$ 4,808.1
Long-term liabilities	16,110.4	14,822.0
Owners' equity	6,158.1	6,264.0
Total liabilities and owners' equity	\$ 24,900.2	\$ 25,894.1

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Fair Value Investments

ITV. At December 31, 2017 and 2016, we owned 398,515,510 shares of ITV, a commercial broadcaster in the U.K. Our ITV shares represented less than 10.0% of the total outstanding shares of ITV as of June 30, 2017, the most current publicly-available information. The aggregate purchase price paid to acquire our investment in ITV was financed through borrowings under secured borrowing agreements (the **ITV Collar Loan**). All of the ITV shares we hold are subject to a share collar (the **ITV Collar**) and pledged as collateral under the ITV Collar Loan. Under the terms of the ITV Collar, the counterparty has the right to re-use all of the pledged ITV shares. For additional information regarding the ITV Collar, see note 7.

Sumitomo. At December 31, 2017 and 2016, we owned 45,652,175 shares of Sumitomo common stock. Our Sumitomo shares represent less than 5% of Sumitomo's outstanding common stock at March 31, 2017, the most current publicly-available information. These shares secure the Sumitomo Collar Loan and the Sumitomo Share Loan, each as defined and described in note 7.

ITI Neovision. At December 31, 2017 and 2016, we owned a 17.0% interest in ITI Neovision, a privately-held direct-to-home (**DTH**) operator in Poland.

Lionsgate. At December 31, 2017 and 2016, we owned 2.5 million voting and 2.5 million non-voting shares of Lionsgate common stock, originally purchased at a price of \$39.02 per share, for an investment of \$195.1 million. The aggregate purchase price of the Lionsgate shares was financed using working capital, including \$70.9 million of cash received pursuant to a variable prepaid forward transaction with respect to 1.25 million of our voting and 1.25 million of our non-voting Lionsgate shares (the **Lionsgate Forward**). At December 31, 2017, our Lionsgate shares represented less than 5% of the total outstanding shares of Lionsgate. For additional information regarding the Lionsgate Forward, see note 7.

Casa. At December 31, 2017, we owned 4,432,870 shares of Casa common stock. Casa is a U.S.-based provider of fixed, mobile, optical and Wi-Fi network software solutions for ultra-broadband services. As of the December 19, 2017 completion of Casa's initial public offering (the most current publicly-available information), our Casa shares represented 5.5% of the total Casa shares outstanding.

(7) Derivative Instruments

In general, we seek to enter into derivative instruments to protect against (i) increases in the interest rates on our variable-rate debt, (ii) foreign currency movements, particularly with respect to borrowings that are denominated in a currency other than the functional currency of the borrowing entity and (iii) decreases in the market prices of certain publicly traded securities that we own. In this regard, through our subsidiaries, we have entered into various derivative instruments to manage interest rate exposure and foreign currency exposure primarily with respect to the U.S. dollar (**\$**), the euro (**€**), the British pound sterling (**£**), the Swiss franc (**CHF**), the Czech koruna (**CZK**), the Hungarian forint (**HUF**), the the Polish zloty (**PLN**) and the Romanian lei (**RON**). With the exception of a limited number of our foreign currency forward contracts, we do not apply hedge accounting to our derivative instruments. Accordingly, changes in the fair values of most of our derivative instruments are recorded in realized and unrealized gains or losses on derivative instruments, net, in our consolidated statements of operations.

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The following table provides details of the fair values of our derivative instrument assets and liabilities:

	December 31, 2017			December 31, 2016		
	Current (a)	Long-term (a)	Total	Current (a)	Long-term (a)	Total
in millions						
Assets:						
Cross-currency and interest rate derivative contracts (b)	\$ 559.1	\$ 1,171.4	\$ 1,730.5	\$ 337.5	\$ 2,123.1	\$ 2,460.6
Equity-related derivative instruments (c)	—	560.9	560.9	37.1	486.9	524.0
Foreign currency forward and option contracts	16.4	0.1	16.5	30.7	14.1	44.8
Other	0.5	0.6	1.1	0.2	0.3	0.5
Total	\$ 576.0	\$ 1,733.0	\$ 2,309.0	\$ 405.5	\$ 2,624.4	\$ 3,029.9
Liabilities:						
Cross-currency and interest rate derivative contracts (b)	\$ 239.1	\$ 1,866.4	\$ 2,105.5	\$ 239.1	\$ 999.6	\$ 1,238.7
Equity-related derivative instruments (c)	5.4	—	5.4	8.6	—	8.6
Foreign currency forward and option contracts	7.7	0.2	7.9	4.7	0.1	4.8
Other	—	—	—	—	0.1	0.1
Total	\$ 252.2	\$ 1,866.6	\$ 2,118.8	\$ 252.4	\$ 999.8	\$ 1,252.2

- (a) Our current derivative liabilities, long-term derivative assets and long-term derivative liabilities are included in other current and accrued liabilities, other assets, net, and other long-term liabilities, respectively, in our consolidated balance sheets.
- (b) We consider credit risk relating to our and our counterparties' nonperformance in the fair value assessment of our derivative instruments. In all cases, the adjustments take into account offsetting liability or asset positions within each of our subsidiary borrowing groups (as defined and described in note 10). The changes in the credit risk valuation adjustments associated with our cross-currency and interest rate derivative contracts resulted in a net gain of \$233.7 million during 2017 and net losses of \$28.1 million and \$8.3 million during 2016 and 2015, respectively. These amounts are included in realized and unrealized gains on derivative instruments, net, in our consolidated statements of operations. For further information regarding our fair value measurements, see note 8.
- (c) Our equity-related derivative instruments primarily include the fair value of (i) the ITV Collar, (ii) the share collar (the **Sumitomo Collar**) with respect to a portion of the shares of Sumitomo held by our company, and (iii) the Lionsgate Forward. The fair values of the ITV Collar, the Sumitomo Collar and the Lionsgate Forward do not include credit risk valuation adjustments as we assume that any losses incurred by our company in the event of nonperformance by the respective counterparty would be, subject to relevant insolvency laws, fully offset against amounts we owe to such counterparty pursuant to the related secured borrowing arrangements.

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The details of our realized and unrealized gains (losses) on derivative instruments, net, are as follows:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Cross-currency and interest rate derivative contracts	\$ (1,506.1)	\$ 716.2	\$ 855.7
Equity-related derivative instruments:			
ITV Collar	215.0	351.5	(222.6)
Sumitomo Collar	(77.4)	(25.6)	(20.3)
Lionsgate Forward	(11.4)	10.1	14.5
Other	(3.9)	1.6	0.7
Total equity-related derivative instruments	122.3	337.6	(227.7)
Foreign currency forward and option contracts	(29.0)	18.1	(9.0)
Other	0.8	(0.9)	0.9
Total	<u>\$ (1,412.0)</u>	<u>\$ 1,071.0</u>	<u>\$ 619.9</u>

The net cash received or paid related to our derivative instruments is classified as an operating, investing or financing activity in our consolidated statements of cash flows based on the objective of the derivative instrument and the classification of the applicable underlying cash flows. For foreign currency forward contracts that are used to hedge capital expenditures, the net cash received or paid is classified as an adjustment to capital expenditures in our consolidated statements of cash flows. For derivative contracts that are terminated prior to maturity, the cash paid or received upon termination that relates to future periods is classified as a financing activity. The following table sets forth the classification of the net cash inflows (outflows) of our derivative instruments:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Operating activities	\$ 53.6	\$ 47.9	\$ (225.9)
Investing activities	(0.5)	(2.9)	15.6
Financing activities	(102.5)	(251.5)	(301.2)
Total	<u>\$ (49.4)</u>	<u>\$ (206.5)</u>	<u>\$ (511.5)</u>

Counterparty Credit Risk

We are exposed to the risk that the counterparties to the derivative instruments of our subsidiary borrowing groups will default on their obligations to us. We manage these credit risks through the evaluation and monitoring of the creditworthiness of, and concentration of risk with, the respective counterparties. In this regard, credit risk associated with our derivative instruments is spread across a relatively broad counterparty base of banks and financial institutions. With the exception of a limited number of instances where we have required a counterparty to post collateral, neither party has posted collateral under the derivative instruments of our subsidiary borrowing groups. At December 31, 2017, our exposure to counterparty credit risk included derivative assets with an aggregate fair value of \$330.8 million.

Each of our subsidiary borrowing groups have entered into derivative instruments under master agreements with each counterparty that contain master netting arrangements that are applicable in the event of early termination by either party to such derivative instrument. The master netting arrangements are limited to the derivative instruments and derivative-related debt instruments, governed by the relevant master agreement within each individual borrowing group and are independent of similar arrangements of our other subsidiary borrowing groups.

Under our derivative contracts, it is generally only the non-defaulting party that has a contractual option to exercise early termination rights upon the default of the other counterparty and to set off other liabilities against sums due upon such termination. However, in an insolvency of a derivative counterparty, under the laws of certain jurisdictions, the defaulting counterparty or its

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insolvency representatives may be able to compel the termination of one or more derivative contracts and trigger early termination payment liabilities payable by us, reflecting any mark-to-market value of the contracts for the counterparty. Alternatively, or in addition, the insolvency laws of certain jurisdictions may require the mandatory set off of amounts due under such derivative contracts against present and future liabilities owed to us under other contracts between us and the relevant counterparty. Accordingly, it is possible that we may be subject to obligations to make payments, or may have present or future liabilities owed to us partially or fully discharged by set off as a result of such obligations, in the event of the insolvency of a derivative counterparty, even though it is the counterparty that is in default and not us. To the extent that we are required to make such payments, our ability to do so will depend on our liquidity and capital resources at the time. In an insolvency of a defaulting counterparty, we will be an unsecured creditor in respect of any amount owed to us by the defaulting counterparty, except to the extent of the value of any collateral we have obtained from that counterparty.

In addition, where a counterparty is in financial difficulty, under the laws of certain jurisdictions, the relevant regulators may be able to (i) compel the termination of one or more derivative instruments, determine the settlement amount and/or compel, without any payment, the partial or full discharge of liabilities arising from such early termination that are payable by the relevant counterparty or (ii) transfer the derivative instruments to an alternative counterparty.

Details of our Derivative Instruments

Cross-currency Derivative Contracts

As noted above, we are exposed to foreign currency exchange rate risk in situations where our debt is denominated in a currency other than the functional currency of the operations whose cash flows support our ability to repay or refinance such debt. Although we generally seek to match the denomination of our subsidiaries' borrowings with the functional currency of the operations that are supporting the respective borrowings, market conditions or other factors may cause us to enter into borrowing arrangements that are not denominated in the functional currency of the underlying operations (unmatched debt). Our policy is generally to provide for an economic hedge against foreign currency exchange rate movements by using derivative instruments to synthetically convert unmatched debt into the applicable underlying currency. At December 31, 2017, substantially all of our debt was either directly or synthetically matched to the applicable functional currencies of the underlying operations. The following table sets forth the total notional amounts and the related weighted average remaining contractual lives of our cross-currency swap contracts at December 31, 2017:

<u>Borrowing group</u>	Notional amount due from counterparty		Notional amount due to counterparty		Weighted average remaining life in years
	in millions				
Virgin Media	\$	400.0	€	339.6	5.0
	\$	8,933.0	£	5,844.3	(a) (b) 5.7
	£	2,396.1	\$	3,450.0	(a) 7.0
UPC Holding	\$	2,765.0	€	2,276.7	6.8
	\$	1,200.0	CHF	1,107.5	(b) 7.2
	€	2,521.2	CHF	2,901.0	(b) 6.0
	€	418.5	CZK	11,521.8	2.5
	€	488.0	HUF	138,437.5	4.0
	€	851.6	PLN	3,604.5	3.7
	€	225.9	RON	650.0	4.1
Unitymedia	\$	3,155.0	€	2,603.5	6.6
Telenet	\$	2,895.0	€	2,587.7	(b) 7.3

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- (a) Includes certain derivative instruments that do not involve the exchange of notional amounts at the inception and maturity of the instruments. Accordingly, the only cash flows associated with these derivative instruments are coupon-related payments and receipts. At December 31, 2017, the total U.S. dollar equivalents of the notional amount of these derivative instruments were \$3.7 billion.
- (b) Includes certain derivative instruments that are “forward-starting,” such that the initial exchange occurs at a date subsequent to December 31, 2017. These instruments are typically entered into in order to extend existing hedges without the need to amend existing contracts.

Interest Rate Swap Contracts

As noted above, we enter into interest rate swaps to protect against increases in the interest rates on our variable-rate debt. The following table sets forth the total U.S. dollar equivalents of the notional amounts and the related weighted average remaining contractual lives of our interest rate swap contracts at December 31, 2017:

<u>Borrowing group</u>	<u>Borrowing group pays fixed rate (a)</u>		<u>Borrowing group receives fixed rate</u>	
	<u>Notional amount</u>	<u>Weighted average remaining life</u>	<u>Notional amount</u>	<u>Weighted average remaining life</u>
	<u>in millions</u>	<u>in years</u>	<u>in millions</u>	<u>in years</u>
Virgin Media	\$ 18,236.1	4.1	\$ 11,228.5	6.1
UPC Holding	\$ 5,149.5	5.8	\$ 2,746.7	7.8
Unitymedia	\$ 8,573.9	3.6	\$ 6,071.9	5.4
Telenet	\$ 3,795.2	6.0	\$ 1,715.5	5.7

- (a) Includes forward-starting derivative instruments.

Interest Rate Swap Options

We have entered into various interest rate swap options (**swaptions**), which give us the right, but not the obligation, to enter into certain interest rate swap contracts at set dates in the future, with each such contract having a life of no more than three years. At the transaction date, the strike rate of each of these contracts was above the corresponding market rate. The following table sets forth certain information regarding our swaptions at December 31, 2017:

<u>Borrowing group</u>	<u>Notional amount</u>	<u>Underlying swap currency</u>	<u>Weighted average option expiration period (a)</u>	<u>Weighted average strike rate (b)</u>
	<u>in millions</u>		<u>in years</u>	
Virgin Media	\$ 7,183.9	£	1.7	2.45%
UPC Holding	\$ 986.6	CHF	1.0	1.11%
Unitymedia	\$ 4,276.3	€	1.9	1.88%

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- (a) Represents the weighted average period until the date on which we have the option to enter into the interest rate swap contracts.
- (b) Represents the weighted average interest rate that we would pay if we exercised our option to enter into the interest rate swap contracts.

Basis Swaps

Our basis swaps involve the exchange of attributes used to calculate our floating interest rates, including (i) the benchmark rate, (ii) the underlying currency and/or (iii) the borrowing period. We typically enter into these swaps to optimize our interest rate profile based on our current evaluations of yield curves, our risk management policies and other factors. The following table sets forth the total U.S. dollar equivalents of the notional amounts and related weighted average remaining contractual lives of our basis swap contracts at December 31, 2017:

<u>Borrowing group</u>	<u>Notional amount due from counterparty</u>	<u>Weighted average remaining life</u>
	in millions	in years
Virgin Media (a)	\$ 4,617.2	1.0
UPC Holding (a)	\$ 1,975.0	1.0
Unitymedia (a)	\$ 1,705.0	0.9
Telenet	\$ 1,300.0	1.0

- (a) Includes forward-starting derivative instruments.

Interest Rate Caps and Collars

We enter into interest rate cap and collar agreements that lock in a maximum interest rate if variable rates rise, but also allow our company to benefit, to a limited extent in the case of collars, from declines in market rates. At December 31, 2017, the total U.S. dollar equivalents of the notional amounts of our interest rate caps and collars were \$169.1 million and \$682.2 million, respectively.

Impact of Derivative Instruments on Borrowing Costs

The impact of the derivative instruments that mitigate our foreign currency and interest rate risk, as described above, on our borrowing costs is as follows:

	<u>Increase (decrease) to borrowing costs at December 31, 2017 (a)</u>
Virgin Media	(0.31)%
UPC Holding	0.42 %
Unitymedia	(0.48)%
Telenet	(0.24)%
Total decrease to borrowing costs	(0.21)%

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- (a) Represents the effect of derivative instruments in effect at December 31, 2017 and does not include forward-starting derivative instruments or swaptions.

Foreign Currency Forwards and Options

Certain of our subsidiaries enter into foreign currency forward and option contracts with respect to non-functional currency exposure. As of December 31, 2017, the total U.S. dollar equivalents of the notional amount of foreign currency forward and option contracts was \$712.1 million.

Equity-related Derivative Instruments

ITV Collar and Secured Borrowing. The ITV Collar comprises (i) purchased put options exercisable by our company, and (ii) written call options exercisable by the counterparty. The ITV Collar effectively hedges the value of our investment in ITV shares from losses due to market price decreases below the put option price while retaining a portion of the gains from market price increases up to the call option price. The fair value of the ITV Collar as of December 31, 2017 was a net asset of \$527.3 million, which is classified as non-current in our consolidated balance sheet. During 2017, the ITV Collar was restructured and now has settlement dates ranging from 2020 to 2022.

The ITV Collar and related agreements also provide our company with the ability to borrow against the value of its ITV shares. At December 31, 2017, borrowings under the ITV Collar Loan were secured by all 398,515,510 of our ITV shares, which have been placed into a custody account. The ITV Collar Loan, which has maturity dates consistent with the ITV Collar and contains no financial covenants, provides for customary representations and warranties, events of default and certain adjustment and termination events. Under the terms of the ITV Collar, the counterparty has the right to re-use the pledged ITV shares held in the custody account, but we have the right to recall the shares that are re-used by the counterparty subject to certain costs. In addition, the counterparty retains dividends on the ITV shares that the counterparty would need to borrow from the custody account to hedge its exposure under the ITV Collar (an estimated 390 million shares at December 31, 2017).

Sumitomo Collar and Secured Borrowing. The Sumitomo Collar comprises purchased put options exercisable by our company and written call options exercisable by the counterparty with respect to a portion of the Sumitomo shares owned by Liberty Programming Japan. The fair value of the Sumitomo Collar as of December 31, 2017 was a net asset of \$19.6 million.

The Sumitomo Collar and related agreements also provide our company with the ability to borrow funds on a secured basis. Borrowings under these agreements (the **Sumitomo Collar Loan**) are secured by 20% of our Sumitomo shares. The Sumitomo Collar and the Sumitomo Collar Loan each mature in five equal semi-annual installments, the first of which became due on May 22, 2016. With respect to the first four settlement dates, our company borrowed shares of Sumitomo pursuant to a securities lending arrangement (the **Sumitomo Share Loan**), and such shares were used to settle the applicable installments due on the Sumitomo Collar Loan. The following table provides the aggregate market value of the borrowed Sumitomo shares on the applicable settlement dates:

<u>Installment date</u>	<u>Aggregate market value of borrowed Sumitomo shares</u>	
	<u>in millions</u>	
May 22, 2016	\$	91.4
November 22, 2016	\$	110.6
May 22, 2017	\$	117.4
November 22, 2017	\$	135.7

The Sumitomo Share Loan, which we have elected to account for at fair value, matures on the fifth anniversary of the respective borrowing date. The Sumitomo Share Loan, together with the Sumitomo Collar, effectively hedge 100% of our Sumitomo shares from losses due to market price decreases. The Sumitomo Share Loan is secured by 80% of our Sumitomo shares.

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Lionsgate Forward and Secured Borrowing. The Lionsgate Forward has economic characteristics similar to a collar plus a loan that is collateralized by a pledge of 1.25 million of our voting and 1.25 million of our non-voting Lionsgate shares (the **Lionsgate Loan**). Under the terms of the Lionsgate Forward, the counterparty does not have the right to re-use the pledged Lionsgate shares without permission from Liberty Global. The Lionsgate Forward effectively hedges the value of our pledged Lionsgate shares from losses due to market price decreases below the put option price while retaining a portion of the gains from market price increases up to the call option price. The fair value of the Lionsgate Forward as of December 31, 2017 was a net asset of \$12.1 million. The Lionsgate Forward has settlement dates ranging from July 2019 through March 2022.

For additional information regarding our investments in ITV, Sumitomo, and Lionsgate, see note 6.

(8) Fair Value Measurements

We use the fair value method to account for (i) certain of our investments, (ii) our derivative instruments, (iii) certain instruments that we classify as debt and (iv) the Sumitomo Share Loan. The reported fair values of these investments and instruments as of December 31, 2017 likely will not represent the value that will be paid or received upon the ultimate settlement or disposition of these assets and liabilities.

U.S. GAAP provides for a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. Level 1 inputs are quoted market prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 2 inputs are inputs other than quoted market prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. We record transfers of assets or liabilities into or out of Levels 1, 2 or 3 at the beginning of the quarter during which the transfer occurred. During the fourth quarter of 2017, our investment in Casa was transferred from Level 3 to Level 1 in connection with an initial public offering that was completed by Casa. For additional information on our investment in Casa, see note 6.

All of our Level 2 inputs (interest rate futures, swap rates and certain of the inputs for our weighted average cost of capital calculations) and certain of our Level 3 inputs (forecasted volatilities and credit spreads) are obtained from pricing services. These inputs, or interpolations or extrapolations thereof, are used in our internal models to calculate, among other items, yield curves, forward interest and currency rates and weighted average cost of capital rates. In the normal course of business, we receive market value assessments from the counterparties to our derivative contracts. Although we compare these assessments to our internal valuations and investigate unexpected differences, we do not otherwise rely on counterparty quotes to determine the fair values of our derivative instruments. The midpoints of applicable bid and ask ranges generally are used as inputs for our internal valuations.

For our investments in publicly-traded companies, the recurring fair value measurements are based on the quoted closing price of the respective shares at each reporting date. Accordingly, the valuations of these investments fall under Level 1 of the fair value hierarchy. Our other investments that we account for at fair value are privately-held companies, and therefore, quoted market prices are unavailable. The valuation technique we use for such investments is a combination of an income approach (discounted cash flow model based on forecasts) and a market approach (market multiples of similar businesses). With the exception of certain inputs for our weighted average cost of capital calculations that are derived from pricing services, the inputs used to value these investments are based on unobservable inputs derived from our assumptions. Therefore, the valuation of our privately-held investments falls under Level 3 of the fair value hierarchy. Any reasonably foreseeable changes in assumed levels of unobservable inputs for the valuations of our Level 3 investments would not be expected to have a material impact on our financial position or results of operations.

For the Sumitomo Share Loan, the primary input for this recurring fair value measurement is the quoted market price of the borrowed shares of Sumitomo. Accordingly, we believe this valuation falls under Level 1 of the fair value hierarchy.

The recurring fair value measurement of our equity-related derivative instruments are based on standard option pricing models, which require the input of observable and unobservable variables such as exchange-traded equity prices, risk-free interest rates, dividend forecasts and forecasted volatilities of the underlying equity securities. The valuations of our equity-related derivative instruments are based on a combination of Level 1 inputs (exchange-traded equity prices), Level 2 inputs (interest rate futures and swap rates) and Level 3 inputs (forecasted volatilities). As changes in volatilities could have a significant impact on the overall valuations over the terms of the derivative instruments, we have determined that these valuations fall under Level 3 of the fair value hierarchy. At December 31, 2017, our equity-related derivatives were not significantly impacted by forecasted volatilities.

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In order to manage our interest rate and foreign currency exchange risk, we have entered into (i) various derivative instruments and (ii) certain instruments that we classify as debt, as further described in notes 7 and 10, respectively. The recurring fair value measurements of these instruments are determined using discounted cash flow models. With the exception of the inputs for certain swaptions, most of the inputs to these discounted cash flow models consist of, or are derived from, observable Level 2 data for substantially the full term of these instruments. This observable data mostly includes currency rates, interest rate futures and swap rates, which are retrieved or derived from available market data. Although we may extrapolate or interpolate this data, we do not otherwise alter this data in performing our valuations. We incorporate a credit risk valuation adjustment in our fair value measurements to estimate the impact of both our own nonperformance risk and the nonperformance risk of our counterparties. Effective January 1, 2017, we incorporated a Monte Carlo based approach into our calculation of the value assigned to the risk that we or our counterparties will default on our respective derivative obligations. Previously, we used a static calculation derived from our most current mark-to-market valuation to calculate the impact of counterparty credit risk. The adoption of a Monte Carlo based approach did not have a material impact on the overall fair value of our derivative instruments. The inputs used for our credit risk valuations, including our and our counterparties' credit spreads, represent our most significant Level 3 inputs, and these inputs are used to derive the credit risk valuation adjustments with respect to these instruments. As we would not expect these parameters to have a significant impact on the valuations of these instruments, we have determined that these valuations (other than the valuations of the aforementioned swaptions) fall under Level 2 of the fair value hierarchy. Due to the lack of Level 2 inputs for the swaption valuations, we believe these valuations fall under Level 3 of the fair value hierarchy. Our credit risk valuation adjustments with respect to our cross-currency and interest rate swaps are quantified and further explained in note 7.

Fair value measurements are also used in connection with nonrecurring valuations performed in connection with acquisition accounting, impairment assessments and the accounting for our initial investment in the VodafoneZiggo JV. The nonrecurring valuations associated with acquisition accounting and our initial investment in the VodafoneZiggo JV primarily included the valuation of reporting units, customer relationship and other intangible assets and property and equipment. Unless a reporting unit has a readily determinable fair value, the valuation of reporting units is based at least in part on discounted cash flow analyses. With the exception of certain inputs for our weighted average cost of capital and discount rate calculations that are derived from pricing services, the inputs used in our discounted cash flow analyses, such as forecasts of future cash flows, are based on our assumptions. The valuation of customer relationships is primarily based on an excess earnings methodology, which is a form of a discounted cash flow analysis. The excess earnings methodology requires us to estimate the specific cash flows expected from the customer relationship, considering such factors as estimated customer life, the revenue expected to be generated over the life of the customer relationship, contributory asset charges and other factors. Tangible assets are typically valued using a replacement or reproduction cost approach, considering factors such as current prices of the same or similar equipment, the age of the equipment and economic obsolescence. The nonrecurring valuations associated with acquisition accounting and the accounting for our initial investment in the VodafoneZiggo JV used significant unobservable inputs and therefore fell under Level 3 of the fair value hierarchy. During 2016, we performed nonrecurring valuations for the purpose of determining the acquisition accounting for the BASE Acquisition, and the valuation of our initial investment in the VodafoneZiggo JV. None of the valuations for the BASE Acquisition had a significant impact on our consolidated balance sheet. The weighted average cost of capital used to value our initial investment in the VodafoneZiggo JV was 7.0%. We did not perform significant nonrecurring fair value measurements during 2017 or 2015. For information regarding our acquisitions, see note 4. For information regarding our investment in the VodafoneZiggo JV, see note 6.

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A summary of our assets and liabilities that are measured at fair value on a recurring basis is as follows:

Description	Fair value measurements at December 31, 2017 using:			
	December 31, 2017	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
in millions				
Assets:				
Derivative instruments:				
Cross-currency and interest rate derivative contracts	\$ 1,730.5	\$ —	\$ 1,722.8	\$ 7.7
Equity-related derivative instruments	560.9	—	—	560.9
Foreign currency forward and option contracts	16.5	—	16.5	—
Other	1.1	—	1.1	—
Total derivative instruments	2,309.0	—	1,740.4	568.6
Investments	2,315.3	1,908.7	—	406.6
Total assets	\$ 4,624.3	\$ 1,908.7	\$ 1,740.4	\$ 975.2
Liabilities:				
Derivative instruments:				
Cross-currency and interest rate derivative contracts	\$ 2,105.5	\$ —	\$ 2,102.3	\$ 3.2
Equity-related derivative instruments	5.4	—	—	5.4
Foreign currency forward and option contracts	7.9	—	7.9	—
Total derivative liabilities	2,118.8	—	2,110.2	8.6
Debt	965.7	621.7	344.0	—
Total liabilities	\$ 3,084.5	\$ 621.7	\$ 2,454.2	\$ 8.6

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Description	Fair value measurements at December 31, 2016 using:			
	December 31, 2016	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
in millions				
Assets:				
Derivative instruments:				
Cross-currency and interest rate derivative contracts	\$ 2,460.6	\$ —	\$ 2,460.6	\$ —
Equity-related derivative instruments	524.0	—	—	524.0
Foreign currency forward and option contracts	44.8	—	44.8	—
Other	0.5	—	0.5	—
Total derivative instruments	3,029.9	—	2,505.9	524.0
Investments	2,057.2	1,682.4	—	374.8
Total assets	\$ 5,087.1	\$ 1,682.4	\$ 2,505.9	\$ 898.8
Liabilities - derivative instruments:				
Cross-currency and interest rate derivative contracts	\$ 1,238.7	\$ —	\$ 1,238.7	\$ —
Equity-related derivative instruments	8.6	—	—	8.6
Foreign currency forward and option contracts	4.8	—	4.8	—
Other	0.1	—	0.1	—
Total derivative liabilities	1,252.2	—	1,243.6	8.6
Debt	344.4	215.5	128.9	—
Total liabilities	\$ 1,596.6	\$ 215.5	\$ 1,372.5	\$ 8.6

A reconciliation of the beginning and ending balances of our assets and liabilities measured at fair value on a recurring basis using significant unobservable, or Level 3, inputs is as follows:

	Investments	Cross-currency and interest rate derivative contracts	Equity-related derivative instruments	Total
in millions				
Balance of net assets at January 1, 2017	\$ 374.8	\$ —	\$ 515.4	\$ 890.2
Gains included in net earnings (a):				
Realized and unrealized gains on derivative instruments, net	—	4.5	122.3	126.8
Realized and unrealized gains due to changes in fair values of certain investments, net	35.7	—	—	35.7
Partial settlement of Sumitomo Collar (b)	—	—	(85.3)	(85.3)
Transfers out of Level 3	(32.6)	—	—	(32.6)
Dispositions	(17.6)	—	—	(17.6)
Additions	59.8	—	—	59.8
Foreign currency translation adjustments, dividends and other, net	(13.5)	—	3.1	(10.4)
Balance of net assets at December 31, 2017	\$ 406.6	\$ 4.5	\$ 555.5	\$ 966.6

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- (a) Most of these net gains relate to assets and liabilities that we continue to carry on our consolidated balance sheet as of December 31, 2017.
- (b) For additional information regarding the Sumitomo Collar, see note 7.

(9) Long-lived Assets

Property and Equipment, Net

The details of our property and equipment and the related accumulated depreciation are set forth below:

	Estimated useful life at December 31, 2017	December 31,	
		2017	2016
in millions			
Distribution systems	3 to 30 years	\$ 25,202.2	\$ 21,249.9
Customer premises equipment	3 to 7 years	5,617.7	4,829.9
Support equipment, buildings and land	2 to 50 years	5,415.1	4,385.5
Total property and equipment, gross		36,235.0	30,465.3
Accumulated depreciation		(16,699.6)	(13,216.0)
Total property and equipment, net		\$ 19,535.4	\$ 17,249.3

Depreciation expense related to our property and equipment was \$4,136.1 million, \$4,101.0 million and \$4,297.5 million during 2017, 2016 and 2015, respectively.

At December 31, 2017 and 2016, the amount of property and equipment, net, recorded under capital leases was \$1,203.6 million and \$1,041.5 million, respectively. Most of these amounts relate to assets included in our distribution systems category. Depreciation of assets under capital leases is included in depreciation and amortization in our consolidated statements of operations.

During 2017, 2016 and 2015, we recorded non-cash increases to our property and equipment related to vendor financing arrangements of \$2,635.8 million, \$2,018.7 million and \$1,481.5 million, respectively, which exclude related VAT of \$419.5 million, \$277.5 million and \$189.3 million, respectively, that was also financed by our vendors under these arrangements. In addition, during 2017, 2016 and 2015, we recorded non-cash increases to our property and equipment related to assets acquired under capital leases of \$169.8 million, \$104.2 million and \$106.1 million, respectively.

Most of our property and equipment is pledged as security under our various debt instruments. For additional information, see note 10.

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Goodwill

Changes in the carrying amount of our goodwill during 2017 are set forth below:

	January 1, 2017	Acquisitions and related adjustments	Reclassification to assets held for sale	Foreign currency translation adjustments	December 31, 2017
in millions					
U.K./Ireland	\$ 7,412.3	\$ 2.3	\$ —	\$ 719.5	\$ 8,134.1
Belgium	2,032.7	338.6	—	310.4	2,681.7
Germany	3,013.2	—	—	421.3	3,434.5
Switzerland/Austria (a)	3,443.4	—	(715.6)	203.5	2,931.3
Central and Eastern Europe	1,144.4	1.1	—	208.0	1,353.5
Central and Corporate (a)	17.7	—	(5.4)	—	12.3
Total	<u>\$ 17,063.7</u>	<u>\$ 342.0</u>	<u>\$ (721.0)</u>	<u>\$ 1,862.7</u>	<u>\$ 18,547.4</u>

(a) Represents goodwill associated with the pending sale of UPC Austria, which we began accounting for as held for sale on December 22, 2017. For additional information, see note 5.

If, among other factors, (i) our equity values were to decline significantly or (ii) the adverse impacts of economic, competitive, regulatory or other factors were to cause our results of operations or cash flows to be worse than anticipated, we could conclude in future periods that impairment charges are required in order to reduce the carrying values of our goodwill and, to a lesser extent, other long-lived assets. Any such impairment charges could be significant.

At December 31, 2017 and 2016 and based on exchange rates as of those dates, our accumulated goodwill impairments were \$200.2 million and \$180.4 million, respectively. These amounts represent accumulated impairments related to our broadband communications operations in Romania, which operations are included within our Central and Eastern Europe segment (as defined in note 18).

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Changes in the carrying amount of our goodwill during 2016 are set forth below:

	January 1, 2016	Acquisitions and related adjustments	Disposition (a)	Foreign currency translation adjustments	December 31, 2016
in millions					
U.K./Ireland	\$ 8,790.7	\$ 12.9	\$ —	\$ (1,391.3)	\$ 7,412.3
Belgium	1,777.1	330.7	—	(75.1)	2,032.7
The Netherlands	7,851.3	—	(7,621.2)	(230.1)	—
Germany	3,104.4	—	—	(91.2)	3,013.2
Switzerland/Austria	3,500.4	11.8	—	(68.8)	3,443.4
Central and Eastern Europe	1,186.9	1.9	—	(44.4)	1,144.4
Central and Corporate	34.0	—	(16.0)	(0.3)	17.7
Total	<u>\$ 26,244.8</u>	<u>\$ 357.3</u>	<u>\$ (7,637.2)</u>	<u>\$ (1,901.2)</u>	<u>\$ 17,063.7</u>

(a) Represents goodwill associated with VodafoneZiggo Holding, which was contributed to the VodafoneZiggo JV on December 31, 2016. For additional information, see note 5.

Intangible Assets Subject to Amortization, Net

The details of our intangible assets subject to amortization are set forth below:

	Estimated useful life at December 31, 2017	December 31, 2017			December 31, 2016		
		Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
in millions							
Customer relationships	2 to 15 years	\$ 4,862.4	\$ (3,240.3)	\$ 1,622.1	\$ 5,499.4	\$ (3,404.5)	\$ 2,094.9
Other	2 to 20 years	542.7	(229.4)	313.3	478.3	(150.0)	328.3
Total intangible assets subject to amortization, net		<u>\$ 5,405.1</u>	<u>\$ (3,469.7)</u>	<u>\$ 1,935.4</u>	<u>\$ 5,977.7</u>	<u>\$ (3,554.5)</u>	<u>\$ 2,423.2</u>

Amortization expense related to intangible assets with finite useful lives was \$720.9 million, \$1,112.8 million and \$1,311.9 million during 2017, 2016 and 2015, respectively. Based on our amortizable intangible asset balances at December 31, 2017, we expect that amortization expense will be as follows for the next five years and thereafter. The U.S. dollar equivalents of such amortization expense amounts as of December 31, 2017 are presented below (in millions):

2018	\$ 690.9
2019	609.8
2020	233.8
2021	152.7
2022	28.6
Thereafter	219.6
Total	<u>\$ 1,935.4</u>

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(10) Debt and Capital Lease Obligations

The U.S. dollar equivalents of the components of our debt are as follows:

	December 31, 2017		Estimated fair value (c)		Principal amount		
	Weighted average interest rate (a)	Unused borrowing capacity (b)					
		Borrowing currency	U.S. \$ equivalent	December 31,		December 31,	
	2017			2016	2017	2016	
in millions							
VM Notes	5.54%	—	\$ —	\$ 9,987.4	\$ 9,311.0	\$ 9,565.7	\$ 9,041.0
VM Credit Facilities	3.77%	(d)	912.9	4,681.5	4,531.5	4,676.2	4,505.5
Unitymedia Notes	4.74%	—	—	5,773.3	7,679.7	5,465.2	7,419.3
Unitymedia Credit Facilities	3.38%	€	500.0	601.1	2,698.4	—	2,696.8
UPCB SPE Notes	4.50%	—	—	2,638.8	1,783.7	2,582.6	1,772.8
UPC Holding Bank Facility	3.69%	€	990.1	1,190.3	2,576.4	2,811.9	2,576.1
UPC Holding Senior Notes	4.56%	—	—	1,272.5	1,569.8	1,313.4	1,451.5
Telenet Credit Facility (e)	3.48%	€	445.0	535.0	2,188.9	3,210.0	2,177.6
Telenet Senior Secured Notes	4.66%	—	—	1,724.4	—	1,721.3	—
Telenet SPE Notes	5.48%	—	—	1,014.4	1,383.9	937.7	1,297.3
Vendor financing (f)	3.80%	—	—	4,039.7	2,284.5	4,039.7	2,284.5
ITV Collar Loan (g)	0.71%	—	—	1,445.8	1,323.7	1,463.8	1,336.2
Sumitomo Share Loan (h)	0.95%	—	—	621.7	215.5	621.7	215.5
Derivative-related debt instruments (i)	3.40%	—	—	612.4	450.7	592.5	426.3
Sumitomo Collar Loan (g)	1.88%	—	—	170.3	499.7	169.1	488.2
Other (j)	5.54%	—	—	413.4	343.2	418.2	349.0
Total debt before deferred financing costs, discounts and premiums	4.27%		\$ 3,239.3	\$ 41,859.3	\$ 37,398.8	\$ 41,017.6	\$ 36,557.4

The following table provides a reconciliation of total debt before deferred financing costs, discounts and premiums to total debt and capital lease obligations:

	December 31,	
	2017	2016
	in millions	
Total debt before deferred financing costs, discounts and premiums	\$ 41,017.6	\$ 36,557.4
Deferred financing costs, discounts and premiums, net	(223.2)	(267.7)
Total carrying amount of debt	40,794.4	36,289.7
Capital lease obligations (k)	1,420.5	1,221.1
Total debt and capital lease obligations	42,214.9	37,510.8
Current maturities of debt and capital lease obligations	(4,165.4)	(2,624.3)
Long-term debt and capital lease obligations	\$ 38,049.5	\$ 34,886.5

(a) Represents the weighted average interest rate in effect at December 31, 2017 for all borrowings outstanding pursuant to each debt instrument, including any applicable margin. The interest rates presented represent stated rates and do not include

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the impact of derivative instruments, deferred financing costs, original issue premiums or discounts and commitment fees, all of which affect our overall cost of borrowing. Including the effects of derivative instruments, original issue premiums or discounts and commitment fees, but excluding the impact of deferred financing costs, our weighted average interest rate on our aggregate variable- and fixed-rate indebtedness was 4.18% at December 31, 2017. For information regarding our derivative instruments, see note 7.

- (b) Unused borrowing capacity represents the maximum availability under the applicable facility at December 31, 2017 without regard to covenant compliance calculations or other conditions precedent to borrowing. At December 31, 2017, based on the applicable leverage covenants, the full amount of unused borrowing capacity was available to be borrowed under each of the respective subsidiary facilities, and based on the applicable leverage-based restricted payment tests, there were no restrictions on the respective subsidiary's ability to make loans or distributions from this availability to Liberty Global or its subsidiaries or other equity holders, except as shown in the table below. In the following table, we present (i) for each subsidiary where the ability to borrow is limited, the actual borrowing availability under the respective facility and (ii) for each subsidiary where the ability to make loans or distributions from this availability is limited, the amount that can be loaned or distributed to Liberty Global or its subsidiaries or other equity holders. We had no restrictions on our subsidiaries' ability to borrow at December 31, 2017 or upon completion of the relevant December 31, 2017 compliance reporting requirements. The amounts presented below assume no changes from December 31, 2017 borrowing levels and are based on the applicable leverage-based restricted payment tests and covenant and other limitations in effect for each borrowing group at December 31, 2017, both before and after considering the impact of the completion of the December 31, 2017 compliance requirements.

	December 31, 2017		Upon completion of relevant December 31, 2017 compliance reporting requirements	
	Borrowing currency	U.S. \$ equivalent	Borrowing currency	U.S. \$ equivalent
	in millions			
Limitation on availability to be loaned or distributed by:				
Unitymedia	€ 255.9	\$ 307.6	€ 473.1	\$ 568.8

- (c) The estimated fair values of our debt instruments are generally determined using the average of applicable bid and ask prices (mostly Level 1 of the fair value hierarchy) or, when quoted market prices are unavailable or not considered indicative of fair value, discounted cash flow models (mostly Level 2 of the fair value hierarchy). The discount rates used in the cash flow models are based on the market interest rates and estimated credit spreads of the applicable entity, to the extent available, and other relevant factors. For additional information regarding fair value hierarchies, see note 8.
- (d) Unused borrowing capacity under the VM Revolving Facility (as defined and described under *VM Credit Facilities* below) relates to a multi-currency revolving facility with maximum borrowing capacity equivalent to £675.0 million (\$912.9 million).
- (e) In connection with the June 19, 2017 closing of the SFR BeLux Acquisition, Telenet borrowed (i) the full €120.0 million (\$144.3 million) amount under Telenet Facility Z and (ii) €90.0 million (\$108.2 million) of the total €400.0 million (\$480.9 million) amount under Telenet Facility AG. At December 31, 2017, all outstanding balances under Telenet Facility Z and Telenet Facility AG were repaid and the commitments under Telenet Facility Z were cancelled. For further information regarding the SFR BeLux Acquisition, see note 4.
- (f) Represents amounts owed pursuant to interest-bearing vendor financing arrangements that are used to finance certain of our property and equipment additions and, to a lesser extent, certain of our operating expenses. These obligations are generally due within one year and include VAT that was paid on our behalf by the vendor. Repayments of vendor financing obligations are included in repayments and repurchases of debt and capital lease obligations in our consolidated statements of cash flows.
- (g) For information regarding the ITV Collar Loan and the Sumitomo Collar Loan, see note 7.
- (h) The Sumitomo Share Loan is carried at fair value. For information regarding fair value hierarchies, see note 8.

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- (i) Represents amounts associated with certain derivative-related borrowing instruments, including \$344.0 million and \$128.9 million at December 31, 2017 and 2016, respectively, carried at fair value. For information regarding fair value hierarchies, see note 8.
- (j) Amounts include \$160.9 million and \$116.0 million at December 31, 2017 and 2016, respectively, of debt collateralized by certain trade receivables of Virgin Media. For information regarding fair value hierarchies, see note 8.
- (k) The U.S. dollar equivalents of our consolidated capital lease obligations are as follows:

	December 31,	
	2017	2016
	in millions	
Unitymedia (1)	\$ 722.4	\$ 657.0
Telenet (2)	456.1	374.0
UPC Holding	95.7	33.4
Virgin Media	79.1	91.2
Other subsidiaries	67.2	65.5
Total	<u>\$ 1,420.5</u>	<u>\$ 1,221.1</u>

- (1) Primarily represents Unitymedia's obligations under duct network lease agreements with Telekom Deutschland GmbH (**Telekom Deutschland**), an operating subsidiary of Deutsche Telekom AG, as the lessor. The original contracts were concluded in 2000 and 2001 and have indefinite terms, subject to certain mandatory statutory termination rights for either party after a term of 30 years. With certain limited exceptions, the lessor generally is not entitled to terminate these leases. For information regarding litigation involving these duct network lease agreements, see note 17.
- (2) At December 31, 2017 and 2016, Telenet's capital lease obligations included €361.8 million (\$435.0 million) and €341.2 million (\$410.2 million), respectively, associated with Telenet's lease of the broadband communications network of the four associations of municipalities in Belgium, which we refer to as the pure intercommunalities or the "PICs." All capital expenditures associated with the PICs network are initiated by Telenet, but are executed and financed by the PICs through additions to this lease that are repaid over a 15-year term. These amounts do not include Telenet's commitment related to certain operating costs associated with the PICs network. For additional information regarding this commitment, see note 17.

General Information

At December 31, 2017, most of our outstanding debt had been incurred by one of our four subsidiary "borrowing groups." References to these borrowing groups, which comprise Virgin Media, Unitymedia, UPC Holding and Telenet, include their respective restricted parent and subsidiary entities.

Credit Facilities. Each of our borrowing groups has entered into one or more credit facility agreements with certain financial institutions. Each of these credit facilities contain certain covenants, the more notable of which are as follows:

- Our credit facilities contain certain consolidated net leverage ratios, as specified in the relevant credit facility, which are required to be complied with (i) on an incurrence basis and/or (ii) when the associated revolving credit facilities have been drawn beyond a specified percentage of the total available revolving credit commitments, on a maintenance basis;
- Subject to certain customary and agreed exceptions, our credit facilities contain certain restrictions which, among other things, restrict the ability of the members of the relevant borrowing group to, (i) incur or guarantee certain financial indebtedness, (ii) make certain disposals and acquisitions, (iii) create certain security interests over their assets and (iv) make certain restricted payments to their direct and/or indirect parent companies (and indirectly to Liberty Global) through dividends, loans or other distributions;

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- Our credit facilities require that certain members of the relevant borrowing group guarantee the payment of all sums payable under the relevant credit facility and such group members are required to grant first-ranking security over their shares or, in certain borrowing groups, over substantially all of their assets to secure the payment of all sums payable thereunder;
- In addition to certain mandatory prepayment events, our credit facilities provide that either the instructing group of lenders or each individual lender under the relevant credit facility, as applicable, under certain circumstances, may cancel the group's or the applicable lender's commitments thereunder and declare the applicable loan(s) thereunder due and payable after the applicable notice period following the occurrence of a change of control (as specified in the relevant credit facility);
- Our credit facilities contain certain customary events of default, the occurrence of which, subject to certain exceptions, materiality qualifications and cure rights, would allow the instructing group of lenders to (i) cancel the total commitments, (ii) declare that all or part of the loans be payable on demand and/or (iii) accelerate all outstanding loans and terminate their commitments thereunder;
- Our credit facilities require members of the relevant borrowing group to observe certain affirmative and negative undertakings and covenants, which are subject to certain materiality qualifications and other customary and agreed exceptions; and
- In addition to customary default provisions, our credit facilities generally include certain cross-default and cross-acceleration provisions with respect to other indebtedness of members of the relevant borrowing group, subject to agreed minimum thresholds and other customary and agreed exceptions.

Senior and Senior Secured Notes. Certain of our borrowing groups have issued senior and/or senior secured notes. In general, our senior and senior secured notes (i) are senior obligations of each respective issuer within the relevant borrowing group that rank equally with all of the existing and future senior debt of such issuer and are senior to all existing and future subordinated debt of such issuer within the relevant borrowing group, (ii) contain, in most instances, certain guarantees from other members of the relevant borrowing group (as specified in the applicable indenture) and (iii) with respect to our senior secured notes, are secured by certain pledges or liens over the assets and/or shares of certain members of the relevant borrowing group. In addition, the indentures governing our senior and senior secured notes contain certain covenants, the more notable of which are as follows:

- Our notes contain certain customary incurrence-based covenants. In addition, our notes provide that any failure to pay principal prior to expiration of any applicable grace period, or any acceleration with respect to other indebtedness of the issuer or certain subsidiaries, over agreed minimum thresholds (as specified under the applicable indenture), is an event of default under the respective notes;
- Subject to certain customary and agreed exceptions, our notes contain certain restrictions that, among other things, restrict the ability of the members of the relevant borrowing group to (i) incur or guarantee certain financial indebtedness, (ii) make certain disposals and acquisitions, (iii) create certain security interests over their assets and (iv) make certain restricted payments to its direct and/or indirect parent companies (and indirectly to Liberty Global) through dividends, loans or other distributions;
- If the relevant issuer or certain of its subsidiaries (as specified in the applicable indenture) sell certain assets, such issuer must, subject to certain customary and agreed exceptions, offer to repurchase the applicable notes at par, or if a change of control (as specified in the applicable indenture) occurs, such issuer must offer to repurchase all of the relevant notes at a redemption price of 101%; and
- Our senior secured notes contain certain early redemption provisions including, for certain senior secured notes, the ability to, during each 12-month period commencing on the issue date for such notes until the applicable call date, redeem up to 10% of the principal amount of the notes at a redemption price equal to 103% of the principal amount of the notes to be redeemed plus accrued and unpaid interest.

SPE Notes. From time to time, we create special purpose financing entities (**SPEs**), which are 100% owned by third parties, for the primary purpose of facilitating the offering of senior and senior secured notes, which we collectively refer to as the "**SPE**"

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Notes.” In this regard, SPE Notes have been issued, and are outstanding at December 31, 2017, by UPCB Finance IV Limited (**UPCB Finance IV**) and UPCB Finance VII Limited (**UPCB Finance VII**), collectively the “**UPCB SPEs**”, and Telenet Finance V Luxembourg S.C.A. (**Telenet Finance V**) and Telenet Finance VI Luxembourg S.C.A. (**Telenet Finance VI**), collectively the “**Telenet SPEs**.”

The SPEs used the proceeds from the issuance of SPE Notes to fund term loan facilities under their respective borrowing group (as further described below), each a “**Funded Facility**” and collectively the “**Funded Facilities**.” Each SPE is dependent on payments from the relevant borrowing entity under the applicable Funded Facility in order to service its payment obligations under each respective SPE Note. Although none of the respective borrowing entities under the Funded Facilities have any equity or voting interest in any of the relevant SPEs, each of the Funded Facility term loans creates a variable interest in the respective SPE for which the relevant borrowing entity is the primary beneficiary. As such, each borrowing entity under the relevant Funded Facility and its parent entities, including Liberty Global, are required to consolidate the relevant SPEs. As a result, the amounts outstanding under the Funded Facilities are eliminated in the respective borrowing group’s and Liberty Global’s consolidated financial statements.

Pursuant to the respective indentures for the SPE Notes (the **SPE Indentures**) and the respective accession agreements for the Funded Facilities, the call provisions, maturity and applicable interest rate for each Funded Facility are the same as those of the related SPE Notes. The SPEs, as lenders under the relevant credit facility for each respective borrowing group, are treated the same as the other lenders under the respective credit facility, with benefits, rights and protections similar to those afforded to the other lenders. Through the covenants in the applicable SPE Indentures and the applicable security interests over (i) all of the issued shares of the relevant SPE and (ii) the relevant SPE’s rights under the applicable Funded Facility granted to secure the relevant SPE’s obligations under the relevant SPE Notes, the holders of the SPE Notes are provided indirectly with the benefits, rights, protections and covenants granted to the SPEs as lenders under the respective credit facility. The SPEs are prohibited from incurring any additional indebtedness, subject to certain exceptions under the SPE Indentures.

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VM Notes

The details of the outstanding notes of Virgin Media as of December 31, 2017 are summarized in the following table:

VM Notes	Maturity	Interest rate	Original issue amount	Outstanding principal amount		Estimated fair value	Carrying value (a)
				Borrowing currency	U.S. \$ equivalent		
in millions							
VM Senior Notes:							
2022 VM Senior Notes:							
2022 VM 4.875% Dollar Senior Notes	February 15, 2022	4.875%	\$ 118.7	\$ 118.7	\$ 118.7	\$ 117.5	\$ 119.2
2022 VM 5.25% Dollar Senior Notes	February 15, 2022	5.250%	\$ 95.0	\$ 95.0	95.0	93.1	95.4
2022 VM Sterling Senior Notes	February 15, 2022	5.125%	£ 44.1	£ 44.1	59.6	60.0	59.9
2023 VM Senior Notes:							
2023 VM Dollar Senior Notes	April 15, 2023	6.375%	\$ 530.0	\$ 530.0	530.0	549.3	524.2
2023 VM Sterling Senior Notes	April 15, 2023	7.000%	£ 250.0	£ 250.0	338.1	355.4	334.4
2024 VM Senior Notes:							
2024 VM Dollar Senior Notes	October 15, 2024	6.000%	\$ 500.0	\$ 500.0	500.0	514.4	496.0
2024 VM Sterling Senior Notes	October 15, 2024	6.375%	£ 300.0	£ 300.0	405.6	435.9	403.2
2025 VM Senior Notes:							
2025 VM Dollar Senior Notes	January 15, 2025	5.750%	\$ 400.0	\$ 400.0	400.0	406.4	396.8
2025 VM Euro Senior Notes	January 15, 2025	4.500%	€ 460.0	€ 460.0	553.0	579.2	547.6
VM Senior Secured Notes:							
January 2021 VM Senior Secured Notes:							
January 2021 VM Sterling Senior Secured Notes	January 15, 2021	5.500%	£ 628.4	£ 107.1	144.8	162.4	144.4
January 2021 VM Dollar Senior Secured Notes	January 15, 2021	5.250%	\$ 447.9	\$ 447.9	447.9	472.7	454.0
2025 VM Senior Secured Notes:							
2025 VM 6.0% Sterling Senior Secured Notes (b)	January 15, 2025	6.000%	£ 521.3	£ 521.3	705.1	808.0	711.1
2025 VM 5.5% Sterling Senior Secured Notes	January 15, 2025	5.500%	£ 430.0	£ 387.0	523.4	544.5	521.5
2025 VM 5.125% Sterling Senior Secured Notes	January 15, 2025	5.125%	£ 300.0	£ 300.0	405.6	423.9	402.5
2025 VM Dollar Senior Secured Notes	January 15, 2025	5.500%	\$ 425.0	\$ 425.0	425.0	437.9	423.5
2026 VM Senior Secured Notes:							
2026 VM 5.25% Dollar Senior Secured Notes	January 15, 2026	5.250%	\$ 1,000.0	\$ 1,000.0	1,000.0	1,019.7	1,001.9
2026 VM 5.5% Dollar Senior Secured Notes	August 15, 2026	5.500%	\$ 750.0	\$ 750.0	750.0	770.8	743.6
2027 Senior Secured Notes:							
2027 VM 4.875% Sterling Senior Secured Notes	January 15, 2027	4.875%	£ 525.0	£ 525.0	710.0	725.0	707.5
2027 VM 5.0% Sterling Senior Secured Notes	April 15, 2027	5.000%	£ 675.0	£ 675.0	912.9	929.5	907.7
2029 VM Sterling Senior Secured Notes	March 28, 2029	6.250%	£ 400.0	£ 400.0	541.0	581.8	542.0
Total					\$ 9,565.7	\$ 9,987.4	\$ 9,536.4

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- (a) Amounts include the impact of premiums, including amounts recorded in connection with the acquisition accounting for Virgin Media, discounts and deferred financing costs, where applicable.
- (b) Interest on the 2025 VM 6.0% Sterling Senior Secured Notes initially accrues at a rate of 6.0% up to January 15, 2021 and at a rate of 11.0% thereafter. In light of these terms, the maturity table included at the end of this note assumes that the 2025 VM 6.0% Sterling Senior Secured Notes will be repaid in 2021.

Subject to the circumstances described below, the VM Notes are non-callable prior to the applicable call date (**VM Call Date**) as presented in the below table. At any time prior to the respective VM Call Date, Virgin Media may redeem some or all of the applicable notes by paying a “make-whole” premium, which is the present value of all remaining scheduled interest payments to the applicable VM Call Date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points (25 basis points in the case of the January 2021 VM Senior Secured Notes).

VM Notes	VM Call Date
2022 VM Senior Notes	(a)
2023 VM Senior Notes	April 15, 2018
2024 VM Senior Notes	October 15, 2019
2025 VM Senior Notes	January 15, 2020
January 2021 VM Senior Secured Notes	(a)
2025 VM 6.0% Sterling Senior Secured Notes	January 15, 2021
2025 VM 5.5% Sterling Senior Secured Notes	January 15, 2019
2025 VM 5.125% Sterling Senior Secured Notes	January 15, 2020
2025 VM Dollar Senior Secured Notes	January 15, 2019
2026 VM 5.25% Dollar Senior Secured Notes	January 15, 2020
2026 VM 5.5% Dollar Senior Secured Notes	August 15, 2021
2027 VM 4.875% Sterling Senior Secured Notes	January 15, 2021
2027 VM 5.0% Sterling Senior Secured Notes	April 15, 2022
2029 VM Sterling Senior Secured Notes	January 15, 2021

- (a) The 2022 VM Senior Notes and the January 2021 VM Senior Secured Notes are non-callable. At any time prior to maturity, some or all of these notes may be redeemed by paying a “make-whole” premium, which is the present value of all remaining scheduled interest payments to the respective maturity date.

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Virgin Media may redeem some or all of the VM Senior Notes and the VM Senior Secured Notes (with the exception of the 2022 VM Senior Notes and the January 2021 VM Senior Secured Notes) at the following redemption prices (expressed as a percentage of the principal amount) plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set forth below:

	Redemption price						2025 VM 6.0% Sterling Senior Secured Notes
	2023 VM Dollar Senior Notes	2023 VM Sterling Senior Notes	2024 VM Dollar Senior Notes	2024 VM Sterling Senior Notes	2025 VM Dollar Senior Notes	2025 VM Euro Senior Notes	
12-month period commencing	April 15	April 15	October 15	October 15	January 15	January 15	January 15
2018	103.188%	103.500%	N.A.	N.A.	N.A.	N.A.	N.A.
2019	102.125%	102.333%	103.000%	103.188%	N.A.	N.A.	N.A.
2020	101.063%	101.167%	102.000%	102.125%	102.875%	102.250%	N.A.
2021	100.000%	100.000%	101.000%	101.063%	101.917%	101.500%	105.000%
2022	100.000%	100.000%	100.000%	100.000%	100.958%	100.750%	102.500%
2023	N.A.	N.A.	100.000%	100.000%	100.000%	100.000%	100.000%
2024	N.A.	N.A.	N.A.	N.A.	100.000%	100.000%	100.000%
2025 and thereafter	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

	Redemption price						2029 VM Sterling Senior Secured Notes	
	2025 VM 5.5% Sterling Senior Secured Notes	2025 VM 5.125% Sterling Senior Secured Notes	2025 VM Dollar Senior Secured Notes	2026 VM 5.25% Dollar Senior Secured Notes	2026 VM 5.5% Dollar Senior Secured Notes	2027 VM 4.875% Sterling Senior Secured Notes		2027 VM 5.0% Sterling Senior Secured Notes
12-month period commencing	January 15	January 15	January 15	January 15	August 15	January 15	April 15	January 15
2018	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2019	102.750%	N.A.	102.750%	N.A.	N.A.	N.A.	N.A.	N.A.
2020	101.833%	102.563%	101.833%	102.625%	N.A.	N.A.	N.A.	N.A.
2021	100.000%	101.708%	100.000%	101.313%	102.750%	102.438%	N.A.	103.125%
2022	100.000%	100.854%	100.000%	100.656%	101.375%	101.219%	102.500%	102.083%
2023	100.000%	100.000%	100.000%	100.000%	100.688%	100.609%	101.250%	101.042%
2024	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.625%	100.000%
2025 and thereafter	N.A.	N.A.	N.A.	100.000%	100.000%	100.000%	100.000%	100.000%

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VM Credit Facilities

The VM Credit Facilities are the senior and senior secured credit facilities of certain subsidiaries of Virgin Media. The details of our borrowings under the VM Credit Facilities as of December 31, 2017 are summarized in the following table:

VM Credit Facilities	Maturity	Interest rate	Facility amount (in borrowing currency)	Outstanding principal amount	Unused borrowing capacity	Carrying value (a)
in millions						
Senior Secured Facilities:						
K (b)	January 15, 2026	LIBOR + 2.50%	\$ 3,400.0	\$ 3,400.0	\$ —	\$ 3,373.2
L (b)	January 15, 2027	LIBOR +3.25%	£ 400.0	541.0	—	535.7
M (b)	November 15, 2027	LIBOR +3.25%	£ 500.0	676.2	—	667.1
VM Revolving Facility (c)	December 31, 2021	LIBOR + 2.75%	(d)	—	912.9	—
Total Senior Secured Facilities				4,617.2	912.9	4,576.0
Senior Facility:						
VM Financing Facility (e)	September 15, 2024	5.55%	—	59.0	—	59.0
Total				\$ 4,676.2	\$ 912.9	\$ 4,635.0

- (a) Amounts are net of discounts and deferred financing costs, where applicable.
- (b) VM Facility K, VM Facility L and VM Facility M are each subject to a LIBOR floor of 0.0%.
- (c) The VM Revolving Facility has a fee on unused commitments of 1.1% per year.
- (d) The VM Revolving Facility is a multi-currency revolving facility with a maximum borrowing capacity equivalent to £675.0 million (\$912.9 million).
- (e) Virgin Media Receivables Financing Notes I Designated Activity Company (**Virgin Media Receivables Financing Company**), a third-party special purpose financing entity that is not consolidated by Virgin Media or Liberty Global, issues, from time to time, certain notes (the **VM Receivables Financing Notes**). The net proceeds from the VM Receivables Financing Notes are used to purchase certain vendor financed receivables of Virgin Media and its subsidiaries from various third parties. To the extent that the proceeds from the VM Receivables Financing Notes exceed the amount of vendor financed receivables available to be purchased, the excess proceeds are used to fund an excess cash facility (the **VM Financing Facility**) under a new credit facility of Virgin Media. Virgin Media Receivables Financing Company can request the VM Financing Facility be repaid by Virgin Media as additional vendor financed receivables become available for purchase.

Virgin Media - 2017 Refinancing Transactions

In January 2017, Virgin Media issued the 2027 VM 5.0% Sterling Senior Secured Notes. The net proceeds from the 2027 VM 5.0% Sterling Senior Secured Notes were used to redeem in full the £640.0 million (\$865.6 million) outstanding principal amount under the April 2021 VM Sterling Senior Secured Notes. In connection with these transactions, Virgin Media recognized a loss on debt modification and extinguishment, net, of \$39.9 million. This loss includes (i) the payment of \$32.6 million of redemption premiums and (ii) the write-off of \$7.3 million of unamortized discount and deferred financing costs.

In February 2017, Virgin Media launched an offer (the **Exchange Offer**) to exchange the January 2021 VM Sterling Senior Secured Notes for the 2025 VM 6.0% Sterling Senior Secured Notes. The Exchange Offer was consummated on March 21, 2017 and £521.3 million (\$705.1 million) aggregate principal amount of the January 2021 VM Sterling Senior Secured Notes was exchanged for £521.3 million aggregate principal amount of the 2025 VM 6.0% Sterling Senior Secured Notes. The January 2021 VM Sterling Senior Secured Notes were exchanged for the 2025 VM 6.0% Sterling Senior Secured Notes in a non-cash transaction,

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other than the payment of accrued and unpaid interest on the exchanged January 2021 VM Sterling Senior Secured Notes. In connection with these transactions, Virgin Media recognized a gain on debt modification and extinguishment, net, of \$5.7 million. This gain includes (i) the write-off of \$7.0 million of unamortized premiums and (ii) the payment of \$1.3 million of third-party costs.

In February 2017, Virgin Media entered into a new £865.0 million (\$1,169.9 million) term loan facility (**VM Facility J**). The net proceeds from VM Facility J were used to prepay in full the £849.4 million (\$1,148.8 million) outstanding principal amount under VM Facility E. In connection with these transactions, Virgin Media recognized a loss on debt modification and extinguishment, net, of \$2.4 million related to the write-off of unamortized discounts and deferred financing costs.

In November 2017, Virgin Media entered into (i) VM Facility K, (ii) VM Facility L and (iii) VM Facility M. The net proceeds from VM Facility K, VM Facility L and VM Facility M were used to prepay in full (a) the \$3,400.0 million outstanding principal amount under VM Facility I and (b) the £865.0 million (\$1,169.9 million) principal amount under VM Facility J. In connection with these transactions, Virgin Media recognized a loss on debt modification and extinguishment, net, of \$30.9 million related to the write-off of unamortized discounts and deferred financing costs.

Virgin Media - 2016 and 2015 Refinancing Transactions

During 2016 and 2015, Virgin Media completed a number of refinancing transactions that generally resulted in lower interest rates and extended maturities. In connection with these transactions, Virgin Media recognized losses on debt modification and extinguishment, net, of \$78.4 million and \$44.3 million, respectively. These losses include (i) the payment of redemption premiums of \$52.6 million and \$10.7 million, respectively, (ii) the write-off of unamortized discounts and deferred financing costs of \$25.8 million and \$32.8 million, respectively, and (iii) the payment of third-party costs of \$0.8 million in 2015.

Unitymedia Notes

The details of the Unitymedia Notes as of December 31, 2017 are summarized in the following table:

Unitymedia Notes	Maturity	Interest rate	Original issue amount	Outstanding principal amount		Estimated fair value	Carrying value (a)
				Borrowing currency	U.S. \$ equivalent		
in millions							
UM Senior Notes:							
2025 UM Senior Notes	January 15, 2025	6.125%	\$ 900.0	\$ 900.0	\$ 900.0	\$ 952.8	\$ 895.7
2027 UM Senior Notes	January 15, 2027	3.750%	€ 700.0	€ 700.0	841.5	861.0	835.6
UM Senior Secured Notes:							
April 2023 UM Senior Secured Notes	April 15, 2023	5.625%	€ 350.0	€ 245.0	294.5	306.8	292.9
2025 UM Senior Secured Notes:							
2025 UM Euro Senior Secured Notes	January 15, 2025	4.000%	€ 1,000.0	€ 1,000.0	1,202.2	1,274.7	1,196.3
2025 UM Dollar Senior Secured Notes	January 15, 2025	5.000%	\$ 550.0	\$ 550.0	550.0	566.3	547.3
2026 UM Senior Secured Notes	February 15, 2026	4.625%	€ 420.0	€ 420.0	504.9	545.4	503.0
2027 UM Senior Secured Notes	January 15, 2027	3.500%	€ 500.0	€ 500.0	601.1	622.6	596.1
2029 UM Senior Secured Notes	January 15, 2029	6.250%	€ 475.0	€ 475.0	571.0	643.7	563.9
Total					\$ 5,465.2	\$ 5,773.3	\$ 5,430.8

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(a) Amounts are net of discounts and deferred financing costs, where applicable.

Subject to the circumstances described below, the Unitymedia Notes are non-callable prior to the applicable call date (**UM Call Date**) as presented in the below table. At any time prior to the respective UM Call Date, Unitymedia may redeem some or all of the applicable notes by paying a “make-whole” premium, which is the present value of all remaining scheduled interest payments to the applicable UM Call Date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points.

<u>Unitymedia Notes</u>	<u>UM Call Date</u>
2025 UM Senior Notes	January 15, 2020
2027 UM Senior Notes	January 15, 2021
April 2023 UM Senior Secured Notes	April 15, 2018
2025 UM Senior Secured Notes	January 15, 2020
2026 UM Senior Secured Notes	February 15, 2021
2027 UM Senior Secured Notes	January 15, 2021
2029 UM Senior Secured Notes	January 15, 2021

Unitymedia may redeem some or all of the Unitymedia Notes at the following redemption prices (expressed as a percentage of the principal amount) plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set forth below:

	<u>Redemption price</u>			
	<u>2025 UM Senior Notes</u>	<u>2027 UM Senior Notes</u>	<u>April 2023 UM Senior Secured Notes</u>	<u>2025 UM Euro Senior Secured Notes</u>
12-month period commencing	January 15	January 15	April 15	January 15
2018	N.A.	N.A.	102.813%	N.A.
2019	N.A.	N.A.	101.875%	N.A.
2020	103.063%	N.A.	100.938%	102.000%
2021	102.042%	101.875%	100.000%	101.333%
2022	101.021%	100.938%	100.000%	100.667%
2023	100.000%	100.469%	N.A.	100.000%
2024 and thereafter	100.000%	100.000%	N.A.	100.000%

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	Redemption price			
	2025 UM Dollar Senior Secured Notes	2026 UM Senior Secured Notes	2027 UM Senior Secured Notes	2029 UM Senior Secured Notes
12-month period commencing	January 15	February 15	January 15	January 15
2018	N.A.	N.A.	N.A.	N.A.
2019	N.A.	N.A.	N.A.	N.A.
2020	102.500%	N.A.	N.A.	N.A.
2021	101.667%	102.313%	101.750%	103.125%
2022	100.833%	101.156%	100.875%	102.083%
2023	100.000%	100.578%	100.438%	101.042%
2024 and thereafter	100.000%	100.000%	100.000%	100.000%

Unitymedia Credit Facilities

The Unitymedia Credit Facilities are the senior secured credit facilities of certain subsidiaries of Unitymedia. The details of our borrowings under the Unitymedia Credit Facilities as of December 31, 2017 are summarized in the following table:

Unitymedia Facility	Maturity	Interest rate	Facility amount (in borrowing currency)	Outstanding principal amount	Unused borrowing capacity	Carrying value (a)
in millions						
UM Senior Secured Facility (b)	December 31, 2023	EURIBOR + 2.75%	€ 420.0	\$ —	\$ 504.9	\$ —
UM Super Senior Secured Facility (c)	December 31, 2023	EURIBOR + 2.25%	€ 80.0	—	96.2	—
UM Facility B (d)	September 30, 2025	LIBOR + 2.25%	\$ 855.0	855.0	—	849.1
UM Facility C (e)	January 15, 2027	EURIBOR + 2.75%	€ 825.0	991.8	—	987.3
UM Facility D (d)	January 15, 2026	LIBOR + 2.25%	\$ 850.0	850.0	—	843.3
Total				<u>\$ 2,696.8</u>	<u>\$ 601.1</u>	<u>\$ 2,679.7</u>

- (a) Amounts are net of discounts and deferred financing costs, where applicable.
- (b) The UM Senior Secured Facility has a fee on unused commitments of 1.1% per year.
- (c) The UM Super Senior Secured Facility has a fee on unused commitments of 0.9% per year and is senior with respect to the priority of proceeds received from the enforcement of shared collateral to (i) the Unitymedia Notes and (ii) the UM Senior Secured Facility.
- (d) UM Facility B and UM Facility D are each subject to a LIBOR floor of 0.0%.
- (e) UM Facility C is subject to a EURIBOR floor of 0.0%.

Unitymedia - 2017 Refinancing Transactions

In June 2017, Unitymedia entered into UM Facility B. The \$240.0 million of net proceeds from UM Facility B that were drawn in June 2017, together with existing cash, were used to (i) redeem 10% of the original principal amount of each of the following series of notes: (a) the \$1,000.0 million original principal of the January 2023 UM Dollar Senior Secured Notes and (b) the €350.0 million (\$420.8 million) original principal of the April 2023 UM Senior Secured Notes and (ii) redeem 10% of the

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outstanding principal amount of each of the following series of notes: (1) the €405.0 million (\$486.9 million) outstanding principal of the January 2023 5.75% UM Euro Senior Secured Notes and (2) the €405.0 million outstanding principal of the January 2023 5.125% UM Euro Senior Secured Notes. In connection with these transactions, Unitymedia recognized a loss on debt modification and extinguishment, net, of \$8.2 million. This loss includes (I) the payment of \$6.9 million of redemption premiums and (II) the write-off of \$1.3 million of unamortized discounts and deferred financing costs.

In September 2017, Unitymedia borrowed the remaining \$615.0 million under UM Facility B. The net proceeds from the September 2017 borrowing under UM Facility B, together with existing cash, were used to redeem in full the €526.5 million (\$633.0 million) outstanding principal of the 2022 UM Senior Secured Notes. In connection with these transactions, Unitymedia recognized a loss on debt modification and extinguishment, net, of \$22.6 million. This loss includes (i) the payment of \$17.3 million of redemption premiums and (ii) the write-off of \$5.3 million of unamortized discounts and deferred financing costs.

In October 2017, Unitymedia entered into UM Facility C and UM Facility D. In December 2017, Unitymedia borrowed in full the amounts under UM Facility C and UM Facility D and used the proceeds to redeem in full (i) the \$900.0 million outstanding principal of the January 2023 UM Dollar Senior Secured Notes, (ii) the €364.5 million (\$438.2 million) outstanding principal of the January 2023 5.75% UM Euro Senior Secured Notes and (iii) the €364.5 million outstanding principal of the January 2023 5.125% UM Euro Senior Secured Notes. In connection with these transactions, Unitymedia recognized a loss on debt modification and extinguishment, net, of \$60.3 million. This loss includes (a) the payment of \$51.5 million of redemption premiums and (b) the write-off of \$8.8 million of unamortized discounts and deferred financing costs.

Unitymedia - 2016 and 2015 Refinancing Transactions

During 2016 and 2015, Unitymedia completed a number of refinancing transactions that generally resulted in lower interest rates and extended maturities. In connection with these transactions, Unitymedia recognized losses on debt modification and extinguishment, net, of \$4.3 million and \$102.4 million during 2016 and 2015, respectively. These losses include (i) the payment of redemption premiums of \$3.4 million and \$98.8 million, respectively, and (ii) the write-off of unamortized discounts and deferred financing costs of \$0.9 million and \$3.6 million, respectively.

UPCB SPE Notes

The details of the UPCB SPE Notes as of December 31, 2017 are summarized in the following table:

UPCB SPE Notes	Maturity	Interest rate	Original issue amount	Outstanding principal amount		Estimated fair value	Carrying value (a)
				Borrowing currency	U.S. \$ equivalent		
in millions							
UPCB Finance IV Dollar Notes	January 15, 2025	5.375%	\$ 1,140.0	\$ 1,140.0	\$ 1,140.0	\$ 1,150.7	\$ 1,132.9
UPCB Finance IV Euro Notes	January 15, 2027	4.000%	€ 600.0	€ 600.0	721.3	766.3	716.2
UPCB Finance VII Euro Notes	June 15, 2029	3.625%	€ 600.0	€ 600.0	721.3	721.8	715.1
Total					\$ 2,582.6	\$ 2,638.8	\$ 2,564.2

(a) Amounts are net of discounts and deferred financing costs, where applicable.

Subject to the circumstances described below, the UPCB Finance IV Dollar Notes are non-callable until January 15, 2020, the UPCB Finance IV Euro Notes are non-callable until January 15, 2021 and the UPCB Finance VII Euro Notes are non-callable until June 15, 2022 (each a **UPCB SPE Notes Call Date**). If, however, at any time prior to the applicable UPCB SPE Notes Call Date, all or a portion of the loans under the related UPCB SPE Funded Facility are voluntarily prepaid (a **UPCB Early Redemption Event**), then the UPCB SPEs will be required to redeem an aggregate principal amount of its UPCB SPE Notes equal to the aggregate principal amount of the loans so prepaid under the relevant UPCB SPE Funded Facility. In general, the redemption price payable will equal 100% of the principal amount of the applicable UPCB SPE Notes to be redeemed and a “make-whole” premium, which is the present value of all remaining scheduled interest payments to the applicable UPCB SPE Notes Call Date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points.

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Upon the occurrence of a UPCB Early Redemption Event on or after the applicable UPCB SPE Notes Call Date, the UPCB SPEs will redeem an aggregate principal amount of its UPCB SPE Notes equal to the principal amount of the related UPCB SPE Funded Facility prepaid at the following redemption prices (expressed as a percentage of the principal amount), plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set forth below:

	Redemption price		
	UPCB Finance IV Dollar Notes	UPCB Finance IV Euro Notes	UPCB Finance VII Euro Notes
12-month period commencing	January 15	January 15	June 15
2020	102.688%	N.A.	N.A.
2021	101.792%	102.000%	N.A.
2022	100.896%	101.000%	101.813%
2023	100.000%	100.500%	100.906%
2024	100.000%	100.000%	100.453%
2025 and thereafter	N.A.	100.000%	100.000%

UPC Holding Bank Facility

The UPC Holding Bank Facility is the senior secured credit facility of certain subsidiaries of UPC Holding. The details of our borrowings under the UPC Holding Bank Facility as of December 31, 2017 are summarized in the following table:

UPC Holding Bank Facility	Maturity	Interest rate	Facility amount (in borrowing currency) (a)	Outstanding principal amount	Unused borrowing capacity	Carrying value (b)
in millions						
AK (c)	January 15, 2027	4.000%	€ 600.0	\$ 721.3	\$ —	\$ 716.2
AL (c)	January 15, 2025	5.375%	\$ 1,140.0	1,140.0	—	1,132.9
AM (d)	December 31, 2021	EURIBOR + 2.75%	€ 990.1	—	1,190.3	—
AQ (c)	June 15, 2029	3.625%	€ 600.0	721.3	—	715.1
AR (e)	January 15, 2026	LIBOR + 2.50%	\$ 1,975.0	1,975.0	—	1,952.8
AS (f)	October 15, 2026	EURIBOR + 2.75%	€ 500.0	601.1	—	597.9
Elimination of Facilities AK, AL and AQ in consolidation (c)				(2,582.6)	—	(2,564.2)
Total				\$ 2,576.1	\$ 1,190.3	\$ 2,550.7

- (a) Except as described in (c) below, amounts represent total third-party facility amounts at December 31, 2017.
- (b) Amounts are net of discounts and deferred financing costs, where applicable.
- (c) As further discussed in the above description of the UPCB SPE Notes, the amounts borrowed by UPC Financing Partnership outstanding under UPC Facilities AK, AL and AQ are eliminated in Liberty Global's consolidated financial statements.
- (d) UPC Facility AM has a fee on unused commitments of 1.1% per year.
- (e) UPC Facility AR has a LIBOR floor of 0.0%.
- (f) UPC Facility AS has a EURIBOR floor of 0.0%.

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UPC Holding Senior Notes

The details of the UPC Holding Senior Notes as of December 31, 2017 are summarized in the following table:

UPC Holding Senior Notes	Maturity	Interest rate	Outstanding principal amount		Estimated fair value	Carrying value (a)
			Borrowing currency	U.S. \$ equivalent		
in millions						
UPC Holding 3.875% Senior Notes	June 15, 2029	3.875%	€ 635.0	\$ 763.4	\$ 735.1	\$ 758.4
UPC Holding 5.50% Senior Notes	January 15, 2028	5.500%	\$ 550.0	550.0	537.4	546.0
Total				\$ 1,313.4	\$ 1,272.5	\$ 1,304.4

(a) Amounts are net of discounts and deferred financing costs, where applicable.

Subject to the circumstances described below, the UPC Holding 3.875% Senior Notes are non-callable until June 15, 2022 and the UPC Holding 5.50% Senior Notes are non-callable until October 15, 2022. At any time prior to June 15, 2022, in the case of the UPC Holding 3.875% Senior Notes, and October 15, 2022, in the case of the UPC Holding 5.50% Senior Notes, UPC Holding may redeem some or all of such UPC Holding Senior Notes by paying a “make-whole” premium, which is the present value of all scheduled interest payments until June 15, 2022 or October 15, 2022 (as applicable) using the discount rate (as specified in the applicable indenture) as of the redemption date, plus 50 basis points.

UPC Holding may redeem some or all of the UPC Holding Senior Notes at the following redemption prices (expressed as a percentage of the principal amount) plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set forth below:

	Redemption price	
	UPC Holding 3.875% Senior Notes	UPC Holding 5.50% Senior Notes
12-month period commencing	June 15	October 15
2022	101.938%	102.750%
2023	100.969%	101.375%
2024	100.484%	100.688%
2025 and thereafter	100.000%	100.000%

UPC Holding - 2017 Refinancing Transactions

In February 2017, UPC Holding entered into a new \$2,150.0 million term loan facility (**UPC Facility AP**). The net proceeds from UPC Facility AP, together with existing cash, were used to prepay in full the \$2,150.0 million outstanding principal amount under UPC Facility AN. In connection with these transactions, UPC Holding recognized a loss on debt modification and extinguishment, net, of \$8.9 million related to the write-off of unamortized discounts and deferred financing costs.

In June 2017, UPCB Finance VII issued the UPCB Finance VII Euro Notes. UPCB Finance VII used the proceeds from the UPCB Finance VII Euro Notes to fund UPC Facility AQ, an additional facility under the UPC Holding Bank Facility, with a subsidiary of UPC Holding as the borrower. The net proceeds from UPC Facility AQ were used, together with existing cash, to prepay in full the €600.0 million (\$721.3 million) outstanding principal amount under UPC Facility AO. In connection with these transactions, UPC Holding recognized a loss on debt modification and extinguishment, net, of \$5.4 million related to the write-off of unamortized discounts and deferred financing costs.

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In June 2017, UPC Holding issued the UPC Holding 3.875% Senior Notes. The net proceeds from the UPC Holding 3.875% Senior Notes were initially placed in escrow and subsequently used in a non-cash transaction to redeem in full the €600.0 million (\$721.3 million) outstanding principal of the UPC Holding 6.375% Senior Notes. In connection with these transactions, UPC Holding recognized a loss on debt modification and extinguishment, net, of \$37.7 million. This loss includes (i) the payment of \$30.7 million of redemption premiums and (ii) the write-off of \$7.0 million of unamortized discounts and deferred financing costs.

In October 2017, UPC Holding (i) entered into UPC Facility AR, (ii) entered into UPC Facility AS and (iii) issued the UPC Holding 5.50% Senior Notes. The net proceeds from UPC Facility AR, UPC Facility AS and the UPC Holding 5.50% Senior Notes were used to (a) prepay in full the \$2,150.0 million outstanding principal amount under UPC Facility AP, (b) redeem in full the €450.0 million (\$541.0 million) outstanding principal of the UPC Holding 6.75% Euro Senior Notes and (c) redeem in full the CHF 350.0 million (\$359.5 million) outstanding principal of the UPC Holding 6.75% CHF Senior Notes. In connection with these transactions, UPC Holding recognized a loss on debt modification and extinguishment, net, of \$60.1 million related to (1) the payment of \$53.6 million of redemption premiums and (2) the write-off of \$6.5 million of unamortized discounts and deferred financing costs.

UPC Holding - 2016 and 2015 Refinancing Transactions

During 2016 and 2015, UPC Holding completed a number of refinancing transactions that generally resulted in lower interest rates and extended maturities. In connection with these transactions, UPC Holding recognized losses on debt modification and extinguishment, net, of \$77.1 million and \$205.8 million during 2016 and 2015, respectively. These losses include (i) the payment of redemption premiums of \$57.2 million and \$167.0 million, respectively, and (ii) the write-off of unamortized discounts and deferred financing costs of \$19.9 million and \$38.8 million, respectively.

Telenet Credit Facility

The Telenet Credit Facility is the senior secured credit facility of certain subsidiaries of Telenet. The details of our borrowings under the Telenet Credit Facility as of December 31, 2017 are summarized in the following table:

Telenet Credit Facility	Maturity	Interest rate	Facility amount (in borrowing currency) (a)	Outstanding principal amount	Unused borrowing capacity	Carrying value (b)
in millions						
V (c)	August 15, 2024	6.750%	€ 250.0	\$ 300.5	\$ —	\$ 296.6
AB (c)	July 15, 2027	4.875%	€ 530.0	637.1	—	631.7
AG (d)	June 30, 2023	EURIBOR + 2.75%	€ 400.0	—	480.9	—
AJ (c)	March 1, 2028	5.500%	\$ 1,000.0	1,000.0	—	995.0
AK (c)	March 1, 2028	3.500%	€ 600.0	721.3	—	716.6
AL (e)	March 1, 2026	LIBOR + 2.50%	\$ 1,300.0	1,300.0	—	1,297.6
AM (f)	December 15, 2027	EURIBOR + 2.75%	€ 730.0	877.6	—	874.9
Telenet Overdraft Facility (g)	December 31, 2018	EURIBOR + 1.60%	€ 25.0	—	30.1	—
Telenet Revolving Facility (h)	September 30, 2021	EURIBOR + 2.00%	€ 20.0	—	24.0	—
Elimination of Telenet Facilities V, AB, AJ and AK in consolidation (c)				(2,658.9)	—	(2,639.9)
Total				\$ 2,177.6	\$ 535.0	\$ 2,172.5

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- (a) Except as described in (c) below, amounts represent total third-party facility amounts at December 31, 2017.
- (b) Amounts are net of discounts and deferred financing costs, where applicable.
- (c) The Funded Facilities V and AB, as described under *General Information - SPE Notes* above, and the Telenet Finance Loans AJ and AK, as discussed in the below description of the Telenet Finance Loans included in *Telenet Senior Secured Notes - 2017 Refinancing Transactions*, are eliminated in Liberty Global's consolidated financial statements.
- (d) Telenet Facility AG has a fee on unused commitments of 1.1% per year and is subject to a EURIBOR floor of 0.0%.
- (e) Telenet Facility AL is subject to a LIBOR floor of 0.0%.
- (f) Telenet Facility AM is subject to a EURIBOR floor of 0.0%.
- (g) The Telenet Overdraft Facility has a fee on unused commitments of 0.55% and is subject to a EURIBOR floor of 0.0%.
- (h) The Telenet Revolving Facility has a fee on unused commitments of 0.60% and is subject to a EURIBOR floor of 0.0%.

Telenet Senior Secured Notes

The details of the Telenet Senior Secured Notes as of December 31, 2017 are summarized in the following table:

<u>Telenet Senior Secured Notes</u>	<u>Maturity</u>	<u>Interest rate</u>	<u>Outstanding principal amount</u>		<u>Estimated fair value</u>	<u>Carrying value (a)</u>
			<u>Borrowing currency</u>	<u>U.S. \$ equivalent</u>		
<i>in millions</i>						
2028 Telenet Dollar Senior Secured Notes	March 1, 2028	5.500%	\$ 1,000.0	\$ 1,000.0	\$ 1,003.5	\$ 995.0
2028 Telenet Euro Senior Secured Notes	March 1, 2028	3.500%	€ 600.0	721.3	720.9	716.6
Total				<u>\$ 1,721.3</u>	<u>\$ 1,724.4</u>	<u>\$ 1,711.6</u>

- (a) Amounts are net of discounts and deferred financing costs, where applicable.

Subject to the circumstances described below, the 2028 Telenet Dollar Senior Secured Notes and the 2028 Telenet Euro Senior Secured Notes are non-callable until December 1, 2022. If, however, at any time prior to call date, all or a portion of the Telenet Finance Loans are voluntarily prepaid (a **Telenet Early Redemption Event**), then Telenet Finance will be required to redeem an aggregate principal amount of its notes equal to the principal amount of the loans so prepaid under the relevant Telenet Finance Loan. In general, the redemption price payable will equal 100% of the principal amount of the applicable notes to be redeemed and a "make-whole" premium, which is the present value of all remaining scheduled interest payments to the applicable call date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points.

Upon the occurrence of a Telenet Early Redemption Event on or after the applicable call date, Telenet Finance will redeem an aggregate principal amount of its notes equal to the principal amount of the related Telenet Finance Loan prepaid at the following redemption prices (expressed as a percentage of the principal amount), plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set for below:

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	Redemption price	
	2028 Telenet Dollar Senior Secured Notes	2028 Telenet Euro Senior Secured Notes
12-month period commencing	December 1	December 1
2022	102.750%	101.750%
2023	101.375%	100.875%
2024	100.688%	100.438%
2025 and thereafter	100.000%	100.000%

Telenet SPE Notes

The details of the Telenet SPE Notes as of December 31, 2017 are summarized in the following table:

Telenet SPEs Notes	Maturity	Interest rate	Outstanding principal amount		Estimated fair value	Carrying value (a)
			Borrowing currency	U.S. \$ equivalent		
in millions						
Telenet Finance V Notes	August 15, 2024	6.750%	€ 250.0	\$ 300.6	\$ 321.2	\$ 296.6
Telenet Finance VI Notes	July 15, 2027	4.875%	€ 530.0	637.1	693.2	631.7
Total				\$ 937.7	\$ 1,014.4	\$ 928.3

(a) Amounts are net of discounts and deferred financing costs, where applicable.

Subject to the circumstances described below, the Telenet Finance V Notes are non-callable until August 15, 2018 and the Telenet Finance VI Notes are non-callable until July 15, 2021 (each a **Telenet SPE Notes Call Date**). If, however, at any time prior to the applicable Telenet SPE Notes Call Date, all or a portion of the loans under the related Telenet SPE Funded Facility are voluntarily prepaid (a **Telenet SPE Early Redemption Event**), then the applicable Telenet SPE will be required to redeem an aggregate principal amount of its Telenet SPE Notes equal to the principal amount of the loans so prepaid under the relevant Telenet SPE Funded Facility. In general, the redemption price payable will equal 100% of the principal amount of the applicable Telenet SPE Notes to be redeemed and a “make-whole” premium, which is the present value of all remaining scheduled interest payments to the applicable Telenet SPE Notes Call Date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points.

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Upon the occurrence of a Telenet SPE Early Redemption Event on or after the applicable Telenet SPE Notes Call Date, the applicable Telenet SPE will redeem an aggregate principal amount of its Telenet SPE Notes equal to the principal amount of the related Telenet SPE Funded Facility prepaid at the following redemption prices (expressed as a percentage of the principal amount), plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set for below:

	Redemption price	
	Telenet Finance V Notes	Telenet Finance VI Notes
12-month period commencing	August 15	July 15
2018	103.375%	N.A.
2019	102.531%	N.A.
2020	101.688%	N.A.
2021	100.844%	102.438%
2022	100.000%	101.219%
2023	100.000%	100.609%
2024 and thereafter	N.A.	100.000%

Telenet - 2017 Refinancing Transactions

In April 2017, Telenet entered into (i) a €1,330.0 million (\$1,598.9 million) term loan facility (**Telenet Facility AH**) and (ii) a \$1,800.0 million term loan facility (**Telenet Facility AI**). The net proceeds from Telenet Facility AH and Telenet Facility AI were used to prepay in full (a) the €1,600.0 million (\$1,923.5 million) outstanding principal amount under Telenet Facility AE and (b) the \$1,500.0 million outstanding principal amount under Telenet Facility AF. In connection with these transactions, Telenet recognized a loss on debt modification and extinguishment, net, of \$22.1 million related to the write-off of unamortized discounts and deferred financing costs.

In May 2017, commitments under Telenet Facility AI were increased by \$500.0 million (the **Telenet Facility AI Add-on**). The proceeds from the Telenet Facility AI Add-on were used to prepay in full the €450.0 million (\$541.0 million) outstanding principal amount under Telenet Facility U, together with accrued and unpaid interest and the related prepayment premiums, to Telenet Finance V and, in turn, Telenet Finance V used such proceeds to redeem in full the €450.0 million outstanding principal amount of its 6.25% senior secured notes. In connection with these transactions, Telenet recognized a loss on debt modification and extinguishment, net, of \$27.7 million. This loss includes (i) the payment of \$21.5 million of redemption premiums and (ii) the write-off of \$6.2 million of unamortized discounts and deferred financing costs.

In December 2017, Telenet entered into Telenet Facility AL and Telenet Facility AM. The net proceeds from Telenet Facility AL, Telenet Facility AM and the Telenet Finance Loans (as defined and described below) were used to prepay in full (i) the €1,330.0 million (\$1,598.9 million) outstanding principal amount under Telenet Facility AH and (ii) the \$2,300.0 million outstanding principal amount under Telenet Facility AI. In connection with these transactions, Telenet recognized a loss on debt modification and extinguishment, net, of \$25.9 million related to the write-off of unamortized discounts and deferred financing costs.

In December 2017, Telenet Finance Luxembourg Notes S.à r.l. (**Telenet Finance**), an indirect wholly-owned subsidiary of Telenet, issued (i) the 2028 Telenet Dollar Senior Secured Notes and (ii) the 2028 Telenet Euro Senior Secured Notes. Telenet Finance used the proceeds from the 2028 Telenet Dollar Senior Secured Notes and the 2028 Telenet Euro Senior Secured Notes to fund Telenet Facility AJ and Telenet Facility AK, respectively, each under the Telenet Credit Facility, with Telenet International Finance S.à r.l. (**Telenet International Finance**), a wholly-owned subsidiary of Telenet, as the borrower. Telenet Facility AJ and Telenet Facility AK are collectively referred to as the “**Telenet Finance Loans**”.

Telenet Finance is a financing company with no material business operations of its own and is dependent on payments from Telenet International Finance in order to service its payment obligations under each of its notes. Since Telenet Finance is an indirect wholly-owned subsidiary of Telenet and is consolidated by Telenet and Liberty Global, the amounts outstanding under the Telenet Finance Loans are eliminated in Telenet’s and Liberty Global’s consolidated financial statements.

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Pursuant to the indentures for the 2028 Telenet Dollar Senior Secured Notes and the 2028 Telenet Euro Senior Secured Notes and the respective accession agreements for the Telenet Finance Loans, the call provisions, maturity and applicable interest rate for each Telenet Finance Loan are the same as those of the related notes.

Telenet - 2016 and 2015 Refinancing Transactions

During 2016 and 2015, Telenet completed a number of refinancing transactions that generally resulted in lower interest rates and extended maturities. In connection with these transactions, Telenet recognized losses on debt modification and extinguishment, net, of \$52.8 million and \$34.3 million during 2016 and 2015, respectively. These losses include (i) the write-off of unamortized discounts and deferred financing costs of \$33.8 million during 2016 and (ii) the payment of redemption premiums of \$19.0 million and \$34.3 million, respectively.

Maturities of Debt and Capital Lease Obligations

Maturities of our debt and capital lease obligations as of December 31, 2017 are presented below for the named entity and its subsidiaries, unless otherwise noted. Amounts presented below represent U.S. dollar equivalents based on December 31, 2017 exchange rates:

Debt:

	Virgin Media	Unitymedia	UPC Holding (a)	Telenet (b)	Other	Total
	in millions					
Year ending December 31:						
2018	\$ 2,480.7	\$ 390.9	\$ 786.3	\$ 323.8	\$ 212.7	\$ 4,194.4
2019	127.7	3.8	5.3	20.5	38.0	195.3
2020	91.4	3.6	16.4	13.6	205.2	330.2
2021	1,366.6	3.5	14.5	12.1	1,622.9	3,019.6
2022	400.3	3.3	9.8	12.3	325.3	751.0
Thereafter	12,752.0	8,371.3	6,472.0	4,931.8	—	32,527.1
Total debt maturities	17,218.7	8,776.4	7,304.3	5,314.1	2,404.1	41,017.6
Deferred financing costs, discounts and premiums, net	(65.8)	(51.5)	(52.8)	(24.2)	(28.9)	(223.2)
Total debt	\$ 17,152.9	\$ 8,724.9	\$ 7,251.5	\$ 5,289.9	\$ 2,375.2	\$ 40,794.4
Current portion	\$ 2,480.7	\$ 390.9	\$ 786.3	\$ 323.8	\$ 43.6	\$ 4,025.3
Noncurrent portion	\$ 14,672.2	\$ 8,334.0	\$ 6,465.2	\$ 4,966.1	\$ 2,331.6	\$ 36,769.1

(a) Amounts include the UPCB SPE Notes issued by the UPCB SPEs. As described above, the UPCB SPEs are consolidated by UPC Holding and Liberty Global.

(b) Amounts include the Telenet SPE Notes issued by the Telenet SPEs. As described above, the Telenet SPEs are consolidated by Telenet and Liberty Global.

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Capital lease obligations:

	Unitymedia	Telenet	UPC Holding	Virgin Media	Other	Total
	in millions					
Year ending December 31:						
2018	\$ 90.1	\$ 84.4	\$ 17.0	\$ 19.6	\$ 23.4	\$ 234.5
2019	89.5	72.1	16.9	10.4	16.5	205.4
2020	89.1	67.5	16.8	7.3	10.4	191.1
2021	88.8	64.2	17.9	7.5	5.1	183.5
2022	88.5	65.2	14.1	8.8	3.0	179.6
Thereafter	695.1	252.4	33.3	182.1	18.0	1,180.9
Total principal and interest payments	1,141.1	605.8	116.0	235.7	76.4	2,175.0
Amounts representing interest	(418.7)	(149.7)	(20.3)	(156.6)	(9.2)	(754.5)
Present value of net minimum lease payments	\$ 722.4	\$ 456.1	\$ 95.7	\$ 79.1	\$ 67.2	\$ 1,420.5
Current portion	\$ 35.8	\$ 57.1	\$ 12.2	\$ 14.7	\$ 20.3	\$ 140.1
Noncurrent portion	\$ 686.6	\$ 399.0	\$ 83.5	\$ 64.4	\$ 46.9	\$ 1,280.4

Non-cash Financing Transactions

During 2017, 2016 and 2015, certain of our refinancing transactions included non-cash borrowings and repayments of debt aggregating \$17,104.0 million (excluding a \$684.5 million equivalent non-cash repayment of debt from proceeds held in escrow), \$8,939.5 million and \$3,325.4 million, respectively.

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(11) Income Taxes

Liberty Global files its primary income tax return in the U.K. Its subsidiaries file income tax returns in the U.S., the U.K. and a number of other European jurisdictions. The income taxes of Liberty Global and its subsidiaries are presented on a separate return basis for each tax-paying entity or group.

The components of our earnings (loss) before income taxes are as follows:

	Year ended December 31,		
	2017	2016	2015
	in millions		
U.K.	\$ (991.3)	\$ 1,165.4	\$ 780.4
U.S.	(842.5)	(873.0)	(929.7)
Belgium	140.0 —	13.7 —	175.4
Switzerland	111.6	273.9	395.3
Germany	31.3	(49.3)	(5.1)
The Netherlands	(26.1) —	169.6 —	(1,260.3)
Other	21.0	(52.8)	67.1
Total	<u>\$ (1,556.0)</u>	<u>\$ 647.5</u>	<u>\$ (776.9)</u>

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Income tax benefit (expense) consists of:

	Current	Deferred	Total
	in millions		
Year ended December 31, 2017:			
The Netherlands	\$ (16.2)	\$ (118.2)	\$ (134.4)
U.K.	(3.3)	(64.7)	(68.0)
Germany	(78.6)	19.7	(58.9)
Belgium	(203.6)	145.4	(58.2)
U.S. (a)	47.2	(32.8)	14.4
Switzerland	(2.0)	15.6	13.6
Other	(21.1)	3.1	(18.0)
Total	\$ (277.6)	\$ (31.9)	\$ (309.5)
Year ended December 31, 2016:			
The Netherlands	\$ (0.3)	\$ 1,259.6	\$ 1,259.3
U.S. (a)	146.8	90.2	237.0
Belgium	(105.0)	57.0	(48.0)
Switzerland	(48.4)	5.3	(43.1)
Germany	(77.9)	41.0	(36.9)
U.K.	(12.3)	1.2	(11.1)
Other	(20.9)	10.7	(10.2)
Total	\$ (118.0)	\$ 1,465.0	\$ 1,347.0
Year ended December 31, 2015:			
U.K.	\$ (0.9)	\$ (209.0)	\$ (209.9)
The Netherlands	2.5	159.0	161.5
Belgium	(125.4)	11.1	(114.3)
Switzerland	(63.2)	(14.7)	(77.9)
Germany	(66.7)	24.3	(42.4)
U.S. (a)	(79.4)	54.1	(25.3)
Other	(22.7)	6.7	(16.0)
Total	\$ (355.8)	\$ 31.5	\$ (324.3)

(a) Includes federal and state income taxes. Our U.S. state income taxes were not material during any of the years presented.

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Income tax benefit (expense) attributable to our earnings (loss) before income taxes differs from the amounts computed using the applicable income tax rate as a result of the following factors:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Computed “expected” tax benefit (expense) (a)	\$ 299.5	\$ (129.5)	\$ 157.3
Change in valuation allowances (b):			
Expense	(365.8)	(272.0)	(493.5)
Benefit	26.1	1,100.7	6.9
Non-deductible or non-taxable foreign currency exchange results (b):			
Expense	(247.9)	(33.1)	(4.0)
Benefit	12.6	227.4	53.2
International rate differences (b) (c):			
Benefit	125.8	132.1	192.6
Expense	(35.7)	(19.8)	(45.6)
Non-deductible or non-taxable interest and other expenses (b):			
Expense	(121.7)	(95.2)	(100.8)
Benefit	35.3	51.5	48.1
Basis and other differences in the treatment of items associated with investments in subsidiaries and affiliates (b):			
Expense	(116.6)	(79.2)	(90.8)
Benefit	35.5	172.7	0.9
Recognition of previously unrecognized tax benefits	13.2	210.9	44.4
Tax benefit associated with technologies innovation	12.1	72.6	21.0
Enacted tax law and rate changes (d)	10.9	(157.7)	(282.0)
Tax effect of intercompany financing	2.4	161.6	154.9
Other, net	4.8	4.0	13.1
Total income tax benefit (expense)	<u>\$ (309.5)</u>	<u>\$ 1,347.0</u>	<u>\$ (324.3)</u>

- (a) The statutory or “expected” tax rates are the U.K. rates of 19.25% for 2017, 20.00% for 2016 and 20.25% for 2015. The 2017 statutory rate represents the blended rate that was in effect for the year ended December 31, 2017 based on the 20.0% statutory rate that was in effect for the first quarter of 2017 and the 19.0% statutory rate that was in effect for the remainder of 2017. The statutory rate for the 2015 periods represents the blended rate that was in effect for the year ended December 31, 2015 based on the 21.0% statutory rate that was in effect for the first quarter of 2015 and the 20.0% statutory rate that is in effect for the remainder of 2015.
- (b) Country jurisdictions giving rise to income tax benefits are grouped together and shown separately from country jurisdictions giving rise to income tax expenses.
- (c) Amounts reflect adjustments (either a benefit or expense) to the “expected” tax benefit (expense) for statutory rates in jurisdictions in which we operate outside of the U.K.
- (d) On December 25, 2017, a Belgian corporate income tax rate reduction was signed into law. The statutory tax rate will decrease from the current rate of 33.9% to 29.58% for years 2018 and 2019 and to 25.0% in 2020. On December 22, 2017, the U.S. corporate income tax rate was reduced from 35% to 21% effective January 1, 2018. Substantially all of the impacts of both the Belgian and U.S. tax rate changes on our deferred tax balances were recorded during the fourth quarter of 2017. During 2015, the U.K. enacted legislation that provided for reductions in the corporate income tax rate from 20.0% to 19.0%

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in April 2017 and from 19.0% to 18.0% in April 2020. Substantially all of the impacts of these rate changes on our deferred tax balances were recorded in the fourth quarter of 2015 when the change in law was enacted. During the third quarter of 2016, the U.K. enacted legislation that will further reduce the corporate income tax rate in April 2020 from 18.0% to 17.0%. Substantially all of the impact of this rate change on our deferred tax balances was recorded during the third quarter of 2016.

The components of our deferred tax assets are as follows:

	December 31,	
	2017	2016
	in millions	
Deferred tax assets	\$ 3,157.2	\$ 2,826.4
Deferred tax liabilities (a)	(643.2)	(669.9)
Net deferred tax asset	<u>\$ 2,514.0</u>	<u>\$ 2,156.5</u>

(a) Our deferred tax liabilities are included in other long-term liabilities in our consolidated balance sheets.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are presented below:

	December 31,	
	2017	2016
	in millions	
Deferred tax assets:		
Net operating loss and other carryforwards	\$ 5,542.0	\$ 5,176.6
Property and equipment, net	2,089.7	1,971.7
Debt	966.5	1,469.8
Derivative instruments	156.4	55.2
Intangible assets	104.7	86.1
Share-based compensation	71.7	118.7
Other future deductible amounts	189.6	260.9
Deferred tax assets	<u>9,120.6</u>	<u>9,139.0</u>
Valuation allowance	(4,665.1)	(4,664.5)
Deferred tax assets, net of valuation allowance	<u>4,455.5</u>	<u>4,474.5</u>
Deferred tax liabilities:		
Property and equipment, net	(939.5)	(902.4)
Intangible assets	(505.0)	(664.0)
Deferred revenue	(240.5)	(254.8)
Investments (including consolidated partnerships)	(130.3)	(144.7)
Derivative instruments	(1.6)	(175.5)
Other future taxable amounts	(124.6)	(176.6)
Deferred tax liabilities	<u>(1,941.5)</u>	<u>(2,318.0)</u>
Net deferred tax asset	<u>\$ 2,514.0</u>	<u>\$ 2,156.5</u>

Our deferred income tax valuation allowance increased \$0.6 million in 2017. This increase reflects the net effect of (i) the effect of enacted tax law and rate changes, (ii) foreign currency translation adjustments, (iii) the net tax expense of \$339.7 million, (iv) decreases associated with reductions in deferred tax assets and (v) other individually insignificant items.

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Virgin Media had property and equipment on which future U.K. tax deductions can be claimed of \$19.4 billion and \$17.9 billion at December 31, 2017 and 2016, respectively. The maximum amount of these “capital allowances” that can be claimed in any one year is 18% of the remaining balance, after additions, disposals and prior claims. The tax effects of the excess of these capital allowances over the related financial reporting bases are included in the 2017 and 2016 deferred tax assets related to property and equipment, net, in the above table.

The significant components of our tax loss carryforwards and related tax assets at December 31, 2017 are as follows:

Country	Tax loss carryforward	Related tax asset	Expiration date
in millions			
U.K.:			
Amount attributable to capital losses	\$ 16,367.9	\$ 2,782.5	Indefinite
Amount attributable to net operating losses	1,304.2	221.7	Indefinite
The Netherlands	4,399.7	1,099.9	2018-2025
U.S.	2,326.2	312.4	2032-2037
Germany	1,410.4	228.3	Indefinite
Belgium	1,334.4	335.3	Indefinite
Luxembourg	1,062.9	276.5	Indefinite
Ireland	705.3	88.2	Indefinite
France	574.3	166.4	Indefinite
Other	278.6	30.8	Various
Total	\$ 29,763.9	\$ 5,542.0	

Our tax loss carryforwards within each jurisdiction combine all companies’ tax losses (both capital and ordinary losses) in that jurisdiction, however, certain tax jurisdictions limit the ability to offset taxable income of a separate company or different tax group with the tax losses associated with another separate company or group. Further, tax jurisdictions restrict the type of taxable income that the above losses are able to offset. The majority of the tax losses shown in the above table are not expected to be realized, including certain losses that are limited in use due to change in control or same business tests.

We have taxable outside basis differences on certain investments in non-U.S. subsidiaries. For this purpose, the outside basis difference is any difference between the aggregate tax basis in the equity of a consolidated subsidiary and the corresponding amount of the subsidiary’s net equity, including cumulative translation adjustments, as determined for financial reporting purposes. This outside basis difference does not include unremitted earnings. At December 31, 2017, we have not provided deferred tax liabilities on an estimated \$7.5 billion of cumulative temporary differences on the outside bases of our non-U.S. subsidiaries.

Through our subsidiaries, we maintain a presence in many countries. Many of these countries maintain highly complex tax regimes that differ significantly from the system of income taxation used in the U.K. and the U.S. We have accounted for the effect of these taxes based on what we believe is reasonably expected to apply to us and our subsidiaries based on tax laws currently in effect and reasonable interpretations of these laws. Because some jurisdictions do not have systems of taxation that are as well established as the system of income taxation used in the U.K., U.S. or tax regimes used in other major industrialized countries, it may be difficult to anticipate how other jurisdictions will tax our and our subsidiaries’ current and future operations.

While we have limited operations in the U.S., the 2017 U.S. Tax Act could have a material impact on our income tax expense. In addition to lowering the U.S. corporate tax rate from 35% to 21% effective January 1, 2018, the 2017 U.S. Tax Act contains significant changes to the U.S. income tax regime, including changes to the formation and use of net operating losses incurred after December 31, 2017, changes to the income tax deductibility of certain business expenses, including interest expense and compensation paid to certain executive officers, the imposition of taxes on a one-time deemed mandatory repatriation of earnings and profits of foreign corporations (the **Mandatory Repatriation Tax**) and a new tax on global intangible low-taxed income (the **GILTI Tax**).

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With regard to the change in the corporate tax rate, we recorded the impacts of applying the new 21% tax rate to the net deferred tax assets and deferred tax liabilities associated with our U.S. operations during the fourth quarter of 2017. The impact of this change was not material.

The Mandatory Repatriation Tax requires that the aggregate post -1986 earnings and profits of our foreign corporations be included in our U.S. taxable income. The one-time repatriation of undistributed foreign earnings and profits is then taxed at a rate of 15.5% for cash earnings and 8% for non-cash earnings, both as defined in the 2017 U.S. Tax Act. Given the amount of information we are required to gather and analyze and the complexity involved in applying the new tax laws in our circumstances, we are currently unable to make a reasonable estimate of any Mandatory Repatriation Tax that we may ultimately incur. Accordingly, we have not yet recorded a Mandatory Repatriation Tax liability in our consolidated financial statements. If we ultimately conclude that we are responsible for a Mandatory Repatriation Tax, our effective tax rate will be negatively affected. Any such Mandatory Repatriation Tax could be material. Our evaluation of these amounts will be finalized during 2018.

The GILTI Tax will require our U.S. subsidiaries that are shareholders in foreign corporations to include in their taxable income for each year beginning after December 31, 2017, their pro rata share of global intangible low-taxed income. The GILTI Tax is calculated as the excess of the net foreign corporation income over a deemed return.

We and our subsidiaries file consolidated and standalone income tax returns in various jurisdictions. In the normal course of business, our income tax filings are subject to review by various taxing authorities. In connection with such reviews, disputes could arise with the taxing authorities over the interpretation or application of certain income tax rules related to our business in that tax jurisdiction. Such disputes may result in future tax and interest and penalty assessments by these taxing authorities. The ultimate resolution of tax contingencies will take place upon the earlier of (i) the settlement date with the applicable taxing authorities in either cash or agreement of income tax positions or (ii) the date when the tax authorities are statutorily prohibited from adjusting the company's tax computations.

In general, tax returns filed by our company or our subsidiaries for years prior to 2008 are no longer subject to examination by tax authorities. Certain of our subsidiaries are currently involved in income tax examinations in various jurisdictions in which we operate, including Germany, the Netherlands, and the U.S. Except as noted below, any adjustments that might arise from the foregoing examinations are not expected to have a material impact on our consolidated financial position or results of operations. In the U.S., we have received notices of adjustment from the Internal Revenue Service with respect to our 2010 and 2009 income tax returns, and have entered into the appeals process with respect to the 2010 and 2009 matters. While we believe that the ultimate resolution of these proposed adjustments will not have a material impact on our consolidated financial position, results of operations or cash flows, no assurance can be given that this will be the case given the amounts involved and the complex nature of the related issues.

The changes in our unrecognized tax benefits are summarized below:

	2017	2016	2015
	in millions		
Balance at January 1	\$ 347.1	\$ 606.3	\$ 513.5
Additions for tax positions of prior years	171.2	8.0	23.1
Reductions for tax positions of prior years	(35.6)	(186.6)	(42.2)
Foreign currency translation	33.8	(12.0)	(22.0)
Additions based on tax positions related to the current year	15.6	23.5	142.3
Settlements with tax authorities	(3.6)	(13.5)	(0.1)
Lapse of statute of limitations	—	(78.6)	(8.3)
Effects of business acquisitions	—	—	—
Balance at December 31	<u>\$ 528.5</u>	<u>\$ 347.1</u>	<u>\$ 606.3</u>

No assurance can be given that any of these tax benefits will be recognized or realized.

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As of December 31, 2017, our unrecognized tax benefits included \$317.3 million of tax benefits that would have a favorable impact on our effective income tax rate if ultimately recognized, after considering amounts that we would expect to be offset by valuation allowances and other factors.

During 2018, it is reasonably possible that the resolution of ongoing examinations by tax authorities, as well as expiration of statutes of limitation, could result in reductions to our unrecognized tax benefits related to tax positions taken as of December 31, 2017. The amount of any such reductions could range up to \$125 million, all of which would have a positive impact on our effective tax rate. Other than the potential impacts of these ongoing examinations and the expected expiration of certain statutes of limitation, we do not expect any material changes to our unrecognized tax benefits during 2018. No assurance can be given as to the nature or impact of any changes in our unrecognized tax positions during 2018.

During 2017, 2016 and 2015, the income tax benefit (expense) of our continuing operations includes net income tax benefit (expense) of (\$6.7 million), \$30.3 million and (\$10.3 million), respectively, representing the net benefit (accrual) of interest and penalties during the period. Our other long-term liabilities include accrued interest and penalties of \$38.2 million at December 31, 2017.

(12) Equity

Capitalization

Our authorized share capital consists of an aggregate nominal amount of \$20.0 million, consisting of any of the following: (i) Liberty Global Shares (Class A, B or C), each with a nominal value of \$0.01 per share, (ii) preference shares, with a nominal value to be determined by the board of directors, the issuance of one or more classes or series of which as may be authorized by the board of directors, and (iii) any other shares of one or more classes as may be determined by the board of directors or by the shareholders of Liberty Global.

Under Liberty Global's Articles of Association, effective July 1, 2015, holders of Liberty Global Class A ordinary shares are entitled to one vote for each such share held, and holders of Liberty Global Class B ordinary shares are entitled to 10 votes for each such share held, on all matters submitted to a vote of Liberty Global shareholders at any general meeting (annual or special). Holders of Liberty Global Class C ordinary shares are not entitled to any voting powers except as required by law.

At the option of the holder, each Liberty Global Class B ordinary share is convertible into one Liberty Global Class A ordinary share. One Liberty Global Class A ordinary share is reserved for issuance for each Liberty Global Class B ordinary share that is issued (11,102,619 shares issued as of December 31, 2017). Additionally, at December 31, 2017, we have reserved Liberty Global Shares for the issuance of outstanding share-based compensation awards, as set forth in the table below:

	Liberty Global Shares (a)	
	Class A	Class C
Options	580,481	2,725,566
SARs	14,701,611	34,103,846
PSUs and RSUs	2,591,498	5,174,713

(a) Includes share-based compensation awards held by former employees of Liberty Global that became employees of Liberty Latin America as a result of the Split-off Transaction. For additional information, see note 13.

Subject to any preferential rights of any outstanding class of our preference shares, the holders of Liberty Global Shares are entitled to dividends as may be declared from time to time by our board of directors from funds available therefore. Except with respect to share distributions, whenever a dividend is paid in cash to the holder of one class of our ordinary shares, we shall also pay to the holders of the other classes of our ordinary shares an equal per share dividend. There are currently no contractual restrictions on our ability to pay dividends in cash or shares.

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In the event of our liquidation, dissolution and winding up, after payment or provision for payment of our debts and liabilities and subject to the prior payment in full of any preferential amounts to which our preference shareholders, if any, may be entitled, the holders of Liberty Global Shares will be entitled to receive their proportionate interests, expressed in liquidation units, in any assets available for distribution to our ordinary shares.

A summary of the changes in our share capital during 2017, 2016 and 2015 is set forth in the table below:

	Liberty Global Shares				LiLAC Shares (a)				Old Liberty Global Shares				
	Class A	Class B	Class C	Total	Class A	Class B	Class C	Total	Class A	Class B	Class C	Total	
	in millions												
Balance at January 1, 2015	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 2.5	\$ 0.1	\$ 6.3	\$ 8.9
Repurchase and cancellation of Liberty Global Shares	—	—	—	—	—	—	—	—	—	—	—	(0.1)	(0.1)
Liberty Global call option contracts	—	—	—	—	—	—	—	—	—	—	—	(0.1)	(0.1)
Balance at June 30, 2015	—	—	—	—	—	—	—	—	—	2.5	0.1	6.1	8.7
Impact of the LiLAC Transaction (note 1)	2.5	0.1	6.1	8.7	0.1	—	0.3	0.4	(2.5)	(0.1)	(6.1)	(8.7)	
Repurchase and cancellation of Liberty Global Shares	—	—	(0.1)	(0.1)	—	—	—	—	—	—	—	—	—
Liberty Global call option contracts	—	—	(0.1)	(0.1)	—	—	—	—	—	—	—	—	—
Balance at December 31, 2015	2.5	0.1	5.9	8.5	0.1	—	0.3	0.4	—	—	—	—	—
Impact of the C&W Acquisition (note 4)	0.3	—	0.8	1.1	—	—	0.1	0.1	—	—	—	—	—
Repurchase and cancellation of Liberty Global Shares	(0.3)	—	(0.3)	(0.6)	—	—	—	—	—	—	—	—	—
Impact of the LiLAC Distribution (note 4)	—	—	—	—	0.4	—	0.8	1.2	—	—	—	—	—
Other	—	—	(0.1)	(0.1)	—	—	—	—	—	—	—	—	—
Balance at December 31, 2016	2.5	0.1	6.3	8.9	0.5	—	1.2	1.7	—	—	—	—	—
Impact of the Split-off Transaction (note 5)	—	—	—	—	(0.5)	—	(1.2)	(1.7)	—	—	—	—	—
Repurchase and cancellation of Liberty Global Shares	(0.3)	—	(0.5)	(0.8)	—	—	—	—	—	—	—	—	—
Balance at December 31, 2017	<u>\$ 2.2</u>	<u>\$ 0.1</u>	<u>\$ 5.8</u>	<u>\$ 8.1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

(a) In connection with the Split-off Transaction, the LiLAC Shares were redesignated as deferred shares (with virtually no economic rights) and transferred to a third party. For additional information regarding the Split-off Transaction, see note 5.

Share Repurchase Programs

As a U.K. incorporated company, we may only elect to repurchase shares or pay dividends to the extent of our “**Distributable Reserves.**” Distributable Reserves, which are not linked to a U.S. GAAP reported amount, may be created through the earnings of the U.K. parent company and, among other methods, through a reduction in share premium approved by the English Companies Court. Based on the amounts set forth in our 2016 U.K. Companies Act Report dated April 26, 2017, which are our most recent

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“Relevant Accounts” for the purposes of determining our Distributable Reserves under U.K. law, our Distributable Reserves were \$24.9 billion as of December 31, 2016. This amount does not reflect earnings, share repurchases or other activity that occurred in 2017, each of which impacts the amount of our Distributable Reserves.

Our board of directors has approved share repurchase programs for our Liberty Global Shares. In addition, from November 2016 through the completion of the Split-off Transaction, we were authorized to repurchase our LiLAC Shares. Under these plans, we receive authorization to acquire up to the specified amount (before direct acquisition costs) of Class A and Class C Liberty Global Shares or LiLAC Shares, or other authorized securities, from time to time through open market or privately negotiated transactions, which may include derivative transactions. The timing of the repurchase of shares or other securities pursuant to our equity repurchase programs, which may be suspended or discontinued at any time, is dependent on a variety of factors, including market conditions. As of December 31, 2017, the remaining amount authorized for repurchases of Liberty Global Shares was \$2.1 billion.

The following table provides details of our share repurchases during 2017, 2016 and 2015:

	Class A ordinary shares		Class C ordinary shares		Total cost (a) in millions
	Shares repurchased	Average price paid per share (a)	Shares repurchased	Average price paid per share (a)	
Liberty Global Shares:					
2017	34,881,510	\$ 33.73	52,523,651	\$ 32.71	\$ 2,894.7
2016	32,387,722	\$ 32.26	31,557,089	\$ 32.43	\$ 2,068.0
2015 (b)	—	\$ —	49,984,562	\$ 46.91	\$ 2,344.5
LiLAC Shares:					
2017	2,062,233	\$ 22.84	285,572	\$ 22.25	\$ 53.5
2016	720,800	\$ 20.65	313,647	\$ 21.19	\$ 21.5

(a) Includes direct acquisition costs, where applicable.

(b) Amounts relate to repurchases of (i) Old Liberty Global Shares from January 1 through June 30, 2015 and (ii) Liberty Global Shares from July 1 through December 31, 2015.

Call Option Contracts

From time to time, we enter into call option contracts pursuant to which we contemporaneously (i) sell call options on shares of Liberty Global ordinary shares and (ii) purchase call options on an equivalent number of Liberty Global ordinary shares with an exercise price of zero. These contracts can result in the receipt of cash or Liberty Global ordinary shares. Shares acquired through the exercise of the call options are included in our share repurchases and the net gain on cash settled contracts is recorded as an increase to additional paid-in capital in our consolidated statements of equity.

Subsidiary Distributions

From time to time, Telenet and certain other of our subsidiaries make cash distributions to their respective shareholders. Our share of these distributions is eliminated in consolidation and the noncontrolling interest owners’ share of these distributions is reflected as a charge against noncontrolling interests in our consolidated statements of equity.

Restricted Net Assets

The ability of certain of our subsidiaries to distribute or loan all or a portion of their net assets to our company is limited by the terms of applicable debt facilities. At December 31, 2017, substantially all of our net assets represented net assets of our subsidiaries that were subject to such limitations.

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(13) Share-based Compensation

Our share-based compensation expense primarily relates to the share-based incentive awards issued by Liberty Global to its employees and employees of its subsidiaries. A summary of the aggregate share-based compensation expense that is included in our other operating and SG&A expenses is set forth below:

	Year ended December 31,		
	2017	2016	2015
in millions			
Liberty Global:			
Performance-based incentive awards (a)	\$ 29.0	\$ 160.8	\$ 157.6
Non-performance based share-based incentive awards	108.6	108.1	148.2
Other (b)	14.2	—	—
Total Liberty Global (c)	151.8	268.9	305.8
Telenet share-based incentive awards (d)	20.7	12.2	9.2
Other	1.4	0.4	0.8
Total	\$ 173.9	\$ 281.5	\$ 315.8
Included in:			
Other operating expenses	\$ 4.8	\$ 3.3	\$ 3.1
SG&A expenses	169.1	278.2	312.7
Total	\$ 173.9	\$ 281.5	\$ 315.8

- (a) Includes share-based compensation expense related to (i) PSUs, (ii) in 2016, a challenge performance award plan for certain executive officers and key employees (the **Challenge Performance Awards**) and (iii) through March 2017, the PGUs held by our Chief Executive Officer. The Challenge Performance Awards included PSARs and PSUs.
- (b) Represents annual incentive compensation and defined contribution plan liabilities that have been or will be settled with Liberty Global Shares.
- (c) In connection with the LiLAC Transaction, our compensation committee approved modifications to our outstanding share-based incentive awards (the **2015 Award Modifications**) in accordance with the underlying share-based incentive plans. The objective of our compensation committee was to ensure a relatively unchanged intrinsic value of outstanding equity awards before and after the bonus issuance of the LiLAC Shares. The mechanism to modify outstanding share-based incentive awards, as approved by our compensation committee, utilized the volume-weighted average price of the respective shares for the five days prior to and the five days following the bonus issuance (**Modification VWAPs**). In order to determine if any incremental share-based compensation expense should be recorded as a result of the 2015 Award Modifications, we were required to measure the changes in the fair values of the then outstanding share-based incentive awards using market prices immediately before and immediately after the 2015 Award Modifications. Due to declines in the share prices of our Class A and Class C Liberty Global Shares following the bonus issuance, the exercise prices of options, SARs and PSARs determined using the Modification VWAPs were lower than the exercise prices that would have resulted if the market prices immediately before and after the 2015 Award Modifications had been used. Accordingly, the Black-Scholes fair values of our options, SARs and PSARs increased as a result of the 2015 Award Modifications, resulting in incremental share-based compensation of \$99.5 million, including \$8.2 million, \$16.1 million and \$69.3 million recognized during 2017, 2016 and 2015, respectively. In connection with the LiLAC Distribution in 2016 and the Split-off Transaction in 2017, our compensation committee also approved modifications to our outstanding share-based incentive awards (the **2016 Award Modification** and **2017 Award Modification**, respectively) in accordance with the underlying share-based incentive plans. As we determined that the incremental value associated with each of the 2016 Award Modification and 2017 Award Modification was immaterial, we did not recognize any incremental share-based compensation expense associated with these modifications.

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- (d) Represents the share-based compensation expense associated with Telenet's share-based incentive awards, which, at December 31, 2017, included performance- and non-performance-based stock option awards with respect to 3,693,753 Telenet shares. These stock option awards had a weighted average exercise price of €48.26 (\$58.02).

As of December 31, 2017, \$222.7 million of total unrecognized compensation cost related to our Liberty Global share-based compensation awards is expected to be recognized by our company over a weighted-average period of approximately 2.3 years. This amount includes unrecognized compensation cost of \$14.3 million related to Liberty Latin America share-based compensation awards held by employees of Liberty Global expected to be recognized by our company over a weighted-average period of approximately 2.0 years.

The following table summarizes certain information related to the share-based incentive awards granted and exercised with respect to Liberty Global ordinary shares (includes amounts related to discontinued operations unless otherwise noted):

	Year ended December 31,		
	2017	2016	2015
Assumptions used to estimate fair value of options, SARs and PSARs granted:			
Risk-free interest rate	1.66 - 2.16%	0.88 - 1.49%	0.96 - 1.89%
Expected life	3.0 - 6.4 years	3.1 - 5.5 years	3.0 - 5.5 years
Expected volatility	25.9 - 37.9%	27.4 - 42.9%	23.1 - 30.1%
Expected dividend yield	none	none	none
Weighted average grant-date fair value per share of awards granted:			
Options	\$ 9.40	\$ 10.40	\$ 14.73
SARs	\$ 8.60	\$ 8.60	\$ 10.76
RSUs	\$ 31.24	\$ 36.67	\$ 51.85
PSUs	\$ 26.59	\$ 33.97	\$ 51.57
Total intrinsic value of awards exercised (in millions):			
Options	\$ 13.4	\$ 16.9	\$ 106.8
SARs and PSARs	\$ 74.8	\$ 42.9	\$ 51.9
Cash received from exercise of options (in millions)	\$ 11.7	\$ 17.4	\$ 40.5
Income tax benefit related to share-based compensation of our continuing operations (in millions)	\$ 9.8	\$ 51.1	\$ 66.0

Share Incentive Plans — Liberty Global Ordinary Shares

Incentive Plans

As of December 31, 2017, we are authorized to grant incentive awards under the Liberty Global 2014 Incentive Plan and the Liberty Global 2014 Nonemployee Director Incentive Plan. Generally, we may grant non-qualified share options, SARs, restricted shares, RSUs, cash awards, performance awards or any combination of the foregoing under either of these incentive plans (collectively, awards). Ordinary shares issuable pursuant to awards made under these incentive plans will be made available from either authorized but unissued shares or shares that have been issued but reacquired by our company. Awards may be granted at or above fair value in any class of ordinary shares. The maximum number of Liberty Global ordinary shares with respect to which awards may be issued under the Liberty Global 2014 Incentive Plan and the Liberty Global 2014 Nonemployee Director Incentive Plan is 105 million (of which no more than 50.25 million shares may consist of Class B ordinary shares) and 10.5 million, respectively, in each case, subject to anti-dilution and other adjustment provisions in the respective plan. As of December 31, 2017, the Liberty Global 2014 Incentive Plan and the Liberty Global 2014 Nonemployee Director Incentive Plan had 56,671,902 and 9,464,495 ordinary shares available for grant, respectively.

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Awards (other than performance-based awards) under the Liberty Global 2014 Incentive Plan generally (i) vest 12.5% on the six month anniversary of the grant date and then vest at a rate of 6.25% each quarter thereafter and (ii) expire seven years after the grant date. Awards (other than RSUs) issued under the Liberty Global 2014 Nonemployee Director Incentive Plan generally vest in three equal annual installments, provided the director continues to serve as director immediately prior to the vesting date, and expire seven years after the grant date. RSUs vest on the date of the first annual general meeting of shareholders following the grant date. These awards may be granted at or above fair value in any class of ordinary shares.

Performance Awards

The following is a summary of the material terms and conditions with respect to our performance-based awards for certain executive officers and key employees.

Liberty Global PSUs

In March 2015, our compensation committee approved the grant of PSUs to executive officers and key employees (the **2015 PSUs**). The performance plan for the 2015 PSUs covered a two-year period that ended on December 31, 2016 and included a performance target based on the achievement of a specified compound annual growth rate (**CAGR**) in a consolidated Adjusted OIBDA metric (as defined in note 18). The performance target was adjusted for events such as acquisitions, dispositions and changes in foreign currency exchange rates that affect comparability (**Adjusted OIBDA CAGR**), and the participant's annual performance ratings during the two-year performance period. Participants earned 99.5% of their targeted awards under the 2015 PSUs, which vested 50% on each of April 1 and October 1 of 2017.

In February 2016, our compensation committee approved the grant of PSUs to executive officers and key employees (the **2016 PSUs**) pursuant to a performance plan that is based on the achievement of a specified Adjusted OIBDA CAGR during the three-year period ending December 31, 2018. The 2016 PSUs, as adjusted through the 2017 Award Modification, require delivery of compound annual growth rates of consolidated Adjusted OIBDA CAGR of 6.0% during the three-year performance period for Liberty Global or Liberty Latin America depending on the respective class of shares underlying the award, with over- and under-performance payout opportunities should the Adjusted OIBDA CAGR exceed or fail to meet the target, as applicable. The performance payout may be adjusted at the compensation committee's discretion for events that may affect comparability, such as changes in foreign currency exchange rates and accounting principles or policies. A performance range of 75% to 167.5% of the target Adjusted OIBDA CAGR will generally result in award recipients earning 75% to 300% of their target 2016 PSUs, subject to reduction or forfeiture based on individual performance. The earned 2016 PSUs will vest 50% on each of April 1, 2019 and October 1, 2019.

Liberty Global Performance Grant Award

Effective April 30, 2014, our compensation committee authorized the grant of PGUs to our Chief Executive Officer, comprising a total of one million PGUs with respect to Class A Old Liberty Global Shares and one million PGUs with respect to Class B Old Liberty Global Shares. The PGUs, which were subject to a performance condition that was achieved in 2014, vested in three equal annual installments beginning on March 15, 2015. Our Chief Executive Officer also received 41,589 PGUs with respect to each Class A and Class B LiLAC Shares as a result of the LiLAC Distribution in 2016 and 33,333 PGUs with respect to each Class A and Class B LiLAC Shares as a result of the LiLAC Transaction in 2015. As of March 31, 2017, all PGUs were fully vested.

Liberty Global Challenge Performance Awards

Effective June 24, 2013, our compensation committee approved the Challenge Performance Awards, which consisted solely of PSARs for our senior executive officers and a combination of PSARs and PSUs for our other executive officers and key employees. Each PSU represented the right to receive one Liberty Global or LiLAC Class A or Class C ordinary share, as applicable. The performance criteria for the Challenge Performance Awards was based on the participant's performance and achievement of individual goals in each of the years 2013, 2014 and 2015. As a result of satisfying performance conditions, 100% of the then outstanding Challenge Performance Awards vested and became fully exercisable on June 24, 2016. The PSARs have a term of seven years and base prices equal to the respective market closing prices of the applicable class on the grant date.

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Share-based Award Activity — Liberty Global Ordinary Shares

The following tables summarize the share-based award activity during 2017 with respect to awards issued by Liberty Global. In the tables below, the “Impact of Split-off Transaction” amounts represent share-based awards held by former employees of Liberty Global that became employees of Liberty Latin America as a result of the Split-off Transaction. No further share-based compensation expense will be recognized by our company with respect to these awards.

Options — Class A ordinary shares	Number of shares	Weighted average exercise price	Weighted average remaining contractual term	Aggregate intrinsic value
			in years	in millions
Outstanding at January 1, 2017	707,293	\$ 21.53		
Granted	96,823	\$ 31.13		
Forfeited	(14,742)	\$ 29.23		
Exercised	(208,893)	\$ 14.29		
Outstanding at December 31, 2017	580,481	\$ 25.54	4.0	\$ 6.4
Exercisable at December 31, 2017	395,200	\$ 22.59	3.1	\$ 5.5

Options — Class C ordinary shares	Number of shares	Weighted average exercise price	Weighted average remaining contractual term	Aggregate intrinsic value
			in years	in millions
Outstanding at January 1, 2017	2,754,480	\$ 23.08		
Granted	692,780	\$ 27.24		
Forfeited	(175,933)	\$ 29.06		
Exercised	(545,761)	\$ 13.94		
Outstanding at December 31, 2017	2,725,566	\$ 25.58	3.0	\$ 23.2
Exercisable at December 31, 2017	2,347,482	\$ 24.79	2.5	\$ 21.5

SARs — Class A ordinary shares	Number of shares	Weighted average base price	Weighted average remaining contractual term	Aggregate intrinsic value
			in years	in millions
Outstanding at January 1, 2017	13,182,578	\$ 30.89		
Granted	3,190,836	\$ 35.81		
Forfeited	(569,484)	\$ 36.17		
Exercised	(1,102,319)	\$ 18.69		
Impact of the Split-off Transaction	(1,177,536)	\$ 32.12		
Outstanding at December 31, 2017	13,524,075	\$ 32.72	4.0	\$ 55.8
Exercisable at December 31, 2017 (a)	8,557,161	\$ 31.04	3.0	\$ 49.9

(a) Excludes 753,714 SARs at a weighted average exercise price of \$29.67 that are held by former employees of Liberty Global.

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SARs — Class C ordinary shares	Number of shares	Weighted average base price	Weighted average remaining contractual term in years	Aggregate intrinsic value in millions
Outstanding at January 1, 2017	32,139,764	\$ 28.54		
Granted	6,381,676	\$ 34.89		
Forfeited	(1,142,689)	\$ 34.94		
Exercised	(3,274,905)	\$ 17.88		
Impact of the Split-off Transaction	(2,798,710)	\$ 29.84		
Outstanding at December 31, 2017	<u>31,305,136</u>	<u>\$ 30.60</u>	<u>3.7</u>	<u>\$ 136.4</u>
Exercisable at December 31, 2017 (a)	<u>21,348,878</u>	<u>\$ 28.76</u>	<u>2.8</u>	<u>\$ 128.2</u>

(a) Excludes 1,949,581 SARs at a weighted average exercise price of \$27.46 that are held by former employees of Liberty Global.

RSUs — Class A ordinary shares	Number of shares	Weighted average grant-date fair value per share	Weighted average remaining contractual term in years
Outstanding at January 1, 2017	669,060	\$ 36.13	
Granted	226,350	\$ 35.62	
Forfeited	(85,437)	\$ 37.41	
Released from restrictions	(282,704)	\$ 35.99	
Impact of the Split-off Transaction	(16,208)	\$ 34.76	
Outstanding at December 31, 2017	<u>511,061</u>	<u>\$ 35.81</u>	<u>2.6</u>

RSUs — Class C ordinary shares	Number of shares	Weighted average grant-date fair value per share	Weighted average remaining contractual term in years
Outstanding at January 1, 2017	1,350,133	\$ 34.54	
Granted	452,700	\$ 34.72	
Forfeited	(172,379)	\$ 35.45	
Released from restrictions	(590,618)	\$ 34.20	
Impact of the Split-off Transaction	(32,523)	\$ 36.41	
Outstanding at December 31, 2017	<u>1,007,313</u>	<u>\$ 34.60</u>	<u>2.6</u>

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PSUs and PGUs — Class A ordinary shares	Number of shares	Weighted average grant-date fair value per share	Weighted average remaining contractual term in years
Outstanding at January 1, 2017	2,980,587	\$ 33.30	
Granted	94,122	\$ 35.32	
Forfeited	(281,408)	\$ 30.86	
Released from restrictions	(729,072)	\$ 41.13	
Impact of the Split-off Transaction	(129,434)	\$ 30.28	
Outstanding at December 31, 2017	<u>1,934,795</u>	<u>\$ 31.00</u>	<u>1.7</u>
	Number of shares	Weighted average grant-date fair value per share	Weighted average remaining contractual term in years
PGUs — Class B ordinary shares			
Outstanding at January 1, 2017	333,334	\$ 37.72	
Released from restriction	(333,334)	\$ 37.72	
Outstanding at December 31, 2017	<u>—</u>	<u>\$ —</u>	<u>—</u>
	Number of shares	Weighted average grant-date fair value per share	Weighted average remaining contractual term in years
PSUs — Class C ordinary shares			
Outstanding at January 1, 2017	5,302,451	\$ 31.78	
Granted	188,244	\$ 34.34	
Forfeited	(564,321)	\$ 29.81	
Released from restrictions	(791,497)	\$ 43.27	
Impact of the Split-off Transaction	(259,145)	\$ 29.31	
Outstanding at December 31, 2017	<u>3,875,732</u>	<u>\$ 30.01</u>	<u>1.7</u>

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(14) Restructuring Liabilities

A summary of changes in our restructuring liabilities during 2017 is set forth in the table below:

	Employee severance and termination	Office closures	Contract termination and other	Total
in millions				
Restructuring liability as of January 1, 2017	\$ 73.6	\$ 7.3	\$ 31.8	\$ 112.7
Restructuring charges	56.0	8.3	4.9	69.2
Cash paid	(100.4)	(6.8)	(22.2)	(129.4)
Reclassification to held for sale	(0.4)	—	—	(0.4)
Foreign currency translation adjustments	7.3	0.7	1.9	9.9
Restructuring liability as of December 31, 2017	<u>\$ 36.1</u>	<u>\$ 9.5</u>	<u>\$ 16.4</u>	<u>\$ 62.0</u>
Current portion	\$ 34.7	\$ 4.4	\$ 4.6	\$ 43.7
Noncurrent portion	1.4	5.1	11.8	18.3
Total	<u>\$ 36.1</u>	<u>\$ 9.5</u>	<u>\$ 16.4</u>	<u>\$ 62.0</u>

Our restructuring charges during 2017 included employee severance and termination costs related to certain reorganization and integration activities of \$20.1 million in U.K./Ireland, \$19.7 million in Germany and \$10.0 million in Central and Corporate (as defined in note 18).

In connection with the BASE Acquisition, Telenet acquired BASE's mobile network in Belgium. As a result, Telenet is migrating its mobile subscribers from an MVNO arrangement to the BASE mobile network and expects to complete this migration by the end of the first half of 2018. The migration of Telenet's mobile subscribers will result in additional charges under the MVNO agreement in excess of usage-based charges. These incremental charges will be recognized as restructuring costs during 2018, and are expected to range between \$30 million and \$40 million. Telenet's MVNO agreement expires at the end of 2018.

A summary of changes in our restructuring liabilities during 2016 is set forth in the table below:

	Employee severance and termination	Office closures	Contract termination	Total
in millions				
Restructuring liability as of January 1, 2016	\$ 66.2	\$ 7.2	\$ 42.0	\$ 115.4
Restructuring charges	127.1	3.4	24.2	154.7
Cash paid	(87.8)	(2.6)	(34.7)	(125.1)
BASE liabilities at acquisition date	—	—	1.3	1.3
Disposal (a)	(28.1)	(0.5)	—	(28.6)
Foreign currency translation adjustments	(3.8)	(0.2)	(1.0)	(5.0)
Restructuring liability as of December 31, 2016	<u>\$ 73.6</u>	<u>\$ 7.3</u>	<u>\$ 31.8</u>	<u>\$ 112.7</u>
Current portion	\$ 69.4	\$ 2.2	\$ 19.8	\$ 91.4
Noncurrent portion	4.2	5.1	12.0	21.3
Total	<u>\$ 73.6</u>	<u>\$ 7.3</u>	<u>\$ 31.8</u>	<u>\$ 112.7</u>

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(a) Represents restructuring liabilities associated with VodafoneZiggo Holding.

Our restructuring charges during 2016 included employee severance and termination costs related to certain reorganization and integration activities of \$59.3 million in Germany, \$26.1 million in U.K./Ireland, \$20.4 million in Central and Corporate and \$10.8 million in the Netherlands. Central and Corporate also incurred contract termination charges of \$22.7 million during 2016.

A summary of changes in our restructuring liabilities during 2015 is set forth in the table below:

	Employee severance and termination	Office closures	Contract termination	Total
in millions				
Restructuring liability as of January 1, 2015	\$ 25.2	\$ 12.5	\$ 72.2	\$ 109.9
Restructuring charges (credits)	99.2	(0.8)	(8.2)	90.2
Cash paid	(64.9)	(5.8)	(13.1)	(83.8)
Foreign currency translation adjustments and other	6.7	1.3	(8.9)	(0.9)
Restructuring liability as of December 31, 2015	<u>\$ 66.2</u>	<u>\$ 7.2</u>	<u>\$ 42.0</u>	<u>\$ 115.4</u>
Current portion	\$ 61.4	\$ 1.1	\$ 28.5	\$ 91.0
Noncurrent portion	4.8	6.1	13.5	24.4
Total	<u>\$ 66.2</u>	<u>\$ 7.2</u>	<u>\$ 42.0</u>	<u>\$ 115.4</u>

Our restructuring charges during 2015 included (i) employee severance and termination costs related to certain reorganization and integration activities of \$61.8 million in the Netherlands, \$20.9 million in U.K./Ireland, \$9.7 million in Germany and \$3.5 million in Switzerland/Austria, (ii) contract termination charges of \$8.1 million in Belgium and (iii) a credit of \$17.0 million recorded by Telenet during the fourth quarter following the settlement of its digital terrestrial television (DTT) capacity contract obligations, the fair value of which were originally recorded during 2014 when Telenet discontinued the provision of DTT services.

(15) Defined Benefit Plans

Certain of our subsidiaries maintain various funded and unfunded defined benefit plans for their employees. A significant portion of these defined benefit plans are closed to new entrants and existing participants do not accrue any additional benefits.

The table below provides summary information on the defined benefit plans of our continuing operations:

	December 31,		
	2017	2016	2015
in millions			
Fair value of plan assets (a)	\$ 1,414.0	\$ 1,199.6	\$ 1,092.6
Projected benefit obligation	\$ 1,379.4	\$ 1,253.2	\$ 1,188.3
Net asset (liability)	<u>\$ 34.6</u>	<u>\$ (53.6)</u>	<u>\$ (95.7)</u>

(a) The fair value of plan assets at December 31, 2017 includes \$969.1 million, \$146.7 million and \$296.4 million of assets that are valued based on Level 1, Level 2 and Level 3 inputs, respectively, of the fair value hierarchy (as further described in note 8). Our plan assets comprise investments in debt securities, equity securities, hedge funds, insurance contracts and certain other assets.

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The net periodic pension cost of our continuing operations was \$8.5 million, \$12.5 million and \$11.8 million during 2017, 2016 and 2015, respectively, including \$24.9 million, \$25.4 million and \$24.8 million, respectively, representing the service cost component. The 2016 and 2015 amounts exclude aggregate curtailment gains of \$1.4 million and \$7.9 million, respectively, which are included in impairment, restructuring and other operating items, net, in our consolidated statements of operations. For information regarding a new accounting pronouncement that will impact our presentation of net periodic pension cost, see note 2.

Based on December 31, 2017 exchange rates and information available as of that date, our subsidiaries' contributions to their respective defined benefit plans in 2018 are expected to aggregate \$51.8 million. During 2017, this amount aggregated \$58.1 million.

(16) Accumulated Other Comprehensive Earnings (Loss).

Accumulated other comprehensive earnings (loss) included in our consolidated balance sheets and statements of equity reflect the aggregate impact of foreign currency translation adjustments and pension-related adjustments and other. The changes in the components of accumulated other comprehensive earnings (loss), net of taxes, are summarized as follows:

	Liberty Global shareholders				Total accumulated other comprehensive earnings (loss)
	Foreign currency translation adjustments	Pension- related adjustments and other	Accumulated other comprehensive earnings (loss)	Noncontrolling interests	
	in millions				
Balance at January 1, 2015	\$ 1,712.1	\$ (65.5)	\$ 1,646.6	\$ (3.3)	\$ 1,643.3
Other comprehensive loss	(732.9)	(17.8)	(750.7)	0.5	(750.2)
Balance at December 31, 2015	979.2	(83.3)	895.9	(2.8)	893.1
Other comprehensive loss	(1,251.8)	(16.5)	(1,268.3)	(3.1)	(1,271.4)
Balance at December 31, 2016	(272.6)	(99.8)	(372.4)	(5.9)	(378.3)
Other comprehensive earnings	1,942.8	0.3	1,943.1	1.7	1,944.8
Impact of the Split-off Transaction	56.4	28.9	85.3	—	85.3
Balance at December 31, 2017	\$ 1,726.6	\$ (70.6)	\$ 1,656.0	\$ (4.2)	\$ 1,651.8

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The components of other comprehensive earnings (loss), net of taxes, are reflected in our consolidated statements of comprehensive earnings (loss). The following table summarizes the tax effects related to each component of other comprehensive earnings (loss), net of amounts reclassified to our consolidated statements of operations:

	Pre-tax amount	Tax benefit (expense)	Net-of-tax amount
in millions			
Year ended December 31, 2017:			
Foreign currency translation adjustments (a)	\$ 1,971.4	\$ —	\$ 1,971.4
Pension-related adjustments and other	20.0	(2.7)	17.3
Other comprehensive earnings from continuing operations	1,991.4	(2.7)	1,988.7
Other comprehensive loss from discontinued operations	(45.0)	1.1	(43.9)
Other comprehensive earnings	1,946.4	(1.6)	1,944.8
Other comprehensive earnings attributable to noncontrolling interests (b)	(1.9)	0.2	(1.7)
Other comprehensive earnings attributable to Liberty Global shareholders	\$ 1,944.5	\$ (1.4)	\$ 1,943.1
Year ended December 31, 2016:			
Foreign currency translation adjustments (a)	\$ (1,192.4)	\$ (1.6)	\$ (1,194.0)
Pension-related adjustments and other	(5.1)	(0.4)	(5.5)
Other comprehensive loss from continuing operations	(1,197.5)	(2.0)	(1,199.5)
Other comprehensive loss from discontinued operations	(72.1)	0.2	(71.9)
Other comprehensive loss	(1,269.6)	(1.8)	(1,271.4)
Other comprehensive loss attributable to noncontrolling interests (b)	3.1	—	3.1
Other comprehensive loss attributable to Liberty Global shareholders	\$ (1,266.5)	\$ (1.8)	\$ (1,268.3)
Year ended December 31, 2015:			
Foreign currency translation adjustments (a)	\$ (766.6)	\$ 4.2	\$ (762.4)
Pension-related adjustments	(25.3)	6.5	(18.8)
Other comprehensive loss from continuing operations	(791.9)	10.7	(781.2)
Other comprehensive earnings from discontinued operations	31.4	(0.4)	31.0
Other comprehensive loss	(760.5)	10.3	(750.2)
Other comprehensive earnings attributable to noncontrolling interests (b)	(0.7)	0.2	(0.5)
Other comprehensive loss attributable to Liberty Global shareholders	\$ (761.2)	\$ 10.5	\$ (750.7)

(a) For additional information regarding reclassifications of foreign currency translation losses to earnings, see the consolidated statements of comprehensive earnings (loss) and note 5.

(b) Amounts represent the noncontrolling interest owners' share of our pension-related adjustments.

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(17) Commitments and Contingencies

Commitments

In the normal course of business, we have entered into agreements that commit our company to make cash payments in future periods with respect to network and connectivity commitments, programming contracts, purchases of customer premises and other equipment and services, non-cancellable operating leases and other items. The following table sets forth the U.S. dollar equivalents of such commitments as of December 31, 2017:

	Payments due during:						Total
	2018	2019	2020	2021	2022	Thereafter	
in millions							
Network and connectivity commitments	\$ 833.4	\$ 378.6	\$ 307.8	\$ 267.5	\$ 76.4	\$ 952.1	\$ 2,815.8
Programming commitments	1,040.8	626.5	275.7	96.0	48.4	64.7	2,152.1
Purchase commitments	1,092.1	237.6	165.5	48.2	21.5	59.0	1,623.9
Operating leases	104.2	89.7	73.8	60.8	50.6	201.1	580.2
Other commitments	27.0	9.0	2.7	0.5	0.3	0.1	39.6
Total (a)	\$ 3,097.5	\$ 1,341.4	\$ 825.5	\$ 473.0	\$ 197.2	\$ 1,277.0	\$ 7,211.6

(a) The commitments included in this table do not reflect any liabilities that are included in our December 31, 2017 consolidated balance sheet.

Network and connectivity commitments include (i) Telenet's commitments for certain operating costs associated with its leased network, (ii) commitments associated with our MVNO agreements and (iii) service commitments associated with our network extension projects, primarily in the U.K. Telenet's commitments for certain operating costs are subject to adjustment based on changes in the network operating costs incurred by Telenet with respect to its own networks. These potential adjustments are not subject to reasonable estimation and, therefore, are not included in the above table. The amounts reflected in the above table with respect to certain of our MVNO commitments represent fixed minimum amounts payable under these agreements and, therefore, may be significantly less than the actual amounts we ultimately pay in these periods.

Programming commitments consist of obligations associated with certain of our programming, studio output and sports rights contracts that are enforceable and legally binding on us as we have agreed to pay minimum fees without regard to (i) the actual number of subscribers to the programming services, (ii) whether we terminate service to a portion of our subscribers or dispose of a portion of our distribution systems or (iii) whether we discontinue our premium sports services. In addition, programming commitments do not include increases in future periods associated with contractual inflation or other price adjustments that are not fixed. Accordingly, the amounts reflected in the above table with respect to these contracts are significantly less than the amounts we expect to pay in these periods under these contracts. Historically, payments to programming vendors have represented a significant portion of our operating costs, and we expect that this will continue to be the case in future periods. In this regard, our total programming and copyright costs aggregated \$1,816.2 million, \$2,104.5 million and \$2,066.6 million during 2017, 2016 and 2015, respectively.

Purchase commitments include unconditional and legally binding obligations related to (i) the purchase of customer premises and other equipment and (ii) certain service-related commitments, including call center, information technology and maintenance services.

Commitments arising from acquisition agreements are not reflected in the above table. For information regarding our commitments under acquisition agreements, see note 4.

In addition to the commitments set forth in the table above, we have significant commitments under (i) derivative instruments and (ii) defined benefit plans and similar agreements, pursuant to which we expect to make payments in future periods. For

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information regarding our derivative instruments, including the net cash paid or received in connection with these instruments during 2017, 2016 and 2015, see note 7. For information regarding our defined benefit plans, see note 15.

We also have commitments pursuant to agreements with, and obligations imposed by, franchise authorities and municipalities, which may include obligations in certain markets to move aerial cable to underground ducts or to upgrade, rebuild or extend portions of our broadband communication systems. Such amounts are not included in the above table because they are not fixed or determinable.

Rental expense under non-cancellable operating lease arrangements amounted to \$188.7 million, \$205.2 million and \$204.7 million during 2017, 2016 and 2015, respectively. It is expected that in the normal course of business, operating leases that expire generally will be renewed or replaced by similar leases.

We have established various defined contribution benefit plans for our and our subsidiaries' employees. Our aggregate expense for matching contributions under the various defined contribution employee benefit plans was \$37.0 million, \$70.4 million and \$75.0 million during 2017, 2016 and 2015, respectively.

Guarantees and Other Credit Enhancements

In the ordinary course of business, we may provide (i) indemnifications to our lenders, our vendors and certain other parties and (ii) performance and/or financial guarantees to local municipalities, our customers and vendors. Historically, these arrangements have not resulted in our company making any material payments and we do not believe that they will result in material payments in the future.

Legal and Regulatory Proceedings and Other Contingencies

Interkabel Acquisition. On November 26, 2007, Telenet and the PICs announced a non-binding agreement-in-principle to transfer the analog and digital television activities of the PICs, including all existing subscribers, to Telenet. Subsequently, Telenet and the PICs entered into a binding agreement (the **2008 PICs Agreement**), which closed effective October 1, 2008. Beginning in December 2007, Proximus NV/SA (**Proximus**), the incumbent telecommunications operator in Belgium, instituted several proceedings seeking to block implementation of these agreements. Proximus lodged summary proceedings with the President of the Court of First Instance of Antwerp to obtain a provisional injunction preventing the PICs from effecting the agreement-in-principle and initiated a civil procedure on the merits claiming the annulment of the agreement-in-principle. In March 2008, the President of the Court of First Instance of Antwerp ruled in favor of Proximus in the summary proceedings, which ruling was overturned by the Court of Appeal of Antwerp in June 2008. Proximus brought this appeal judgment before the Cour de Cassation (the **Belgian Supreme Court**), which confirmed the appeal judgment in September 2010. On April 6, 2009, the Court of First Instance of Antwerp ruled in favor of the PICs and Telenet in the civil procedure on the merits, dismissing Proximus's request for the rescission of the agreement-in-principle and the 2008 PICs Agreement. On June 12, 2009, Proximus appealed this judgment with the Court of Appeal of Antwerp. In this appeal, Proximus is now also seeking compensation for damages. While these proceedings were suspended indefinitely, other proceedings were initiated, which resulted in a ruling by the Belgian Council of State in May 2014 annulling (i) the decision of the PICs not to organize a public market consultation and (ii) the decision from the PICs' board of directors to approve the 2008 PICs Agreement. In December 2015, Proximus resumed the civil proceedings pending with the Court of Appeal of Antwerp seeking to have the 2008 PICs Agreement annulled and claiming damages of €1.4 billion (\$1.7 billion).

In December 2017, the Court of Appeals of Antwerp issued a judgment rejecting Proximus' claims. Proximus has the right to appeal the Court of Appeals of Antwerp's judgment with the Supreme Court (Hof van Cassatie / Cour de Cassation), however Proximus has not done so to date. No assurance can be given as to the outcome of these or other proceedings. However, an unfavorable outcome of existing or future proceedings could potentially lead to the annulment of the 2008 PICs Agreement and/or to an obligation of Telenet to pay compensation for damages, subject to the relevant provisions of the 2008 PICs Agreement, which stipulate that Telenet is responsible for damages in excess of €20.0 million (\$24.0 million). We do not expect the ultimate resolution of this matter to have a material impact on our results of operations, cash flows or financial position. No amounts have been accrued by us with respect to this matter as the likelihood of loss is not considered to be probable.

Telekom Deutschland Litigation. On December 28, 2012, Unitymedia filed a lawsuit against Telekom Deutschland in which Unitymedia asserts that it pays excessive prices for the co-use of Telekom Deutschland's cable ducts in Unitymedia's footprint.

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The Federal Network Agency approved rates for the co-use of certain ducts of Telekom Deutschland in March 2011. Based in part on these approved rates, Unitymedia is seeking a reduction of the annual lease fees (approximately €76 million (\$91 million) for 2017) by approximately two-thirds and the return of similarly calculated overpayments from 2009 through the ultimate settlement date, plus accrued interest. In October 2016, the first instance court dismissed this action. We have appealed this decision, however, the resolution of this matter may take several years and no assurance can be given that Unitymedia's claims will be successful. Any recovery by Unitymedia will not be reflected in our consolidated financial statements until such time as the final disposition of this matter has been reached.

Belgium Regulatory Developments. In 2011, the Belgisch Instituut voor Post en Telecommunicatie and the regional regulators for the media sectors (together, the **Belgium Regulatory Authorities**) found Telenet to have significant market power in the broadcasting market (the **2011 Decision**). The 2011 Decision imposed on Telenet an obligation to provide third-party operators, at specified tariff rates, with (i) a resale offer of an analog television package, (ii) access to digital television platforms and (iii) a resale offer of broadband internet access in combination with the digital television access obligation. We refer to the tariff portion of the 2011 Decision as the "**Retail Minus Rules**". On November 12, 2014, the 2011 Decision was upheld by the Court of Appeal, and the Court of Appeal also accepted Proximus' claim that Proximus should be allowed access to the digital television platforms of other operators, including Telenet, for the purpose of reselling bundles of digital video and broadband internet services. On November 30, 2015, Telenet filed an appeal of the Court of Appeal's ruling with the Belgian Supreme Court. As required by the 2011 Decision, Telenet has implemented the access obligations at the rates specified by the Retail Minus Rules, and on March 1, 2016, Orange Belgium NV launched a commercial offer combining a cable television package with broadband internet access for certain of their mobile customers. On October 2, 2017, in a separate action, the Court of Appeal annulled the Retail Minus Rules, but maintained the effects of the Retail Minus Rules until April 30, 2018. Accordingly, as of May 1, 2018, the tariff rates for Telenet's resale obligations will be unregulated until a new decision from the Belgium Regulatory Authorities is adopted.

On July 7, 2017, the Belgium Regulatory Authorities published a draft market review decision (the **2017 Draft Decision**) that, once adopted, will replace the 2011 Decision. The 2017 Draft Decision proposed a finding of significant market power of Telenet in the wholesale broadband market. Proposed obligations include (i) providing third-party operators with access to the digital television platform (including basic digital video and analog video) and (ii) making available to third-party operators a bitstream offer of broadband internet access (including fixed voice as an option). The 2017 Draft Decision is expected to be submitted to the European Commission in the first quarter of 2018. Telenet considers the 2017 Draft Decision to be inconsistent with the principle of technology-neutral regulation and the European Single Market Strategy to stimulate further investments in broadband networks.

The 2011 Decision and the 2017 Draft Decision aim to, and in their application, may strengthen Telenet's competitors by granting them resale access to Telenet's network to offer competing products and services notwithstanding Telenet's substantial historical financial outlays in developing the infrastructure. In addition, any resale access granted to competitors could (i) limit the bandwidth available to Telenet to provide new or expanded products and services to the customers served by its network and (ii) adversely impact Telenet's ability to maintain or increase its revenue and cash flows. The extent of any such adverse impacts ultimately will be dependent on the extent that competitors take advantage of the resale access afforded to Telenet's network, the rates that Telenet receives for such access and other competitive factors or market developments.

Virgin Media VAT Matters. Virgin Media's application of VAT with respect to certain revenue generating activities has been challenged by the U.K. tax authorities. Virgin Media has estimated its maximum exposure in the event of an unfavorable outcome to be £46.7 million (\$63.2 million) as of December 31, 2017. No portion of this exposure has been accrued by Virgin Media as the likelihood of loss is not considered to be probable. A court hearing was held at the end of September 2014 in relation to the U.K. tax authorities' challenge and the timing of the court's decision is uncertain.

On March 19, 2014, the U.K. government announced a change in legislation with respect to the charging of VAT in connection with prompt payment discounts such as those that we offer to our fixed-line telephony customers. This change, which took effect on May 1, 2014, impacted our company and some of our competitors. The U.K. tax authority issued a decision in the fourth quarter of 2015 challenging our application of the prompt payment discount rules prior to the May 1, 2014 change in legislation. We have appealed this decision. As part of the appeal process, we were required to make aggregate payments of £67.0 million (\$99.1 million at the respective transaction dates), which included the challenged amount of £63.7 million and related interest of £3.3 million. The aggregate amount paid does not include penalties, which could be significant in the unlikely event that penalties were to be assessed. This matter will likely be subject to court proceedings that could delay the ultimate resolution for an extended period of time. No portion of this potential exposure has been accrued by our company as the likelihood of loss is not considered to be probable.

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Hungary VAT Matter. In February 2016, our DTH operations in Luxembourg received a second instance decision from the Hungarian tax authorities as a result of an audit with respect to VAT payments that the Hungarian tax authorities conducted for the years 2010 through 2012. The Hungarian tax authorities assessed our DTH operations with an obligation to pay VAT for the years audited of HUF 5,413.2 million (\$20.9 million), excluding interest and penalties, which could be significant. We believe that our DTH operations have operated in compliance with all applicable rules, regulations and interpretations thereof, including a binding tax ruling that we received from the Hungarian government in 2010. In October 2016, a Budapest court disagreed with the tax authorities and dismissed the assessment. On February 2, 2017, the Hungarian tax authorities appealed the Budapest court decision to the Hungarian Supreme Court, and on November 9, 2017, the Hungarian Supreme Court affirmed the decision of the Budapest court. We consider this matter to be closed.

Ziggo Acquisition Matter. In July 2015, KPN N.V. appealed the European Commission's 2014 approval of the acquisition by Liberty Global of Ziggo Holding B.V. (**Ziggo**). We were not a party to that case. In October 2017, the European Union (E.U.) General Court annulled the European Commission's approval on procedural grounds in that it found that the European Commission had failed to adequately explain the reasons for elements of its decision. This annulment has no impact on the day-to-day operations of the VodafoneZiggo JV. We are in the process of renotifying our acquisition of Ziggo to the European Commission for a new merger clearance and expect to complete this process during 2018. The 2014 merger clearance was based on certain remedies, and our expectation is that these remedies will continue. However, there can be no assurance that other remedies will not be required as a result of the renotification, and any such additional remedies may have an operational impact for the VodafoneZiggo JV.

Other Regulatory Issues. Video distribution, broadband internet, fixed-line telephony, mobile and content businesses are regulated in each of the countries in which we or our affiliates operate. The scope of regulation varies from country to country, although in some significant respects regulation in European markets is harmonized under the regulatory structure of the E.U. Adverse regulatory developments could subject our businesses to a number of risks. Regulation, including conditions imposed on us by competition or other authorities as a requirement to close acquisitions or dispositions, could limit growth, revenue and the number and types of services offered and could lead to increased operating costs and property and equipment additions. In addition, regulation may restrict our operations and subject them to further competitive pressure, including pricing restrictions, interconnect and other access obligations, and restrictions or controls on content, including content provided by third parties. Failure to comply with current or future regulation could expose our businesses to various penalties.

Effective April 1, 2017, the rateable value of our existing network and other assets in the U.K. increased significantly. This increase affects the amount we pay for network infrastructure charges as the annual amount payable to the U.K. government is calculated by applying a percentage multiplier to the rateable value of assets. This change, together with a similar change in Ireland, will result in significant increases in our network infrastructure charges. The aggregate amount of these increases was £25.5 million (\$32.8 million at the average rate for the year) during 2017 and will build to a maximum aggregate increase of up to £110.0 million (\$148.8 million) in 2021. We continue to believe that these increases are excessive and retain the right of appeal should more favorable agreements be reached with other operators. The rateable value of network and other assets constructed under our network extension program in the U.K. remains subject to review by the U.K. government.

In addition to the foregoing items, we have contingent liabilities related to matters arising in the ordinary course of business including (i) legal proceedings, (ii) issues involving VAT and wage, property, withholding and other tax issues and (iii) disputes over interconnection, programming, copyright and channel carriage fees. While we generally expect that the amounts required to satisfy these contingencies will not materially differ from any estimated amounts we have accrued, no assurance can be given that the resolution of one or more of these contingencies will not result in a material impact on our results of operations, cash flows or financial position in any given period. Due, in general, to the complexity of the issues involved and, in certain cases, the lack of a clear basis for predicting outcomes, we cannot provide a meaningful range of potential losses or cash outflows that might result from any unfavorable outcomes.

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(18) Segment Reporting

We generally identify our reportable segments as (i) those consolidated subsidiaries that represent 10% or more of our revenue, Adjusted OIBDA (as defined below) or total assets or (ii) those equity method affiliates where our investment or share of revenue or Adjusted OIBDA represents 10% or more of our total assets, revenue or Adjusted OIBDA, respectively. In certain cases, we may elect to include an operating segment in our segment disclosure that does not meet the above-described criteria for a reportable segment. We evaluate performance and make decisions about allocating resources to our operating segments based on financial measures such as revenue and Adjusted OIBDA. In addition, we review non-financial measures such as subscriber growth, as appropriate.

Adjusted operating income before depreciation and amortization (**Adjusted OIBDA**) is the primary measure used by our chief operating decision maker to evaluate segment operating performance. Adjusted OIBDA is also a key factor that is used by our internal decision makers to (i) determine how to allocate resources to segments and (ii) evaluate the effectiveness of our management for purposes of annual and other incentive compensation plans. As we use the term, Adjusted OIBDA is defined as operating income before depreciation and amortization, share-based compensation, provisions and provision releases related to significant litigation and impairment, restructuring and other operating items. Other operating items include (a) gains and losses on the disposition of long-lived assets, (b) third-party costs directly associated with successful and unsuccessful acquisitions and dispositions, including legal, advisory and due diligence fees, as applicable, and (c) other acquisition-related items, such as gains and losses on the settlement of contingent consideration. Our internal decision makers believe Adjusted OIBDA is a meaningful measure because it represents a transparent view of our recurring operating performance that is unaffected by our capital structure and allows management to (1) readily view operating trends, (2) perform analytical comparisons and benchmarking between segments and (3) identify strategies to improve operating performance in the different countries in which we operate. A reconciliation of total segment Adjusted OIBDA to our earnings (loss) from continuing operations before income taxes is presented below.

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As of December 31, 2017, our reportable segments are as follows:

- U.K./Ireland
- Belgium
- Germany
- Switzerland/Austria
- Central and Eastern Europe

During the fourth quarter of 2017, we began presenting our “Central and other” and “Corporate and other” categories as one combined operating segment, which is now referred to as “**Central and Corporate**.” This change was made as a result of internal changes in organizational structures and changes in how our central and corporate functions are evaluated and monitored by our chief operating decision maker. Previously, these categories were presented separately. Segment information for all periods presented has been revised to reflect the above-described change.

On December 31, 2016, we completed the VodafoneZiggo JV Transaction, whereby we contributed VodafoneZiggo Holding (including Ziggo Sport) to the VodafoneZiggo JV. In our segment presentation for the years ended December 31, 2016 and 2015, VodafoneZiggo Holding (exclusive of Ziggo Sport, which became a subsidiary of VodafoneZiggo Holding in October 2016) is separately reported as “*The Netherlands*” and Ziggo Sport is included in Central and Corporate. Effective January 1, 2017, following the closing of the VodafoneZiggo JV Transaction, we have identified the VodafoneZiggo JV as a nonconsolidated reportable segment. Accordingly, our results of operations for 2016 and 2015 include the operations of VodafoneZiggo Holding and Ziggo Sport while our results of operations for 2017 and our consolidated balance sheets as of December 31, 2017 and 2016 exclude such entities. For additional information regarding the VodafoneZiggo JV Transaction, see note 5 to our consolidated financial statements.

All of the reportable segments set forth above derive their revenue primarily from residential and B2B communications services, including video, broadband internet, fixed-line telephony and mobile services. At December 31, 2017, we provided residential and B2B communications services in 12 European countries and DTH services to customers in the Czech Republic, Hungary, Romania and Slovakia through a Luxembourg-based organization that we refer to as “**UPC DTH**.” In addition to UPC DTH, our Central and Eastern Europe segment includes our broadband communications operations in the Czech Republic, Hungary, Poland, Romania and Slovakia. Central and Corporate includes (i) revenue earned from services provided to the VodafoneZiggo JV, (ii) costs associated with certain centralized functions, including billing systems, network operations, technology, marketing, facilities, finance and other administrative functions and (iii) less significant consolidated operating segments that provide programming and other services, including Ziggo Sport through December 31, 2016.

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Performance Measures of Our Reportable Segments

The amounts presented below represent 100% of each of our reportable segment's revenue and Adjusted OIBDA. As we have the ability to control Telenet, we consolidate 100% of the revenue and expenses of these entities in our consolidated statements of operations despite the fact that third parties own significant interests in these entities. The noncontrolling owners' interests in the operating results of Telenet and other less significant majority-owned subsidiaries are reflected in net earnings or loss attributable to noncontrolling interests in our consolidated statements of operations. Similarly, despite only holding a 50% noncontrolling interest in the VodafoneZiggo JV, we present 100% of its revenue and Adjusted OIBDA in the tables below. Our share of the VodafoneZiggo JV's operating results is included in share of losses of affiliates, net, in our consolidated statements of operations. For additional information, see notes 1 and 4.

	Year ended December 31,					
	2017		2016		2015	
	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA	Revenue	Adjusted OIBDA
	in millions					
U.K./Ireland	\$ 6,398.7	\$ 2,894.5	\$ 6,508.8	\$ 2,930.9	\$ 7,058.7	\$ 3,162.1
Belgium	2,865.3	1,299.7	2,691.1	1,173.4	2,021.0	990.3
Germany	2,705.4	1,700.3	2,539.7	1,586.4	2,399.5	1,502.1
Switzerland/Austria	1,766.0	1,054.3	1,755.6	1,069.3	1,758.2	1,040.1
Central and Eastern Europe	1,183.6	516.2	1,088.4	471.5	1,066.6	474.0
The Netherlands	—	—	2,690.8	1,472.7	2,745.3	1,519.5
Central and Corporate	144.8	(379.4)	73.2	(540.5)	51.5	(511.8)
Intersegment eliminations	(14.9)	—	(62.6)	—	(38.1)	—
Total	<u>\$ 15,048.9</u>	<u>\$ 7,085.6</u>	<u>\$ 17,285.0</u>	<u>\$ 8,163.7</u>	<u>\$ 17,062.7</u>	<u>\$ 8,176.3</u>
VodafoneZiggo JV	<u>\$ 4,537.7</u>	<u>\$ 1,908.6</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

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The following table provides a reconciliation of our consolidated segment Adjusted OIBDA from continuing operations to earnings (loss) from continuing operations before income taxes:

	Year ended December 31,		
	2017	2016	2015
	in millions		
Total segment Adjusted OIBDA from continuing operations	\$ 7,085.6	\$ 8,163.7	\$ 8,176.3
Share-based compensation expense	(173.9)	(281.5)	(315.8)
Depreciation and amortization	(4,857.0)	(5,213.8)	(5,609.4)
Impairment, restructuring and other operating items, net	(107.2)	(186.2)	(150.0)
Operating income	1,947.5	2,482.2	2,101.1
Interest expense	(1,889.6)	(2,324.4)	(2,284.1)
Realized and unrealized gains (losses) on derivative instruments, net	(1,412.0)	1,071.0	619.9
Foreign currency transaction gains (losses), net	166.4	(400.1)	(925.8)
Realized and unrealized gains (losses) due to changes in fair values of certain investments and debt, net	36.9	(461.5)	124.5
Losses on debt modification and extinguishment, net	(343.3)	(238.1)	(388.0)
Share of losses of affiliates	(95.2)	(111.6)	(54.3)
Gain on the VodafoneZiggo JV Transaction	4.5	520.8	—
Other income, net	28.8	109.2	29.8
Earnings (loss) from continuing operations before income taxes	<u>\$ (1,556.0)</u>	<u>\$ 647.5</u>	<u>\$ (776.9)</u>

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Balance Sheet Data of our Reportable Segments

Selected balance sheet data of our reportable segments is set forth below:

	Long-lived assets		Total assets	
	December 31,		December 31,	
	2017	2016	2017	2016
	in millions			
U.K./Ireland	\$ 17,678.3	\$ 16,287.4	\$ 21,968.4	\$ 20,445.8
Belgium	6,067.9	4,961.8	6,992.8	5,724.7
Germany	8,272.5	7,388.9	8,578.6	7,937.2
Switzerland/Austria	4,212.5	5,054.3	5,740.8	5,415.3
Central and Eastern Europe	2,783.0	2,262.4	2,908.7	2,360.7
Central and Corporate (a)	1,007.1	784.5	11,407.5	12,634.2
Total - continuing operations	40,021.3	36,739.3	57,596.8	54,517.9
Discontinued operations	—	12,005.2	—	14,166.2
Total	\$ 40,021.3	\$ 48,744.5	\$ 57,596.8	\$ 68,684.1
VodafoneZiggo JV	\$ 24,017.4	\$ 21,782.7	\$ 24,900.2	\$ 25,894.1

(a) The total asset amounts include our equity method investment in the VodafoneZiggo JV and related receivables.

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Property and Equipment Additions of our Reportable Segments

The property and equipment additions of our reportable segments (including capital additions financed under vendor financing or capital lease arrangements) are presented below and reconciled to the capital expenditure amounts included in our consolidated statements of cash flows. For additional information concerning capital additions financed under vendor financing and capital lease arrangements, see note 9.

	Year ended December 31,		
	2017	2016	2015
	in millions		
U.K./Ireland	\$ 2,161.8	\$ 1,761.1	\$ 1,527.3
Belgium	691.0	588.4	371.6
Germany	696.8	594.3	535.7
Switzerland/Austria	369.0	368.7	315.6
Central and Eastern Europe	398.2	330.5	277.3
The Netherlands	—	588.9	536.1
Central and Corporate (a)	448.0	406.7	346.6
Total property and equipment additions	<u>4,764.8</u>	<u>4,638.6</u>	<u>3,910.2</u>
Assets acquired under capital-related vendor financing arrangements	(2,635.8)	(2,018.7)	(1,481.5)
Assets acquired under capital leases	(169.8)	(104.2)	(106.1)
Changes in current liabilities related to capital expenditures	(6.1)	(361.8)	(50.3)
Total capital expenditures	<u>\$ 1,953.1</u>	<u>\$ 2,153.9</u>	<u>\$ 2,272.3</u>
Property and equipment additions - VodafoneZiggo JV	<u>\$ 933.9</u>	<u>\$ —</u>	<u>\$ —</u>

- (a) Includes amounts that represent the net impact of changes in inventory levels associated with certain centrally-procured network equipment. This equipment is ultimately transferred to our operating subsidiaries.

LIBERTY GLOBAL PLC
Notes to Consolidated Financial Statements — (Continued)
December 31, 2017, 2016 and 2015

Revenue by Major Category

Our revenue by major category for our consolidated reportable segments is set forth below. Effective April 1, 2017, we changed the categories that we present in this table in order to align with our internal reporting. These changes were retroactively reflected in the prior-year periods.

	Year ended December 31,		
	2017	2016	2015
	in millions		
Residential revenue:			
Residential cable revenue (a):			
Subscription revenue (b):			
Video	\$ 4,437.8	\$ 5,655.6	\$ 5,786.4
Broadband internet	4,019.9	4,523.4	4,495.1
Fixed-line telephony	2,176.8	2,709.3	2,926.0
Total subscription revenue	10,634.5	12,888.3	13,207.5
Non-subscription revenue	504.9	516.4	521.0
Total residential cable revenue	11,139.4	13,404.7	13,728.5
Residential mobile revenue (c):			
Subscription revenue (b)	1,035.2	1,135.2	993.3
Non-subscription revenue	656.3	608.4	432.1
Total residential mobile revenue	1,691.5	1,743.6	1,425.4
Total residential revenue	12,830.9	15,148.3	15,153.9
B2B revenue (d):			
Subscription revenue	498.3	476.5	304.9
Non-subscription revenue	1,492.4	1,569.6	1,572.0
Total B2B revenue	1,990.7	2,046.1	1,876.9
Other revenue (e)			
Total	\$ 15,048.9	\$ 17,285.0	\$ 17,062.7

- (a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment.
- (b) Subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.
- (c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices.
- (d) B2B subscription revenue represents revenue from services to certain small or home office (SOHO) subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. B2B non-subscription revenue includes business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.
- (e) Other revenue during 2017 includes, among other items, revenue earned from services provided to the VodafoneZiggo JV.

LIBERTY GLOBAL PLC
Notes to Consolidated Financial Statements — (Continued)
December 31, 2017, 2016 and 2015

Geographic Segments

The revenue of our geographic segments is set forth below:

	Year ended December 31,		
	2017	2016	2015
	in millions		
U.K.	\$ 5,927.9	\$ 6,070.4	\$ 6,663.3
Belgium	2,865.3	2,691.1	2,021.0
The Netherlands	—	2,690.8	2,745.3
Germany	2,705.4	2,539.7	2,399.5
Switzerland	1,370.1	1,377.3	1,390.3
Ireland	470.8	438.4	395.4
Poland	417.9	391.4	399.7
Austria	395.9	378.3	367.9
Hungary	305.7	273.1	258.5
The Czech Republic	201.5	180.4	176.6
Romania	181.6	169.9	158.1
Slovakia	59.4	58.4	59.3
Other, including intersegment eliminations	147.4	25.8	27.8
Total	\$ 15,048.9	\$ 17,285.0	\$ 17,062.7
VodafoneZiggo JV (the Netherlands)	\$ 4,537.7	\$ —	\$ —

The long-lived assets of our geographic segments are set forth below:

	December 31,	
	2017	2016
	in millions	
U.K.	\$ 16,902.9	\$ 15,638.7
Germany	8,272.5	7,388.9
Belgium	6,067.9	4,961.8
Switzerland	4,212.5	4,057.3
Austria	—	997.0
Poland	1,028.4	840.9
Ireland	775.4	648.7
The Czech Republic	646.6	529.1
Hungary	612.6	519.4
Romania	279.0	228.2
Slovakia	132.8	109.6
U.S. and other (a)	1,090.7	819.7
Total	\$ 40,021.3	\$ 36,739.3
VodafoneZiggo JV (the Netherlands)	\$ 24,017.4	\$ 21,782.7

(a) Primarily relates to certain long-lived assets included in Central and Corporate.

LIBERTY GLOBAL PLC
Notes to Consolidated Financial Statements — (Continued)
December 31, 2017, 2016 and 2015

(19) Quarterly Financial Information (Unaudited)

	2017			
	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
in millions, except per share amounts				
Revenue:				
As previously reported	\$ 4,429.9	\$ 4,584.6	\$ 4,785.4	\$ 3,987.7
Reclassification of the LiLAC Group to discontinued operations (note 5)	(910.9)	(920.9)	(906.9)	—
As adjusted	<u>\$ 3,519.0</u>	<u>\$ 3,663.7</u>	<u>\$ 3,878.5</u>	<u>\$ 3,987.7</u>
Operating income:				
As previously reported	\$ 569.2	\$ 641.9	\$ 335.8	\$ 495.8
Reclassification of the LiLAC Group to discontinued operations (note 5)	(138.0)	(158.7)	201.5	—
As adjusted	<u>\$ 431.2</u>	<u>\$ 483.2</u>	<u>\$ 537.3</u>	<u>\$ 495.8</u>
Net loss	<u>\$ (256.3)</u>	<u>\$ (630.2)</u>	<u>\$ (435.4)</u>	<u>\$ (1,398.7)</u>
Net loss attributable to Liberty Global shareholders	<u>\$ (320.2)</u>	<u>\$ (674.3)</u>	<u>\$ (791.6)</u>	<u>\$ (992.0)</u>
Basic and diluted loss attributable to Liberty Global shareholders per share (note 3):				
Liberty Global Shares (continuing operations)	<u>\$ (0.33)</u>	<u>\$ (0.75)</u>	<u>\$ (0.55)</u>	<u>\$ (0.68)</u>
LiLAC Shares (discontinued operations)	<u>\$ (0.16)</u>	<u>\$ (0.22)</u>	<u>\$ (1.93)</u>	<u>\$ (2.55)</u>
2016				
	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
in millions, except per share amounts				
Revenue:				
As previously reported	\$ 4,588.0	\$ 5,074.1	\$ 5,207.2	\$ 5,139.5
Reclassification of the LiLAC Group to discontinued operations (note 5)	(303.9)	(602.9)	(894.1)	(922.9)
As adjusted	<u>\$ 4,284.1</u>	<u>\$ 4,471.2</u>	<u>\$ 4,313.1</u>	<u>\$ 4,216.6</u>
Operating income:				
As previously reported	\$ 586.6	\$ 487.8	\$ 902.7	\$ 824.2
Reclassification of the LiLAC Group to discontinued operations (note 5)	(60.0)	20.9	(138.8)	(141.2)
As adjusted	<u>\$ 526.6</u>	<u>\$ 508.7</u>	<u>\$ 763.9</u>	<u>\$ 683.0</u>
Net earnings (loss)	<u>\$ (333.8)</u>	<u>\$ 223.8</u>	<u>\$ (136.8)</u>	<u>\$ 2,014.1</u>
Net earnings (loss) attributable to Liberty Global shareholders	<u>\$ (369.1)</u>	<u>\$ 101.4</u>	<u>\$ (249.5)</u>	<u>\$ 2,222.5</u>
Basic earnings (loss) attributable to Liberty Global shareholders per share (note 3):				
Liberty Global Shares (continuing operations)	<u>\$ (0.39)</u>	<u>\$ 0.25</u>	<u>\$ (0.18)</u>	<u>\$ 2.47</u>
LiLAC Shares (discontinued operations)	<u>\$ (0.88)</u>	<u>\$ (2.43)</u>	<u>\$ (0.47)</u>	<u>\$ (0.07)</u>
Diluted earnings (loss) attributable to Liberty Global shareholders per share (note 3):				
Liberty Global Shares (continuing operations)	<u>\$ (0.39)</u>	<u>\$ 0.25</u>	<u>\$ (0.18)</u>	<u>\$ 2.45</u>
LiLAC Shares (discontinued operations)	<u>\$ (0.88)</u>	<u>\$ (2.43)</u>	<u>\$ (0.47)</u>	<u>\$ (0.07)</u>

PART III

The capitalized terms used in Part III of this Annual Report on Form 10-K are defined in the notes to our consolidated financial statements. In the following text, the terms, “we,” “our,” “our company” and “us” may refer, as the context requires, to Liberty Global or collectively to Liberty Global and its subsidiaries.

Except as indicated below, the following required information is incorporated by reference to our definitive proxy statement for our 2018 Annual Meeting of Shareholders, which we intend to hold during the second quarter of 2018.

- Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE
- Item 11. EXECUTIVE COMPENSATION
- Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by Item 201(d) of Regulation S-K is included below and accordingly will not be incorporated by reference to our definitive proxy statement.

- Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE
- Item 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

We intend to file our definitive proxy statement for our 2018 Annual Meeting of Shareholders with the Securities and Exchange Commission on or before April 30, 2018.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED SHAREHOLDER MATTERS

Securities Authorized for Issuance Under Equity Compensation Plans

The following table sets forth information as of December 31, 2017 with respect to our ordinary shares that are authorized for issuance under our equity compensation plans.

Equity Compensation Plan Information

<u>Plan Category</u>	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)(2)(3)	Weighted average exercise price of outstanding options, warrants and rights (1)(2)	Number of securities available for future issuance under equity compensation plans (excluding securities reflected in the first column)
Equity compensation plans approved by security holders:			
Liberty Global 2014 Incentive Plan (4):			
Total ordinary shares available for issuance			56,671,902
Liberty Global Class A ordinary shares	9,921,146	\$ 35.81	
Liberty Global Class C ordinary shares	19,875,243	\$ 34.59	
Liberty Global 2014 Nonemployee Director Incentive Plan (5):			
Total ordinary shares available for issuance			9,464,495
Liberty Global Class A ordinary shares	303,744	\$ 34.22	
Liberty Global Class C ordinary shares	606,814	\$ 32.87	
Liberty Global 2005 Incentive Plan (6):			
Liberty Global Class A ordinary shares	4,556,275	\$ 26.03	—
Liberty Global Class C ordinary shares	13,566,891	\$ 24.75	
Liberty Global 2005 Director Incentive Plan (6):			
Liberty Global Class A ordinary shares	167,604	\$ 16.39	—
Liberty Global Class C ordinary shares	514,316	\$ 15.75	
VM Incentive Plan (6):			
Liberty Global Class A ordinary shares	333,323	\$ 24.28	—
Liberty Global Class C ordinary shares	2,266,148	\$ 26.34	
Equity compensation plans not approved by security holders:			
None	—		—
Totals:			
Total ordinary shares available for issuance			66,136,397
Liberty Global Class A ordinary shares	15,282,092		
Liberty Global Class C ordinary shares	36,829,412		

- (1) This table includes (i) SARs and PSARs with respect to 14,701,611 and 34,103,846, Liberty Global Class A and Liberty Global Class C ordinary shares, respectively. Upon exercise, the appreciation of a SAR, which is the difference between the base price of the SAR and the then-market value of the respective underlying class of ordinary shares or in certain cases, if lower, a specified price, may be paid in shares of the applicable class of ordinary shares. Based upon the respective market prices of Liberty Global Class A and Class C ordinary shares at December 31, 2017 and excluding any related tax effects, 1,714,698 and 4,454,272 Liberty Global Class A and Liberty Global Class C ordinary shares, respectively, would have been issued if all outstanding and in-the-money SARs had been exercised on December 31, 2017. For further information, see note 13 to our consolidated financial statements.

- (2) In addition to the option, SAR and PSAR information included in this table, there are outstanding RSU and PSU awards under the various incentive plans with respect to an aggregate of 2,591,498 and 5,174,713, Liberty Global Class A and Liberty Global Class C ordinary shares, respectively.
- (3) In connection with the Split-off Transaction and pursuant to the terms of the Liberty Latin America Transitional Share Conversion Plan, a holder of an outstanding equity award with respect to shares of LiLAC Class A, LiLAC Class B, and LiLAC Class C ordinary shares (a **LiLAC Award**) received an equity award based on the corresponding class of Liberty Latin America common stock with the same terms, including base price and number of shares, as the original LiLAC Award. As a result, all LiLAC Awards of Liberty Global are no longer outstanding under any of our share incentive plans.
- (4) The Liberty Global 2014 Incentive Plan permits grants of, or with respect to, Liberty Global Class A, Class B, or Class C ordinary shares subject to a single aggregate limit of 105 million shares (of which no more than 50.25 million shares may consist of Class B shares), subject to anti-dilution adjustments. As of December 31, 2017, an aggregate of 56,671,902 ordinary shares were available for issuance pursuant to the incentive plan. For further information, see note 13 to our consolidated financial statements.
- (5) The Liberty Global 2014 Nonemployee Director Incentive Plan permits grants of, or with respect to, Liberty Global Class A, Class B, or Class C ordinary shares subject to a single aggregate limit of 10.5 million shares, subject to anti-dilution adjustments. As of December 31, 2017, an aggregate of 9,464,495 ordinary shares were available for issuance pursuant to the Liberty Global 2014 Nonemployee Director Incentive Plan. For further information, see note 13 to our consolidated financial statements.
- (6) On January 30, 2014, our shareholders approved the Liberty Global 2014 Incentive Plan and the Liberty Global 2014 Nonemployee Director Incentive Plan and, accordingly, no further awards will be granted under the Liberty Global 2005 Incentive Plan, the Liberty Global 2005 Director Incentive Plan or the VM Incentive Plan.

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) (1) FINANCIAL STATEMENT

The financial statements required under this Item begin on page II-65 of this Annual Report on Form 10-K.

(a) (2) FINANCIAL STATEMENT SCHEDULES

The financial statement schedules required under this Item are as follows:

Schedule I - Condensed Financial Information of Registrant (Parent Company Information):

Liberty Global plc Condensed Balance Sheets as of December 31, 2017 and 2016 (Parent Company Only)	IV-8
Liberty Global plc Condensed Statements of Operations for the years ended December 31, 2017, 2016 and 2015 (Parent Company Only)	IV-10
Liberty Global plc Condensed Statements of Cash Flows for the years ended December 31, 2017, 2016, and 2015 (Parent Company Only)	IV-11
Schedule II - Valuation and Qualifying Accounts	IV-12

(a) (3) EXHIBITS

Listed below are the exhibits filed as part of this Annual Report on Form 10-K (according to the number assigned to them in Item 601 of Regulation S-K):

2 -- Plan of Acquisition, Reorganization, Arrangement, Liquidation or Succession:

- 2.10 [Reorganization Agreement, dated as of December 29, 2017, between Liberty Global plc and Liberty Latin America Ltd. \(incorporated by reference to Exhibit 2.1 to Liberty Latin America Ltd.'s Post-Effective Amendment No. 1 to its Registration Statement on Form S-1 filed on December 29, 2017 \(File No. 333-221608\)\).](#)

3 -- Articles of Incorporation and Bylaws:

- 3.1 [Articles of Association of Liberty Global plc, effective as of July 1, 2015 \(incorporated by reference to Exhibit 3.1 to the Registrant's Registration Statement on Form 8-A filed June 19, 2015 \(File No. 001-35961\)\).](#)

4 -- Instruments Defining the Rights of Securities Holders, including Indentures:

- 4.1 [Senior Secured Credit Facility Agreement originally dated January 16, 2004, as amended and restated on December 19, 2016, among UPC Broadband Holding B.V. \(UPC Broadband Holding\) and UPC Financing Partnership \(UPC Financing\) as Borrowers, The Bank of Nova Scotia, as Facility Agent, the Guarantors listed therein, the Security Agent and the bank and financial institutions acceding thereto from time to time \(the UPC Broadband Holding Bank Facility\). \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed December 23, 2016 \(File No. 001-35961\)\).](#)
- 4.2 [Supplemental Deed dated November 29, 2017, between UPC Broadband Holding, as Obligor, and the Bank of Nova Scotia as Facility Agent and Security Agent, which is supplemental to and amends the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed December 5, 2017 \(File No. 001-35961\)\).](#)
- 4.3 [Indenture dated April 15, 2015, among UPCB Finance IV Limited, The Bank of New York Mellon, London Branch as Trustee, Principal Paying Agent, Transfer Agent and Security Agent, The Bank of New York Mellon as New York Paying Agent, New York Transfer Agent and Dollar Notes Registrar and The Bank of New York Mellon \(Luxembourg\) S.A. as Euro Notes Registrar and Transfer Agent \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K/A filed April 21, 2015 \(File No. 001-35961\)\) \(the April 2015 8-K/A\)\).](#)
- 4.4 [Additional Facility AK Accession Agreement, dated April 15, 2015, among UPC Financing as Borrower, The Bank of Nova Scotia as Facility Agent and Security Agent, UPC Broadband Holding and UPCB Finance IV Limited as Additional Facility AK Lender, under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.2 to the April 2015 8-K/A\).](#)
- 4.5 [Additional Facility AL Accession Agreement, dated April 15, 2015, among UPC Financing as Borrower, The Bank of Nova Scotia as Facility Agent and Security Agent, UPC Broadband Holding and UPCB Finance IV Limited as Additional Facility AL Lender, under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.3 to the April 2015 8-K/A\).](#)

- 4.6 [Additional Facility AL2 Accession Agreement, dated May 20, 2015, among UPC Financing as Borrower, The Bank of New York Nova Scotia as Facility Agent and Security Agent, UPC Broadband Holding and UPCB Finance IV Limited as Additional Facility AL2 Lender, under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K/A filed May 21, 2015 \(File No. 001-35961\)\).](#)
- 4.7 [Additional Facility AM Accession Agreement, dated August 3, 2015, among UPC Financing as Borrower, The Bank of Nova Scotia as Facility Agent and Security Agent and the financial institutions listed therein as Additional Facility AM Lenders, under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed August 6, 2015 \(File No. 001-35961\)\).](#)
- 4.8 [Additional Facility AQ Accession Agreement dated June 21, 2017 and entered into between, among others, UPC Financing Partnership and UPC Broadband Holding B.V. as borrowers and The Bank of Nova Scotia as Facility Agent and Security Agent and the financial institutions listed therein as Additional Facility AQ Lenders under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed June 27, 2017 \(File No. 001-35961\)\).](#)
- 4.9 [Additional Facility AR Accession Agreement dated October 13, 2017 and entered into between, among others, UPC Financing Partnership, UPC Broadband Holding B.V. and The Bank of Nova Scotia as the Facility Agent and the Security Agent and the financial institutions listed there in as Additional Facility AR Lenders under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed October 19, 2017 \(File No. 001-35961\)\(the October 2017 8-K\)\).](#)
- 4.10 [Additional Facility AS Accession Agreement dated October 13, 2017 and entered into between, among others, UPC Broadband Holding B.V. and The Bank of Nova Scotia as the Facility Agent and the Security Agent and the financial institutions listed there in as Additional Facility AS Lenders under the UPC Broadband Holding Bank Facility \(incorporated by reference to Exhibit 4.2 to the October 2017 8-K\).](#)
- 4.11 [€2,300,000,000 Credit Agreement, originally dated August 1, 2007, and as amended and restated by supplemental agreements dated August 22, 2007, September 11, 2007, October 8, 2007, June 23, 2009, August 25, 2009, October 4, 2010 and as further amended and restated on November 2, 2015 among Telenet N.V. as Borrower, The Bank of Nova Scotia N.V. as Facility Agent, the parties listed therein as Original Guarantors, ABN AMRO Bank N.V., BNP Paribas S.A. and J.P. Morgan PLC as Mandated Lead Arrangers, KBC Bank N.V. as Security Agent, and the financial institutions listed therein as Initial Original Lenders \(the Telenet Credit Facility\).\(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed November 6, 2015 \(File No. 001-35961\)\).](#)
- 4.12 [Amended and Restated Telenet Credit Agreement dated August 10, 2017 between, amongst others, Telednet BVBA as original borrower and The Bank of Nova Scotia as facility agent, which further amends the Telenet Creit Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed August 16, 2017 \(File No. 001-35961\)\).](#)
- 4.13 [Telenet Additional Facility V Accession Agreement, dated August 16, 2012, among, inter alia, Telenet International as Borrower, Telenet N.V. and Telenet International as Guarantors, The Bank of Nova Scotia as Facility Agent, KBC Bank N.V. as Security Agent and the financial institutions listed therein as additional Facility V Lenders, under the Telenet Credit Facility \(incorporated by reference to Exhibit 4.3 to Liberty Global's \(LGI\) Quarterly Report on Form 10-Q filed November 5, 2012 \(File No. 000-51360\)\).](#)
- 4.14 [Telenet Additional Facility AB Accession Agreement, dated July 24, 2015, among, inter alia, Telenet International as Borrower, Telenet N.V. and Telenet International as Guarantors, and the other parties thereto, under the Telenet Credit Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed July 30, 2015 \(File No. 001-35061\)\).](#)
- 4.15 [Telenet Additional Facility AG Accession Agreement dated November 22, 2016, among, inter alia, Telenet International, The Bank of Nova Scotia as Facility Agent, KBC Bank N.V. as Security Agent and the financial institutions listed therein as Additional Facility AG Lenders, under the Telenet Credit Facility \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed November 29, 2016 \(File No. 001-35961\)\).](#)
- 4.16 [Additional Facility AL Accession Agreement dated December 1, 2017 and entered into between, among others, Telenet Financing USD LLC as the Borrower, Telenet BVBA as a Guarantor and The Bank of Nova Scotia as the Facility Agent \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed December 5, 2017 \(File No. 000.35961\)\(the December 5, 2017 8-K\)\).](#)
- 4.17 [Additional Facility AM Accession Agreement dated December 1, 2017 and entered into between, among others, Telenet International Finance S.à r.l. as the Borrower, Telenet BVBA as a Guarantor and The Bank of Nova Scotia as the Facility Agent \(incorporated by reference to Exhibit 4.2 to the December 2017 8-K\).](#)
- 4.18 [Amendment Agreement dated December 4, 2017 between Telenet BVBA as company and The Bank of Nova Scotia as facility agent \(incorporated by reference to Exhibit 4.3 to the December 2017 8-K\).](#)
- 4.19 [Indenture dated December 13, 2017 between Telenet Finance Luxembourg Notes S.a.r.l., The Bank of New York Mellon, London Branch, as Trustee and Security Trustee and The Bank of New York Mellon SA/NV, Luxembourg Branch, as Transfer Agent and Registrar \(incorporated by reference to Exhibit 4.4 to the Registrant's Current Report on Form 8-K filed December 18, 2017 \(File No. 000.35961\)\(the December 2017 8-K/A\)\).](#)
- 4.20 [Additional Facility AJ Accession Agreement dated December 13, 2017 and entered into between, among others, Telenet International Finance S.a.r.l. as the Borrower, Telenet Financing USD LLC as a Guarantor, The Bank of Nova Scotia as Facility Agent and KBC Bank NV as Security Agent \(incorporated by reference to Exhibit 4.5 to the December 2017 8-K/A\).](#)

- 4.21 [Additional Facility AK Accession Agreement dated December 13, 2017 and entered into between, among others, Telenet International Finance S.a.r.l. as the Borrower, Telenet Financing USD LLC as a Guarantor, The Bank of Nova Scotia as Facility Agent and KBC Bank NV as Security Agent \(incorporated by reference to Exhibit 4.6 to the December 2017 8-K/A\).](#)
- 4.22 [Indenture dated December 17, 2014, between Unitymedia Hessen GmbH & Co. KG, Unitymedia NRW GmbH, The Bank of New York Mellon, London Branch, as Trustee, Transfer Agent and Principal Paying Agent, The Bank of New York Mellon as New York Paying Agent and New York Transfer Agent, The Bank of New York Mellon \(Luxembourg\) S.A. as Registrar and Credit Suisse AG, London Branch, as Security Trustee \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K/A filed December 18, 2014 \(File No. 001-35961\)\).](#)
- 4.23 [Amendment and Restatement Agreement dated June 19, 2017 between, among others, Unitymedia Hessen GmbH & Co. KG as original borrower, The Bank of Nova Scotia as Facility Agent and Credit Suisse AG as Security Trustee and, attached as a schedule thereto \(the Unitymedia Restated Agreement\), related to the Senior Facilities Agreement, originally dated July 25, 2014, between, among others, Unitymedia Hessen GmbH & Co. KG as original borrower, The Bank of Nova Scotia and Credit Suisse AG, London Branch as amended and restated by the Unitymedia Restated Agreement \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed June 23, 2017 \(File No. 001-35961\)\)\(the June 2017 8-K\).](#)
- 4.24 [Amendment and Restatement Agreement dated June 19, 2017 between, among others, Unitymedia Hessen GmbH & Co. KG as original borrower, The Bank of Nova Scotia as Facility Agent and Credit Suisse AG, London Branch as Security Trustee and, attached as a schedule thereto \(the Unitymedia Restated Agreement\), related to the Super Senior Facilities Agreement, originally dated July 25, 2014, between, among others, Unitymedia Hessen GmbH & Co. KG as original borrower, The Bank of Nova Scotia and Credit Suisse AG, London Branch as amended and restated by the Unitymedia Restated Agreement \(incorporated by reference to Exhibit 4.2 to the June 2017 8-K\).](#)
- 4.25 [Additional Facility Accession Agreement dated June 8, 2017, between, among others, Unitymedia Finance LLC, Unitymedia Hessen GmbH & Co. KG and certain affiliates as borrowers, The Bank of Nova Scotia as facility agent and Credit Suisse AG, London Branch, as security trustee under the Unitymedia Restated Agreement \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed June 14, 2017 \(File No. 001-35961\)\).](#)
- 4.26 [Additional Facility C Accession Agreement dated October 20, 2017 and entered into between, among others, Unitymedia Hessen GmbH & Co. KG, Unitymedia GmbH, The Bank of Nova Scotia as Facility Agent and Credit Suisse AG, London Branch as Security Trustee under the Unitymedia Senior Restated Agreement \(incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed October 26, 2017 \(File No. 001-35961\)\)\(the October 2017 8-K\).](#)
- 4.27 [Additional Facility D Accession Agreement dated October 20, 2017 and entered into between, among others, Unitymedia Hessen GmbH & Co. KG, Unitymedia Finance LLC, Unitymedia GmbH, The Bank of Nova Scotia as Facility Agent and Credit Suisse AG, London Branch as Security Trustee under the Unitymedia Senior Restated Agreement \(incorporated by reference to Exhibit 4.3 to the October 2017 8-K\).](#)
- 4.28 [Indenture, dated as of March 3, 2011, among Virgin Media Secured Finance PLC, the Guarantors party thereto, The Bank of New York Mellon as Trustee and Paying Agent and The Bank of New York Mellon \(Luxembourg\) S.A. as Luxembourg Paying Agent \(incorporated by reference to Exhibit 4.1 to Virgin Media Inc.'s \(Virgin Media\) Current Report on Form 8-K filed on March 3, 2011 \(File No. 000-50886\).](#)
- 4.29 [Indenture, dated as of February 22, 2013, among Lynx II Corp., as Issuer, The Bank of New York Mellon, London Branch, as trustee, Transfer Agent and Principal Paying Agent and The Bank of New York Mellon, as Paying Agent and Newco Security Trustee \(incorporated by reference to Exhibit 4.2 to LGI's Current Report on Form 8-K/A filed February 27, 2013 \(File No. 000-51360\)\).](#)
- 4.30 [First Supplemental Indenture, dated as of June 7, 2013, between, among others, Virgin Media Secured Finance PLC, Virgin Media Inc. \(Virgin Media\) and The Bank of New York Mellon as Trustee, to the Indenture dated as of March 3, 2011 for Virgin Media 5.25% Senior Secured Notes and 5.50% Senior Secured Notes each due 2021 \(incorporated by reference to Exhibit 4.12 to the Registrant's Current Report on Form 8-K filed June 12, 2013 \(File No. 001-35961\)\)\(the June 2013 8-K\).](#)
- 4.31 [Accession Agreement, dated as of June 7, 2013, among Lynx II Corp., Virgin Media Finance PLC and The Bank of New York Mellon as Trustee and Paying Agent \(incorporated by reference to Exhibit 4.16 to the June 2013 8-K\).](#)
- 4.32 [First Supplemental Indenture, dated June 7, 2013, between, among others, Virgin Media Finance PLC, Virgin Media and The Bank of New York Mellon, as Trustee and Paying Agent, to the Indenture dated as of February 22, 2013 Lynx II Corp. 6% Senior Notes and 7.00% Senior Notes each due 2023 \(incorporated by reference to Exhibit 4.18 to the June 2013 8-K\).](#)
- 4.33 [Amendment dated June 14, 2013, to the Senior Facilities Agreement, between, and among others, Virgin Media Investment Holdings Limited, certain other subsidiaries of Virgin Media and the lenders thereto \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed June 21, 2013 \(File No. 001-35961\)\).](#)
- 4.34 [Senior Facilities Agreement, dated as of June 7, 2013, as amended on June 14, 2013 and as amended and restated on July 30 2015, among, inter alia, Virgin Media Finance PLC, certain other subsidiaries of Virgin Media and the lenders thereto \(the VMF Senior Facilities Agreement\) \(incorporated by reference to Exhibit 4.13 to the Registrant's Quarterly Report on Form 10-Q filed August 4, 2015 \(File No. 001-35061\)\).](#)

- 4.35 [Indenture dated March 28, 2014 between Virgin Media Secured Finance PLC, The Bank of New York Mellon, London Branch, as Trustee, Transfer Agent and Principal Paying Agent, The Bank of New York Mellon as Paying Agent, and The Bank of New York Mellon \(Luxembourg\) S.A., as Registrar \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K/A filed April 3, 2014 \(File No. 001-35961\)\)](#).
- 4.36 [Indenture dated January 28, 2015 between Virgin Media Secured Finance PLC, The Bank of New York Mellon, London Branch, as Trustee and Paying Agent and The Bank of New York Mellon \(Luxembourg\) S.A., as Registrar and Transfer Agent \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K/A filed February 3, 2015 \(File No. 001-35961\) \(the February 2015 8-K/A\)\)](#).
- 4.37 [Indenture dated January 28, 2015 between Virgin Media Finance PLC, The Bank of New York Mellon, London Branch, as Trustee and Principal Paying Agent, The Bank of Mellon as Paying Agent and Dollar Notes Transfer Agent and Registrar and The Bank of New York Mellon \(Luxembourg\) S.A., as Euro Notes Registrar and Transfer Agent \(incorporated by reference to Exhibit 4.2 to the February 2015 8-K/A\)](#).
- 4.38 [Amendment letter dated December 16, 2016, between Virgin Media Investment Holdings Limited and The Bank of Nova Scotia as the Facility Agent, amending the VMF Senior Facilities Agreement \(incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed December 22, 2016 \(File No. 001-35961\)\)](#).
- 4.39 [Senior Facilities Agreement dated June 7, 2013, as amended on June 14, 2013 and as amended and restated on July 30, 2015, as further amended December 16, 2016 and as further amended and restated on April 19, 2017, among, inter alia, Virgin Media Finance PLC and certain other subsidiaries of Virgin Media Inc., as borrowers and/or guarantors and The Bank of Nova Scotia as facility agent, Deutsche Bank AG, London Branch, as security trustee, and the lenders thereto \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed April 28, 2017 \(File No. 001-35961\)\)](#).
- 4.40 [Additional K Facility Accession Deed dated November 10, 2017, between Virgin Media Investment Holdings Limited as the Company, Virgin Media Bristol LLC as the Borrower, The Bank of Nova Scotia as the Facility Agent and The Bank of Nova Scotia as Additional K Facility Lender under the VMF Senior Facilities Agreement \(incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed November 16, 2017 \(File No. 001-35961\)\(the November 2017 8-K\)\)](#).
- 4.41 [Additional L Facility Accession Deed dated November 10, 2017, between Virgin Media Investment Holdings Limited as the Company, Virgin Media SFA Finance Limited as the Borrower, The Bank of Nova Scotia as the Facility Agent and The Bank of Nova Scotia as Additional L Facility Lender under the VMF Senior Facilities Agreement \(incorporated by reference to Exhibit 4.2 to the November 2017 8-K\)](#).
- 4.42 [Additional M Facility Accession Deed dated November 10, 2017, between Virgin Media Investment Holdings Limited as the Company, Virgin Media SFA Finance Limited as the Borrower, The Bank of Nova Scotia as the Facility Agent and The Bank of Nova Scotia as Additional M Facility Lender under the VMF Senior Facilities Agreement \(incorporated by reference to Exhibit 4.3 to the November 2017 8-K\)](#).

The Registrant undertakes to furnish to the Securities and Exchange Commission, upon request, a copy of all instruments with respect to long-term debt not filed herewith.

10 -- Material Contracts:

- 10.1 [Deed of Assumption of Liberty Global plc, dated June 7, 2013 \(incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed June 7, 2013 \(File No. 001-35961\)\(the June 7, 2013 8-K\)\)](#).
- 10.2 [Liberty Global 2014 Incentive Plan Effective March 1, 2014 as amended and restated February 24, 2015 \(the Incentive Plan\) \(incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed May 7, 2015 \(File No. 001-35961\)\)](#).
- 10.3 [Liberty Global 2014 Nonemployee Director Incentive Plan Effective March 1, 2014 \(the Director Plan\) \(incorporated by reference to Appendix B to the Registrant's Proxy Statement on Schedule 14A filed December 19, 2013 \(File No. 001-35961\)\)](#).
- 10.4 [Form of Performance Share Units Agreement under the Incentive Plan \(incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed August 4, 2015 \(File No. 001-35961\)\)](#).
- 10.5 [Form of Non-Qualified Share Option Agreement under the Director Plan \(incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed August 5, 2014 \(File No. 001-35961\) \(the August 5, 2014 10-Q\)\)](#).
- 10.6 [Form of Restricted Share Units Agreement under the Director Plan \(incorporated by reference to Exhibit 10.4 to the August 5, 2014 10-Q\)](#).
- 10.7 [Form of Share Appreciation Rights Agreement under the Incentive Plan \(incorporated by reference to Exhibit 10.5 to the August 5, 2014 10-Q\)](#).
- 10.8 [Form of Restricted Share Units Agreement under the Incentive Plan \(incorporated by reference to Exhibit 10.6 to the August 5, 2014 10-Q\)](#).
- 10.9 [Liberty Global, Inc. 2005 Incentive Plan \(as amended and restated effective June 7, 2013\) \(the 2005 Incentive Plan\) \(incorporated by reference to Exhibit 10.2 to the June 7, 2013 8-K\)](#).
- 10.10 [Liberty Global, Inc. 2005 Nonemployee Director Incentive Plan \(as amended and restated effective June 7, 2013\) \(the 2005 Director Plan\) \(incorporated by reference to Exhibit 10.3 to the June 7, 2013 8-K\)](#).

- 10.11 [Virgin Media 2010 Stock Incentive Plan \(as amended and restated effective June 7, 2013\) \(incorporated by reference to Exhibit 10.4 to the June 7, 2013 8-K\).](#)
- 10.12 [Form of Non-Qualified Share Option Agreement under the 2005 Director Plan \(incorporated by reference to Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q filed August 1, 2013 \(File No. 001-35961\)\).](#)
- 10.13 [Liberty Global Compensation Policy for Nonemployee Directors effective June 21, 2017 \(incorporated by reference to Appendix A to the Registrant's Proxy Statement on Schedule 14A filed May 1, 2017 \(File No. 001-35961\)\).](#)
- 10.14 [Form of Deed of Indemnity between Liberty Global and its Directors and Executive Officers \(incorporated by reference to Exhibit 10.10 to the June 7, 2013 8-K\).](#)
- 10.15 [Form of Stock Appreciation Rights Agreement under the 2005 Incentive Plan \(incorporated by reference to Exhibit 10.3 to LGI's Quarterly Report on Form 10-Q filed May 7, 2008 \(File No. 000-51360\)\).](#)
- 10.16 [Liberty Global 2016 Annual Cash Performance Award Program for executive officers under the Incentive Plan \(description of said program is incorporated by reference to the description thereof included in Item 5.02\(e\) of the Registrant's Current Report on Form 8-K filed March 14, 2016 \(File No. 001-35961\)\).](#)
- 10.17 [Liberty Global 2016 Performance Incentive Plan for executive officers under the Incentive Plan \(a description of said plan is incorporated by reference to the description thereof included in Item 5.02\(e\) of the Registrant's Current Report on Form 8-K filed February 9, 2016 \(File No. 001-35961\)\).](#)
- 10.18 [Form of Performance Share Units Agreement for executive officers under the Incentive Plan \(incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed May 9, 2016 \(File No. 001-51360\)\).](#)
- 10.19 [Liberty Global 2017 Annual Performance Award Program for executive officers under the Incentive Plan \(description of said program is incorporated by reference to the description thereof included in Item 5.02\(e\) of the Registrant's Current Report on Form 8-K filed February 27, 2017 \(File No. 001-35961\)\(the February 2017 8-K\)\).](#)
- 10.20 [Liberty Global 2017 Compensatory Awards for certain executive officers under the Incentive Plan \(description of said awards is incorporated by reference to the description thereof included in Item 5.02\(e\) of the February 2017 8-K\)\).](#)
- 10.21 [Deferred Compensation Plan \(adopted effective December 15, 2008; Amended and Restated as of October 26, 2015\)\(incorporated by reference to Exhibit 10.29 to the Registrant's Annual Report on Form 10-K filed February 16, 2016 \(File No. 001-35961\) \(the 2016 10-K\)\).](#)
- 10.22 [Nonemployee Director Deferred Compensation Plan \(As Amended and Restated Effective December 11, 2015\)\(incorporated by reference to Exhibit 10.30 to the 2016 10-K\)\).](#)
- 10.23 [Personal Usage of Aircraft Policy, restated June 7, 2013 \(incorporated by reference to Exhibit 10.31 to the 2016 10-K\).](#)
- 10.24 [Form of Aircraft Time Sharing Agreement \(7X\) \(incorporated by reference to Exhibit 10.29 to LGI's Annual Report on Form 10-K filed February 13, 2013 \(File No. 000-51360\)\).](#)
- 10.25 [Employment Agreement dated as of April 30, 2014, by and among the Registrant, LGI and Michael T. Fries \(incorporated by reference to Exhibit 10.7 to the Registrant's Quarterly Report on Form 10-Q filed May 6, 2014 \(File No. 001-35961\)\(the May 6, 2014 10-Q\)\).](#)
- 10.26 [Form of Performance Grant Award Agreement under the Incentive Plan dated as of April 30, 2014, between the Registrant and Michael T. Fries \(incorporated by reference to Exhibit 10.8 to the May 6, 2014 10-Q\).](#)
- 10.27 [Form of Performance Share Units Agreement between the Registrant and our Chief Executive Officer under the Incentive Plan \(incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed August 4, 2016 \(File No. 001-35961\)\(the August 4, 2016 10-Q\)\).](#)
- 10.28 [Form of Share Appreciation Rights Agreement between the Registrant and our Chief Executive Officer under the Incentive Plan \(incorporated by reference to Exhibit 10.2 to the August 4, 2016 10-Q\).](#)
- 10.29 [Executive Service Agreement, dated December 15, 2004, between UPC Services Limited and Charles Bracken \(incorporated by reference to Exhibit 10.36 to LGI's Annual Report on Form 10-K filed February 24, 2010 \(File No. 000-51360\)\).](#)
- 10.30 [Executive Services Agreement effective January 1, 2011, between Liberty Global Europe B.V. and Diederik Karsten \(incorporated by reference to Exhibit 10.45 to LGI's Annual Report on Form 10-K filed February 24, 2011 \(File No. 000-51360\)\).](#)
- 10.31 [Letter Agreement, dated as of November 1, 2017, by and between the Registrant, LGI and Balan Nair.*](#)
- 10.32 [Trade Mark Licence, dated as of April 3, 2006, between Virgin Enterprises Limited and NTL Group Limited \(incorporated by reference to Exhibit 10.2 to Virgin Media's Quarterly Report on Form 10-Q filed on August 9, 2006 \(File No. 000-50886\)\).](#)
- 10.33 [Amendment Letter No. 1, dated February 8, 2007, to the Trade Mark Licence between Virgin Enterprises Limited and Virgin Media Limited dated April 3, 2006 \(incorporated by reference to Exhibit 10.5 to Virgin Media's Quarterly Report on Form 10-Q filed on August 8, 2007 \(File No. 000-50886\)\).](#)
- 10.34 [Amendment Letter No. 2, dated October 1, 2007, to the Trade Mark Licence between Virgin Enterprises Limited and Virgin Media Limited dated April 3, 2006 \(incorporated by reference to Exhibit 10.6 to Virgin Media's Quarterly Report on Form 10-Q filed on November 8, 2007 \(File No. 000-50886\)\).](#)
- 10.35 [Trade Mark Licence between Virgin Enterprises Limited and Virgin Media Limited dated December 16, 2009 \(incorporated by reference to Exhibit 10.83 to Virgin Media's Annual Report on Form 10-K filed on February 26, 2010 \(File No. 000-50886\)\).](#)

- 10.36 [Amended and Restated Contribution and Transfer Agreement, dated July 21, 2016, as amended and restated December 31, 2016, by and among, Liberty Global Europe Holding B.V., the Registrant, Vodafone International Holdings B.V., Vodafone Group Plc and Lynx Global Europe II B.V. \(incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed January 6, 2017 \(File No. 001-35961\)\(the January 2017 8-K\)\).](#)
- 10.37 [Shareholders' Agreement, dated December 31, 2016, by and among, Vodafone International Holdings B.V., Vodafone Group Plc, Liberty Global Europe Holding B.V., the Registrant and Lynx Global Europe II B.V. \(incorporated by reference to Exhibit 10.2 to the January 2017 8-K\).](#)

[21 -- List of Subsidiaries*](#)

23 -- Consent of Experts and Counsel:

23.1 [Consent of KPMG LLP*](#)

31 -- Rule 13a-14(a)/15d-14(a) Certification:

31.1 [Certification of President and Chief Executive Officer*](#)

31.2 [Certification of Executive Vice President and Chief Financial Officer \(Principal Financial Officer\)*](#)

[32 -- Section 1350 Certification **](#)

101.SCH	XBRL Taxonomy Extension Schema Document*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	XBRL Taxonomy Extension Definition Linkbase*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document*

* Filed herewith

** Furnished herewith

Item 16. FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

LIBERTY GLOBAL PLC

Dated: February 14, 2018

/s/ BRYAN H. HALL

Bryan H. Hall
Executive Vice President, General Counsel and Secretary

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the date indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ JOHN C. MALONE</u> John C. Malone	Chairman of the Board	February 14, 2018
<u>/s/ MICHAEL T. FRIES</u> Michael T. Fries	President, Chief Executive Officer and Director	February 14, 2018
<u>/s/ ANDREW J. COLE</u> Andrew J. Cole	Director	February 14, 2018
<u>/s/ MIRANDA CURTIS</u> Miranda Curtis	Director	February 14, 2018
<u>/s/ JOHN W. DICK</u> John W. Dick	Director	February 14, 2018
<u>/s/ PAUL A. GOULD</u> Paul A. Gould	Director	February 14, 2018
<u>/s/ RICHARD R. GREEN</u> Richard R. Green	Director	February 14, 2018
<u>/s/ DAVID E. RAPLEY</u> David E. Rapley	Director	February 14, 2018
<u>/s/ LARRY E. ROMRELL</u> Larry E. Romrell	Director	February 14, 2018
<u>/s/ J.C. SPARKMAN</u> J.C. Sparkman	Director	February 14, 2018
<u>/s/ J. DAVID WARGO</u> J. David Wargo	Director	February 14, 2018
<u>/s/ CHARLES H.R. BRACKEN</u> Charles H.R. Bracken	Executive Vice President and Chief Financial Officer	February 14, 2018
<u>/s/ JASON WALDRON</u> Jason Waldron	Senior Vice President and Chief Accounting Officer	February 14, 2018

LIBERTY GLOBAL PLC
SCHEDULE I
(Parent Company Information - See Notes to Consolidated Financial Statements)
CONDENSED BALANCE SHEETS
(Parent Company Only)

ASSETS	December 31,	
	2017	2016
	in millions	
Current assets:		
Cash and cash equivalents	\$ 73.2	\$ 58.9
Interest receivables — related-party	1.8	451.5
Other receivables — related-party	44.6	338.8
Other current assets	5.8	7.3
Total current assets	125.4	856.5
Long-term notes receivable — related-party	975.8	10,537.0
Investments in consolidated subsidiaries, including intercompany balances	17,472.6	9,460.3
Other assets, net	17.8	16.4
Total assets	\$ 18,591.6	\$ 20,870.2

LIBERTY GLOBAL PLC
SCHEDULE I
(Parent Company Information - See Notes to Consolidated Financial Statements)
CONDENSED BALANCE SHEETS — (Continued)
(Parent Company Only)

	December 31,	
	2017	2016
	in millions	
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 0.9	\$ 34.0
Other payables — related-party	68.7	299.1
Current portion of notes payable — related-party	2,834.7	1,851.7
Accrued liabilities and other	5.6	17.5
Total current liabilities	2,909.9	2,202.3
Long-term notes payable — related-party	7,884.1	3,912.9
Other long-term liabilities — related-party	989.9	991.6
Other long-term liabilities	2.7	2.1
Total liabilities	11,786.6	7,108.9
Commitments and contingencies		
Shareholders' equity:		
Liberty Global Shares — Class A, \$0.01 nominal value. Issued and outstanding 219,668,579 and 253,827,604 shares, respectively	2.2	2.5
Liberty Global Shares — Class B, \$0.01 nominal value. Issued and outstanding 11,102,619 and 10,805,850 shares, respectively	0.1	0.1
Liberty Global Shares — Class C, \$0.01 nominal value. Issued and outstanding 584,332,055 and 634,391,072 shares, respectively	5.8	6.3
LiLAC Shares — Class A, \$0.01 nominal value. Issued and outstanding nil and 50,317,930 shares, respectively	—	0.5
LiLAC Shares — Class B, \$0.01 nominal value. Issued and outstanding nil and 1,888,323 shares, respectively	—	—
LiLAC Shares — Class C, \$0.01 nominal value. Issued and outstanding nil and 120,889,034 shares, respectively	—	1.2
Additional paid-in capital	11,358.6	17,578.2
Accumulated deficit	(6,217.6)	(3,454.8)
Accumulated other comprehensive earnings (loss), net of taxes	1,656.0	(372.4)
Treasury shares, at cost	(0.1)	(0.3)
Total shareholders' equity	6,805.0	13,761.3
Total liabilities and shareholders' equity	\$ 18,591.6	\$ 20,870.2

LIBERTY GLOBAL PLC
SCHEDULE I
(Parent Company Information - See Notes to Consolidated Financial Statements)
CONDENSED STATEMENTS OF OPERATIONS
(Parent Company Only)

	Year ended December 31,		
	2017	2016	2015
	in millions		
Operating costs and expenses:			
Selling, general and administrative (including share-based compensation)	\$ 44.9	\$ 52.9	\$ 83.2
Related-party fees and allocations	55.2	66.3	62.7
Depreciation and amortization	1.0	0.8	0.2
Other operating expenses	—	0.7	14.0
Operating loss	(101.1)	(120.7)	(160.1)
Non-operating income (expense):			
Interest expense — related-party	(406.5)	(162.3)	(71.2)
Interest income — related-party	822.7	781.0	787.3
Foreign currency transaction gains (losses), net	(644.8)	45.8	(29.8)
Other expense, net	(3.3)	(1.3)	(2.5)
	(231.9)	663.2	683.8
Earnings before income taxes and equity in earnings (losses) of consolidated subsidiaries, net	(333.0)	542.5	523.7
Equity in earnings (losses) of consolidated subsidiaries, net	(2,386.0)	1,279.7	(1,574.7)
Income tax expense	(59.1)	(116.9)	(101.5)
Net earnings (loss)	\$ (2,778.1)	\$ 1,705.3	\$ (1,152.5)

LIBERTY GLOBAL PLC
SCHEDULE I
(Parent Company Information - See Notes to Consolidated Financial Statements)
CONDENSED STATEMENTS OF CASH FLOWS
(Parent Company Only)

	Year ended December 31,		
	2017	2016	2015
in millions			
Cash flows from operating activities:			
Net earnings (loss)	\$ (2,778.1)	\$ 1,705.3	\$ (1,152.5)
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Equity in losses (earnings) of consolidated subsidiaries, net	2,386.0	(1,279.7)	1,574.7
Share-based compensation expense	19.8	29.0	34.6
Related-party fees and allocations	55.2	66.3	62.7
Depreciation and amortization	1.0	0.8	0.2
Other operating expenses	—	0.7	14.0
Foreign currency transaction losses (gains), net	644.8	(45.8)	29.8
Deferred income tax benefit	(1.6)	(1.7)	(5.8)
Changes in operating assets and liabilities:			
Receivables and other operating assets	502.7	116.8	146.4
Payables and accruals	(160.9)	29.0	(34.3)
Net cash provided by operating activities	<u>668.9</u>	<u>620.7</u>	<u>669.8</u>
Cash flows from investing activities:			
Distribution and repayments from (investments in and advances to) consolidated subsidiaries, net	1,188.7	(133.6)	36.4
Other investing activities, net	(7.0)	0.3	(2.5)
Net cash provided (used) by investing activities	<u>1,181.7</u>	<u>(133.3)</u>	<u>33.9</u>
Cash flows from financing activities:			
Borrowings of related-party debt	4,632.7	5,249.8	11,241.9
Repayments of related-party debt	(3,496.0)	(3,751.5)	(9,590.7)
Repurchase of Liberty Global ordinary shares	(2,976.2)	(1,968.3)	(2,320.5)
Proceeds (payments) associated with call option contracts, net	—	9.2	(78.3)
Proceeds from issuance of Liberty Global shares upon exercise of options	11.7	17.4	40.5
Other financing activities, net	(8.1)	(9.4)	(9.6)
Net cash used by financing activities	<u>(1,835.9)</u>	<u>(452.8)</u>	<u>(716.7)</u>
Effect of exchange rate changes on cash	(0.4)	(0.3)	0.9
Net increase (decrease) in cash and cash equivalents	14.3	34.3	(12.1)
Cash and cash equivalents:			
Beginning of period	58.9	24.6	36.7
End of period	<u>\$ 73.2</u>	<u>\$ 58.9</u>	<u>\$ 24.6</u>

LIBERTY GLOBAL PLC
SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS

Allowance for doubtful accounts — Trade receivables (Continuing operations)

	Balance at beginning of period	Additions to costs and expenses	Acquisitions	VodafoneZiggo JV Transaction	Reclassification to assets held for sale	Deductions or write-offs	Foreign currency translation adjustments	Balance at end of period
	in millions							
Year ended December 31:								
2015	\$ 85.6	80.1	0.4	—	—	(75.0)	(6.3)	\$ 84.8
2016	\$ 84.8	69.2	3.8	(13.0)	—	(59.8)	(7.8)	\$ 77.2
2017	\$ 77.2	76.8	1.5	—	(2.3)	(66.8)	9.7	\$ 96.1

Balan Nair
1550 Wewatta Street, Suite 1000
Denver, CO 80202
USA

November 1, 2017

Split-Off of Liberty Latin America Ltd.

Dear Balan,

In connection with the split-off (the "Split-Off") of Liberty Latin America Ltd. ("LiLAC") from Liberty Global plc as a separate, stand-alone public company and your acceptance of the position of President and Chief Executive Officer of LiLAC and its wholly-owned subsidiary LiLAC Communications Inc., pursuant to the Employment Agreement (the "Employment Agreement") among you, LiLAC and LiLAC Communications Inc. effective as of the Effective Date (as defined in the Employment Agreement), your employment with Liberty Global plc, Liberty Global, Inc. and their affiliates (collectively "LGI") will terminate as of the Effective Date. The target Effective Date is December 29, 2017. If, however, the Split-Off does not occur prior to April 15, 2018, the parties hereto agree to meet in good faith to discuss modifications to the proposed arrangement and the Employment Agreement, including potential continued employment with Liberty Global plc.

This letter agreement is intended to address certain obligations of LGI, including the treatment of your 2017 annual bonus and the equity awards you hold with respect to Liberty Global plc, as a result of the Split-Off and the termination of your employment with LGI on the Effective Date.

(1) 2017 Liberty Global plc Annual Bonus

Notwithstanding the termination of your employment with LGI on the Effective Date, Liberty Global plc hereby agrees to pay your 2017 annual bonus to you based on actual performance results as determined by the Compensation Committee of the Board of Directors of Liberty Global plc, without any proration; provided, however, that you remain employed with

LiLAC or its subsidiaries (the "LiLAC Group") through the date that Liberty Global plc pays the 2017 annual bonus to its active executives.

(2) Liberty Global plc Equity Awards

Notwithstanding the termination of your employment with LGI on the Effective Date, equity awards that you hold with respect to Liberty Global plc as of the Effective Date shall be treated as follows:

- (i) With respect to the "Go" grant of performance share units, any other performance share units and all outstanding share appreciation rights (other than those addressed in clause (ii) below) you hold as of the Effective Date, your employment with the LiLAC Group will be considered service to LGI, and such awards will continue to vest, become exercisable and/or become payable in accordance with their current terms for so long as you remain employed with the LiLAC Group.
- (ii) The special compensatory award granted to you by LGI in February 2017 consisting of \$1.0 million and 500,000 share appreciation rights will continue to vest until March 1, 2018, resulting in 1/3 of the share appreciation rights vesting (55,555 Class A; 111,111 Class C), subject to your continued employment with the LiLAC Group through March 1, 2018, and all remaining unvested share appreciation rights shall be forfeited as of such date.

(3) 280G Waiver

By accepting this letter agreement, you hereby waive all rights to any additional payments intended to make you whole for any taxes relating to "parachute payments" (as defined in Section 280G of the Internal Revenue Code of 1986, as amended (the "Code")), including without limitation excise taxes imposed by Section 4999 of the Code and any related federal, state or local taxes (including without limitation any interest or penalties imposed with respect to such taxes) under any plans, agreements or arrangements, including any Performance Share Units Agreements, by and between you and LGI.

By accepting this letter agreement, you acknowledge that this letter agreement constitutes an amendment to the terms of performance share units and share appreciation rights with respect to Liberty Global plc held by you as of the Effective Date, and, except as modified herein, the original terms of such awards shall control.

This letter agreement will be governed by, and construed in accordance with, the internal laws of the State of Colorado. Each party irrevocably submits to the general jurisdiction of the state and federal courts located in the State of Colorado in any action to interpret or enforce this letter agreement and irrevocably waives any objection to jurisdiction that such party may have based on inconvenience of forum.

If accepted by you, you acknowledge and agree that this letter agreement shall become effective upon the Effective Date contingent on the Split-Off occurring prior to April 15, 2018.

If you are in agreement with the above terms, please indicate your acceptance of this letter agreement by signing and indicating the date of your acceptance below. Please retain a copy of this letter agreement for your files and return one fully executed copy to the undersigned.

Kind regards,

LIBERTY GLOBAL PLC

By: /s/ Bryan H. Hall
Bryan H. Hall
Executive Vice President, General Counsel and Secretary

LIBERTY GLOBAL INC.

By: /s/ Bryan H. Hall
Bryan H. Hall
President, General Counsel and Secretary

ACCEPTED AND AGREED:

/s/ Balan Nair

Balan Nair

Date: November 1, 2017

Liberty Global plc Subsidiaries
December 31, 2017

Name	Country
Liberty Global Services GmbH	Austria
UPC Austria GmbH	Austria
UPC Austria Services GmbH	Austria
UPC Business Austria GmbH	Austria
UPC Cablecom Austria GmbH	Austria
UPC Oberösterreich GmbH	Austria
UPC Telekabel Wien GmbH	Austria
UPC Telekabel-Fernsehnnetz Region Baden Betriebe GmbH	Austria
Allo Telecom NV	Belgium
Coditel Brabant BVBA	Belgium
Coditel S.ár.l.	Belgium
Telenet BVBA	Belgium
Telenet Finance BVBA	Belgium
Telenet Group BVBA	Belgium
Telenet Group Holding N.V.	Belgium
Telenet Retail BVBA	Belgium
Telenet Tecteo Bidco NV	Belgium
Telenet Vlaanderen NV	Belgium
T-VGAS NV	Belgium
Liberty Global Cayman Holding Ltd.	Cayman Islands
UPC Ceska Republica Sro	Czech Republic
UPC Infrastructure s.r.o.	Czech Republic
UPC Real Estate s.r.o.	Czech Republic
UPC Broadband France S.A.S.	France
UPC Broadband France SNC	France
Arena Sport Rechte und Marketing GmbH	Germany
Unitymedia BW GmbH	Germany
Unitymedia Finanz-Service GmbH	Germany
Unitymedia GmbH	Germany
Unitymedia Hessen GmbH & Co. KG	Germany
Unitymedia Hessen Verwaltungs GmbH	Germany
Unitymedia International GmbH	Germany
Unitymedia Management GmbH	Germany
Unitymedia NRW GmbH	Germany
Unitymedia Service GmbH	Germany
Unitymedia Smart Outsourcing GmbH	Germany
UPC Magyarorszag Kft	Hungary
Channel 6 Broadcasting Ltd	Ireland
Cullen Broadcasting Limited	Ireland
Imminus (Ireland) Limited	Ireland

Name	Country
Kish Media Ltd	Ireland
LGI DTH Ireland	Ireland
Tullamore Beta Ltd	Ireland
TV3 Television Network Ltd	Ireland
TVThree Enterprises Ltd	Ireland
TVThree Sales Ltd	Ireland
Ulana Business Management Ltd	Ireland
UPC Broadband Ireland Ltd	Ireland
Virgin Media Ireland Ltd	Ireland
Finance Center Telenet Sàrl	Luxembourg
Telenet Finance Luxembourg Notes Sàrl	Luxembourg
Telenet International Finance Sàrl	Luxembourg
Telenet Luxembourg Finance Center Sàrl	Luxembourg
Telenet Solutions Luxemburg NV	Luxembourg
UPC DTH Leasing Sàrl	Luxembourg
UPC DTH Sàrl	Luxembourg
UPC DTH Slovakia Sàrl	Luxembourg
Liberty Global Holding Company Limited	Malta
Liberty Global Insurance Company Limited	Malta
Binan Investments B.V.	Netherlands
Labesa Holding B.V.	Netherlands
LGCI Holdco I BV	Netherlands
LGI Mobile BV	Netherlands
LGI Ventures B.V.	Netherlands
Liberty Global B.V.	Netherlands
Liberty Global CE Holding B.V.	Netherlands
Liberty Global Content Investments BV	Netherlands
Liberty Global Europe Financing B.V.	Netherlands
Liberty Global Europe HoldCo 2 B.V.	Netherlands
Liberty Global Europe Holding B.V.	Netherlands
Liberty Global Europe Holding II B.V.	Netherlands
Liberty Global Europe Holding III B.V.	Netherlands
Liberty Global Europe Investments B.V.	Netherlands
Liberty Global Europe Management B.V.	Netherlands
Liberty Global Group Holding BV	Netherlands
Liberty Global Holding B.V.	Netherlands
Liberty Global Management BV	Netherlands
Liberty Global Operations B.V.	Netherlands
Liberty Global Services B.V.	Netherlands
Liberty Global Ventures Holding BV	Netherlands
UGC Australia BV	Netherlands
UPC Broadband B.V.	Netherlands
UPC Broadband Holding B.V.	Netherlands
UPC CEE Holding BV	Netherlands
UPC CHAT Holding B.V.	Netherlands
UPC Direct Programming II B.V.	Netherlands

Name	Country
UPC France Holding B.V.	Netherlands
UPC Germany Holding B.V.	Netherlands
UPC Holding B.V.	Netherlands
UPC Holding II B.V.	Netherlands
UPC Poland Holding B.V.	Netherlands
UPC Slovakia Holding I BV	Netherlands
UPC Slovakia Holding II BV	Netherlands
UPC Switzerland Holding BV	Netherlands
AWONET Sp Zoo	Poland
UPC Polska Sp. z o.o	Poland
Focus Sat Romania Srl	Romania
UPC External Services S.R.L.	Romania
UPC Romania Srl	Romania
UPC Services S.R.L.	Romania
UPC Broadband Slovakia sro	Slovak Republic
Sitel SA	Switzerland
Teledistal SA	Switzerland
Telelavaux SA	Switzerland
UPC Schweiz GmbH	Switzerland
Video 2000 SA	Switzerland
Action Stations (2000) Limited	UK-England & Wales
Action Stations (Lakeside) Limited	UK-England & Wales
Avon Cable Investments Limited	UK-England & Wales
Avon Cable Joint Venture (P)	UK-England & Wales
BCMV Leasing Limited	UK-England & Wales
BCMV Limited	UK-England & Wales
Birmingham Cable Corporation Limited	UK-England & Wales
Birmingham Cable Limited	UK-England & Wales
Bitbuzz UK Limited	UK-England & Wales
Blue Yonder Workwise Limited	UK-England & Wales
Bradford Cable Communications Limited	UK-England & Wales
Cable Adnet Limited	UK-England & Wales
Cable Camden Limited	UK-England & Wales
Cable Enfield Limited	UK-England & Wales
Cable Hackney & Islington Limited	UK-England & Wales
Cable Haringey Limited	UK-England & Wales
Cable Internet Limited	UK-England & Wales
Cable London Limited	UK-England & Wales
Cable on Demand Limited	UK-England & Wales
CableTel Herts and Beds Limited	UK-England & Wales
CableTel Surrey and Hampshire Limited	UK-England & Wales
CableTel West Riding Limited	UK-England & Wales
Crystal Palace Radio Limited	UK-England & Wales
Diamond Cable Communications Limited	UK-England & Wales
Eurobell (Holdings) Limited	UK-England & Wales
Eurobell (South West) Limited	UK-England & Wales

Name	Country
Eurobell (Sussex) Limited	UK-England & Wales
Eurobell (West Kent) Limited	UK-England & Wales
Eurobell Internet Services Limited	UK-England & Wales
Filegale Limited	UK-England & Wales
Flextech (1992) Limited	UK-England & Wales
Flextech Broadband Limited	UK-England & Wales
Flextech Interactive Limited	UK-England & Wales
Flextech Limited	UK-England & Wales
General Cable Limited	UK-England & Wales
General Cable Programming Limited	UK-England & Wales
Global Handset Finco Ltd	UK-England & Wales
Interactive Digital Sales Limited	UK-England & Wales
Jewel Holdings	UK-England & Wales
LG Ireland Group Limited	UK-England & Wales
LGCI HoldCo III Ltd	UK-England & Wales
LGCI Holding Limited	UK-England & Wales
Liberty Global Broadband Germany Holding II Limited	UK-England & Wales
Liberty Global Broadband Germany Holding Limited	UK-England & Wales
Liberty Global Broadband Holding Limited	UK-England & Wales
Liberty Global Broadband I Limited	UK-England & Wales
Liberty Global Broadband II Limited	UK-England & Wales
Liberty Global Content Investments Holding Ltd.	UK-England & Wales
Liberty Global Content Ltd.	UK-England & Wales
Liberty Global Europe 2 Limited	UK-England & Wales
Liberty Global Europe Ltd.	UK-England & Wales
Liberty Global Finance I (UK) Ltd.	UK-England & Wales
Liberty Global Finance II (UK) Ltd.	UK-England & Wales
Liberty Global Incorporated Limited	UK-England & Wales
Liberty Global plc	UK-England & Wales
Liberty Global Technology Limited	UK-England & Wales
Liberty Global Ventures Group Limited	UK-England & Wales
Liberty Global Ventures Holding Limited	UK-England & Wales
London South Cable Partnership (P)	UK-England & Wales
Lynx Europe 4 Limited	UK-England & Wales
M&NW Network II Limited	UK-England & Wales
M&NW Network Limited	UK-England & Wales
Matchco Limited	UK-England & Wales
Middlesex Cable Limited	UK-England & Wales
ntl (Aylesbury and Chiltern) Limited	UK-England & Wales
ntl (B) Limited	UK-England & Wales
ntl (BCM Plan) Pension Trustees Limited	UK-England & Wales
ntl (Broadland) Limited	UK-England & Wales
ntl (CWC) Corporation Limited	UK-England & Wales
ntl (CWC) Limited	UK-England & Wales
ntl (South East) Limited	UK-England & Wales
ntl (South Hertfordshire) Limited	UK-England & Wales

Name	Country
ntl (V)	UK-England & Wales
ntl (YorCan) Limited	UK-England & Wales
ntl (York) Limited	UK-England & Wales
ntl Bolton Cablevision Holding Company	UK-England & Wales
ntl Business (Ireland) Limited	UK-England & Wales
ntl Business Limited	UK-England & Wales
ntl CableComms Bolton	UK-England & Wales
ntl CableComms Bolton Leasing Limited	UK-England & Wales
ntl CableComms Bromley	UK-England & Wales
ntl CableComms Bromley Leasing Limited	UK-England & Wales
ntl CableComms Bury and Rochdale	UK-England & Wales
ntl CableComms Cheshire	UK-England & Wales
ntl CableComms Derby	UK-England & Wales
ntl CableComms Derby Leasing Limited	UK-England & Wales
ntl CableComms East Lancashire	UK-England & Wales
ntl CableComms Greater Manchester	UK-England & Wales
ntl CableComms Greater Manchester Leasing Limited	UK-England & Wales
ntl CableComms Group Limited	UK-England & Wales
ntl CableComms Holdings No 1 Limited	UK-England & Wales
ntl CableComms Holdings No 2 Limited	UK-England & Wales
ntl CableComms Limited	UK-England & Wales
ntl CableComms Macclesfield	UK-England & Wales
ntl CableComms Oldham and Tameside	UK-England & Wales
ntl CableComms Solent	UK-England & Wales
ntl CableComms Staffordshire	UK-England & Wales
ntl CableComms Stockport	UK-England & Wales
ntl CableComms Surrey	UK-England & Wales
ntl CableComms Surrey Leasing Limited	UK-England & Wales
ntl CableComms Sussex	UK-England & Wales
ntl CableComms Sussex Leasing Limited	UK-England & Wales
ntl CableComms Wessex	UK-England & Wales
ntl CableComms Wessex Leasing Limited	UK-England & Wales
ntl CableComms Wirral	UK-England & Wales
ntl CableComms Wirral Leasing Limited	UK-England & Wales
ntl Cambridge Limited	UK-England & Wales
ntl Communications Services Limited	UK-England & Wales
ntl Derby Cablevision Holding Company	UK-England & Wales
ntl Digital Ventures Limited	UK-England & Wales
ntl Funding Limited	UK-England & Wales
ntl Glasgow	UK-England & Wales
ntl Glasgow Holdings Limited	UK-England & Wales
ntl Kirklees	UK-England & Wales
ntl Kirklees Holdings Limited	UK-England & Wales
ntl Manchester Cablevision Holding Company	UK-England & Wales
ntl Midlands Holdings Limited	UK-England & Wales
ntl Midlands Leasing Limited	UK-England & Wales

Name	Country
ntl Midlands Limited	UK-England & Wales
ntl National Networks Limited	UK-England & Wales
ntl Pension Trustees Limited	UK-England & Wales
ntl Rectangle Limited	UK-England & Wales
ntl South Central Limited	UK-England & Wales
ntl South Wales Limited	UK-England & Wales
ntl Telecom Services Limited	UK-England & Wales
ntl Trustees Limited	UK-England & Wales
ntl UK Telephone and Cable TV Holding Company Limited	UK-England & Wales
ntl Victoria Limited	UK-England & Wales
ntl Wirral Telephone and Cable TV Company	UK-England & Wales
ntl Wirral Telephone and Cable TV Company Leasing Limited	UK-England & Wales
Sheffield Cable Communications Limited	UK-England & Wales
Smallworld Cable Limited	UK-England & Wales
Smashedatom Limited	UK-England & Wales
Telewest Communications (Central Lancashire) Limited	UK-England & Wales
Telewest Communications (Cotswolds) Limited	UK-England & Wales
Telewest Communications (Cotswolds) Venture (P)	UK-England & Wales
Telewest Communications (Fylde & Wyre) Limited	UK-England & Wales
Telewest Communications (Liverpool) Limited	UK-England & Wales
Telewest Communications (London South) Joint Venture (P)	UK-England & Wales
Telewest Communications (London South) Limited	UK-England & Wales
Telewest Communications (Midlands and North West) Leasing Limited	UK-England & Wales
Telewest Communications (Midlands and North West) Limited	UK-England & Wales
Telewest Communications (Midlands) Limited	UK-England & Wales
Telewest Communications (North East) Limited	UK-England & Wales
Telewest Communications (North East) Partnership (P)	UK-England & Wales
Telewest Communications (South East) Limited	UK-England & Wales
Telewest Communications (South East) Partnership (P)	UK-England & Wales
Telewest Communications (South Thames Estuary) Limited	UK-England & Wales
Telewest Communications (South West) Limited	UK-England & Wales
Telewest Communications (Southport) Limited	UK-England & Wales
Telewest Communications (St Helens & Knowsley) Limited	UK-England & Wales
Telewest Communications (Telford) Limited	UK-England & Wales
Telewest Communications (Tyneside) Limited	UK-England & Wales
Telewest Communications (Wigan) Limited	UK-England & Wales
Telewest Communications Cable Limited	UK-England & Wales
Telewest Communications Holdco Limited	UK-England & Wales
Telewest Communications Holdings Limited	UK-England & Wales
Telewest Communications Networks Limited	UK-England & Wales
Telewest Limited	UK-England & Wales
Telewest Workwise Limited	UK-England & Wales
The Cable Corporation Limited	UK-England & Wales
The Yorkshire Cable Group Limited	UK-England & Wales
Theseus No. 1 Limited	UK-England & Wales
Theseus No.2 Limited	UK-England & Wales

Name	Country
TVS Television Limited	UK-England & Wales
Tyneside Cable Limited Partnership (P)	UK-England & Wales
UPC Broadband UK Limited	UK-England & Wales
Virgin Media Business Limited	UK-England & Wales
Virgin Media Communications Limited	UK-England & Wales
Virgin Media Communications Networks Limited	UK-England & Wales
Virgin Media Employee Medical Trust Limited	UK-England & Wales
Virgin Media Finance plc	UK-England & Wales
Virgin Media Finco Limited	UK-England & Wales
Virgin Media Investment Holdings Limited	UK-England & Wales
Virgin Media Investments Limited	UK-England & Wales
Virgin Media Limited	UK-England & Wales
Virgin Media Mobile Finance Limited	UK-England & Wales
Virgin Media Payments Limited	UK-England & Wales
Virgin Media PCHC II Limited	UK-England & Wales
Virgin Media PCHC Limited	UK-England & Wales
Virgin Media Properties II Limited	UK-England & Wales
Virgin Media Properties Limited	UK-England & Wales
Virgin Media Secretaries Limited	UK-England & Wales
Virgin Media Secured Finance plc	UK-England & Wales
Virgin Media Senior Investments Limited	UK-England & Wales
Virgin Media Senior Secured Notes Issuer plc	UK-England & Wales
Virgin Media SFA Finance Limited	UK-England & Wales
Virgin Media Wholesale Limited	UK-England & Wales
Virgin Mobile Group (UK) Limited	UK-England & Wales
Virgin Mobile Holdings (UK) Limited	UK-England & Wales
Virgin Mobile Telecoms Limited	UK-England & Wales
Virgin Net Limited	UK-England & Wales
Virgin WiFi Limited	UK-England & Wales
VM Sundial Limited	UK-England & Wales
VM Telewest Holdings Limited	UK-England & Wales
VM Transfers (No 4) Limited	UK-England & Wales
VM Transfers (No 5) Limited	UK-England & Wales
VMFH Limited	UK-England & Wales
VMIH Sub Limited	UK-England & Wales
VMWH Limited	UK-England & Wales
W Television Leasing Limited	UK-England & Wales
Windsor Television Limited	UK-England & Wales
X-TANT Limited	UK-England & Wales
Yorkshire Cable Communications Limited	UK-England & Wales
CableTel Northern Ireland Limited	UK-Northern Ireland
CableTel Scotland Limited	UK-Scotland
ntl Glasgow Holdings Limited	UK-Scotland
Telewest Communications (Cumbernauld) Limited	UK-Scotland
Telewest Communications (Dumbarton) Limited	UK-Scotland
Telewest Communications (Dundee & Perth) Limited	UK-Scotland

Name	Country
Telewest Communications (Falkirk) Limited	UK-Scotland
Telewest Communications (Glenrothes) Limited	UK-Scotland
Telewest Communications (Motherwell) Limited	UK-Scotland
Telewest Communications (Scotland Holdings) Limited	UK-Scotland
Telewest Communications (Scotland) Limited	UK-Scotland
Telewest Communications (Scotland) Venture (P)	UK-Scotland
Avon Cable Limited Partnership (P)	USA-Colorado
Cotswolds Cable Limited Partnership (P)	USA-Colorado
Edinburgh Cable Limited Partnership (P)	USA-Colorado
Estuaries Cable Limited Partnership (P)	USA-Colorado
LGI Technology Holdings Inc.	USA-Colorado
Liberty Global Management, LLC	USA-Colorado
Liberty Global Services, LLC	USA-Colorado
TCI US West Cable Communications Group (P)	USA-Colorado
UIM Aircraft, LLC	USA-Colorado
United Cable (London South) Limited Partnership (P)	USA-Colorado
Virgin Media Finance Holdings Inc.	USA-Colorado
Virgin Media Group LLC	USA-Colorado
Virgin Media Inc.	USA-Colorado
Associated SMR, Inc.	USA-Delaware
LGI International LLC	USA-Delaware
LGI Slovakia Holdings Inc.	USA-Delaware
LGI Ventures Management, Inc.	USA-Delaware
Liberty Global Japan, LLC	USA-Delaware
Liberty Global, Inc.	USA-Delaware
Liberty Japan MC, LLC	USA-Delaware
Liberty Programming Japan, LLC	USA-Delaware
Liberty Spectrum Inc.	USA-Delaware
NTL (Triangle) LLC	USA-Delaware
NTL CableComms Group LLC	USA-Delaware
Telenet Financing USD LLC	USA-Delaware
UnitedGlobalCom LLC	USA-Delaware
Unitymedia Finance LLC	USA-Delaware
UPC Financing Partnership	USA-Delaware
Virgin Media Bristol LLC	USA-Delaware

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Liberty Global plc:

We consent to the incorporation by reference in the registration statements (Nos. 333-189220, 333-189222, 333-189223, 333-189224, 333-194578, 333-194581, 333-205542, and 333-205543) on Form S-8 of Liberty Global plc of our reports dated February 14, 2018, with respect to the consolidated balance sheets of Liberty Global plc and subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of operations, comprehensive earnings (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related financial statement schedules I and II (collectively, the "consolidated financial statements"), and the effectiveness of internal control over financial reporting as of December 31, 2017, which reports appear in the December 31, 2017 annual report on Form 10-K of Liberty Global plc.

Our report on the effectiveness of internal control over financial reporting as of December 31, 2017 contains an explanatory paragraph that states that the aggregate amount of total assets and revenue of Coditel Brabant sprl, operating under the SFR brand (**SFR BeLux**) that are excluded from management's assessment of the effectiveness of internal control over financial reporting as of and for the year ended December 31, 2017 are \$496.5 million and \$36.0 million, respectively. Our audit of internal control over financial reporting also excluded an evaluation of the internal control over financial reporting of SFR BeLux.

/s/ **KPMG LLP**

Denver, Colorado
February 14, 2018

CERTIFICATION

I, Michael T. Fries, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Global plc;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this annual report based on such evaluation; and
 - d) Disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 14, 2018

/s/ Michael T. Fries

Michael T. Fries
President and Chief Executive Officer

CERTIFICATION

I, Charles H.R. Bracken, certify that:

1. I have reviewed this annual report on Form 10-K of Liberty Global plc;
2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;
3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this annual report based on such evaluation; and
 - d) Disclosed in this annual report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 14, 2018

/s/ Charles H.R. Bracken

Charles H.R. Bracken

Executive Vice President and Chief Financial Officer

Certification
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Liberty Global plc (the "Company"), does hereby certify, to such officer's knowledge, that:

The Annual Report on Form 10-K for the year ended December 31, 2017 (the "Form 10-K") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company as of December 31, 2017 and December 31, 2016, and for the years ended December 31, 2017, 2016 and 2015.

Dated: February 14, 2018

/s/ Michael T. Fries

Michael T. Fries

President and Chief Executive Officer

Dated: February 14, 2018

/s/ Charles H.R. Bracken

Charles H.R. Bracken

Executive Vice President and Chief Financial Officer

The foregoing certification is being furnished solely pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code) and is not being filed as part of the Form 10-K or as a separate disclosure document.