

Nielsen Holdings plc
Form 10-K
February 28, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018

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 001-35042

Nielsen Holdings plc

(Exact name of registrant as specified in its charter)

England and Wales (State of incorporation) 85 Broad Street	98-1225347 (I.R.S. Employer Identification No.) Nielsen House
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(646) 654-5000 Oxford

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United Kingdom

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(Address, including zip code, and telephone number, including

area code, of the registrant's principal executive offices)

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

Title of each class	Name of each exchange on which registered
Ordinary shares, par value €0.07 per share	New York Stock Exchange

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 (or for such shorter period that the registrant was required to file such reports), 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, if any, every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) 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 amendments 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 an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

The aggregate market value of the registrant's voting and non-voting common equity held by non-affiliates as of June 30, 2018, the last day of business of our most recently completed second fiscal quarter, was \$10.971 million, based on the closing sale price of the registrant's common stock as reported on the New York Stock Exchange on such date of \$30.93 per share.

There were 355,447,173 shares of the registrant's Common Stock outstanding as of January 31, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement of the registrant to be filed pursuant to Regulation 14A of the general rules and regulations under the Securities Exchange Act of 1934, as amended, for the 2019 annual meeting of shareholders of the registrant are incorporated by reference into Part III of this Annual Report on Form 10-K.

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The terms “Company,” “Nielsen,” “we,” “our” or “us,” as used herein, refer to Nielsen Holdings plc (formerly known as Nielsen N.V.) and our consolidated subsidiaries unless otherwise stated or indicated by context. The term “TNC B.V.,” as used herein, refers to The Nielsen Company B.V., the principal subsidiary of Nielsen.

CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K includes forward-looking statements. These forward-looking statements generally can be identified by the use of words such as “anticipate,” “expect,” “plan,” “could,” “may,” “will,” “believe,” “estimate,” “forecast,” “project,” “intend,” and other words of similar meaning. Such statements are not guarantees of future performance, events or results and involve potential risks and uncertainties. These forward-looking statements are based on our current plans and expectations and are subject to a number of known and unknown uncertainties and risks, many of which are beyond our control, which could significantly affect current plans and expectations and our future financial position and results of operations. These factors include, but are not limited to the factors discussed in Item 1A. Risk Factors of this Form 10-K.

We caution you that the factors discussed in Item 1A. Risk Factors may not contain all of the material factors that are important to you. In addition, in light of these risks and uncertainties, the matters referred to in the forward-looking statements contained in this Annual Report on Form 10-K may not in fact occur or may prove to be materially different from the expectations expressed or implied by these forward-looking statements. We undertake no obligation to publicly update or revise any forward-looking statement as a result of new information, future events or otherwise, except as otherwise required by law.

PART I

Item 1. Business.

Background and Business Overview

We are a leading global measurement and data analytics company. We provide to clients a comprehensive understanding of what consumers watch and what they buy and how those choices intersect. We deliver critical media and marketing information, analytics and manufacturer and retailer expertise about what and where consumers buy (referred to herein as “Buy”) and what consumers read, watch and listen to (consumer interaction across the television, radio, print, online, digital, mobile viewing and listening platforms referred to herein as “Watch”) on a local and global basis. Our measurement and analytical services help our clients maintain and strengthen their market positions and identify opportunities for profitable growth. We have a presence in more than 100 countries and our services cover more than 90 percent of the globe’s GDP and population. We have significant investments in resources and associates all over the world, including in many emerging markets, and hold leading market positions in many of our services and geographies. Based on the strength of the Nielsen brand, our scale and the breadth and depth of our solutions, we believe we are the global leader in measuring and analyzing consumer behavior in the segments in which we operate.

We help our clients enhance their interactions with consumers and make critical business decisions that we believe positively affect their sales and profitability. Our data and analytics solutions, which have been developed through substantial investment over many decades, are deeply embedded into our clients’ workflow. Our long-term client relationships are made up largely of multi-year contracts and high contract renewal rates. The average length of relationship with our top ten clients, which include NBC Universal/ Comcast Corporation, The Coca-Cola Company, Nestle S.A., The Procter & Gamble Company, Twenty-First Century Fox and the Unilever Group, is more than 30 years. Typically, before the start of each year, more than 70% of our annual revenue has been committed under contracts in our combined Buy and Watch segments.

We align our business into two reporting segments, Buy (consumer purchasing measurement and analytics) and Watch (media audience measurement and analytics). Our Buy and Watch segments are built on an extensive foundation of proprietary data assets designed to yield essential insights for our clients to successfully measure, analyze and grow their businesses and manage their performance. The information from our Buy and Watch segments, when brought together, can deliver powerful insights into the effectiveness of branding, advertising and consumer choice by linking media consumption trends with consumer purchasing data to better understand behavior and better manage supply and demand as well as media spend, supply chain issues, and much more. We believe these integrated insights better enable our clients to enhance the return on both long-term and short-term investments.

Our Buy segment provides retail transactional measurement data, consumer behavior information and analytics primarily to businesses in the consumer packaged goods (“CPG”) industry. According to Deloitte, the aggregate retail revenue of the Top 250 global retailers approached \$4.5 trillion in 2017. Our broad coverage focuses not only on this modern class of global retailer but also the thousands of traditional trade retailers that have significant presence in emerging markets. Our extensive database of retail and consumer information, combined with our advanced analytical capabilities, helps generate strategic insights that influence our clients’ key business decisions. We track billions of sales transactions per month in retail outlets globally and our data is used to measure their sales and market share. We are the only company offering such extensive global coverage for the collection, provision and analysis of this information for consumer packaged goods. Our Buy services also enable our clients to better manage their brands, uncover new sources of demand, manage their supply chain issues, launch and grow new services, analyze their sales, drive merchandising efficiency and effectiveness in-store and improve their marketing mix and establish more effective consumer relationships. Within our Buy segment, we have two primary geographic groups, developed and

emerging markets. Developed markets primarily include the United States (“U.S.”), Canada, Western Europe, Japan, South Korea and Australia while emerging markets primarily include Africa, Latin America, Eastern Europe, Russia, China, India and Southeast Asia. Our Buy segment represented approximately 48% of our consolidated revenues in 2018.

Our Watch segment provides viewership and listening data and analytics primarily to the media and advertising industries across the television, radio, print, online, digital, mobile viewing and listening platforms. According to ZenithOptimedia, a leading global media services agency, total global spending on advertising, including television, radio, print, online and mobile platforms is projected to reach \$581 billion by end of 2018. Our Watch data is used by our media clients to understand their audiences, establish the value of their advertising inventory and maximize the value of their content and by our advertising clients to plan, transact, and optimize their media spending. In our Watch segment, our ratings are the primary metrics used to determine the value of programming and advertising in the U.S. television advertising marketplace. According to eMarketer, U.S. TV ad spending is expected to be \$70 billion U.S. dollars in 2018. In addition to the U.S., our technology is used to measure television viewing in 30 other countries. We also measure markets that account for approximately 70% of global TV ad spend and offer measurement and analytic services in 60 countries, including the U.S., where we are the market leader. Our ratings are also the primary metrics used to determine the value of programming and advertising in the U.S. radio advertising marketplace. According to eMarketer, U.S. Radio ad spend is expected to be \$14.4 billion U.S. dollars in 2018. Lastly, our ratings are used by the top 25 Global Advertisers for digital campaigns to help

determine the value of advertising in the premium Digital Video Marketplace. According to eMarketer, U.S. Digital ad revenues rose to approximately \$111 billion U.S. dollars in 2018. Our Watch segment represented approximately 52% of our consolidated revenue in 2018.

In September 2018, we announced a broad review of strategic alternatives for the entire company and its businesses. This review process, which is being conducted with the assistance of financial and legal advisors, includes an assessment of a broad range of potential strategic alternatives including continuing to operate as a public, independent company, a separation of either the Company's Buy or Watch segment, or a sale of the Company. There can be no assurance that this review will result in a specific transaction or other strategic alternative.

Our Company was founded in 1923 by Arthur C. Nielsen, Sr., who invented an approach to measuring competitive sales results that made the concept of "market share" a practical management tool. For over 90 years, we have advanced the practice of market research and media audience measurement to provide our clients a better understanding of their consumers. In January 2011, our Company consummated an initial public offering of our common stock and our shares started trading on the New York Stock Exchange under the symbol "NLSN". On August 31, 2015, Nielsen N.V., a Dutch public company listed on the New York Stock Exchange, merged with Nielsen Holdings plc, by way of a cross-border merger under the European Cross-Border Merger Directive, with Nielsen Holdings plc being the surviving company (the "Merger"). The Merger effectively changed the place of incorporation of Nielsen's publicly traded parent holding company from the Netherlands to England and Wales, with no changes made to the business being conducted by Nielsen prior to the Merger.

Services and Solutions

What Consumers Buy

Our Buy segment provides retail transactional measurement data, consumer behavior information and analytics primarily to businesses in the CPG industry. Within our Buy segment, in 2018, 62% of revenues came from Developed markets, 37% came from Emerging markets and 1% came from Corporate Buy which represents slow growth and non-core services that are part of our portfolio pruning initiatives. For the year ended December 31, 2018, revenues from our Buy segment represented approximately 48% of our consolidated revenues. This segment has historically generated stable revenue streams that are characterized by multi-year contracts and high contract renewal rates. At the beginning of each year, approximately 60% of the segment's revenue base for the upcoming year is typically committed under existing agreements. Our top five segment clients represented approximately 18% of our segment revenues for the year ended December 31, 2018 and the average length of relationship with these same clients is over 30 years. No single client accounted for 10% or more of our Buy segment revenues in 2018.

Our retail and manufacturing clients face a business environment that is constantly evolving. New channels are emerging and innovative, nimble competitors are taking advantage of new consumer trends to capture market share. Consumers have better access to information on products and pricing than ever before. Assets that were previously barriers to entry and sources of competitive advantage like scale, global reach and an estate of physical stores can turn into liabilities that hamper the ability to compete with new models.

The advancements in technology that underpin these changes also hold opportunities. There has been a proliferation in the amount of data to help understand consumers better, reach them in a more personal way and make smarter, more actionable decisions. Harnessing this complex and varied amount of data demands new approaches and connectivity. Our clients need to:

know their consumers and shoppers even better
move faster
align their teams and vendors
win in omni-channel
make smarter decisions and investments

To help our clients meet these challenges, we launched Nielsen Connect, to connect the most comprehensive measurement of consumer behavior with built-in analytics that feed an ecosystem of applications to drive activation. We believe that Nielsen Connect will help our clients move quickly from understanding what is happening in their markets and why to knowing what next steps will improve performance. Nielsen Connect will be:

Open: The system makes it easy to integrate data from any source and equally easy to extract data to be used in other systems. The system also supports a Connected Partner Program - an ecosystem of companies serving CPG/retail and incorporating Nielsen data in their solutions which makes it easy for clients to connect their network of partners.

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Simple: Intuitive design and alerts makes the system simple to use while focusing on the user's key performance indicators. Analytics are presented to the user in a way that is easy to interpret.

Flexible: Utilities in the platform allow clients to enrich data, produce customized views and plug in their own tools and applications.

Actionable: Supporting an ecosystem of applications from Nielsen and partners so that clients can focus on execution. Guided workflows make collaboration across teams (and suppliers) quicker and smoother.

For our clients this means:

One version of the truth across the enterprise through integrated data

Teams that are connected and informed of the actions of other teams

Access to analytics that are at the center of everyday decisions

A cost-efficient approach that delivers profitable growth

Retail Measurement Services

We are a global leader in retail measurement services. Our retail sales data provides market share, competitive sales volumes, and insights into such activities as distribution, pricing, merchandising and promotion. By combining this detailed information with our in-house expertise (including world class data science methodologies and granular product and location reference data) and professional consultative services, we produce valuable insights that help our clients improve their manufacturing, marketing, distribution and sales decisions and grow their market share.

Depending on the sophistication of each country's retailer systems, we collect retail sales information from stores using electronic point-of-sale technology and/or teams of local field auditors. Stores within our worldwide retail network include grocery, drug, convenience, discount, some wholesalers, specialty and eCommerce retailers, who, through various cooperation arrangements, share their sales data with us. The electronic retail sales information collected by stores through checkout scanners is transmitted directly to us. In certain emerging markets where electronic retail sales information is unavailable, we utilize field auditors to collect information through in-store inventory and price checks. For eCommerce retailers where electronic retail sales information is unavailable, we are increasingly using consumer sourced data to collect information by leveraging proven expertise developed in our Consumer Panel business. For all information we collect, our stringent quality control systems validate and confirm the source data. The data is then processed into databases that clients access using our proprietary software that allows them to query the information, conduct customized analysis and generate reports and alerts.

Consumer Panel Measurement

We maintain consumer panels around the world that help our clients understand consumer purchasing dynamics at the household level. Among other things, this information offers insight into shopper behavior such as trial and repeat purchase for new products, brand or retailer loyalty, and customer segmentation. In addition, our panel data augments our retail measurement information, providing blinded but detailed household demographics and can provide data in circumstances where we do not collect data from certain retailers.

Our consumer panels collect data from more than 250,000 household panelists across 25 countries, using a combination of in-home scanners and a mobile application to record purchases from each shopping trip. In the U.S., for example, a demographically balanced set of approximately 100,000 households participate in the panel. Data received from household panels undergo a quality control process including UPC verification and validation, before being processed into databases and reports. Clients may access these databases to perform analyses.

Analytical Services

Utilizing our foundation of consumer purchasing information, we provide a wide and growing selection of consumer intelligence and analytical services that help clients make smarter business decisions throughout their product development and marketing cycles. We draw actionable insights from our retail and consumer panel measurement data sets, our online behavioral information, as well as a variety of other proprietary data sets.

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We use consumer trends and comprehensive data analysis to advise our clients across their innovation process and apply a demand-driven approach to identify unmet consumer needs so they can develop breakthrough products. We use intelligence from comprehensive retail and consumer data analysis to inform client decisions on marketing spend for media, price, promotion and assortment. We help clients influence purchase decisions that shoppers make whether pre-store, in-store or online, and provide insights on how to market effectively along a shopper's path to purchase. We also help clients drive profitable growth using demand-driven strategies that close the gap between consumer demand and sales, aligning what people watch to what people buy.

What Consumers Watch

Our Watch segment provides viewership and listening data and analytics primarily to the media and advertising industries across the television, radio, print, online, digital and mobile viewing and listening platforms. For the year ended December 31, 2018, revenues from our Watch segment represented approximately 52% of our consolidated revenues. This segment has historically generated stable revenue streams that are characterized by multi-year contracts and high contract renewal rates. At the beginning of each year, over 80% of the segment's revenue base for the upcoming year is typically committed under existing agreements. Our top five clients represented approximately 21% of segment revenues for the year ended December 31, 2018 and the average length of relationship with these same clients is more than 30 years. No customer accounted for 10% or more of our Watch segment revenues in 2018.

We have aligned our Watch solutions across the key activities of Planning, Activation, Audience Measurement, and Advertising Effectiveness.

Planning

Nielsen has a portfolio of solutions that enable clients to create optimized media plans to reach their desired audiences.

Nielsen Ad Intel provides competitive advertising intelligence across traditional and digital media in 29 markets around the globe and can provide information for more than 80 markets globally. By providing ad campaign brand details, audience exposure and estimated advertising spend data, we furnish clients with unique insights for competitive brand and advertising creative activity, for shifts in advertising spend among media types, channels and brands, and for advertising sales lead generation. In the U.S., Ad Intel determines the commercial minutes for the national television currency. Internationally, clients utilize Ad Intel's ad spend as a secondary measure to the television currency. Furthermore, Ad Intel's brand schedules form the basis for many other Nielsen products and services.

Nielsen Media Impact is an omni-channel planning system, providing insights about target audiences across platforms and devices, to optimize media plans to achieve advertising campaign objectives. Nielsen Media Impact is a tool for understanding how various media can be used together most effectively in a media plan to achieve reach, frequency and brand or sales impact. With Media Impact, clients can identify the most effective channels for messaging to consumers, optimize channel mix with reach and impact, quantify impact by media channel and leverage impact data to improve tactical planning. In the US, Nielsen Media Impact is fueled by Total Media Fusion, a granular, comprehensive data set of audiences and media behaviors across TV, digital, radio, print, digital place based and cinema, designed specifically for media planning and analytics. Nielsen Media Impact is a tool for media agencies, advertisers and media owners and is currently available in 11 international markets, with more planned for 2019. Local

Nielsen Media Impact, a local planning system, is available in 25 markets within the US with additional U.S. markets planned for 2019. Local Nielsen Media Impact utilizes Local Media Fusion, a respondent level data set of audiences and media behaviors across TV and radio at the local market level.

In addition to the services described above, we also provide qualitative information about consumers, including their lifestyles, shopping patterns, and use of media in local markets and across the U.S. We market these services to customers of our syndicated radio and television ratings services who wish to demonstrate the targetability and value of their audience. We also market our quantitative and qualitative audience and consumer information to customers outside of our traditional base, including newspapers; advertising agencies; the advertising sales organizations of local cable television companies; national cable and broadcast television networks; out-of-home media sales organizations; sports teams and leagues; marketers and advertisers.

Qualitative media insights applications include marketing, cross-platform, prospecting, planning/buying, sales, news, promotions, programming and editorial. Beyond demonstrating audience targeting, value and media planning, qualitative information provides advertiser insights into the areas of promotions, marketing, brand management, multiculturalism, product development, shopper insights and sponsorship.

We currently provide syndicated local qualitative measurement in 151 U.S. markets, as well as Puerto Rico.

Activation

We offer over 60,000 segments representing different demographics, psychographics, media consumption and buying behavior. From top funnel insights, describing demographics, economic and job related parameters, to mid funnel insights describing content that viewers have expressed interest in, such as TV shows watched, restaurants dined at, stores shopped, etc. to insights on expressed intent. These audiences describe individuals with high propensity of exhibiting future behaviors such as purchasing a specific car model, a financial product, airline tickets, and more.

We enable these segments in a vast array of buying platforms currently connected to Nielsen's Data Management Platform. The Nielsen Marketing Cloud is Nielsen's platform for the custom creation of audiences and activation of those audiences for campaign delivery. The Nielsen Marketing Cloud empowers brands, agencies and media companies to connect more deeply with customers by combining Nielsen's world-class data, analytics, media planning, marketing activation and data management platform (DMP) capabilities in a single cloud platform.

Our clients can connect directly to our Nielsen Marketing Cloud to identify desired syndicated targeting or created custom targets using their own first party data, unlocking the unique target combinations and using our insights as analytics and ROI tools. Nielsen Marketing Cloud clients gain exclusive access to granular Nielsen data, which powers audience insights at a much higher degree of detail than is available anywhere else. Marketing outcomes include a deeper understanding of consumers, more effective one-to-one messaging across devices, and superior ROI analysis and campaign optimization capabilities.

Audience Measurement

Television Audience Measurement

We are the global leader in television audience measurement. In the U.S., which is by far the world's largest market for television programming, broadcasters and cable networks use our television audience ratings as the primary currency to establish the value of their airtime and more effectively schedule and promote their programming. Advertisers use this information to plan television advertising campaigns, evaluate the effectiveness of their commercial messages and negotiate advertising rates.

We provide two principal television ratings services in the U.S.: measurement of national television audiences and measurement of local television audience's local television markets. We use various methods to collect the data from households including set-top-box data and electronic meters, which provide minute-by-minute viewing information for next day consumption by our clients. These households with electronic meters are meticulously identified using the U.S. Census as a model in order to properly and accurately model our national and local ratings. These methods enable us to collect not only television device viewing data but also the demographics of the audience (i.e., who in the household is watching), from which we calculate statistically reliable and accurate estimates of total television viewership. We have made significant investments over decades to build an infrastructure that can accurately and efficiently track television audience viewing, a process that has become increasingly complex as the industry has converted to digital transmission and integrated new technologies allowing for developments such as time-shifted

viewing.

Our measurement techniques are constantly evolving to account for new television viewing behavior, increased fragmentation and new media technologies. For example, to help advertisers and programmers understand time-shifted viewing behavior, we created the Average Commercial Minute (ACM) ratings, which is a measure of how many people watch commercials during live and time-shifted viewing, through 3 days ("C3"), 7 days ("C7"), and up to 35 days ("C35"). The C3 and C7 ratings are the primary metrics for buying and selling advertising on national broadcast television.

Our technology is used to measure television viewing in 30 countries outside the U.S., including Sweden, Mexico, South Korea, Thailand, New Zealand, Australia, Indonesia, Italy and Poland. The international television audience measurement industry operates on a different model than in the U.S. In many international markets, a joint industry committee of broadcasters in each individual country selects a single official audience measurement provider, which is designated the "currency" through an organized bidding process that is typically revisited every several years. We have strong relationships in these countries and see a significant opportunity to expand our presence into additional countries around the world.

Audio Audience Measurement

We provide independent measurement and consumer research primarily servicing radio, advertisers and advertising agencies in the audio industry. We estimate the size and composition of radio audiences in local markets and of audiences to network radio programming and commercials in the U.S. We refer to our local and network radio audience ratings services, collectively, as our "syndicated radio ratings services." We provide our syndicated radio ratings services in local markets in the U.S. to radio broadcasters, advertising agencies, and advertisers. Our national services estimate the size and demographic composition of national radio audiences and the size and composition of audiences of network radio programs and commercials. Broadcasters use our data primarily to price and sell advertising time, and advertising agencies and advertisers use our data in purchasing advertising time.

We have developed our electronic Portable People Meter™ (“PPM®”) technology, which we deploy across many of our customer offerings and have licensed to other media information services companies to use in their media audience ratings services in countries outside of the U.S. We have commercialized our PPM ratings service in 48 of the largest radio markets in the U.S. Nielsen's PPM technology is also used commercially for National TV Out-of-Home and is planned for integration into Local TV measurement in 2019.

Digital Audience Measurement

We are a global provider of digital media and market research, audience analytics and social media measurement. We employ a variety of measurement offerings in the various markets in which we operate to provide digital publishers, internet and media companies, marketers and retailers with metrics to better understand the behavior of online audiences. Through a combination of patented panel and census data collection methods, we measure and study the internet surfing, online buying, and video viewing (including television content) of digital audiences. In addition to measuring overall internet usage, Nielsen is the only company that has a Media Ratings Council (“MRC”) accredited age and gender people measurement across its U.S. Digital Ad Ratings and U.S. Digital in TV Ratings Services. Nielsen’s Digital Ad Ratings are now in 35 countries, with Israel being the latest market to launch in December 2018.

Since 2010, Nielsen has been providing innovative census measurement in cooperation with third party data enrichment providers such as Facebook. We have privacy-protected and anonymous access to audience data from over 6 billion unique device IDs. We provide critical advertising metrics such as audience demographics, page and ad views, and time spent. As newer forms of digital media such as video advertising, social media and applications become a greater proportion of consumer behavior, we are transitioning our portfolio of digital services, including discontinuation of certain legacy services in certain markets and the launch of other services, to address the evolving requirements of measuring digital audiences and better serve our clients.

Mobile Measurement

We provide independent measurement and consumer research for telecom and media companies in the mobile telecommunications industry. Clients, principally mobile carriers and device manufacturers, rely upon our data to make consumer marketing, competitive strategy and resource allocation decisions. In the U.S., our metrics are a leading indicator for mobile behaviors and attitudes, customer satisfaction, device share, service network quality, revenue share, and other key performance indicators. We also benchmark the end-to-end consumer experience to pinpoint problem areas in the service chain, track key performance metrics for mobile devices and identify key market opportunities.

To address the rapid growth of mobile internet consumption, we have deployed a combination of panel and census based measurement to capture internet, video and other media on mobile, smartphone, and tablet devices. In the U.S., Nielsen has deployed our mobile software development kit (SDK) to offer a comprehensive mobile advertising and content measurement for our media clients. In addition, our census demographic measurement uses the world's largest mobile demographic data set through our data enrichment providers. We offer mobile measurement and analytic services in 35 countries worldwide, including the U.S., where we are a leader in the market for mobile audience measurement, and are focused on expanding our presence in other markets.

Nielsen Total Audience Measurement

Consumer choice is driving how content is viewed, and it is fundamentally changing the business of TV, advertising, and measurement. We are connecting all of our video measurement capabilities together in a comprehensive solution covering clients “total audience” for content and campaigns across all consumer access points. We are also providing the industry’s first comparable metrics, which provides true comparability across TV & Digital. These metrics have

been developed to enable more flexible business models that support both linear and dynamic models of delivering ads and content in which the industry can choose on how best to leverage to transact billions of advertising transactions against. Total Content Ratings combines the total audience for a program or content regardless of the mode of access, including Subscription Video on Demand (“SVOD”). Total Ad Ratings includes ratings for ads regardless of where and how they are consumed, providing flexibility for dynamic ad insertion across all screens.

Nielsen Brand Effect

Nielsen Brand Effect provides a range of solutions to major clients, whether they are CPG manufacturers, retailers, media companies, or other verticals such as automotive, telecom or financial services, to help validate and optimize their advertising spend. We quantify the effectiveness of advertising by reporting behavioral observations, attitudinal changes and actual offline purchase activity. We offer services specific to television, digital and social marketing to determine “resonance” or impact of specific campaigns, by measuring objectives such as breakthrough, brand recall, purchase intent and effect on product and brand loyalty. These services can also help clients determine which elements of their advertising campaigns are more or less effective, including frequency

of repetition, length of commercial and context. As part of these efforts, we collect and analyze approximately 5 million surveys annually to measure consumer engagement and recall of advertisements across television and online to provide important insights on advertising and content effectiveness.

Nielsen Social Content Ratings® (“SCR”) is the leading provider of social TV measurement, audience engagement and advertising effectiveness solutions for TV networks, agencies and advertisers. With social media transforming the traditional TV viewing experience, SCR provides the most complete view of consumer trends and habits, helping the industry measure, understand and act on social TV. Along with tracking program-related activity on Facebook and Twitter around linear airtimes, SCR is the first standardized, third-party measurement of program-related social media activity across Facebook, Instagram and Twitter. Metrics are available via a syndicated dashboard in the US, Italy, Australia, and Mexico. Measurement includes all televised programming from the most popular broadcast & cable networks, original programming from SVOD providers and TV insights related to consumer brands and theatrically released movies. In 2018, SCR became the industry's exclusive provider of owned TV talent measurement with the launch of Account & Content Performance and benchmarking capabilities.

Nielsen Catalina Solutions & Nielsen Buyer Insights

Nielsen has the most comprehensive Advertising Effectiveness Measurement in the industry. We have pioneered the transition of demographic only insights to purchase behavior enhanced metrics. Through these industry leading ventures, Nielsen delivers the broadest and deepest coverage of ROI and Media Planning across various industries, including CPG, Restaurant, Retail, Travel, Pharmacy, etc. Nielsen delivers on the deepest granular insights down to the merchant and UPC level (where applicable) against single source matched, demographically accurate viewership data. Nielsen Catalina Solutions (“NCS”), our joint venture with Catalina Marketing Corporation (“Catalina”), and Nielsen Buyer Insights product suites are utilized by every major media company in the U.S. for Upfronts, research, industry events and everyday negotiations.

NCS measures the effectiveness of advertising across all media. NCS helps advertisers and agencies define their customer once and find them everywhere. NCS enables the CPG industry to activate on their best customers based on actual prior purchases data and match that to the very same shopper's media exposure, then measure the sales impact of the campaign. NCS has conducted several thousand studies for 200 advertisers and 450+ brands to optimize ad performance and drive revenue growth and increase return on ad spend. In December 2018, Catalina and certain of its affiliates (the “Catalina debtors”) commenced a “prepackaged” case under chapter 11 of the U.S. Bankruptcy Code with the U.S. Bankruptcy Court for the District of Delaware. On January 30, 2019, the Bankruptcy Court confirmed the joint chapter 11 plan of the Catalina debtors. On February 15, 2019, the Catalina debtors emerged from bankruptcy following the amendment of the NCS Joint Venture agreement, which amendment reaffirms both parents’ commitment to NCS and also enhances both parents’ flexibility in going to market with effectiveness products and services.

Competitive Advantages

We are faced with a number of competitors in the markets in which we operate. Some of our competitors in each market may have substantially greater financial, marketing and other resources than we do and may benefit from other competitive advantages. See “Competitive Landscape” and “Risk Factors.” We face increasing competition, which could adversely affect our business, financial condition, results of operations and cash flow. Notwithstanding the challenges presented by the competitive landscape, we believe that we have several competitive advantages, including the following:

Global Scale and Brand. We provide a breadth of information and insights about consumers covering approximately 90 percent of all population and GDP globally. In our Buy segment, we track billions of sales transactions per month in retail outlets in more than 100 countries around the world. We also have approximately 250,000 household

panelists across 25 countries. In our Watch segment, our ratings are the primary metrics used to determine the value of programming and advertising in the U.S. television advertising marketplace. According to eMarketer, U.S. Radio ad spend is expected to be \$70 billion U.S. dollars in 2018. We believe our footprint, independence, credibility and leading market positions will continue to contribute to our long-term growth and strong operating margins as the number and role of multinational companies expand. Our scale is supported by our global brand, which is defined by the original Nielsen code created by our founder, Arthur C. Nielsen, Sr.: impartiality, thoroughness, accuracy, integrity, economy, price, delivery and service.

Strong, Diversified Client Relationships. Many of the world's largest brands rely on us as their information and analytics provider to create value for their business. We maintain long-standing relationships and multi-year contracts with high renewal rates due to the value of the services and solutions we provide. In our Buy segment, our clients include the largest CPG and merchandising companies in the world such as The Coca-Cola Company, Nestle S.A., Unilever, and The Procter & Gamble Company, as well as leading retail chains such as Carrefour, Tesco, Walgreens and Walmart. In our Watch segment, our client base includes leading broadcast, radio, cable and internet companies such as CBS, Discover Inc., Disney/ABC, Facebook, Google, Microsoft, NBC Universal/Comcast, Fox Corporation, Time Warner, Univision and Yahoo!; leading advertising agencies such as WPP, IPG, Omnicom,

and Publicis; leading telecom companies such as AT&T, Verizon, Sprint, and Vodafone; and leading automotive companies such as Ford, Toyota and Renault. The average length of relationship with our top 10 clients across both our Buy and Watch segments is more than 30 years. In addition, due to our growing presence in emerging markets, we have cultivated strong relationships with local market leaders that can benefit from our services as they expand globally. Our strong client relationships provide both a foundation for recurring revenues as well as a platform for growth.

Enhanced Data Assets and Measurement Science. Our extensive portfolio of transactional and consumer behavioral data across our Buy and Watch segments enables us to provide critical information to our clients. For decades, we have employed advanced measurement methodologies that yield statistically accurate information about consumer behavior while having due regard for their privacy. Our particular expertise in panel measurement includes a proven methodology to create statistically accurate research insights that are statistically representative of designated audiences. This expertise is a distinct advantage as we extrapolate more precise insights from emerging large-scale census databases to provide greater granularity and segmentation for our clients. We continue to enhance our core competency in measurement science by improving research approaches and investing in new methodologies. We have also invested significantly in our data architecture to enable the integration of distinct large-scale census data sets including those owned by third parties. We believe that our expertise, established standards and increasingly granular and comprehensive data assets provide us with a distinct advantage as we deliver more precise insights to our clients.

Innovation. We have focused on innovation to deepen our capabilities, expand in new and emerging forms of measurement, enhance our analytical offerings and capitalize on industry trends across our Buy & Watch businesses.

In Watch, we are investing in our total audience measurement framework, connecting all of our video, audio, and text measurement capabilities across digital and television platforms for both ad campaigns (Total Ad Ratings) and content (Total Content Ratings) across all consumer access points. These measurement offerings allow content providers and advertisers to understand their true reach across and among all platforms using a combination of Nielsen's gold standard panels and census-based measurement. We have also taken a "total" approach to Ad Intel by partnering with a global data provider to add digital data into the service alongside TV, radio and print. We are working with our clients to help maximize the value of the data we give to them by allowing them to evaluate new distribution options (e.g., the Apple TV, Roku, Game Console breakout) as well as understanding the true impact and audiences of their content when sent to SVOD. The continued expansion of our Nielsen campaign ratings service provides "reach" metrics for TV and digital campaign ratings, and can offer advertisers and media companies a unique measurement of unduplicated audiences for their advertising and programming across television and online viewing.

Nielsen is also incorporating large "census like" data into all of our services and products. We have been using Return Path Data in different areas of Nielsen over the last five years, for example, in Digital Ad Ratings and Digital Content Ratings along with our marketing effectiveness/ROI services. Nielsen has incorporated Return Path Data for Local Television in 138 local markets, resulting in the retirement of the use of paper diaries for TV audience measurement. Due to the significant deficiencies in this data, Nielsen's Data Science teams have created a number of statistical models to correct for all of the limitations of this data, including how to calibrate and validate against it in which to continue to produce quality person's based ratings for the marketplace.

We have also made investments in providing cross platform data aggregation and audience activation within the Nielsen Marketing Cloud. Its data management platform and big data infrastructure has enabled brands, agencies, and media companies access to unified consumer mapping and targeting across multiple media platforms. By leveraging this data management platform, clients can more easily analyze ROI and optimize their marketing programs with the Nielsen Marketing Cloud's world class analytic capabilities, including Multi Touch Attribution modelling (cross channel performance analysis) and In Flight Analytics (a real-time view into purchase-intent behavior).

In addition the Nielsen Marketing Cloud incorporates Nielsen AI, a self-learning marketing AI solution that automatically identifies and adapts to what consumer attributes and behavior are driving campaign key performance indicators – like form fills or sales conversions - leading to better marketing results. Nielsen AI was recognized as one of the most technologically significant products of 2017 by R&D Magazine's R&D 100, one of the most prestigious innovations awards program in research and development for the past 55 years, honoring great pioneers and their revolutionary ideas in science and technology.

On the planning side, Nielsen Media Impact, a state of the art cross media planning system that integrates reach and effectiveness data, which provides the analytics capability tied to our total audience measurement data to enable buyers and sellers to more effectively transact on advertising sales. It helps agencies, media owners, and advertisers to better plan, activate and optimize the value of their media investments. It is also the first solution in the industry that has created the first currency-quality, respondent level planning dataset and software solution that is configurable from top to bottom for clients that want proprietary solutions.

Nielsen is the premier global provider of analytics and insights in sport sponsorships. Nielsen Sports America connects sponsorship data with Nielsen's buyer intent and purchase data to help clients make better, smarter business decisions.

While technology is changing the path to purchase and generating massive volumes of data to sift through, Nielsen is helping our clients navigate this changing landscape and answer critical questions through our innovation of Nielsen Connect. Nielsen Connect is an open, cloud-based platform which allows clients to quickly determine what's happened to their business, the reason behind sales and share changes and then what they should do next through analytic apps that support everyday decisions around innovation, distribution, price, promotion and media. Retail and manufacturer clients will both have access to Nielsen Connect enabling a high degree of collaboration. We have also further enhanced our information and analytics delivery platform, Nielsen Answers On Demand, to enable the management of consumer loyalty programs for retail clients.

Nielsen is also on a path to measure the "Total Consumer," which means offline and online purchases, all outlets, retail, and out of home consumption. Nielsen's e-commerce measurement solution is a combination of Nielsen retail data cooperators; multiple consumer-sourced data sets and demand related analytics that will provide the industry a leading measure of e-commerce channel performance for both retailers and manufacturers. These data sources, married with Nielsen's best in class data science will enable an integrated, calibrated and projectable measurement solution. The retail data cooperators are across a spectrum of channels ranging from pure play, club, mass, specialty, drug, and food. This solution will provide an integrated view of consumer insights, in addition to the market measurement, through consumer level purchase data.

Scalable Operating Model. Our global presence and operating model allow us to scale our services and solutions rapidly and efficiently. We have a long track record of establishing leading services that can be quickly expanded across clients, markets and geographies. Our global operations and technology organization enables us to achieve faster, higher quality outcomes for clients in a cost-efficient manner. Our flexible architecture allows us to incorporate leading third-party technologies as well as data from external sources, and enables our clients to use our technology and solutions on their own technology platforms. In addition, we work with leading technology partners such as Microsoft, Amazon, IBM, Tata Consultancy Services and other technology providers, which allows for greater quality in client offerings and efficiency in our global operations.

Industry Trends

We believe companies, including our clients, require an increasing amount of data and analytics to set strategy and direct operations. This has resulted in a large market for business information and insight which we believe will continue to grow. Our clients are media, advertising and CPG companies in the large and growing markets. We believe that significant economic, technological, demographic and competitive trends facing consumers and our clients will provide a competitive advantage to our business and enable us to capture a greater share of our significant market opportunity. We may not be able to realize these opportunities if these trends do not continue or if we are otherwise unable to execute our strategies. See "Risk Factors – We may be unable to adapt to significant technological changes which could adversely affect our business" and "Risk Factors – Our international operations are exposed to risks which could impede growth in the future."

Emerging markets present significant expansion opportunities. Brand marketers are focused on attracting new consumers in emerging countries as a result of the fast-paced population growth of the middle class in these regions. In addition, the retail trade in these markets is quickly evolving from small, local formats toward larger, more modern formats with electronic points of sale, a similar evolution to what occurred in developed markets over the last several decades. We provide established measurement methodologies to help give CPG companies, retailers and media companies an accurate understanding of local consumers to allow them to harness growing consumer buying power in markets like Brazil, India and China.

Demographic shifts and changes in spending behavior are altering the consumer landscape. Consumer demographics and related trends are constantly evolving globally, leading to changes in consumer preferences and the relative size

and buying power of major consumer groups. Shifts in population size, age, racial composition, family size and relative wealth are causing marketers continuously to re-evaluate and reprioritize their consumer marketing strategies. We track and interpret consumer demographics that help enable our clients to engage more effectively with their existing consumers as well as forge new relationships with emerging segments of the population.

The media landscape is dynamic and changing. Consumers are rapidly changing their media consumption patterns. The growing availability of the internet, and the proliferation of new formats and channels such as mobile devices, social networks and other forms of user-generated media have led to an increasingly fragmented consumer base that is more difficult to measure and analyze. In addition, simultaneous usage of more than one screen is becoming a regular aspect of daily consumer media consumption. We have effectively measured and tracked media consumption through numerous cycles in the industry's evolution – from broadcast to cable, from analog to digital, from offline to online and from live to time-shifted, from in-home to out-of-home, and Video On Demand/Subscription Video On Demand. We believe our distinct ability to provide independent audience measurement and metrics across television, radio, online and mobile platforms helps clients better understand, adapt to and profit from the continued transformation of the global media landscape.

Consumers are more connected, informed and in control. More than three-quarters of the world's homes have access to television and there are approximately 3.5 billion internet users around the globe. Advances in technology have given consumers a greater level of control of when, where and how they consume information and interact with media and brands. They can compare products and prices instantaneously and have new avenues to learn about, engage with and purchase products and services. These shifts in behavior create significant complexities for our clients. Our broad portfolio of measurement and analytical services enables our clients to engage consumers with more impact and efficiency, influence consumer purchasing decisions and actively participate in and shape conversations about their brands.

Increasing amounts of consumer information are leading to new marketing approaches. The advent of the internet and other digital platforms has created rapid growth in consumer data that is expected to intensify as more entertainment and commerce are delivered across these platforms. As a result, companies are looking for real-time access to more granular levels of data to understand growth opportunities more quickly and more precisely. This presents a significant opportunity for us to work with companies to effectively manage, integrate and analyze large amounts of information and extract meaningful insights that allow marketers to generate profitable growth.

Consumers are looking for greater value. When it comes to the products consumers choose to buy, the consideration set has grown. Access to information and social trends have transformed the way brands can build trust with and appeal to consumers, as exemplified by the rising demand for "private label" (store branded) products. Today, consumers desire products that meet very specific needs. This increased focus on product attributes is causing manufacturers, retailers and media companies to re-evaluate brand positioning, value propositions and factors that drive loyalty. We believe companies will increasingly look to our broad range of consumer purchasing insights and analytics to more precisely and effectively measure consumer behavior and target their products and marketing offers to meet the right combination of needs.

The Rise of Online Brand Loyalists. The growth of online commerce has driven the need for fast-moving consumer goods to reshape consumers' actual online experience around their online behavior. The real promise in digital retail is the chance to go "beyond the self" to build brand loyalty with consumers. It is the first time that brands and retailers can fulfill consumers' needs for convenience and an overall good experience along the entire path to purchase, including clear, helpful production information, ensuring there is a place for customer reviews by product, easy checkout, simple returns, and quick responses to consumer feedback. Getting the experience right and building those relationships with consumers now will be vital to securing subscriptions and automatic fulfillment, which will very soon become the norm.

Clients are Under Pressure to Reduce Costs and Move Faster. Global CPGs are challenged to achieve growth in certain markets with growing fragmentation in consumer demand, more competition from smaller and local players and increased commodity pricing. In addition, the growth of discount retailers, eCommerce players and subscription models is creating competitive pressure for CPGs and retailers. These factors have led clients to seek efficiencies in their business including reducing costs via zero-based budgeting to offset revenue pressure. We believe clients are looking for decisions to be made in much shorter periods of time and the pace at which market share data and the linked explanatory analytics are delivered needs to increase. We see a growing opportunity to provide clients with fast and nimble data solutions to drive smarter decision-making.

Our Growth Strategy

We believe we are well-positioned for growth worldwide and have a multi-faceted strategy that builds upon our brand, strong client relationships and integral role in measuring and analyzing the global consumer. Our growth strategy is

also subject to certain risks. For example, we may be unable to adapt to significant technological changes such as changes in the technology used to collect and process data or in methods of television viewing. In addition, consolidation in our customers' industries may reduce the aggregate demand for our services. See "Risk Factors."

Continue to grow in emerging markets

Emerging markets (measured in our Buy segment) comprised approximately 37% of our 2018 Buy segment revenues (18% of our 2018 consolidated revenues) and we believe represent a significant long-term opportunity for us given the growth of the middle class and the rapid evolution and modernization of the retail trade in these regions. Key elements of our strategy include:

Continuing to grow our existing services in local markets while simultaneously introducing into emerging markets new services drawn from our global portfolio;

Partnering with existing clients as they expand their businesses into emerging markets and providing the high-quality measurement and insights to which they are accustomed; and

Building relationships with local companies that are expanding beyond their home markets by capitalizing on the global credibility and integrity of the Nielsen brand.

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Continue to develop innovative services

We intend to continue evolving our service portfolio to provide our clients with comprehensive and advanced solutions. The key elements of our strategy are aligned to our corporate values: Open, Connected, Useful, and Personal:

Open

Expanding third party data partnerships to provide broader coverage and deeper granularity

Making Nielsen market data available to authorized users via Application Programming Interface

Enabling third party development of apps that leverage Nielsen data across our Nielsen Marketing Cloud and Nielsen Connect

Connected

Continuing to invest in the connection of Nielsen Watch and Buy assets

Integrating Nielsen data and tools into client workflows and tech stacks

Enabling the inclusion of client datasets

Useful

Moving from custom/manual analytics and canned reports toward “always on” analytics that enable clients to make decisions closer to real time

Ensuring that our tools are intuitive and effective in executing the client’s work

Becoming a leader in software
usability

Personal

Designing solutions that solve for specific client personas and use cases

Connecting Nielsen and third party datasets to provide a 360 degree view of the consumer

Delivering capabilities that enable our clients to personalize their own products and services

These strategies are directly reflected in the Nielsen Total Audience, Nielsen Marketing Cloud and Nielsen Connect.

Continue to attract new clients and expand existing relationships

We believe that substantial opportunities exist to both attract new clients and to increase our revenue from existing clients. Building on our deep knowledge and the embedded position of our Buy and Watch segments, we expect to sell new and innovative solutions to our new and existing clients, increasing our importance to their decision making processes.

Continue to pursue strategic acquisitions to complement our leadership positions

We have increased our capabilities through investments and acquisitions in the areas of retail measurement, U.S. and international audience measurement, and advertising effectiveness for digital and social media campaigns. Going forward, we will consider select acquisitions of complementary businesses that enhance our product and geographic portfolio and can benefit from our scale, scope and status as a global leader.

Technology Infrastructure

We operate with an extensive data and technology infrastructure utilizing six primary data centers in three countries around the world. We also use Amazon Web Services from Amazon and Azure from Microsoft for cloud based infrastructure. Our global database has the capacity to house approximately 54 petabytes of information, with our Buy segment processing approximately 9.5 billion purchasing data points each month in 2018, our Watch segment processing approximately 200 billion tuning and viewing records (across panel and census data) each month in 2018 and our Nielsen Marketing Cloud platform processing 5 trillion events each month in 2017. Our technology

infrastructure plays an instrumental role in meeting service commitments to global clients and allows us to quickly scale our services across practice areas and geographies. Our technology platform utilizes an open approach that facilitates integration of distinct data sets, interoperability with client data and technology, and partnerships with leading technology companies such as Tata Consulting Services and other technology providers.

Intellectual Property

Our patents, trademarks, trade secrets, copyrights and all of our other intellectual property are important assets that afford protection to our business. Our success depends to a degree upon our ability to protect and preserve certain proprietary aspects of our technology and our brand. To ensure that objective, we control access to our proprietary technology. Our employees and consultants enter into confidentiality, non-disclosure and invention assignment agreements with us. We protect our rights to proprietary technology and confidential information in our business arrangements with third parties through confidentiality and other intellectual property and business agreements.

We hold a number of third-party patent and intellectual property license agreements that afford us rights to third-party patents, technology and other intellectual property. Such license agreements most often do not preclude either party from licensing our patents and technology to others. Such licenses may involve one-time payments or ongoing royalty obligations, and we cannot ensure that future license agreements can or will be obtained or renewed on acceptable terms, or at all.

Employees

As of December 31, 2018, we employed approximately 46,000 people worldwide. Approximately 18% of our employees are covered under collective bargaining agreements and an additional 13% are covered under works council agreements in Europe. We may become subject to additional agreements or experience labor disruptions which may result in higher operating costs over time. We actively invest in our employee relations and believe they are solid. We are committed to treating employees in a way that respects and protects their human rights everywhere we operate around the world.

Competitive Landscape

There is no single competitor that offers all of the services we offer in all of the markets in which we offer them. We have many competitors worldwide that offer some of the services we provide in selected markets. While we maintain leading positions in many markets in which we operate, our future success will depend on our ability to enhance and expand our suite of services, provide reliable and accurate measurement solutions and related information, drive innovation that anticipates and responds to emerging client needs, strengthen and expand our geographic footprint, and protect consumer privacy. See “Risk Factors – We face increasing competition, which could adversely affect our business, financial condition, results of operations and cash flow.” We believe our global presence and integrated portfolio of services are key assets in our ability to effectively compete in the marketplace. A summary of the competitive landscape for each of our segments is included below:

What Consumers Buy

While we do not have one global competitor in our Buy segment, we face numerous competitors in various areas of our service in different markets throughout the world. Competition includes companies specializing in marketing research, in-house research departments of manufacturers and advertising agencies, retailers that sell information directly or through brokers, information management and software companies, and consulting and accounting firms. In retail measurement, our principal competitor in the U.S. is Information Resources, Inc., which is also present in some European and Asia/Pacific markets. Our retail measurement service also faces competition in individual markets from local companies. Our consumer panel services and analytics services have many direct and/or indirect competitors in all markets around the world including in selected cases, GfK, Ipsos, Kantar and local companies in individual countries.

What Consumers Watch

While we do not have one global competitor in our Watch segment, we face numerous competitors in various areas of our operations in different markets throughout the world. We are the clear market leader in U.S. television audience measurement; however, there are many emerging players and technologies that will increase competitive pressure. Numerous companies such as, comScore are attempting to provide alternative forms of television audience measurement using, inter alia, set-top box data and panel-based measurement. Our principal competitor in television audience measurement outside the U.S. is Kantar, with companies such as GfK and Ipsos also providing competition in select individual countries.

Our primary competitor in the digital audience and campaign measurement solutions in the U.S. is comScore. Globally (including the U.S.), we face competition from additional companies that provide analytics services such as Oracle, Google Analytics, and Adobe Analytics. In 2016 one of our former competitors, Rentrak merged into a wholly-owned subsidiary of comScore and the combined companies focus on cross platform measurement. We are the market leader in U.S. audio audience measurement. Our principal competitors globally are Kantar and GfK, and in the U.S. our principal competitor is Eastlan. Kantar developed technologies similar to our PPM ratings service outside the U.S. Additionally Triton, is a U.S.-based digital competitor which has developed a streaming Audio measurement service that uses server log technology.

Regulation

Our operations are subject to and affected by data protection laws in many countries. These laws pertain primarily to personal data (i.e., information relating to an identified or identifiable individual), constrain whether and how we collect personal data, how that data may be used and stored, and whether, to whom and where that data may be transferred. What constitutes “personal data” varies from country to country and region to region and continues to evolve. Data collection methods that may not always be obvious to the data subject, like the use of cookies online, or that present a higher risk of abuse, such as collecting data directly from children, tend also to be more highly regulated, and products that rely on these technologies may require re-engineering to comply with new laws. In addition, these data transfer constraints can impact multinational access to a central database and cross-border data transfers.

Some of the personal data we collect may be considered “sensitive” by the laws of many jurisdictions because they may include certain demographic information and consumption preferences. Sensitive personal data typically are more highly regulated than non-sensitive data. Generally, this means that for sensitive data, the data subject’s consent should be more explicit and fully informed and security measures surrounding the storage of the data should be more rigorous. The greater constraints that apply to the collection and use of sensitive personal data increase the administrative and operational burdens and costs of panel recruitment and management.

Despite these challenges, our commitment to privacy and data protection issues can offer us a competitive advantage. Because we recognize the importance of privacy to our panelists, our customers, consumers in general, and regulators, we devote dedicated resources to enhancing our privacy and security practices in our product development plans and other areas of operation, and participate in privacy policy organizations and “think tanks.” We do this to improve both our practices and the perception of Nielsen as a leader in this area.

Global Responsibility and Sustainability

Through responsible, sustainable business practices and our commitment to giving back, we care for the communities and markets where we live and operate our business. Our Global Responsibility & Sustainability strategy includes all environmental, social and governance (ESG) issues that affect our business, operations, supply chain, and all internal and external stakeholders.

The Board of Directors’ Nomination and Corporate Governance Committee oversees these issues. In addition to our Global Responsibility & Sustainability team, we also manage relevant risks and opportunities through various internal engagement channels, including Global Citizenship & Sustainability Council, our Human Resources Sustainability Council and our Technology & Operations Sustainability Council. As part of our commitment to ongoing stakeholder engagement, Nielsen conducts a non-financial materiality assessment once every two years. This process is a critical part of our ESG strategy management to identify the ESG issues that are most critical to our stakeholders and business, as well as understand their impact on our economic, environmental and social value.

Available Information

We file our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy and information statements and any amendments to these reports and statements with the Securities and Exchange Commission (“SEC”). The SEC maintains a website that contains reports, proxy and information statements and other information at <http://www.sec.gov>. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to these reports are made available free of charge on our website at <http://www.nielsen.com> as soon as reasonably practicable after we electronically file such reports with, or furnish them to, the Securities and Exchange Commission (“SEC”). Information on our website is not incorporated by reference

herein and is not a part of this report.

From time to time, Nielsen may use its website and social media outlets as channels of distribution of material company information. Financial and other material information regarding the company is routinely posted and accessible on our website at <http://www.nielsen.com/investors>, our Twitter account at <http://twitter.com/NielsenIR> and our iPad App, NielsenIR, available on the App Store.

Item 1A. Risk Factors

The risks described below are not the only risks facing us. Any of the following risks could materially and adversely affect our business, financial condition or results of operations. Additional risks and uncertainties not currently known to us or those we currently view to be immaterial may also materially and adversely affect our business, financial condition or results of operations.

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Risks Related to Our Business

We are subject to risks and uncertainties related to our review of strategic alternatives.

In September 2018, we announced that we would expand the scope of our previously announced strategic review of our Buy segment to include a broad review of strategic alternatives for the entire company and its businesses. This review process, which is being conducted with the assistance of financial and legal advisors, includes an assessment of a broad range of potential strategic alternatives including continuing to operate as a public, independent company, a separation of either the Company's Buy or Watch segment, or a sale of the Company. We will incur expenses in connection with the review and our future results may be affected by the pursuit or consummation of any specific transaction or other strategic alternative resulting from the review. There can be no assurance that this review will result in a specific transaction or other strategic alternative. In addition, the pendency of this review exposes us to certain risks and uncertainties, including potential risks and uncertainties in retaining and attracting employees during the review process; the diversion of management's time to the review; exposure to potential litigation in connection with the review process or any specific transaction or other strategic alternative resulting therefrom; and risks and uncertainties with respect to suppliers, clients and other business relationships, all of which could disrupt and negatively affect our business. Speculation regarding any developments related to the review of strategic alternatives and perceived uncertainties related to the future of the Company could cause our stock price to fluctuate significantly. There is no finite timetable for completion of the review of strategic alternatives, and we can provide no assurance that any transaction or other strategic alternative we pursue will have a positive impact on our results of operations or financial condition.

We may be unable to adapt to significant technological changes, which could adversely affect our business.

We operate in businesses that require sophisticated data collection, processing systems, software and other technology. Some of the technologies supporting the industries we serve are changing rapidly. We have been and will be required to adapt to changing technologies and industry standards, either by developing and marketing new services investing in new services or by enhancing our existing services to meet client demand.

Moreover, the introduction of new services embodying new technologies and the emergence of new industry standards could render existing services technologically or commercially obsolete. Our continued success will depend on our ability to adapt to changing technologies, manage and process ever-increasing amounts of data and information and improve the performance, features and reliability of our existing services in response to changing client and industry demands. We may experience difficulties that could delay or prevent the successful design, development, testing, introduction or marketing of our services. New services, or enhancements to existing services, may not adequately meet the requirements of current and prospective clients or achieve any degree of significant market acceptance.

Traditional methods of television viewing continue to change as a result of fragmentation of channels and digital and other new television and video technologies and devices such as video-on-demand, digital video recorders, game consoles, tablets, other mobile devices and internet viewing. In addition, consumption of consumer packaged goods is growing in new and different channels such as discount stores and e-commerce. If we are unable to continue to successfully adapt our media and consumer measurement systems to new viewing and consumption habits, our business, financial position and results of operations could be adversely affected.

Traditional methods of shopping are evolving and the emergence and growth of Omni-Channel ecommerce as well as direct to consumer continues to grow. This fragmentation requires us to develop new methodologies to procure, cleanse, enrich, and connect data at the individual level.

Consolidation in the industries in which our clients operate could put pressure on the pricing of our services, thereby leading to decreased earnings and cash flows.

Consolidation in the industries in which our clients operate could reduce aggregate demand for our services in the future and could limit the amounts we earn for our services. When companies merge, the services they previously purchased separately are often purchased by the combined entity in the aggregate in a lesser quantity than before, leading to volume and price compression and loss of revenue. While we are attempting to mitigate the revenue impact of any consolidation by expanding our range of services, there can be no assurance as to the degree to which we will be able to do so as industry consolidation continues, which could adversely affect our business, financial position and results of operations. In addition, retailer consolidation might put pressure on our cost of data acquisition.

Client procurement strategies could put additional pressure on the pricing of our services, thereby leading to decreased earnings and cash flows.

Certain of our clients may continue to seek further price concessions from us. This puts pressure on the pricing of our services, which could limit the amounts we earn. While we attempt to mitigate the revenue impact of any pricing pressure through effective negotiations and by providing services to individual businesses within particular groups, there can be no assurance as to the degree to which we will be able to do so, which could adversely affect our business, financial position and results of operations.

Adverse market conditions, particularly in the consumer packaged goods, media, entertainment, telecommunications or technology industries, could adversely impact our revenue.

Adverse economic conditions could affect markets both in the U.S. and internationally, impacting the demand for our customers' products and services. Those reduced demands could adversely affect the ability of some of our customers to meet their current obligations to us, hinder their ability to incur new obligations until the economy and their businesses strengthen or cause them to reduce or cease using our services. The inability of our customers to pay us for our services and/or decisions by current or future customers to forego or defer purchases may adversely impact our business, financial condition, results of operations, profitability and cash flows and may present risks for an extended period of time. We cannot predict the impact of economic slowdowns on our future financial performance.

To the extent that the businesses we service, especially our clients in the consumer packaged goods, media, entertainment, telecommunications and technology industries, are subject to the financial pressures of, for example, increased costs or reduced demand for their products, the demand for our services, or the prices our clients are willing to pay for those services, may decline.

We expect that revenues generated from our measurement and analytical services will continue to represent a substantial portion of our overall revenue for the foreseeable future. During challenging economic times, clients, typically advertisers, within our Buy segment may reduce their discretionary advertising expenditures and may be less likely to purchase our analytical services, which would have an adverse effect on our revenue.

Clients within our Watch segment derive a significant amount of their revenue from the sale or purchase of advertising. During challenging economic times, advertisers may reduce advertising expenditures and advertising agencies and other media may be less likely to purchase our media information services, which would have an adverse effect on our revenue.

Our substantial indebtedness could adversely affect our business, results of operations, and financial health.

We have and will continue to have a significant amount of indebtedness. As of December 31, 2018, we had total indebtedness of \$8,387 million.

Our substantial indebtedness could have important consequences. For example, it could:

- increase our vulnerability to general adverse economic and industry conditions;
- require us to dedicate a substantial portion of our cash flow from operations to interest and principal payments on our indebtedness, thereby reducing the availability of our cash flow to fund working capital, capital expenditures, service development efforts, dividends, share repurchases and other general corporate purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- expose us to the risk of increased interest rates as certain of our borrowings are at variable rates of interest;
- restrict us from making strategic acquisitions or cause us to make non-strategic divestitures;

limit our ability to obtain additional financing for working capital, capital expenditures, service development, debt service requirements, dividends, share repurchases, acquisitions and general corporate or other purposes;
limit our ability to adjust to changing market conditions;
place us at a competitive disadvantage compared to our competitors that have less debt; and
limit our ability to service our dividend and stock repurchases programs.

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In addition, the indentures governing our outstanding notes and our secured credit facility contain financial and other restrictive covenants that could limit the ability of our operating subsidiaries to engage in activities that may be in our best interests, including by limiting the ability to make acquisitions, pay dividends or repurchase shares. Moreover, the failure to comply with any of those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of all of our debt. See Note 11 to our consolidated financial statements – “Long Term Debt and Other Financing Arrangements,” for a description of our debt arrangements and related covenants.

Despite our current indebtedness levels, we and our subsidiaries may still be able to incur substantially more debt. If new debt is added to our and our subsidiaries’ current debt levels, the related risks that we and they now face could intensify.

We require a significant amount of cash as well as continued access to the capital markets to service our indebtedness, fund capital expenditures and meet our other liquidity needs. Our ability to generate cash and our access to the capital markets depend on many factors beyond our control.

Our ability to make payments on our indebtedness (both interest and principal) and to fund planned capital expenditures and other liquidity needs will depend on our ability to generate cash in the future and our ability to refinance our indebtedness. This, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

We may not be able to generate sufficient cash flow from operations to pay our indebtedness or to fund our other liquidity needs. We may need to refinance all or a portion of our indebtedness on or before maturity. We may not be able to refinance any of our indebtedness, including our senior secured credit facilities, on commercially reasonable terms or at all. See Note 11 to our consolidated financial statements – “Long-term Debt and Other Financing Arrangements,” for a description of our debt arrangements and related maturities.

A substantial portion of our indebtedness is at variable rates, and we are exposed to the risk of increased interest rates.

Our cash interest expense for the years ended December 31, 2018, 2017 and 2016 was \$380 million, \$352 million and \$319 million, respectively. At December 31, 2018, we had \$4,020 million of floating-rate debt under our senior secured credit facilities of which \$2,050 million was subject to effective floating-fixed interest rate swaps. A one percent increase in interest rates applied to our floating rate indebtedness would therefore increase annual interest expense by approximately \$20 million (\$40 million without giving effect to any of our interest rate swaps). We periodically review our fixed/floating debt mix, and the volume, rates and duration of our interest rate hedging portfolio are subject to changes, which could adversely affect our results of operations.

USD-Libor, which today is an important interest rate determinant for the majority of our debt under our credit facility and our interest rate swaps, will likely not exist as a market reference rate after 2021.

In July 2017, the Financial Conduct Authority (the authority that regulates LIBOR) announced it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. The Alternative Reference Rates Committee ("ARRC") has proposed that the Secured Overnight Financing Rate ("SOFR") is the rate that represents best practice as the alternative to USD-LIBOR for use in derivatives and other financial contracts that are currently indexed to USD-LIBOR. ARRC has proposed a market transition to SOFR from USD-LIBOR and organizations are currently working on industry wide transition plans. The Company has material debt and interest rate hedging contracts that are indexed to USD-LIBOR and is monitoring this activity and evaluating the related risks.

The success of our business depends on our ability to recruit sample participants to participate in our research samples.

Our business uses scanners and diaries to gather consumer data from sample households as well as Set Meters, People Meters, Active/Passive Meters, PPM's, diaries and other technologies to gather television and audio audience measurement data from sample households. It is increasingly difficult and costly to obtain consent from households to participate in the surveys. Also, consumer privacy concerns could impact our continued ability to recruit participants. It is increasingly difficult and costly to ensure that the selected sample of households mirrors the behaviors and characteristics of the entire population and covers all of the demographic segments requested by our clients. Political changes and trends such as populism, economic nationalism, immigration and sentiment towards multinational companies have made recruiting a sample that mirrors the entire population more difficult. In addition, if the 2020 U.S. Census is not reliable due to underfunding, under participation, new technologies being used, or otherwise, the data we rely on for our panels and statistical breakdowns in the U.S. may not be accurate. Additionally, as consumers adopt modes of telecommunication other than traditional telephone service, such as mobile, cable and internet calling, it may become more difficult for our services to reach and recruit participants for consumer purchasing and audience measurement services. If we are unsuccessful in our efforts to recruit appropriate participants, maintain the integrity of our panels, maintain adequate participation levels or properly model the sample data, our clients may lose confidence in our ratings services and we could lose the support of the relevant industry groups. If this were to happen, our consumer purchasing and audience measurement services may be materially and adversely affected.

Data protection laws and self-regulatory codes may restrict our activities and increase our costs.

Various statutes and rules regulate conduct in areas such as privacy and data protection which may affect our collection, use, storage and transfer of information both abroad and in the U.S. The definitions of “personally identifiable information” and “personal data” continue to evolve and broaden, and new laws and regulations are being enacted (for example, recently passed data protection laws in Brazil and California, U.S., and proposed laws in Argentina and India), so that this area remains in a state of flux. Changes in these laws (including newly released interpretations of these laws by courts and regulatory bodies) may limit our data access, use and disclosure, and may require increased expenditures by us or may dictate that we may not offer certain types of services. In addition, some of our products and services are subject to self-regulatory programs relating to digital advertising. Compliance with these laws and self-regulatory codes may require us to make certain investments or may dictate that we not offer certain types of services or only offer such services after making necessary modifications. Failure to comply with these laws and self-regulatory codes may result in, among other things, civil and criminal liability, negative publicity, restrictions on further use of data and/or liability under contractual warranties.

The European Union’s General Data Protection Regulation (“GDPR”), took effect in May 2018 and imposed new and more stringent requirements regarding the handling of personal data of persons in the EU. Failure to meet the GDPR requirements could result in penalties of up to 4% of worldwide revenue. Many jurisdictions considering new data protection laws are looking to GDPR as a starting point.

The proposed EU “ePrivacy” Regulation, if adopted, is expected to have potentially significant impacts for the online/mobile advertising industry as a whole. Nielsen is continuing to monitor the development of the ePrivacy Regulation and industry response and will determine whether to take further action, as needed, following its final adoption. Nielsen is working with industry groups on the implementation of a transparency and consent framework mechanism that would facilitate users providing and companies passing consent to the advertising supply chain in case of a strict interpretation of the GDPR consent requirements by authorities and to address possible ePrivacy requirements.

We are exposed to risks related to cybersecurity and protection of confidential information.

In the ordinary course of our business, we rely extensively on our people, technology and business operations as well as trusted strategic partners and vendors to provide us with access to data and technology as well as related professional services. We use several third-party service providers, including cloud providers, to access, store, transmit and process sensitive data. We receive, store and transmit large volumes of proprietary information and data that may contain person information of our customers, employees, consumers and suppliers or sensitive client data entrusted to us. Our sensitive data may include our or a client’s intellectual property, financial information and business operations data.

An actual or perceived security or privacy breach may affect us in many ways, including:

- risk of loss of Nielsen and/or client proprietary data or data protected by law, statute or regulation;
- loss of control of how Nielsen and/or client proprietary data or data protected by law, statute or regulation is re-purposed, shared or disseminated;
- expose us to potential litigation;
- expose us to liability;
- harm our reputation;
- loss of confidence in security and accuracy of products;

- deter customers from using our products or services;

deter retailers from sharing their sales data;

make it more difficult and expensive to effectively recruit panelists and survey respondents;

loss of investor confidence;

official sanctions or statutory penalties; and

significant increases in cyber security costs.

Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations or stock price.

Owing to new and emerging technology risks, hackers or unauthorized users who successfully breach our network security, could misappropriate or misuse our proprietary information or cause interruptions in our services. Given the relatively fast pace of changes in new and emerging technology risks, we may not be able to effectively anticipate and/or respond in a timely manner to all foreseeable and/or unforeseeable cyber security risks and events, thereby resulting in a potentially significant loss of client and investor confidence.

Notwithstanding our due diligence for new hires and employee training initiatives, we are at risk for employee malfeasance, inadvertent employee errors and other “insider risks” that may breach one or more of our information security provisions or policies. Our response in remediation of these data breaches or interruptions of service may require substantial commitments of resources and we may incur additional, unbudgeted operating and/or capital expenses, such as for specialized cyber security vendors as part of our response.

We have taken and are taking reasonable steps to prevent future unauthorized access to our systems, including implementation of system security measures, information back-up and disaster recovery processes. However, these steps may not be effective and there can be no assurance that any such steps can be effective against all possible risks.

Our services involve the receipt, storage and transmission of proprietary information. If our security measures are breached and unauthorized access is obtained, our services may be perceived as not being secure and regulators, panelists and survey respondents may hold us liable for disclosure of personal data, and clients and venture partners may hold us liable or reduce their use of our services.

We receive, store and transmit large volumes of proprietary information and data that contain personal information about individuals and companies. Security breaches could expose us to a risk of loss of this information, regulatory fines and penalties, litigation and possible liability and our reputation could be damaged. It may also make it more difficult to recruit panelists and survey respondents. For example, hackers or individuals who attempt to breach our network security could, if successful, misappropriate proprietary information or cause interruptions in our services. If we experience any breaches of our network security or sabotage, we might be required to expend significant capital and resources to protect against or to alleviate problems and to respond to regulators’ inquiries. We may not be able to remedy any problems caused by hackers or saboteurs in a timely manner, or at all. Techniques used to obtain unauthorized access or to sabotage systems change frequently and generally are not recognized until launched against a target and, as a result, we may be unable to anticipate these techniques or to implement adequate preventive measures. If an actual or perceived breach of our security occurs, the perception of the effectiveness of our security measures could be harmed and we could lose current and potential clients. In addition, we may be subject to investigation and fines by jurisdictions that have data protection laws.

If we are unable to protect our intellectual property rights, our business could be adversely affected.

Our business relies on a combination of patented and patent-pending technologies, systems, processes, and methodologies; trademarks; copyrights; other proprietary rights; and contractual arrangements, including licenses, to establish and protect our technology and intellectual property. We believe our proprietary technologies and intellectual property rights are important to our continued success and our competitive position. Any impairment of any such intellectual property could adversely impact the results of our operations or financial condition.

We rely on a combination of contractual and confidentiality provisions and procedures, licensing arrangements, and the intellectual property laws of the U.S. and other countries to protect our intellectual property, as well as the intellectual property rights of third parties whose content, data and technology we license. These legal measures afford only limited protection and may not provide sufficient protection to prevent the infringement, misuse or

misappropriation of our intellectual property. Although our employees, consultants, clients, and collaborators all enter into confidentiality agreements with us, our trade secrets, data and know-how could be subject to unauthorized use, misappropriation or unauthorized disclosure.

Our business success depends, in part, on:

- obtaining patent protection for our technology and services;
- enforcing and defending our patents, copyrights, trademarks, service marks and other intellectual property;
- preserving our trade secrets and maintaining the security of our know-how and data; and
- operating our business without infringing upon intellectual property rights held by third parties.

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Our ability to establish, maintain and protect our intellectual property and proprietary rights against theft or infringement could be materially and adversely affected by insufficient and/or changing proprietary rights and intellectual property legal protections in some jurisdictions and markets. Intellectual property law in several foreign jurisdictions is subject to considerable uncertainty. Our pending patent and trademark applications may not be allowed in certain jurisdictions and inadequate intellectual property laws may limit our rights and ability to detect unauthorized uses or take appropriate, timely and effective steps to remedy unauthorized conduct, to protect or enforce our rights. Such limitations may allow competitors to design around our intellectual property rights, to independently develop non-infringing competing technologies, products, or services similar or identical to ours, thereby potentially eroding our competitive position, enabling competitors greater opportunity to capture market share, and consequently negatively impacting our revenues and operating results. The expiration of certain of our patents may also lead to increased competition. As such, our patents, copyrights, trademarks, and other intellectual property may not adequately protect our rights, provide significant competitive advantages, or prevent third parties from infringing or misappropriating our proprietary rights.

The growing need for global data, along with increased competition and technological advances, puts increasing pressure on us to share our intellectual property for client applications with others. In this way, competitors may gain access to our intellectual property and proprietary information. Third parties that license our intellectual property and proprietary rights may take actions or create incidents that may diminish the value of our rights, harm our business, reduce revenue, increase expenses, and/or harm our reputation.

To prevent or respond to unauthorized uses of our intellectual property, we may be required to enforce our intellectual property rights to protect our confidential and proprietary information by engaging in costly and time-consuming litigation or other proceedings that may be distracting to management, could result in the impairment or loss of portions of our intellectual property rights and we may not ultimately prevail.

Third parties may claim that we are infringing on their intellectual property and we could suffer significant litigation or licensing expenses, or be prevented from selling products or services, which may adversely impact our operating profits.

We cannot be certain that we do not and will not infringe the intellectual property rights of others in operating our business. In the ordinary course of business, third parties may claim, with or without merit, that one or more of our products or services infringe their intellectual property rights and may engage in legal proceedings against us. In some jurisdictions, plaintiffs can also seek injunctive relief that may limit the operation of our business or prevent the marketing and selling of our services that infringe on the plaintiff's intellectual property rights.

Certain agreements with suppliers or clients contain provisions where we indemnify, subject to certain limitations, the counterparty for damages suffered as a result of claims related to intellectual property infringement based on our data. Infringement claims covered by such indemnity provisions could be expensive to litigate and may result in significant settlement payments. In certain businesses, we rely on third-party intellectual property licenses, and depending upon the outcome of any intellectual property dispute, we cannot ensure that these licenses will be available to us in the future on favorable terms or at all.

Any such claims of intellectual property infringement, even those without merit, could:

- be expensive and time-consuming to defend;
- result in our being required to pay possibly significant damages;
- cause us to cease providing our products or services that incorporate the challenged intellectual property;

• require us to redesign or rebrand our services;
• divert management's attention and resources; and/or
• require us to enter into potentially costly royalty or licensing agreements in order to obtain the right to use a third party's intellectual property, although royalty or licensing agreements may not be available to us on acceptable terms or at all.

Any of the above could have a negative impact on our operating results and could harm our financial condition and prospects.

We analyze and take action in response to such claims on a case-by-case basis. Any dispute or litigation regarding patents or other intellectual property could be costly and time-consuming due to the complexity of our business and technology and the uncertainty of intellectual property litigation and could divert our management and key personnel from our business operations.

If we do not resolve these claims in advance of a trial, there is no guarantee that we will be successful in court. A claim of intellectual property infringement could compel us to enter into a license agreement with restrictive terms and/or significant fees, which may or may not be available under acceptable terms or at all, and an adverse judgment could subject us to significant damages or to an injunction against development and/or sale of certain of our products or services. We may be required to implement costly redesigns to the affected product or services, or pay damages to satisfy contractual obligations to others.

Currency exchange rate fluctuations may negatively impact our business, results of operations and financial position.

We operate globally, deriving approximately 43% of revenues for the year ended December 31, 2018 in currencies other than U.S. dollars, with approximately 11% of revenues deriving in Euros. Our U.S. operations earn revenues and incur expenses primarily in U.S. dollars, while our European operations earn revenues and incur expenses primarily in Euros. Outside the U.S. and the Euro Zone, we generate revenues and expenses predominantly in local currencies. Because of fluctuations (including possible devaluations) in currency exchange rates, we are subject to currency translation exposure on the revenues and profits of these operations, as well as on the value of balance sheet items (including cash) not denominated in U.S. dollars. In addition, we are subject to currency transaction exposure in those instances where transactions are not conducted in the relevant local currency. In certain instances, we may not be able to freely convert foreign currencies into U.S. dollars due to governmental limitations placed on such conversions.

Of our \$524 million in cash and cash equivalents as of December 31, 2018, approximately \$419 million was held in jurisdictions outside the U.S. We regularly review the amount of cash and cash equivalents held outside of the U.S. to determine the amounts necessary to fund the current operations of our foreign operations and their growth initiatives and amounts needed to service our U.S. indebtedness and related obligations.

Our international operations are exposed to risks which could impede growth in the future.

We continue to explore opportunities in major international markets around the world, including China, Russia, India and Brazil. International operations expose us to various additional risks, which could adversely affect our business, including:

- costs of customizing services for clients outside of the U.S.;
- reduced protection for intellectual property rights in some countries;
- the burdens of complying with a wide variety of foreign laws;
 - difficulties in managing international operations;
- longer sales and payment cycles;
- exposure to foreign currency exchange rate fluctuation;
- exposure to local economic conditions;
- limitations on the repatriation of funds from foreign operations;
- exposure to local political conditions, including adverse tax and other government policies and positions, civil unrest and seizure of assets by a foreign government; and
- the risks of an outbreak of war, the escalation of hostilities and acts of terrorism in the jurisdictions in which we operate.

In countries where there has not been a historical practice of using consumer packaged goods retail information or audience measurement information in the buying and selling of advertising time, it may be difficult for us to maintain subscribers.

Additionally, we are subject to complex U.S., European and other regional and local laws and regulations that are applicable to our operations abroad, including trade sanctions laws, anti-corruption laws such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act 2010, anti-bribery laws, anti-money laundering laws, and other financial crimes laws. Although we have implemented a compliance program that includes internal controls, policies and procedures and employee training to deter prohibited practices, such measures may not be effective in preventing employees, contractors or agents from violating or circumventing such internal policies and violating applicable laws and regulations. Given our operations in the United Kingdom and Continental Europe, we face uncertainty surrounding the implementation and effects of the U.K.'s June 2016 referendum in which voters approved the United Kingdom's exit from the European Union, commonly referred to as "Brexit." It is likely that Brexit will cause increased regulatory and legal complexities and create uncertainty surrounding our business, including our relationships with existing and future clients, suppliers and employees, which could have an adverse effect on our business, financial results and operations.

Criticism of our audience measurement service by various industry groups and market segments could adversely affect our business.

Due to the high-profile nature of our services in the media, internet and entertainment information industries, we could become the target of criticism in the media and in other venues by various industry groups and market segments. We strive to be fair, transparent and impartial in the production of audience measurement services, and the quality of our U.S. ratings services is voluntarily subject to review and accreditation by the Media Rating Council, a voluntary trade organization whose members include many of our key client constituencies. However, criticism of our business by special interests, and by clients with competing and often conflicting demands on our measurement service, could result in government regulation. While we believe that government regulation is unnecessary, no assurance can be given that legislation will not be enacted in the future that would subject our business to regulation, which could adversely affect our business.

A loss of one of our largest clients could adversely impact our results of operations.

Our top ten clients collectively accounted for approximately 20% of our total revenues for the year ended December 31, 2018. We cannot assure you that any of our largest clients will continue to use our services to the same extent, or at all, in the future. A loss or decrease in business of one or more of our largest clients, if not replaced by a new client or an increase in business from existing clients, would adversely affect our prospects, business, financial condition and results of operations.

We rely on third parties to provide certain data and services in connection with the provision of our current services. The loss or limitation of access to that data could harm our ability to provide our products and services.

We rely on third parties to provide certain data and services for use in connection with the provision of our current services and our reliance on third-party data providers is growing. For example, both our Buy and Watch segments enter into agreements with third parties to obtain data from which we create products and services. These suppliers of data may increase restrictions on our use of such data due to factors such as the increasing attention on consumer privacy, rigor of privacy regulation or cybersecurity risk, fail to adhere to our quality control standards or otherwise satisfactorily perform services, increase the price they charge us for this data or refuse altogether to license the data to us (in some cases because of exclusive agreements they may have entered into with our competitors). Supplier consolidation could put pressure on our cost structure. In addition, we may need to enter into agreements with third parties to assist with the marketing, technical and financial aspects of expanding our services for other types of media. In the event we are unable to use such third party data and services or if we are unable to enter into agreements with third parties, when necessary, our business and/or our potential growth could be adversely affected. In the event that such data and services are unavailable for our use or the cost of acquiring such data and services increases, our business could be adversely affected.

We rely on third parties for the performance of a significant portion of our worldwide information technology and operations functions. A failure to provide these functions in a satisfactory manner could have an adverse effect on our business.

We are dependent upon third parties for the performance of a significant portion of our information technology and operations functions worldwide. The success of our business depends in part on maintaining our relationships with these third parties and their continuing ability to perform these functions in a timely and satisfactory manner. If we experience a loss or disruption in the provision of any of these functions, or they are not performed in a satisfactory manner, we may have difficulty in finding alternate providers on terms favorable to us, or at all, and our business could be adversely affected.

Long-term disruptions in the mail, telecommunication infrastructure and/or air service could adversely affect our business.

Our business is dependent on the use of the mail, telecommunication infrastructure and air service. Long-term disruptions in one or more of these services, which could be caused by events such as natural disasters, the outbreak of war, the escalation of hostilities, civil unrest and/or acts of terrorism, could adversely affect our business, results of operations and financial condition.

Hardware and software failures, delays in the operations of our data gathering procedures, our computer and communications systems or the failure to implement system enhancements may harm our business.

Our success depends on the efficient and uninterrupted operation of our computer and communications systems and our data gathering procedures. A failure of our network or data gathering procedures could impede the processing of data, delivery of databases and services, client orders and day-to-day management of our business and could result in the corruption or loss of data. While many of our services have appropriate disaster recovery plans in place, we currently do not have full backup facilities everywhere in the world to provide redundant network capacity in the event of a system failure. Despite any precautions we may take, damage from fire, floods, hurricanes, power loss, telecommunications failures, computer viruses, break-ins and similar events at our various computer facilities, or delays in our data gathering operations due to weather, including climate change, or other acts of nature, could result in

interruptions in the flow of data to our servers and to our clients. In addition, any failure by our computer environment to provide our required data communications capacity could result in interruptions in our service. In the event of a delay in the delivery of data, we could be required to transfer our data collection operations to an alternative provider. Such a transfer could result in significant delays in our ability to deliver our services to our clients and could be costly to implement. Additionally, significant delays in the planned delivery of system enhancements and improvements, or inadequate performance of the systems once they are completed, could damage our reputation and harm our business. Finally, long-term disruptions in infrastructure caused by events such as natural disasters, the outbreak of war, the escalation of hostilities, civil unrest and/or acts of terrorism (particularly involving cities in which we have offices) could adversely affect our services. Although we carry property and business interruption insurance, our coverage may not be adequate to compensate us for all losses that may occur.

The presence of our Global Technology and Information Center in Florida heightens our exposure to hurricanes and tropical storms, which could disrupt our business.

The technological data processing functions for certain of our U.S. operations are concentrated at our Global Technology and Information Center (“GTIC”) at a single location in Florida. Our geographic concentration in Florida heightens our exposure to a hurricane, tropical storm or other severe weather events specific to this region. These weather events could cause severe damage to our property and technology and could cause major disruptions to our operations, including our ability to produce and deliver ratings information and Answers on Demand data. For example, a hurricane or other similar event could lead to business interruption and other adverse consequences such as penalty fees, business interruption claims, or lost business. Although our GTIC was built in anticipation of severe weather events and we have insurance coverage, if we were to experience a catastrophic loss, we may exceed our policy limits and/or we may have difficulty obtaining similar insurance coverage in the future. As such, a hurricane or tropical storm could have an adverse effect on our business. With this risk, we also recognize the continued risk of climate change, as its effects exacerbate extreme weather events and otherwise continue to manifest in other ways around the globe.

Changes in tax laws and the continuing ability to apply the provisions of various international tax treaties may adversely affect our financial results and increase our tax expense.

We operate in over 100 countries, and changes in tax laws, international tax treaties, regulations, related interpretations and tax accounting standards in the United States, the United Kingdom and other countries in which we operate may adversely affect our financial results, particularly our income tax expense, liabilities and cash flow. Our effective tax rate could also be affected by changes in our business (including acquisitions or dispositions), intercompany transactions, the applicability of special tax regimes, and the relative amount of foreign earnings in jurisdictions with high statutory tax rates or where losses are incurred for which we are not able to realize tax benefits. As a result of the Tax Cuts and Jobs Act of 2017 (“TCJA”), effective January 1, 2018, our U.S. federal corporate income tax rate was reduced from 35 percent to 21 percent. The lower rate, however, is less beneficial due to other TCJA provisions that offset the benefit of such rate reduction such as limits on the deduction for business interest expense, limiting the deduction for certain net operating losses to 80% of the current year taxable income, modifying or repealing many business deductions and credits, as well as other new taxes on certain types of foreign income. In particular, we may be subject to tax on Global Intangible Low Taxed Income (“GILTI”) as well as to the Base Erosion & Anti-Abuse Tax (“BEAT”). A number of states in the U.S. have not fully conformed to the new provisions of the TCJA, which may also lead to a higher effective tax rate.

In addition, changes in the tax laws of foreign jurisdictions could arise as a result of the base erosion and profit shifting (BEPS) action plans issued by the Organisation for Economic Co-operation and Development (OECD) in

2015 as well as interpretations as to the application of EU rules on tax avoidance, state aid and tax rulings. The OECD, which represents a coalition of member countries, has recommended changes to numerous long-standing tax principles. These changes, if adopted by countries, could increase tax uncertainty and may adversely affect our provision for income taxes. A number of countries are considering changes in tax laws in response to the TCJA that could result in changes in our effective tax rate. Furthermore, Brexit may adversely affect the application of various treaties upon which we rely in order to reduce withholding taxes which could also impact our effective tax rate.

Finally, governments are resorting to more aggressive tax audit tactics and are increasingly considering changes to tax law regimes or policies as a means to cover budgetary shortfalls resulting from the current economic environment.

We are subject to direct and indirect taxes in numerous jurisdictions and the amount of tax we pay is subject to our interpretation of applicable tax laws in the jurisdictions in which we file. We have taken and will continue to take tax positions based on our interpretation of tax laws, but tax accounting often involves complex matters and judgment. Although we believe that we have complied with all applicable tax laws, we have been and expect to continue to be subject to ongoing tax audits in various jurisdictions and tax authorities have disagreed, and may in the future disagree, with some of our interpretations of applicable tax law. We regularly assess the likely outcomes of these audits to determine the appropriateness of our tax provisions. However, our judgments may not be sustained on completion of these audits, and the amounts ultimately paid could be different from the amounts previously recorded, which could have a material adverse effect on our results of operations and financial condition.

We face increasing competition, which could adversely affect our business, financial condition, results of operations and cash flow.

We are faced with a number of competitors worldwide in the markets in which we operate. Some of our competitors in each market may have substantially greater financial, marketing, technological and other resources than we do and may in the future engage in aggressive pricing action to compete with us or develop products and services that are superior to or that achieve greater market acceptance than our products and services. Although we believe we are currently able to compete effectively in each of the various markets in which we participate, we may not be able to do so in the future or be capable of maintaining or further increasing our current market share. Our failure to compete successfully in our various markets could adversely affect our business, financial condition, results of operations and cash flow.

We may be subject to shareholder litigation, antitrust litigation or government investigation in the future, which may result in an award of money damages or force us to change the way we do business.

In the past, certain of our business practices have been investigated by government antitrust or competition agencies, have been the subject of shareholder litigation, and we have been sued by private parties for alleged violations of the antitrust and competition laws of certain jurisdictions. We have changed certain of our business practices to reduce the likelihood of future litigation. Although each of these material prior legal actions have been resolved, there is a risk based upon the leading position of certain of our business operations that we could, in the future, be the target of investigations by government entities or actions by private parties challenging the legality of our business practices. Also, in markets where the retail trade is concentrated, regulatory authorities may perceive certain of our retail services as potential vehicles for collusive behavior by retailers or manufacturers. In addition, we are subject to allegations, claims and legal actions arising in the ordinary course of business. We are currently subject to securities litigation, which we discuss in greater detail below under the caption “Item 3. Legal Proceedings” and Note 16–Commitments and Contingencies to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The outcome of many of these proceedings cannot be predicted. If any proceedings, inspections or investigations were to be determined adversely against us or result in legal actions, claims, regulatory proceedings, enforcement actions, or judgments, fines, or settlements involving a payment of material sums of money, or if injunctive relief were issued against us, we may be required to change the way we do business and our business, financial condition and results of operations could be materially adversely affected. Even the successful defense of legal proceedings may cause us to incur substantial legal costs and may divert management’s attention and resources.

Our ability to successfully manage ongoing organizational changes could impact our business results.

As we have in prior years, we continue to execute a number of significant business and organizational changes, including operating reorganizations, acquisition integration and divestitures to improve productivity and create efficiencies to support our growth strategies. We expect these types of changes, which may include many staffing adjustments as well as employee departures, to continue for the foreseeable future. Successfully managing these changes, including the identification, engagement and development and retention of key employees to provide uninterrupted leadership and direction for our business, is critical to our success. This includes developing organization capabilities in specific markets, businesses and functions where there is increased demand for specific skills or experiences. Finally, our financial targets assume a consistent level of productivity improvement. If we are unable to deliver expected productivity improvements, while continuing to invest in business growth, our financial results could be adversely impacted.

If we are unable to attract, retain and engage employees, we may not be able to compete effectively and will not be able to expand our business.

Our success and ability to grow is dependent, in part, on our ability to hire, retain and engage sufficient numbers of talented people, with the increasingly diverse skills needed to serve clients and expand our business, in many locations around the world. Competition for highly qualified, specialized technical, managerial, and particularly consulting personnel is intense. Changes to U.S. or other immigration policies that restrain the flow of professional talent may also inhibit our ability to staff our offices or projects. Further, as a result of our review of strategic alternatives, we may suffer increased attrition. Recruiting, training and retention costs and benefits place significant demands on our resources. The inability to attract qualified employees in sufficient numbers to meet particular demands or the loss of a significant number of our employees could have an adverse effect on us, including our ability to execute on growth initiatives as well as obtain and successfully complete important client engagements and partnerships and thus maintain or increase our revenues

We have suffered losses due to goodwill impairment charges in the past and could do so again in the future.

Goodwill and indefinite-lived intangible assets are subject to annual review for impairment (or more frequently should indications of impairment arise). In addition, other intangible assets are also reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. For the year ended December 31, 2018, we recorded

a goodwill impairment charge of approximately \$1.4 billion. Subsequent to the recognition of this impairment, we had goodwill and intangible assets of \$12,011 million. Any downward revisions in the fair value of our reporting units or our intangible assets could result in impairment charges for goodwill and intangible assets that could materially affect our financial performance.

We rely, in part, on acquisitions, joint ventures and other alliances to grow our business and expand our access to technology. If we are unable to complete or integrate acquisitions into our existing operations or successfully develop and maintain joint ventures and other alliances, our growth may be adversely impacted. In addition, the acquisition, integration or divestiture of businesses by us may not produce the expected financial or operating results.

• We have made and expect to continue to make acquisitions or enter into other strategic transactions to strengthen our business and grow our Company. Such transactions present significant challenges and risks.

• The market for acquisition targets and other strategic transactions is highly competitive, especially in light of industry consolidation, which may affect our ability to complete such transactions.

• If we are unsuccessful in completing such transactions at all or within the anticipated time frame or if such opportunities for expansion do not arise, our business, financial condition or results of operations could be materially adversely affected.

• If such transactions are completed, the anticipated growth and other strategic objectives of such transactions may not be fully realized, and a variety of factors may adversely affect any anticipated benefits from such transactions. For instance, the process of integration may require more resources than anticipated, we may assume unintended liabilities, there may be unexpected regulatory and operating difficulties and expenditures, we may fail to retain key personnel of the acquired business, we may fail to combine our businesses with the business of the acquired company in a manner that permits cost savings to be realized and such transactions may divert management's focus from base strategies and objectives.

• Acquisitions outside of the U.S. increase our exposure to risks associated with foreign operations, including fluctuations in foreign exchange rates and compliance with foreign laws and regulations.

• The anticipated benefits from an acquisition or other strategic transaction may take longer to realize than expected or may not be realized fully. As a result, the failure of acquisitions and other strategic transactions to perform as expected could have a material adverse effect on our business, financial condition or results of operations.

• Despite our past experience, opportunities to grow our business through acquisitions, joint ventures and other alliances may not be available to us in the future. In addition, as a result of our review of strategic alternatives and the resources and management attention required in connection therewith, there may be more limited resources available for acquisitions and management's attention is likely to be diverted away from sourcing and developing potential acquisitions and joint venture opportunities, resulting in decreased growth.

Our results of operations and financial condition could be negatively impacted by our U.S. and non-U.S. pension plans.

The performance of the financial markets and interest rates impact our plan expenses, plan assets and funding obligations. Changes in market interest rates, decreases in our pension trust assets or investment losses could increase our funding obligations, which would negatively impact our operations and financial condition.

Ineffective internal controls could impact our business and operating results.

Our internal control over financial reporting may not prevent or detect misstatements because of its inherent limitations, including the possibility of human error, the circumvention or overriding of controls, or fraud. Even effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements. If we fail to maintain the adequacy of our internal controls, including any failure to implement required new or improved controls, or if we experience difficulties in its implementation, our business and operating results could be harmed and we could fail to meet our financial reporting obligations.

Future legislation, regulations, or policy changes under the current U.S. administration and new Congress could have a material effect on our business and results of operations.

Future legislation, regulatory changes or policy shifts under the current U.S. administration, could impact our business. Trade issues between the U.S. and several countries could provide a changing and sometimes challenging landscape. While the new U.S.-Mexico-Canada Agreement (USMCA) is generally a positive development for Nielsen, the text must still pass the newly minted Congress. Failure to do so will result in not just a lost opportunity with the USMCA, but also the termination of the existing NAFTA agreement. Existing trade tensions with China and other countries will also provide challenges and marketplace uncertainty to Nielsen and Nielsen's clients.

Other possible U.S. legislation and regulation that could have an impact on Nielsen includes comprehensive state and federal privacy legislation and regulation, artificial intelligence policy, the reauthorization of the Satellite Home Viewer Act, government restrictions on manufacturers within Nielsen's existing supply chain, and the alteration of questions in the U.S. Census and the American Community Survey, which provides a touchstone for Nielsen's demographics,

The U.S. Treasury will continue to develop rules and regulations emanating from the TCJA. It is still uncertain to the extent how many of its provisions could affect Nielsen. The newly instituted House of Representatives has also indicated a desire to roll back the recently reduced corporate rate.

The EU and EU Member States are discussing the introduction of a new digital tax. While details remain vague, we believe it likely that some countries will introduce such tax. At this time we cannot predict the scope or nature of these changes or assess what the overall effect of such potential changes could be on our results of operations or cash flows.

Some policy issues, such as tax, privacy and trade, will be risks that span the globe. At this time we cannot predict the scope or nature of these changes or assess what the overall effect of such potential changes could be on our results of operations or cash flows.

Inadvertent use of certain open source software could impose unanticipated limitations upon our ability to commercialize our products and services or subject our proprietary code to public disclosure if not properly managed.

We use certain open source software in our technologies, most often as small components supporting a larger product or service and it is also contained in some third-party software that we license. We also contribute to the open source community in certain circumstances, which then may make it difficult or impossible to maintain proprietary rights in such contributions. There are many types of open source licenses, some of which are quite complex, and most have not been interpreted or adjudicated by U.S. or other courts. Although we do have an open source use policy and practice, inadvertent use of certain open source licenses could impose unanticipated limitations upon our ability to commercialize our products and services or subject our proprietary code to public disclosure if not properly managed. Remediation of such issues may involve licensing the software on less than unfavorable terms or require remedial actions including a need to re-engineer our products and services, either of which could have a material adverse effect on our business.

If our clients experience financial distress, or seek to change or delay payment terms, it could negatively affect our own financial position and results.

We have a large and diverse client and partner base and, at any given time, one or more of our clients or partners may experience financial difficulty, file for bankruptcy protection or go out of business. Unfavorable economic and financial conditions could result in an increase in client financial difficulties that affect us. The direct impact on us could include reduced revenues and write-offs of accounts receivable and expenditures billable to clients, and if these effects were severe, the indirect impact could include impairments of intangible assets, credit facility covenant violations and reduced liquidity.

Failure to meet the financial performance guidance or other forward-looking statements we have provided to the public could result in a decline in our stock price.

We may provide public guidance on our expected financial results or other forward-looking information for future periods. Although we believe that this guidance provides investors and analysts with a better understanding of management's expectations for the future and is useful to our existing and potential shareholders, such guidance is comprised of forward-looking statements subject to the risks and uncertainties described in this Annual Report on Form 10-K and in our other public filings and public statements. Our actual results may not be in line with the guidance we provide. If our financial results for a particular period do not meet our guidance or the expectations of market participants or if we reduce our guidance for future periods, the market price of our common stock may decline.

Design defects, errors, failures or delays associated with our products or services, could negatively impact our business.

Despite testing, software, products and services that we develop, license or distribute may contain errors or defects when first released or when major new updates or enhancements are released that cause the product or service to operate incorrectly or less effectively. Many of our products and services also rely on data and services provided by third-party providers over which we have no control and may be provided to us with defects, errors or failures. We may also experience delays while developing and introducing new products and services for various reasons, such as difficulties in licensing data inputs or adapting to particular operating environments. Defects, errors or delays in our products or services that are significant, or are perceived to be significant, could result in rejection or delay in market acceptance, damage to our reputation, loss of revenue, a lower rate of license renewals or upgrades, diversion of development resources, product liability claims or regulatory actions, or increases in service and support costs. We may also need to expend significant capital resources to eliminate or work around defects, errors, failures or delays. In each of these ways, our business, financial condition or results of operations could be materially adversely impacted.

Item 1B. Unresolved Staff Comments
None.

Item 2. Properties

We lease property in approximately 600 locations worldwide. We also own three properties worldwide presently consisting of (vacant land in Oldsmar, Florida; Sao Paulo Brazil; and Athens, Greece. Our leased property includes offices in New York, New York; Oldsmar, Florida; and Markham, Canada. In addition, we are subject to certain covenants including the requirement that we meet certain conditions in the event we merge into or convey, lease, transfer or sell our properties or assets as an entirety or substantially as an entirety to, any person or persons, in one or a series of transactions.

Item 3. Legal Proceedings

In August 2018, a putative shareholder class action lawsuit was filed in the Southern District of New York, naming as defendants Nielsen, former Chief Executive Officer Dwight Mitchell Barns, and former Chief Financial Officer Jamere Jackson. Another lawsuit, which alleges similar facts but also names other defendants, including former Chief Operating Officer Stephen Hasker, was filed in the Northern District of Illinois in September 2018 and transferred to the Southern District of New York in December 2018. These lawsuits assert violations of certain provisions of the Securities Exchange Act of 1934 (the "Exchange Act"), based on allegedly false and materially misleading statements relating to the outlook of Nielsen's Buy segment, Nielsen's preparedness for changes in global data privacy laws and Nielsen's reliance on third-party data. The Company expects that an amended or consolidated complaint relating to

these cases will be filed after appointment of a lead plaintiff and intends to file a motion to dismiss the amended or consolidated complaint. In addition, in January 2019, a shareholder derivative lawsuit was filed in New York Supreme Court against a number of Nielsen's current and former officers and directors. The derivative lawsuit alleges that the named officers and directors breached their fiduciary duties to the Company in connection with factual assertions substantially similar to those in the putative class action complaints. The derivative lawsuit further alleges that certain officers and directors engaged in trading Nielsen stock based on material, nonpublic information. Nielsen intends to defend these lawsuits vigorously. Based on currently available information, Nielsen believes that the Company has meritorious defenses to these actions and that their resolution is not likely to have a material adverse effect on Nielsen's business, financial position, or results of operations.

Nielsen is also subject to litigation and other claims in the ordinary course of business, some of which include claims for substantial sums. Accruals have been recorded when the outcome is probable and can be reasonably estimated. While the ultimate results of claims and litigation cannot be determined, the Company does expect that the ultimate disposition of these matters will not have a material adverse effect on its operations or financial condition. However, depending on the amount and the timing, an unfavorable resolution of some or all of these matters could materially affect the Company's future results of operations or cash flows in a particular period.

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

Our common stock is listed on the New York Stock Exchange and is traded under the symbol "NLSN." At the close of business on February 1, 2019, there was one shareholder of record. We believe that the number of beneficial owners is substantially greater than the number of record holders because a large portion of our common stock is held in "street name" by brokers.

Dividends

In January 2013, our Board of Directors (the "Board") adopted a cash dividend policy with the intent to pay quarterly cash dividends on our outstanding common stock. Any decision to declare and pay dividends is made at the discretion of our Board and is subject to the Board's continuing determination that the dividend policy and the declaration of dividends thereunder are in the best interests of our shareholders and are in compliance with all laws and agreements to which we are subject.

On February 21, 2019, the Board declared a cash dividend of \$0.35 per share on our common stock. The dividend is payable on March 21, 2019 to shareholders of record at the close of business on March 7, 2019.

Purchases of Equity Securities by the Issuer

Our Board has approved a share repurchase program, as included in the below table, for up to \$2 billion of our outstanding common stock. The primary purpose of the program is to return value to shareholders and to mitigate dilution associated with our equity compensation plans.

	Share
	Repurchase
	Authorization
	(\$ in
Board Approval	millions)
July 25, 2013	\$ 500

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October 23, 2014	\$ 1,000
December 11, 2015	\$ 500
Total Share Repurchase Authorization	\$ 2,000

Repurchases under these plans will be made in accordance with applicable securities laws from time to time in the open market or otherwise depending on our evaluation of market conditions and other factors. This program has been executed within the limitations of the authority granted by our shareholders.

During the fourth quarter 2018, there was no activity for share repurchases:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Announced Plans or Programs	Dollar Value of Shares that may yet be Purchased under the Publicly Announced Plans or Programs
October 1-31	—	\$ —	—	\$ 227,942,536
November 1-30	—	\$ —	—	\$ 227,942,536
December 1 - 31	—	\$ —	—	\$ 227,942,536
Total fourth quarter 2018	—	\$ —	—	—

Unregistered Sales of Company Securities

None

United Kingdom tax consequences for holders of common stock

The United Kingdom tax consequences discussed below do not reflect a complete analysis or listing of all the possible United Kingdom tax consequences that may be relevant to holders of our common stock. Furthermore, the statements below only apply to holders of our common stock who are resident for tax purposes outside of the United Kingdom.

Investors should consult their own tax advisors in respect of the tax consequences related to receipt, ownership, purchase or sale or other disposition of our common stock.

United Kingdom withholding tax

Under current law, the Company is not required to make any deduction or withholding for or on account of United Kingdom tax from dividends distributed on our common stock, irrespective of the tax residence or individual circumstances of the recipient shareholder.

United Kingdom income tax on dividends

A non-United Kingdom tax resident holder of our common stock will not be subject to United Kingdom income taxes on dividend income and similar distributions in respect of our shares, unless the shares are attributable to a permanent establishment or a fixed place of business maintained in the United Kingdom by such non-U.K. holder.

Disposition of Nielsen Shares

Holders of our common stock who are neither resident for tax purposes in the United Kingdom nor holding the common stock in connection with a trade carried on through a permanent establishment in the United Kingdom will not be subject to any United Kingdom taxes on chargeable gains as a result of any disposals of their common stock.

Common stock held outside the facilities of The Depository Trust Company ("DTC") should be treated as U.K. situs assets for the purpose of U.K. inheritance tax.

Stamp duty and stamp duty reserve tax ("SDRT")

Stamp duty and/or SDRT are imposed in the United Kingdom on certain transfers of securities (including shares in companies which, like us, are incorporated in the United Kingdom) at a rate of 0.5% of the consideration paid for the transfer. Certain transfers of shares to depositaries or into clearance systems are charged a higher rate of 1.5%. Transfers of interests in shares within a depository or clearance system, and from a depository to a clearance system, are generally exempt from stamp duty and SDRT.

Transfers of our common stock held in book entry form through the facilities of DTC will not attract a charge to stamp duty or SDRT in the United Kingdom provided no instrument of transfer is entered into (which should not be necessary).

Any transfer of, or agreement to transfer, our common stock that occurs outside the DTC system, including repurchases by us, will ordinarily attract stamp duty or SDRT at a rate of 0.5%. This duty must be paid (and where applicable the transfer document stamped by Her Majesty's Revenue and Customs ("HMRC")) before the transfer can be registered in our books. Typically this stamp duty or SDRT would be paid by the purchaser of the common stock.

A transfer of title in our common stock from within the DTC system out of the DTC system will not attract stamp duty or SDRT if undertaken for no consideration. If that common stock is redeposited into DTC (which may only be done via a deposit of the common stock first with an appropriate offshore depository followed by a transfer of the common stock from the offshore depository into DTC), however, the redeposit will attract stamp duty or SDRT at a rate of 1.5%.

Investors should therefore note that the withdrawal of our common stock from the DTC system, or any transfers outside the DTC system, are likely to cause additional costs and delays in disposing of their common stock than would be the case if they hold our common stock in book entry form through the DTC system.

Item 6. Selected Financial and Other Data

The following table sets forth selected historical consolidated financial data as of the dates and for the periods indicated. The selected consolidated statement of operations data for the years ended December 31, 2018, 2017 and 2016, and selected consolidated balance sheet data as of December 31, 2018 and 2017 have been derived from our audited consolidated financial statements and related notes appearing elsewhere in this Form 10-K. The selected consolidated statement of operations data for the years ended December 31, 2015 and 2014 and selected consolidated balance sheet data as of December 31, 2016, 2015 and 2014 have been derived from our audited consolidated financial statements, which are not included in this annual report on Form 10-K.

The results of operations for any period are not necessarily indicative of the results to be expected for any future period. The audited consolidated financial statements, from which the historical financial information for the periods set forth below have been derived, were prepared in accordance with U.S. generally accepted accounting principles (“GAAP”). The selected historical consolidated financial data set forth below should be read in conjunction with, and are qualified by reference to “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our audited consolidated financial statements and related notes thereto appearing elsewhere in this annual report on Form 10-K.

(IN MILLIONS, EXCEPT PER SHARE AMOUNTS)	Year Ended December 31,				
	2018 ⁽¹⁾	2017 ⁽²⁾	2016 ⁽³⁾	2015 ⁽⁴⁾	2014 ⁽⁵⁾
Statement of Operations Data:					
Revenues	\$6,515	\$6,572	\$6,309	\$6,172	\$6,288
Depreciation and amortization ⁽⁶⁾	675	640	603	574	573
Operating income/(loss)	(475)	1,214	1,130	1,098	1,084
Interest expense	394	374	333	311	300
Income/(loss) from continuing operations	(700)	440	507	575	381
Income/(loss) from continuing operations per common share (basic)	(2.00)	1.20	1.40	1.55	1.01
Income/(loss) from continuing operations per common share (diluted)	(2.00)	1.20	1.39	1.54	1.00
Cash dividends declared per common share	1.39	1.33	1.21	1.09	0.95

(IN MILLIONS)	December 31,				
	2018	2017	2016	2015	2014 ⁽⁷⁾
Balance Sheet Data:					
Total assets	\$15,179	\$16,866	\$15,730	\$15,303	\$15,326
Long-term debt including capital leases	8,387	8,441	7,926	7,338	6,812

(1) Loss for the year ended December 31, 2018 included \$1,411 million in impairment charges associated with our Buy reporting unit and \$139 million in restructuring charges. See Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Goodwill and Indefinite-Lived Intangible Assets”.

(2) Income for the year ended December 31, 2017 included \$80 million in restructuring charges.

(3) Income for the year ended December 31, 2016 included \$105 million in restructuring charges.

(4) Income for the year ended December 31, 2015 included \$51 million in restructuring charges, a gain of \$158 million recorded from the step acquisition of Nielsen Catalina Solutions and an \$8 million charge associated with the

change to the Venezuelan currency exchange rate mechanism.

- (5) Income for the year ended December 31, 2014 included \$89 million in restructuring charges, \$97 million of charges associated with certain debt retirement transactions and a \$52 million charge associated with the change to the Venezuelan currency exchange rate mechanism.
- (6) Depreciation and amortization expense included charges for the depreciation and amortization of tangible and intangible assets acquired in business combinations of \$220 million, \$219 million, \$210 million, \$205 million and \$204 million for the years ended December 31, 2018, 2017, 2016, 2015 and 2014, respectively.
- (7) As of December 31, 2014 we have reclassified \$50 million of debt issuance costs between total assets and long-term debt inclusive of capital leases to conform to current year presentation.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Introduction

The following discussion and analysis should be read together with the accompanying consolidated financial statements and related notes thereto. Further, this report may contain material that includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that reflect, when made, Nielsen's current views with respect to current events and financial performance. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, those described in "Item 1A. Risk Factors." Statements, other than those based on historical facts, which address activities, events or developments that we expect or anticipate may occur in the future are forward-looking statements. Such forward-looking statements are and will be, as the case may be, subject to many risks, uncertainties and factors relating to Nielsen's operations and business environment that may cause actual results to be materially different from any future results, express or implied, by such forward-looking statements. See "Cautionary Statement Regarding Forward-Looking Statements" in Part I of this Annual Report on Form 10-K. The terms "Company," "Nielsen," "we," "our" or "us," as used herein, refer to Nielsen Holdings plc and its consolidated subsidiaries unless otherwise stated or indicated by context.

Background and Executive Summary

We are a leading global measurement and data analytics company that provides clients with a comprehensive understanding of consumers and consumer behavior. We deliver critical media and marketing information, analytics and industry expertise about what consumers buy (referred to herein as "Buy") and what consumers watch and listen to (consumer interaction across the television, radio, digital and mobile viewing and listening platforms referred to herein as "Watch") on a global and local basis. Our measurement and analytical services help our clients maintain and strengthen their market positions and identify opportunities for profitable growth. We have a presence in more than 100 countries, including many emerging markets, and hold leading market positions in many of our services and geographies.

We believe that important measures of our results of operations include revenue, operating income/(loss) and Adjusted EBITDA (defined below). Our long-term financial objectives include consistent revenue growth and expanding operating margins. Accordingly, we are focused on geographic market and service offering expansion to drive revenue growth and improve operating efficiencies, including effective resource utilization, information technology leverage and overhead cost management.

Our business strategy is built upon a model that has traditionally yielded consistent revenue performance. Typically, before the start of each year, more than 70% of our annual revenue has been committed under contracts in our combined Buy and Watch segments, which provides us with a greater degree of stability for our revenue and allows us to more effectively manage our profitability and cash flows. We continue to look for growth opportunities through global expansion, specifically within emerging markets, as well as through the cross-platform expansion of our analytical services and measurement services.

In September 2018, we announced a broad review of strategic alternatives for the entire company and its businesses. This review process, which is being conducted with the assistance of financial and legal advisors, includes an assessment of a broad range of potential strategic alternatives including continuing to operate as a public company, independent company, a separation of either the Company's Buy or Watch segment, or a sale of the Company. There can be no assurance that this review will result in a specific transaction or other strategic alternative.

Our restructuring and other productivity initiatives have been and will continue to be focused on a combination of improving operating leverage through targeted cost-reduction programs, business process improvements and portfolio restructuring actions, while at the same time investing in key programs to enhance future growth opportunities.

Achieving our business objectives requires us to manage a number of key risk areas. Our growth objective of geographic market and service expansion requires us to maintain the consistency and integrity of our information and underlying processes on a global scale, and to invest effectively our capital in technology and infrastructure to keep pace with our clients' demands and our competitors. Core to managing these key risk areas is our commitment to data privacy and security as it drives our ability to deliver quality insights for our clients in line with evolving regulatory requirements and governing standards across all the geographies and industries in which we operate. Our operating footprint across more than 100 countries requires disciplined global and local resource management of internal and third party providers to ensure success. In addition, our high level of indebtedness requires active management of our debt profile, with a focus on underlying maturities, interest rate risk, liquidity and operating cash flows.

Business Segment Overview

We align our business into two reporting segments: what consumers buy (consumer purchasing measurement and analytics), and what consumers watch and listen to (media audience measurement and analytics). Our Buy and Watch segments are built on a foundation of proprietary data assets that are designed to yield essential insights for our clients to successfully measure, analyze and grow their businesses.

Our Buy segment provides measurement services, which include our core tracking and scan data (primarily transactional measurement data and consumer behavior information), and analytical services to businesses in the consumer packaged goods industry. Our services also enable our clients to better manage their brands, uncover new sources of demand, launch and grow new products, analyze their sales, improve their marketing mix and establish more effective consumer relationships. Our data is used by our clients to measure their market share, tracking billions of sales transactions per month in retail outlets around the world. Our extensive database of retail and consumer information, combined with our advanced analytical capabilities, helps generate strategic insights that influence our clients' key business decisions. Within our Buy segment, we have two primary geographic groups, developed and emerging markets. Developed markets primarily include the United States ("U.S."), Canada, Western Europe, Japan, Australia and South Korea while emerging markets primarily include Africa, Latin America, Eastern Europe, Russia, China, India and Southeast Asia.

Our Watch segment provides viewership and listening data and analytics primarily to the media and advertising industries for television, radio, digital and mobile viewing and listening platforms. Our Watch data is used by our media clients to understand their audiences, establish the value of their advertising inventory and maximize the value of their content, and by our advertising clients to plan and optimize their spending.

Certain corporate costs, other than those described above, including those related to selling, finance, legal, human resources, and information technology systems, are considered operating costs and are allocated to our segments based on either the actual amount of costs incurred or on a basis consistent with the operations of the underlying segment.

Critical Accounting Policies

The discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. The most significant of these policies relate to: revenue recognition; business combinations including purchase price allocations; accruals for pension costs and other post-retirement benefits; accounting for income taxes; and valuation of long-lived assets including goodwill and indefinite-lived intangible assets, computer software and share-based compensation. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the valuation of assets and liabilities that are not readily apparent from other sources. We evaluate these estimates on an ongoing basis. Actual results could vary from these estimates under different assumptions or conditions. For a summary of the significant accounting policies, including the critical accounting policies discussed below, see Note 1 – "Description of Business, Basis of Presentation and Significant Accounting Policies" – to our consolidated financial statements.

Revenue Recognition

On January 1, 2018, we adopted Accounting Standards Codification ("ASC") 606, Revenue from Contracts with Customers, using the modified retrospective method. The ASC has been applied to all contracts as of the date of adoption. There was no impact on our financial statements as a result of this adoption.

Revenue is measured based on the consideration specified in a contract with a customer. A significant portion of our revenue is generated from information (primarily retail measurement and consumer panel services) and measurement (primarily from television, radio, internet and mobile audiences) services. We recognize revenue when a performance obligation is satisfied by transferring control of a product or service to a customer, which generally occurs over time. Substantially all of our customer contracts are non-cancelable and non-refundable.

The following is a description of principal activities, by reportable segment, from which we generate our revenues.

Revenues from the Buy segment consist primarily of retail measurement services, which provide market share, competitive sales volumes and insights into such activities as distribution, pricing, merchandising and promotion, and consumer panel services, which provide clients with insights into shopper behavior such as trial and repeat purchase for new products and likely substitutes as well as

customer segmentation. As the customer simultaneously receives and consumes the benefits provided by our performance, revenues for these services are recognized over the period during which the performance obligations are satisfied and control of the service is transferred to the customer.

We also provide consumer intelligence and analytical services that help clients make smarter business decisions throughout their product development and marketing cycles. Our performance under these arrangements does not create an asset with an alternative use to us and generally includes an enforceable right to payment for performance completed to date. As such, revenue for these services is typically recognized over time. Revenue for contracts that do not include an enforceable right to payment for performance completed to date is recognized at a point in time when the performance obligation is satisfied, generally upon delivery of the service, and control of the service is transferred to the customer.

Revenue from our Watch segment is primarily generated from television, radio, digital and mobile measurement services which are used by our clients to establish the value of airtime and more effectively schedule and promote their programming. As the customer simultaneously receives and consumes the benefits provided by our performance, revenues for these services are recognized over the period during which the performance obligations are satisfied and control of the services are transferred to the customer.

We enter into cooperation arrangements with certain of our customers, under which a customer provides us with its data in exchange for our services. We record these transactions at fair value, which is determined based on the fair value of goods or services received, if reasonably estimable. If not reasonably estimable we consider the fair value of the goods or services surrendered.

Share-based Compensation

Expense Recognition

Our share-based compensation programs are comprised of stock options, performance-based stock options, restricted stock units (“RSUs”) and performance restricted stock units. We measure the cost of all share-based payments, including stock options, at fair value on the grant date and recognize such costs within the consolidated statements of operations; however, no expense is recognized for share-based payments that do not ultimately vest. We recognize expense associated with share-based payments that vest upon a single date using the straight-line method. For those that vest over time, an accelerated graded vesting is used. We recorded \$35 million, \$45 million and \$51 million of expense associated with share-based compensation for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, the aggregate grant date fair value of all outstanding vested and unvested options was \$23 million and \$7 million, respectively. As of December 31, 2018, the aggregate grant date fair value of all outstanding vested and unvested performance stock options was zero and \$8 million, respectively.

As of December 31, 2018, the following amounts of unearned share-based compensation (net of estimated forfeitures) are expected to be recognized: approximately \$2 million related to stock options over the next three years, approximately \$6 million related to performance stock options over the next three years, approximately \$61 million related to vested RSUs over a weighted average period of 3.1 years and approximately \$1 million related to performance restricted stock units over the next two years.

Fair Value Measurement

Determining the fair value of share-based awards at the grant date requires considerable judgment. Share-based compensation expense for time-based stock options is primarily based on the estimated grant date fair value using the Black-Scholes option pricing model, which considers factors such as estimating the expected term of stock options,

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expected volatility of our stock, and the number of share-based awards expected to be forfeited due to future terminations. Some of the critical assumptions used in estimating the grant date fair value are presented in the table below:

	Year Ended December 31,		
	2018	2017	2016
Expected life (years)	6.00	4.50	4.50-5.25
Risk-free interest rate	2.87 %	2.02 %	1.19-1.92 %
Expected dividend yield	4.97 %	3.76 %	2.29-2.90 %
Expected volatility	25.96 %	22.01 %	20.02-23.44 %
Weighted-average volatility	25.96 %	22.01 %	20.89 %

Under the Stock Incentive Plan, we granted time and performance based stock options to purchase shares during the year ended December 31, 2018. Share-based compensation expense for the time and performance based stock options is based on the Monte Carlo simulation model which considers factors such as estimating the expected term of stock options, expected volatility of our stock, and the number of share-based awards expected to be forfeited due to future terminations. Some of the critical assumptions used in estimating the grant date fair value are presented in the table below:

	Year Ended December 31, 2018
Expected life (years)	5.00
Risk-free interest rate	2.83-2.92 %
Expected dividend yield	4.85-5.54 %
Expected volatility	27.11-27.27 %
Weighted-average volatility	27.13 %

We consider the historical option exercise behavior of our employees in estimating the expected life of our options granted, which we believe are representative of future behavior. For 2018, 2017 and 2016, expected volatility was based on our historical volatility.

In addition, for share-based awards where vesting is dependent upon achieving certain operating performance goals, we estimate the likelihood of achieving the performance goals. The total number of performance restricted share units to be earned is subject to achievement of cumulative performance goals for the three year period. For the 2018 award, twenty five percent of the target award will be determined based on the Company's revenue compounded annual growth rate achievements, twenty five percent of the target award will be based on the Company's relative total shareholder return and fifty percent of the award will be determined based on free cash flow achievements. For the 2017 and 2016 awards, forty percent of the target award will be determined based on the Company's relative total shareholder return and sixty percent of the target award will be determined based on free cash flow achievements. The maximum payout is 200% of target. The fair value of the target awards related to free cash flow and compounded annual growth rate was the fair value on the date of the grant, and the fair value of the target awards related to relative shareholder return was based on the Monte Carlo simulation model. Differences between actual results and these estimates could have a material effect on our financial results.

The assumptions used in calculating the fair value of share-based awards represent our best estimates and, although we believe them to be reasonable, these estimates involve inherent uncertainties and the application of management's judgment. If factors change and we employ different assumptions in the application of our option-pricing model in future periods or if we experience different forfeiture rates, the compensation expense that is derived may differ significantly from what we have recorded in the current year.

Cash and Cash Equivalents

Cash and cash equivalents include cash and short-term, highly liquid investments with an original maturity date of three months or less. Cash and cash equivalents are carried at fair value.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill and other indefinite-lived intangible assets are stated at historical cost less accumulated impairment losses, if any.

Goodwill and other indefinite-lived intangible assets, consisting of certain trade names and trademarks, are each tested for impairment on an annual basis and whenever events or circumstances indicate that the carrying amount of such asset may not be recoverable. We have designated October 1st as the date in which the annual assessment is performed as this timing corresponds with the development of our formal budget and business plan review. We review the recoverability of our goodwill by comparing the estimated fair values of reporting units with their respective carrying amounts. We established, and continue to evaluate, our reporting units based on our internal reporting structure and define such reporting units at our operating segment level or one level below. The estimates of fair value of a reporting unit are determined using a combination of valuation techniques, primarily by an income approach using a discounted cash flow analysis and supplemented by a market-based approach.

A discounted cash flow analysis requires the use of various assumptions, including expectations of future cash flows, growth rates, discount rates and tax rates in developing the present value of future cash flow projections. Many of the factors used in assessing fair value are outside of the control of management, and these assumptions and estimates can change in future periods. Changes in assumptions or estimates could materially affect the determination of the fair value of a reporting unit, and therefore could affect the amount of potential impairment. The following assumptions are significant to our discounted cash flow analysis:

Business projections – expected future cash flows and growth rates are based on assumptions about the level of business activity in the marketplace as well as applicable cost levels that drive our budget and business plans. The budget and business plans are updated at least annually and are frequently reviewed by management and our Board of Directors. Actual results of operations, cash flows and other factors will likely differ from the estimates used in our valuation, and it is possible that differences and changes could be material. A deterioration in profitability, adverse market conditions and a slower or weaker economic recovery than currently estimated by management could have a significant impact on the estimated fair value of our reporting units and could result in an impairment charge in the future. Should such events or circumstances arise, management would evaluate other options available at that time that, if executed, could result in future profitability.

Long-term growth rates – the assumed long-term growth rate representing the expected rate at which a reporting unit's earnings stream, beyond that of the budget and business plan period, is projected to grow. These rates are used to calculate the terminal value, or value at the end of the future earnings stream, of our reporting units, and are added to the cash flows projected for the budget and business plan period. The long-term growth rate for each reporting unit is influenced by general market conditions as well as factors specific to the reporting unit such as the maturity of the underlying services. The long-term growth rates we used for each of our reporting units in our 2018 evaluation were between 2.0% and 2.5%.

Discount rates – the reporting unit's combined future cash flows are discounted at a rate that is consistent with a weighted-average cost of capital that is likely to be used by market participants. The weighted-average cost of capital is our estimate of the overall after-tax rate of return required by equity and debt holders of a business enterprise. The discount rate for each reporting unit is influenced by general market conditions as well as factors specific to the reporting unit. The discount rates we used in our 2018 evaluation of our reporting units were between 9.25% and 11.25%.

These estimates and assumptions vary between each reporting unit depending on the facts and circumstances specific to that unit. We believe that the estimates and assumptions we made are reasonable, but they are susceptible to change from period to period.

We also use a market-based approach in estimating the fair value of our reporting units. The market-based approach utilizes available market comparisons such as indicative industry multiples that are applied to current year revenue and earnings, next year's revenue and earnings as well as recent comparable transactions.

To validate the reasonableness of the reporting unit fair values, we reconcile the aggregate fair values of our reporting units to our enterprise market capitalization. Enterprise market capitalization includes, among other factors, the market value of our common stock and the appropriate redemption values of our debt.

The following table summarizes the results of the three reporting units that were subject to the October 1, 2018 annual impairment testing and the related goodwill value associated with the reporting units for (a) fair values exceeding carrying values by less than 10%, (b) fair values exceeding carrying values between 10% and 20%, and (c) fair values exceeding carrying values by more than 20%. The table below represents the reporting units goodwill balances as of December 31, 2018.

	Number of reporting units	Reporting units goodwill (in millions)
Fair value exceeds carrying value by:		
Less than 10%	1	\$ 1,337
10% to 20%	1	542
Greater than 20%	1	5,108
Total	3	\$ 6,987

As previously disclosed, during the second quarter of 2018, in connection with our quarterly forecasting cycle, we updated the forecasted operating results for each of the businesses based on the most recent financial results and best estimates of future operations. The updated forecasts reflected a decline in near-term revenue growth and profitability, primarily in our Buy business. Accordingly, in connection with the preparation of the condensed consolidated financial statements for the period ended June 30, 2018, we performed an updated impairment analysis. Based on this analysis, we concluded that the fair value of the reporting units was in excess of carrying value as of such date. Therefore, management concluded it was not more-likely-than-not that an impairment had occurred. However, the fair value of one of our reporting units exceeded its carrying value by less than 10%, compared to greater than 20%

during our last annual impairment assessment performed as of October 1, 2017. We also concluded that the fair value of other indefinite-lived assets exceeded carrying value. Furthermore, based on the operating results for the three months ended September 30, 2018, management similarly concluded it was not more-likely-than-not that an impairment had occurred. However, we indicated at that time that should operating results decline versus management's latest forecast for any reason, including if the Buy business results do not meet current expectations or should our recently announced review of strategic alternatives lead to changes in investment strategies, then goodwill may be at risk for impairment in the future.

We performed our annual impairment assessment as of October 1, 2018. Based on the results of our testing, the fair values of each of our reporting units exceeded their carrying values except for the Buy reporting unit. With respect to the Buy reporting unit, ongoing challenging conditions in its operating environment and our review and analysis of strategic alternatives have resulted in downward revisions of management's forecasts on future projected earnings and cash flows. Given these declines and overall market conditions, we reassessed the market comparable data inputs used in the market-based approach and selected the lower end of the range of indicative industry multiples. Additionally, such conditions resulted in the use of a higher discount rate in our valuation. As a result of all of these factors, the fair value calculated was less than the carrying value and we recorded a non-cash goodwill impairment charge of \$1,411 million for our Buy reporting unit during the fourth quarter of 2018.

We perform sensitivity analyses on our assumptions, primarily around both long-term growth rate and discount rate assumptions. Our sensitivity analyses include several combinations of reasonably possible scenarios with regard to these assumptions, including a one percent movement in both our long-term growth rate and discount rate assumptions. When applying both a one percent decrease in the long-term growth rate and a one percent increase in the discount rate assumptions, the estimated fair value was less than the underlying carrying value for certain of our reporting units. Even though our sensitivity analyses, based upon reasonably possible adverse changes in assumptions, showed a potential shortfall, management believes that it has the ability to execute certain productivity and other actions in order to increase the results of operations and cash flows of our reporting units. We will continue to closely evaluate the assumptions both qualitatively and quantitatively and appropriately report on any indicators of future impairments. While management believes that these sensitivity analyses provide a reasonable basis on which to evaluate the recovery of Nielsen's goodwill, other facts or circumstances may arise that could impact the impairment assessment and therefore these analyses should not be used as a sole predictor of impairment.

The impairment test for other indefinite-lived intangible assets consists of a comparison of the fair value of the intangible asset with its carrying amount. If the carrying amount of the intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. The estimates of fair value of trade names and trademarks are determined using a "relief from royalty" discounted cash flow valuation methodology. Significant assumptions inherent in this methodology include estimates of royalty rates and discount rates. Discount rate assumptions are based on an assessment of the risk inherent in the respective intangible assets. Assumptions about royalty rates are based on the rates at which comparable trade names and trademarks are being licensed in the marketplace. There was no impairment noted in any period presented with respect to the Company's indefinite-lived intangible assets.

Pension Costs

We provide a number of retirement benefits to our employees, including defined benefit pension plans and post-retirement medical plans. Pension costs, in respect of defined benefit pension plans, primarily represent the increase in the actuarial present value of the obligation for pension benefits based on employee service during the year and the interest on this obligation in respect of employee service in previous years, net of the expected return on plan

assets. Differences between this expected return and the actual return on these plan assets and actuarial changes are not recognized in the statement of operations, unless the accumulated differences and changes exceed a certain threshold. The excess is amortized and charged to the statement of operations over, at the maximum, the average remaining term of employee service. We recognize obligations for contributions to defined contribution pension plans as expenses in the statement of operations as they are incurred.

The determination of benefit obligations and expenses is based on actuarial models. In order to measure benefit costs and obligations using these models, critical assumptions are made with regard to the discount rate, the expected return on plan assets and the assumed rate of compensation increases. We provide retiree medical benefits to a limited number of participants in the U.S. Therefore, retiree medical care cost trend rates are not a significant driver of our post retirement costs. Management reviews these critical assumptions at least annually. Other assumptions involve demographic factors such as turnover, retirement and mortality rates. Management reviews these assumptions periodically and updates them as necessary.

The discount rate is the rate at which the benefit obligations could be effectively settled. For our U.S. plans, the discount rate is based on a bond portfolio that includes only long-term bonds with an Aa rating, or equivalent, from a major rating agency. For the Dutch and other non-U.S. plans, the discount rate is set by reference to market yields on high-quality corporate bonds. We believe the timing and amount of cash flows related to the bonds in these portfolios are expected to match the estimated payment benefit streams of our plans.

To determine the expected long-term rate of return on pension plan assets, we consider, for each country, the structure of the asset portfolio and the expected rates of return for each of the components. For our U.S. plans, a 50 basis point decrease in the expected return on assets would increase pension expense on our principal plans by approximately \$1 million per year. A similar 50 basis point decrease in the expected return on assets would increase pension expense on our principal Dutch plans by approximately \$3 million per year. We assumed that the weighted-averages of long-term returns on our pension plans were 4.4% for the year ended December 31, 2018, 4.6% for the year ended December 31, 2017 and 5.1% for the year ended December 31, 2016. The expected long-term rate of return is applied to the fair value of pension plan assets. The actual return on plan assets will vary year to year from this assumption. Although the actual return on plan assets will vary from year to year, it is appropriate to use long-term expected forecasts in selecting our expected return on plan assets. As such, there can be no assurance that our actual return on plan assets will approximate the long-term expected forecasts.

Income Taxes

We have a presence in more than 100 countries, and our effective tax rate is subject to significant variation due to several factors including variability in our pre-tax and taxable income or loss and the mix of jurisdictions to which they relate, intercompany transactions, the applicability of special tax regimes, changes in where or how we do business, acquisitions or dispositions, audit-related developments, and interpretations related to tax, including changes to the global tax framework, competition, and other laws and accounting rules in various jurisdictions. Additionally, our effective tax rate can fluctuate based on the level of pre-tax income or loss. For example, the impact of non-deductible expenses on our effective tax rate is greater when our pre-tax income is lower.

We have completed a number of material acquisitions and divestitures which have generated complex tax issues requiring management to use its judgment to make various tax determinations. We have sought to organize the affairs of our subsidiaries in a tax efficient manner, taking into consideration the jurisdictions in which we operate. Although we are confident that tax returns have been appropriately prepared and filed, there is risk that additional tax may be assessed on certain transactions or that the deductibility of certain expenditures may be disallowed for tax purposes. Our policy is to estimate tax risk to the best of our ability and provide accordingly for those risks and take positions in which a high degree of confidence exists that the tax treatment will be accepted by the tax authorities. The policy with respect to deferred taxation is to provide in full for temporary differences using the liability method.

Deferred tax assets and deferred tax liabilities are computed by assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. The carrying value of deferred tax assets is adjusted by a valuation allowance to the extent that these deferred tax assets are not considered to be realized on a more likely than not basis. Realization of deferred tax assets is based, in part, on our judgment and various factors including reversal of deferred tax liabilities, our ability to generate future taxable income in jurisdictions where such assets have arisen and potential tax planning strategies. Valuation allowances are recorded in order to reduce the deferred tax assets to the amount expected to be realized in the future.

The Tax Cuts and Jobs Act ("TCJA") was enacted on December 22, 2017 and significantly changed the way the U.S. taxes corporations. The TCJA reduced the U.S. federal corporate income tax rate from 35 percent to 21 percent and created a territorial-style taxing system. The TCJA also required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously deferred and also created new taxes on certain types of foreign earnings. We are subject to the provisions of the Financial Accounting Standards Board ("FASB") ASC 740-10, Income Taxes, which requires that the effect on deferred tax assets and liabilities of a change in tax rates be recognized in the period the tax rate change was enacted. In December of 2017, the SEC staff issued SAB 118 which provides that companies that have not completed their accounting for the effects of the TCJA but can determine a reasonable estimate of those effects should include a provisional amount based on their reasonable estimate in their financial statements. The guidance in SAB 118 also allows companies to adjust the provisional amounts during a one

year measurement period which is similar to the measurement period used when accounting for business combinations. As of December 31, 2017, we made a reasonable estimate of the (a) effects on our existing deferred tax balances, and (b) the one-time transition tax. We finalized our accounting for the TCJA in December of 2018 and our results for the fourth quarter of 2018 and full year 2018 results of operations reflect, in accordance with SAB 118, a reduction in tax expense of \$252 million as an adjustment to the 2017 provisional expense. In addition, as a result of an election made by the Company, the tax payable associated with the one-time transition tax is payable over eight years; therefore the tax payable deemed long term in nature of \$36 million is represented within other non-current liabilities. See Note 14, Income Taxes for additional details.

We record a liability for unrecognized tax benefits resulting from uncertain tax positions taken or expected to be taken in a tax return. Such tax positions are, based solely on their technical merits, more likely than not to be sustained upon examination by taxing authorities and reflect the largest amount of benefit, determined on a cumulative probability basis, which is more likely than not to be realized upon settlement with the applicable taxing authority with full knowledge of all relevant information. We recognize interest and penalties, if any, related to unrecognized tax benefits in income tax expense.

Long-Lived Assets

We are required to assess whether the value of our long-lived assets, including our buildings, improvements, technical and other equipment, and amortizable intangible assets have been impaired whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. We do not perform a periodic assessment of assets for impairment in the absence of such information or indicators. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used or a significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. Recoverability of assets that are held and used is measured by comparing the sum of the future undiscounted cash flows expected to be derived from an asset (or a group of assets) to their carrying value. If the carrying value of the asset (or the group of assets) exceeds the sum of the future undiscounted cash flows, impairment is considered to exist. If impairment is considered to exist based on undiscounted cash flows, the impairment charge is measured using an estimation of the assets' fair value, typically using a discounted cash flow method. The identification of impairment indicators, the estimation of future cash flows and the determination of fair values for assets (or groups of assets) requires us to make significant judgments concerning the identification and validation of impairment indicators, expected cash flows and applicable discount rates. These estimates are subject to revision as market conditions and our assessments change.

We capitalize software development costs with respect to major internal use software initiatives or enhancements. The costs are capitalized from the time that the preliminary project stage is completed, and we consider it probable that the software will be used to perform the function intended until the time the software is placed in service for its intended use. Once the software is placed in service, the capitalized costs are generally amortized over periods of three to seven years. If events or changes in circumstances indicate that the carrying value of software may not be recovered, a recoverability analysis is performed based on estimated undiscounted cash flows to be generated from the software in the future. If the analysis indicates that the carrying value is not recoverable from future cash flows, the software cost is written down to estimated fair value and an impairment is recognized. These estimates are subject to revision as market conditions and as our assessments change. The Company's impairment assessments resulted in the recognition of a non-cash self-developed software asset impairment charge of \$2 million during the fourth quarter of 2018. No impairment indicators were noted for other long-lived assets for the years ended December 31, 2017 and 2016.

Factors Affecting Nielsen's Financial Results

Acquisitions, Dispositions and Investments in Affiliates

Acquisitions

On February 1, 2017, we completed the acquisition of Gracenote Inc., Gracenote Canada, Inc., Gracenote Netherlands Holdings B.V., Tribune Digital Ventures, LLC, and Tribune International Holdco, LLC (each, a "Gracenote Company" and together "Gracenote") through the purchase of 100% of each Gracenote Company's outstanding common stock from Tribune Media Company for a total purchase price of \$585 million. We acquired the data and technology that underpins the programming guides and personalized user experience for major video, music, audio and sports content. This acquisition expands our footprint with major clients including Gracenote's global content database which spans across platforms including multichannel video programming distributors (MVPD's), smart television, streaming music services, connected devices, media players and in-car infotainment systems.

We incurred acquisition-related expenses of \$6 million for the year ended December 31, 2017, which primarily consisted of transaction fees, legal, accounting and other professional services that are included in selling, general and

administrative expenses in the consolidated statement of operations.

The following unaudited pro forma information presents the consolidated results of operations of us and Gracenote for the year ended December 31, 2017, as if the acquisition had occurred on January 1, 2016, with pro forma adjustments to give effect to amortization of intangible assets, an increase in interest expense from acquisition financing, and certain other adjustments:

	Year Ended December 31,	
(IN MILLIONS)	2017	2016
Revenues	\$6,590	\$ 6,532
Income	\$443	\$ 499

The unaudited pro forma results do not reflect any synergies and are not necessarily indicative of the results that we would have attained had the acquisition of Gracenote been completed as of the beginning of the reporting period.

Other Acquisitions

For the year ended December 31, 2018, we paid cash consideration of \$43 million associated with current period acquisitions, net of cash acquired. Had these 2018 acquisitions occurred as of January 1, 2018, the impact on our consolidated results of operations would not have been material.

For the year ended December 31, 2017, excluding Gracenote, we paid cash consideration of \$210 million associated with both current period and previously executed acquisitions, net of cash acquired. Had these 2017 acquisitions occurred as of January 1, 2017, the impact on our consolidated results of operations would not have been material.

For the year ended December 31, 2016, we paid cash consideration of \$285 million associated with both current period and previously executed acquisitions, net of cash acquired. Had these 2016 acquisitions occurred as of January 1, 2016, the impact on our consolidated results of operations would not have been material.

Income Taxes

The TCJA was enacted in December of 2017 and significantly changed the way the U.S. taxes corporations. The TCJA reduced The U.S. federal corporate income tax rate from 35 percent to 21 percent and created a territorial-style taxing system. The TCJA also required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously deferred and also created new taxes on certain types of foreign earnings. We are subject to the provisions of the Financial Accounting Standards Board ("FASB") ASC 740-10, Income Taxes, which requires that the effect on deferred tax assets and liabilities of a change in tax rates be recognized in the period the tax rate change was enacted. In December of 2017, the SEC staff issued SAB 118 which provides that companies that have not completed their accounting for the effects of the TCJA but can determine a reasonable estimate of those effects should include a provisional amount based on their reasonable estimate in their financial statements. The guidance in SAB 118 also allows companies to adjust the provisional amounts during a one year measurement period which is similar to the measurement period used when accounting for business combinations. As of December 31, 2017, we made a reasonable estimate of the (a) effects on our existing deferred tax balances, and (b) the one-time transition tax. We finalized our accounting for the TCJA in December of 2018 and our results for the fourth quarter of 2018 and full year 2018 results of operations reflect, in accordance with SAB 118, a reduction in tax expense of a \$252 million as an adjustment to the 2017 provisional expense. In addition, as a result of an election made by the Company, the tax payable associated with the one-time transition tax is payable over eight years; therefore the tax payable deemed long term in nature of \$36 million is represented within other non-current liabilities. See Footnote 14 Income Taxes for additional details.

Foreign Currency

Our financial results are reported in U.S. dollars and are therefore subject to the impact of movements in exchange rates on the translation of the financial information of individual businesses whose functional currencies are other than U.S. dollars. Our principal foreign exchange revenue exposure is spread across several currencies, primarily the Euro. The table below sets forth the profile of our revenue by principal currency.

	Year ended December 31, 2018	Year ended December 31, 2017	Year ended December 31, 2016			
U.S. Dollar	57	% 59	% 61	%		
Euro	11	% 10	% 9	%		

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Other Currencies	32	%	31	%	30	%
Total	100	%	100	%	100	%

As a result, fluctuations in the value of foreign currencies relative to the U.S. dollar impact our operating results. Impacts associated with fluctuations in foreign currency are discussed in more detail under “Item 7A.—Quantitative and Qualitative Disclosures about Market Risk.” In countries with currencies other than the U.S. dollar, assets and liabilities are translated into U.S. dollars using end-of-period exchange rates; revenues, expenses and cash flows are translated using average rates of exchange. The average U.S. dollar to Euro exchange rate was \$1.18 to €1.00, \$1.13 to €1.00 and \$1.11 to €1.00 for the years ended December 31, 2018, 2017 and 2016, respectively. Constant currency growth rates used in the following discussion of results of operations eliminate the impact of year-over-year foreign currency fluctuations.

We evaluate our results of operations on both an as reported and a constant currency basis. The constant currency presentation, which is a non-GAAP financial measure, excludes the impact of year-over-year fluctuations in foreign currency exchange rates. We believe providing constant currency information provides valuable supplemental information regarding our results of operations,

thereby facilitating period-to-period comparisons of our business performance and is consistent with how management evaluates the Company's performance. We calculate constant currency percentages by converting our prior-period local currency financial results using the current period exchange rates and comparing these adjusted amounts to our current period reported results. This calculation may differ from similarly-titled measures used by others and, accordingly, the constant currency presentation is not meant to be a substitution for recorded amounts presented in conformity with GAAP nor should such amounts be considered in isolation.

Operations in Argentina

We have operations in both the Buy and Watch segments in Argentina and the functional currency for those operations is the Argentine Peso. In accordance with U.S. GAAP, Argentina's currency has been considered hyperinflationary since July 1, 2018, and, accordingly, local currency transactions have been denominated in U.S. dollars since July 1, 2018, and will continue to be denominated in U.S. dollars until Argentina's currency is no longer deemed to be hyperinflationary. We will continue to assess the appropriate conversion rate based on events in Argentina and our Argentina operations. This event has had an immaterial impact on our condensed consolidated financial statements.

Results of Operations – Years Ended December 31, 2018, 2017 and 2016

The following table sets forth, for the periods indicated, the amounts included in our consolidated statements of operations:

(IN MILLIONS)	Year Ended		
	December 31,		
	2018	2017	2016
Revenues	\$6,515	\$6,572	\$6,309
Cost of revenues, exclusive of depreciation and amortization shown separately below	2,805	2,765	2,607
Selling, general and administrative expenses, exclusive of depreciation and amortization shown separately below	1,958	1,873	1,864
Depreciation and amortization	675	640	603
Impairment of goodwill and other long-lived assets	1,413	—	—
Restructuring charges	139	80	105
Operating income/(loss)	(475)	1,214	1,130
Interest income	8	4	4
Interest expense	(394)	(374)	(333)
Foreign currency exchange transaction gains/(losses), net	(16)	(10)	(6)
Other income/(expense), net	(5)	(6)	21
Income/(loss) before income taxes and equity in net income/(loss) of affiliates	(882)	828	816
Benefit/(provision) for income taxes	182	(388)	(309)
Net income/(loss)	(700)	440	507
Net income/(loss) attributable to noncontrolling interests	12	11	5
Net income/(loss) attributable to Nielsen shareholders	\$(712)	\$429	\$502

Net Income to Adjusted EBITDA Reconciliation

We define Adjusted EBITDA as net income or loss from our consolidated statements of operations before interest income and expense, income taxes, depreciation and amortization, restructuring charges, share-based compensation expense and other non-operating items from our consolidated statements of operations as well as certain other items considered outside the normal course of our operations specifically described below.

Restructuring charges: We exclude restructuring expenses, which primarily include employee severance, office consolidation and contract termination charges, from our Adjusted EBITDA to allow more accurate comparisons of the financial results to historical operations and forward-looking guidance. By excluding these expenses from our non-GAAP measures, we are better able to evaluate our ability to utilize our existing assets and estimate the long-term value these assets will generate for us. Furthermore, we believe that the adjustments of these items more closely correlate with the sustainability of our operating performance.

Impairment of goodwill and other long-lived assets: We exclude the impact of charges related to the impairment of goodwill and other long-lived assets. Given the significance of the impairment of goodwill and other long-lived assets, we reported it separately in the consolidated statements of operations. We believe that the exclusion of these impairments, which are non-cash, allows for meaningful comparisons of operating results to peer companies. We believe that this increases period-to-period comparability and is useful to evaluate the performance of the total company.

Share-based compensation expense: We exclude the impact of costs relating to share-based compensation. Due to the subjective assumptions and a variety of award types, we believe that the exclusion of share-based compensation expense, which is typically non-cash, allows for more meaningful comparisons of our operating results to peer companies. Share-based compensation expense can vary significantly based on the timing, size and nature of awards granted.

Other non-operating income/(expense), net: We exclude foreign currency exchange transaction gains and losses, primarily related to intercompany financing arrangements, as well as other non-operating income and expense items, such as gains and losses recorded on business combinations or dispositions, sales of investments, net income/(loss) attributable to noncontrolling interests and early redemption payments made in connection with debt refinancing. We believe that the adjustments of these items more closely correlate with the sustainability of our operating performance.

Other items: To measure operating performance, we exclude certain expenses and gains that arise outside the ordinary course of our operations. Such costs primarily include legal settlements, acquisition related expenses, business optimization costs and other transactional costs. We believe the exclusion of such amounts allows management and the users of the financial statements to better understand our financial results.

Adjusted EBITDA is not a presentation made in accordance with GAAP, and our use of the term Adjusted EBITDA may vary from the use of similarly-titled measures by others in our industry due to the potential inconsistencies in the method of calculation and differences due to items subject to interpretation. Adjusted EBITDA margin is Adjusted EBITDA for a particular period expressed as a percentage of revenues for that period.

We use Adjusted EBITDA to measure our performance from period to period both at the consolidated level as well as within our operating segments, to evaluate and fund incentive compensation programs and to compare our results to those of our competitors. In addition to Adjusted EBITDA being a significant measure of performance for management purposes, we also believe that this presentation provides useful information to investors regarding financial and business trends related to our results of operations and that when non-GAAP financial information is viewed with GAAP financial information, investors are provided with a more meaningful understanding of our ongoing operating performance.

Adjusted EBITDA should not be considered as an alternative to net income or loss, operating income/(loss), cash flows from operating activities or any other performance measures derived in accordance with GAAP as measures of operating performance or cash flows as measures of liquidity. Adjusted EBITDA has important limitations as an analytical tool and should not be considered in isolation or as a substitute for analysis of our results as reported under GAAP. In addition, our definition of Adjusted EBITDA may not be comparable to similarly titled measures of other companies and may, therefore, have limitations as a comparative analytical tool.

The below table presents a reconciliation from net income/(loss) to Adjusted EBITDA for the years ended December 31, 2018, 2017 and 2016:

(IN MILLIONS)	Year Ended		
	December 31,		
	2018	2017	2016
Net income/(loss) attributable to Nielsen shareholders	\$(712)	\$429	\$502
Interest expense, net	386	370	329
(Benefit)/provision for income taxes	(182)	388	309
Depreciation and amortization	675	640	603

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EBITDA	167	1,827	1,743
Other non-operating (income)/expense, net	33	27	(10)
Restructuring charges	139	80	105
Impairment of goodwill and other long-lived assets	1,413	-	-
Share-based compensation expense	35	45	51
Other items ^(a)	63	45	36
Adjusted EBITDA	\$1,850	\$2,024	\$1,925

(a) For the year ended December 31, 2018, other items primarily consist of business optimization costs, including strategic review costs, and transaction related costs. For the year ended December 31, 2017, other items primarily consist of transaction related costs and business optimization costs. For the year ended December 31, 2016, other items primarily consist of business optimization costs.

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Consolidated Results for the Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Revenues

Revenues decreased 0.9% to \$6,515 million for the year ended December 31, 2018 from \$6,572 million for the year ended December 31, 2017, or 0.7% on a constant currency basis. Revenues within our Buy segment decreased 4.1%, or 3.7% on a constant currency basis. Revenues within our Watch segment increased 2.3%, or 2.2% on a constant currency basis. Refer to the “Business Segment Results” section for further discussion of our revenue performance.

Cost of Revenues, Exclusive of Depreciation and Amortization

Cost of revenues increased 1.4% on reported and constant currency basis to \$2,805 million for the year ended December 31, 2018 from \$2,765 million for the year ended December 31, 2017.

Costs within our Buy segment increased 3.6% on a reported and constant currency basis, primarily due to the continued global investment in our services, including retailer investments.

Costs within our Watch segment increased 0.4%, or 0.3% on a constant currency basis. Cost of revenues increased primarily due to the impact of our investments and higher spending on product portfolio management initiatives, including our digital and Marketing Effectiveness product offerings, partially offset by productivity initiatives.

Selling, General and Administrative Expenses, Exclusive of Depreciation and Amortization

Selling, general and administrative expenses increased 4.5% to \$1,958 for the year ended December 31, 2018 from \$1,873 million for the year ended December 31, 2017, or 4.4% on a constant currency basis.

Costs within our Buy segment decreased 1.0% on a reported and constant currency basis. Selling, general and administrative expenses decreased due to productivity initiatives.

Costs within our Watch segment increased 11.4%, or 11.1% on a constant currency basis. Selling, general and administrative expenses increased primarily due to the impact of our investments.

Depreciation and Amortization

Depreciation and amortization expense was \$675 million for the year ended December 31, 2018 as compared to \$640 million for the year ended December 31, 2017. This increase was primarily due to higher depreciation and amortization expense associated with higher capital expenditures.

Depreciation and amortization expense associated with tangible and intangibles assets acquired in business combinations increased to \$220 million for the year ended December 31, 2018 from \$219 million for the year ended December 31, 2017.

Impairment of Goodwill and other Long-Lived Assets

During 2018, we recorded an impairment of goodwill and other long-lived asset charge of \$1,413 million, primarily related to a non-cash goodwill impairment charge of \$1,411 million. This charge was recorded primarily within our Buy reporting unit.

Restructuring Charges

We recorded \$139 million and \$80 million in restructuring charges, primarily related to employee severance costs associated with our plans to reduce selling, general and administrative expenses and consolidate operations centers, as well as automation initiatives for the years ended December 31, 2018 and 2017, respectively.

Operating Income/(loss)

Operating loss for the year ended December 31, 2018 was \$475 million compared to operating income of \$1,214 million for the year ended December 31, 2017. Operating loss within our Buy segment decreased to \$1,342 million for the year ended December 31, 2018 from operating income of \$319 million for the year ended December 31, 2017. Operating income within our Watch segment decreased to \$1,010 million for the year ended December 31, 2018 from \$1,034 million for the year ended December 31, 2017. Corporate operating expenses increased to \$143 million for the year ended December 31, 2018 from \$139 million for the year ended December 31, 2017.

Interest Expense

Interest expense was \$394 million for the year ended December 31, 2018 compared to \$374 million for the year ended December 31, 2017. This increase was primarily due to higher USD LIBOR interest rates on our senior secured term loans without hedged positions.

Foreign Currency Exchange Transaction Gains/(Losses), Net

Foreign currency exchange transaction losses, net, represent the net loss on revaluation of certain cash, external debt, intercompany loans and other receivables and payables. Fluctuations in the value of foreign currencies relative to the U.S. Dollar, particularly the Euro, have a significant effect on our operating results. The average U.S. Dollar to Euro exchange rate was \$1.18 to €1.00 and \$1.13 to €1.00 for the years ended December 31, 2018 and 2017, respectively.

We realized net losses of \$16 million for the year ended December 31, 2018, resulting primarily from fluctuations in certain foreign currencies associated with intercompany transactions.

We realized net losses of \$10 million for the year ended December 31, 2017, resulting primarily from fluctuations in certain foreign currencies associated with intercompany transactions.

Other Income/(Expense), Net

Other expense, net of \$5 million for the year ended December 31, 2018 is primarily related to certain costs incurred in connection with the June 2018 debt refinancing discussed below under “Liquidity and Capital Resources”, as well as the write-off of certain previously capitalized deferred financing fees in conjunction with the refinancing, partially offset by certain pension related amounts reclassified from operating expense as a result of our adoption of ASU “Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.” See “Summary of Recent Accounting Pronouncements” below for more information.

Other expense, net of \$6 million for the year ended December 31, 2017 is primarily related to the finalization of working capital and other matters associated with dispositions, partially offset by certain pension related amounts reclassified from operating expense as a result of our adoption of ASU “Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.” See “Summary of Recent Accounting Pronouncements” below for more information.

Income/(Loss) Before Income Taxes and Equity in Net Income of Affiliates

Loss was \$882 million for the year ended December 31, 2018 compared to income of \$828 million for the year ended December 31, 2017 due primarily to the consolidated results mentioned above.

Income Taxes

The effective tax rates for the years ended December 31, 2018 and 2017 were 21% and 47%, respectively.

Our effective tax rate benefit of 21% for the year ended December 31, 2018 was significantly impacted by the TCJA and an intercompany restructuring. Those impacts are described further in Note 14 to the Consolidated Financial Statements. It was higher than the UK statutory rate as a result of the impact of goodwill impairment, tax rate differences in other jurisdictions where the Company files tax returns, the effect of global licensing activities, withholding and foreign taxes as well as state and local income taxes, changes in estimates for uncertain tax positions, and increases in valuation allowances offset by the favorable impact of the TCJA adjustments, certain financing

activities, and intercompany restructuring. Our effective tax rate for the year ended December 31, 2017 was higher than the UK statutory rate as a result of the impact of the TCJA as well as tax rate differences in other jurisdictions where the Company files tax returns, the effect of global licensing activities, withholding and foreign taxes as well as state and local income taxes, offset by the favorable impact of certain financing activities and releases of valuation allowances.

At December 31, 2018 and 2017, we had gross uncertain tax positions of \$572 million and \$452 million, respectively. We also have accrued interest and penalties associated with these uncertain tax positions as of December 31, 2018 and 2017 of \$70 million and \$53 million, respectively.

Estimated interest and penalties related to the underpayment of income taxes is classified as a component of our provision or benefit for income taxes. It is reasonably possible that within the next 12 months certain tax examinations will close, which could result in a change in unrecognized tax benefits, along with related interest and penalties. Furthermore, the amounts ultimately paid may differ from the amounts accrued. An estimate of any possible change cannot be made at this time.

Our future effective tax rates could be adversely affected by earnings being lower than anticipated in countries where statutory rates are lower and earnings being higher than anticipated in countries where statutory rates are higher, or by changes in tax laws, regulations, accounting principles, or interpretations thereof. Other factors that may affect our effective income tax rate include, but are not limited to, losses in jurisdictions where no income tax benefit can be recognized, changes in the valuation of deferred tax assets and liabilities, the establishment of valuation allowances against deferred income tax assets if we determined that it is more likely than not that future income tax benefits will not be realized, and audits by taxing authorities.

Adjusted EBITDA

Adjusted EBITDA decreased 8.6% to \$1,850 million for the year ended December 31, 2018 from \$2,024 million for the year ended December 31, 2017, or 7.9% on a constant currency basis. Our Adjusted EBITDA margin decreased to 28.40% for the year ended December 31, 2018 from 30.80% for the year ended December 31, 2017. See “Results of Operations – Years Ended December 31, 2018, 2017 and 2016” for the reconciliation of net income/(loss) to Adjusted EBITDA.

Consolidated Results for the Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Revenues

Revenues increased 4.2% to \$6,572 million for the year ended December 31, 2017 from \$6,309 million for the year ended December 31, 2016, or an increase of 3.8% on a constant currency basis, excluding a 0.4% unfavorable impact of changes in foreign currency exchange rates. Revenues within our Buy segment decreased 2.7%, or 3.3% on a constant currency basis, excluding a 0.6% unfavorable impact of changes in foreign currency exchange rates. Revenues within our Watch segment increased 11.9%, or 11.7% on a constant currency basis, excluding a 0.2% unfavorable impact of changes in foreign currency exchange rates. Refer to the “Business Segment Results” section for further discussion of our revenue performance.

Cost of Revenues, Exclusive of Depreciation and Amortization

Cost of revenues increased 6.1% to \$2,765 million for the year ended December 31, 2017 from \$2,607 million for the year ended December 31, 2016, or an increase of 5.7% on a constant currency basis.

Costs within our Buy segment increased 0.7%, or 0.1% on a constant currency basis. Cost of revenues increased primarily due to the continued global investment in our services.

Costs within our Watch segment increased 11.2% on a reported and constant currency basis. Cost of revenues increased primarily due to the impact of the Gracenote acquisition.

Selling, General and Administrative Expenses, Exclusive of Depreciation and Amortization

Selling, general and administrative expenses increased 0.5% to \$1,873 for the year ended December 31, 2017 from \$1,864 million for the year ended December 31, 2016, or 0.4% on a constant currency basis.

Costs within our Buy segment decreased 5.8%, or 5.9% on a constant currency basis. Selling, general and administrative expenses decreased due to productivity initiatives including dispositions as we continue to execute our portfolio pruning initiatives.

Costs within our Watch segment increased 16.8%, or 16.6% on a constant currency basis. Selling, general and administrative expenses increased primarily due to the impact of the Gracenote acquisition.

Depreciation and Amortization

Depreciation and amortization expense was \$640 million for the year ended December 31, 2017 as compared to \$603 million for the year ended December 31, 2016. This increase was primarily due to higher depreciation and amortization expense associated with tangible and intangible assets acquired as part of the Gracenote acquisition on February 1, 2017.

Depreciation and amortization expense associated with tangible and intangibles assets acquired in business combinations increased to \$219 million for the year ended December 31, 2017 from \$210 million for the year ended December 31, 2016.

Restructuring Charges

We recorded \$80 million and \$105 million in restructuring charges primarily related to employee severance associated with productivity initiatives and contract termination costs for the years ended December 31, 2017 and 2016, respectively.

Operating Income/(Loss)

Operating income for the year ended December 31, 2017 was \$1,214 million compared to operating income of \$1,130 million for the year ended December 31, 2016. Operating income within our Buy segment decreased to \$319 million for the year ended December 31, 2017 from \$327 million for the year ended December 31, 2016. Operating income within our Watch segment increased to \$1,034 million for the year ended December 31, 2017 from \$931 million for the year ended December 31, 2016. Corporate operating expenses increased to \$139 million for the year ended December 31, 2017 from \$128 million for the year ended December 31, 2016.

Interest Expense

Interest expense was \$374 million for the year ended December 31, 2017 compared to \$333 million for the year ended December 31, 2016. This increase is primarily related to higher average debt balances including the incurrence of an additional \$500 million 5.00% Senior Notes in January 2017 and higher USD LIBOR senior secured term loan interest rates.

Foreign Currency Exchange Transaction Gains/(Losses), Net

Foreign currency exchange transaction losses, net, represent the net loss on revaluation of certain cash, external debt, intercompany loans and other receivables and payables. Fluctuations in the value of foreign currencies relative to the U.S. Dollar, particularly the Euro, have a significant effect on our operating results. The average U.S. Dollar to Euro exchange rate was \$1.13 to €1.00 and \$1.11 to €1.00 for the years ended December 31, 2017 and 2016, respectively.

We realized net losses of \$10 million for the year ended December 31, 2017, resulting primarily from fluctuations in certain foreign currencies associated with intercompany transactions.

We realized net losses of \$6 million for the year ended December 31, 2016, resulting primarily from fluctuations in certain foreign currencies associated with intercompany transactions and the loss of \$5 million from the revaluation of our U.S.-denominated debt and cash held in EURO functional entities, partially offset by a gain of \$1 million associated with foreign currency derivative financial instruments.

Other Income/(expense), Net

Other expense, net of \$6 million for the year ended December 31, 2017 is primarily related to the finalization of working capital and other matters associated with dispositions partially offset by certain pension related amounts reclassified from operating expense as a result of our adoption of ASU "Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." See "Summary of Recent Accounting Pronouncements" below for more information.

Other income, net of \$21 million for the year ended December 31, 2016 is primarily related to the gain of \$14 million on the dispositions and certain pension related amounts reclassified from operating expense as a result of our adoption of ASU “ Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.” See “Summary of Recent Accounting Pronouncements” below for more information, partially offset by the loss of \$4 million related to certain costs incurred in connection with the B-3 term loan refinancing.

Income/(Loss) Before Income Taxes and Equity in Net Income of Affiliates

Income was \$828 million for the year ended December 31, 2017 compared to \$816 million for the year ended December 31, 2016 due primarily to the consolidated results mentioned above.

Income Taxes

The effective tax rates for the years ended December 31, 2017 and 2016 were 47% and 38%, respectively.

Our effective tax rate of 47% for the year ended December 31, 2017 was significantly impacted by the TCJA. Those impacts are described further in Note 14 to the Consolidated Financial Statements. It was higher than the UK statutory rate as a result of the impact of the TCJA as well as tax rate differences in other jurisdictions where the Company files tax returns, the effect of global licensing activities, withholding and foreign taxes as well as state and local income taxes, offset by the favorable impact of certain financing activities and releases of valuation allowances. The effective tax rate for the year ended December 31, 2016 was higher than the UK statutory rate as a result of the impact of tax rate differences in other jurisdictions where the Company files tax returns, the effect of global licensing activities, withholding and foreign taxes as well as state and local income taxes, offset by the favorable impact of certain financing activities, windfall tax benefits from stock option exercises and releases of uncertain tax positions.

At December 31, 2017 and 2016, we had gross uncertain tax positions of \$452 million and \$432 million, respectively. We also have accrued interest and penalties associated with these uncertain tax positions as of December 31, 2017 and 2016 of \$53 million and \$33 million, respectively. Estimated interest and penalties related to the underpayment of income taxes is classified as a component of our provision or benefit for income taxes

Adjusted EBITDA

Adjusted EBITDA increased 5.1% to \$2,024 million for the year ended December 31, 2017 from \$1,925 million for the year ended December 31, 2016, or 4.4% on a constant currency basis. Our Adjusted EBITDA margin increased to 30.80% for the year ended December 31, 2017 from 30.51% for the year ended December 31, 2016. See “Results of Operations – Years Ended December 31, 2018, 2017 and 2016” for the reconciliation of net income/(loss) to Adjusted EBITDA.

Business Segment Results for the Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Revenues

The table below sets forth our segment revenue performance data for the year ended December 31, 2018 compared to the year ended December 31, 2017, both on an as-reported and constant currency basis.

(IN MILLIONS)	Year Ended December 31, 2018	Year Ended December 31, 2017	% Variance 2018 vs. 2017 Reported	% Variance December 31, 2018 vs. 2017	
				Constant Currency	Constant Currency
Emerging Markets	\$ 1,145	1,164	(1.6)%	1,123	2.0%
Developed Markets	1,922	1,999	(3.9)%	2,025	(5.1)%
Core Buy	3,067	3,163	(3.0)%	3,148	(2.6)%
Corporate	30	68	(55.9)%	68	(55.9)%
Buy Segment	\$ 3,097	\$ 3,231	(4.1)%	\$ 3,216	(3.7)%
Marketing Effectiveness	\$ 337	350	(3.7)%	351	(4.0)%
Audio	497	501	(0.8)%	500	(0.6)%

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Audience Measurement (Video and Text)	2,446	\$ 2,308	6.0	%	\$ 2,311	5.8	%
Core Watch	3,280	3,159	3.8	%	3,162	3.7	%
Corporate/Other Watch	138	182	(24.2)	)%	181	(23.8))%
Watch Segment	3,418	3,341	2.3	%	3,343	2.2	%
Total Core (Buy/Watch)	6,347	6,322	0.4	%	6,310	0.6	%
Total	\$ 6,515	\$ 6,572	(0.9)	)%	\$ 6,559	(0.7))%

Buy Segment Revenues

Revenues decreased 4.1% to \$3,097 million for the year ended December 31, 2018 from \$3,231 million for the year ended December 31, 2017, or 3.7% on a constant currency basis.

Revenues from emerging markets decreased 1.6% to \$1,145 million, or an increase of 2.0% on a constant currency basis. The increase on a constant currency basis was driven primarily due to our global footprint, coverage expansion and broad product offerings driving growth in Eastern Europe, Africa and some markets in Latin America, partially offset by pressure on multinational client spend and continued softness in China.

Revenues from developed markets decreased 3.9% to \$1,922 million, or 5.1% on a constant currency basis, primarily due to continued pressure on spending from large multinational clients and continued pressure in the fast moving consumer goods industry in the U.S.

Revenues from Corporate Buy decreased 55.9% to \$30 million on a reported and constant currency basis. Corporate includes slow growth and non-core services that are part of portfolio pruning initiatives.

Watch Segment Revenues

Revenues increased 2.3% to \$3,418 million for the year ended December 31, 2018 from \$3,341 million for the year ended December 31, 2017 or an increase of 2.2% on a constant currency basis. Revenue growth was primarily driven by growth in Audience Measurement of Video and Text, which increased 6.0%, or 5.8% on a constant currency basis, primarily due to continued client adoption of our Total Audience Measurement system and our ongoing investments, including Gracenote. Audio revenues decreased 0.8% or 0.6% on a constant currency basis. Marketing Effectiveness revenue decreased 3.7%, or 4.0% on a constant currency basis, primarily driven by historical data sales related to a product category exit, partially offset by consistent investment in our product portfolio. Corporate/Other Watch revenues decreased by 24.2%, or 23.8% on a constant currency basis due to our continued exit of non-core media analytics products. Our Core Watch revenue grew 3.8%, or 3.7% on a constant currency basis.

Business Segment Profitability

We do not allocate items below operating income/(loss) to our business segments and therefore the tables below set forth a reconciliation of operating income/(loss) at the business segment level for the years ended December 31, 2018 and 2017, adjusting for certain items affecting operating income/(loss), such as restructuring charges, depreciation and amortization, share-based compensation expense and certain other items described below resulting in a presentation of our non-GAAP business segment profitability. Non-GAAP business segment profitability provides useful supplemental information to management and investors regarding financial and business trends related to our results of operations. When this non-GAAP financial information is viewed with our GAAP financial information, investors are provided with a meaningful understanding of our ongoing operating performance. It is important to note that the non-GAAP business segment profitability corresponds in total to our consolidated Adjusted EBITDA described within our consolidated results of operations above, which our chief operating decision maker and other members of management use to measure our performance from period to period both at the consolidated level as well as within our operating segments, to evaluate and fund incentive compensation programs and to compare our results to those of our competitors. These non-GAAP measures should not be considered as an alternative to net income/(loss), operating income/(loss), cash flows from operating activities or any other performance measures derived in accordance with GAAP as measures of operating performance or cash flows as measures of liquidity. These non-GAAP measures may differ from similarly-titled measures used by others and have important limitations as analytical tools. Accordingly, they should not be considered in isolation or as a substitute for analysis of our results as reported under GAAP.

YEAR ENDED DECEMBER 31, Operating	Income/	Restructuring	Depreciation and	Impairment of goodwill and other long-lived assets	Share-based Compensation	Other Items	Non-GAAP Business Segment
(IN MILLIONS)	(Loss)	Charges	Amortization	Expenses	Expense		Income/(Loss)
Buy	\$(1,342)	\$ 103	\$ 226	\$ 1,411	\$ 13	\$ —	\$ 411
Watch	1,010	22	442	—	11	—	1,485
Corporate and Eliminations	(143)	14	7	2	11	63	(46)
Total Nielsen	\$(475)	\$ 139	\$ 675	\$ 1,413	\$ 35	\$ 63	\$ 1,850

YEAR ENDED DECEMBER 31, Operating	Income/	Restructuring	Depreciation and	Impairment of goodwill and other long-lived assets	Share-based Compensation	Other Items	Non-GAAP Business Segment
(IN MILLIONS)	(Loss)	Charges	Amortization	Expenses	Expense		Income/(Loss)
Buy	\$ 319	\$ 42	\$ 210	\$ —	\$ 13	\$ —	\$ 584
Watch	1,034	15	425	—	12	—	1,486
Corporate and Eliminations	(139)	23	5	—	20	45	(46)
Total Nielsen	\$ 1,214	\$ 80	\$ 640	\$ —	\$ 45	\$ 45	\$ 2,024

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(1) For the year ended December 31, 2018, other items primarily consist of business optimization costs, including strategic review costs, and transaction related costs. For the year ended December 31, 2017, other items primarily consist of transaction related costs and business optimization costs.

(IN MILLIONS)	Year Ended		% Variance		Year Ended		% Variance	
	December 31, 2018	December 31, 2017	2018 vs. 2017	Reported	December 31, 2017	2018 vs. 2017	Constant Currency	Constant Currency
Non-GAAP Business Segment Income/(Loss)								
Buy	\$ 411	\$ 584	(29.6)	)%	\$ 569	(27.8))%	
Watch	1,485	1,486	(0.1)	)%	1,485	(0.0))%	
Corporate and Eliminations	(46)	(46)	NA		(46)	NA		
Total Nielsen	\$ 1,850	\$ 2,024	(8.6)	)%	\$ 2,008	(7.9))%	

Buy Segment Profitability

Operating loss was \$1,342 million for the year ended December 31, 2018 as compared to operating income of \$319 million for the year ended December 31, 2017. The decrease was driven by the revenue performance discussed above, the Buy goodwill impairment, higher restructuring costs, higher depreciation and amortization expense and our continued global investments in our services, including retailer investments. Non-GAAP business segment income decreased 27.8% on a constant currency basis.

Watch Segment Profitability

Operating income was \$1,010 million for the year ended December 31, 2018 as compared to \$1,034 million for the year ended December 31, 2017. The decrease was driven by higher restructuring costs, higher depreciation and amortization expense and investments in our services, partially offset by the revenue performance discussed above. Non-GAAP business segment income was flat on a constant currency basis.

Corporate Expenses and Eliminations

Operating expenses were \$143 million for the year ended December 31, 2018 as compared to \$139 million for the year ended December 31, 2017, primarily due to an increase in transaction related costs and business optimization costs and depreciation and amortization expense partially offset by lower share-based compensation expense and lower restructuring charges.

Business Segment Results for the Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Revenues

The table below sets forth our segment revenue performance data for the year ended December 31, 2017 compared to the year ended December 31, 2016, both on an as-reported and constant currency basis.

(IN MILLIONS)	Year Ended	Year Ended	% Variance	Year Ended	% Variance		
	December 31,	December 31,	2017 vs. 2016	December 31,	2017 vs. 2016	Constant	Constant
	2017	2016	Reported	Constant	Currency	Currency	Currency
Emerging Markets	\$ 1,164	1,063	9.5	%	1,070	8.8	%
Developed Markets	1,999	2,096	(4.6)	)%	2,108	(5.2))%
Core Buy	3,163	3,159	0.1	%	3,178	(0.5))%
Corporate	68	163	(58.3)	)%	163	(58.3))%
Buy Segment	\$ 3,231	\$ 3,322	(2.7)	)%	\$ 3,341	(3.3))%
Marketing Effectiveness	\$ 350	287	22.0	%	289	21.1	%
Audio	501	500	0.2	%	500	0.2	%
Audience Measurement (Video and Text)	2,308	\$ 1,978	16.7	%	\$ 1,984	16.3	%
Core Watch	3,159	2,765	14.2	%	2,773	13.9	%
Corporate/Other Watch	182	222	(18.0)	)%	218	(16.5))%
Watch Segment	3,341	2,987	11.9	%	2,991	11.7	%
Total Core (Buy/Watch)	6,322	5,924	6.7	%	5,951	6.2	%
Total	\$ 6,572	\$ 6,309	4.2	%	\$ 6,332	3.8	%

Buy Segment Revenues

Revenues decreased 2.7% to \$3,231 million for the year ended December 31, 2017 from \$3,322 million for the year ended December 31, 2016, or 3.3% on a constant currency basis, excluding a 0.6% unfavorable impact of changes in

foreign currency exchange rates.

Revenues from emerging markets increased 9.5% to \$1,164 million, or an increase of 8.8% on a constant currency basis, excluding a 0.7% unfavorable impact of changes in foreign currency exchange rates. Excluding the impact of foreign currency exchange rates, revenue growth was driven by our global footprint, coverage expansion and broad product offerings which continue to position us well with both local and multinational clients. For the year ended December 31, 2017, these investments drove double-digit growth in Latin America, India and Eastern Europe along with high single-digit growth in South East Asia and Africa.

Revenues from developed markets decreased 4.6% to \$1,999 million, or 5.2% on a constant currency basis, excluding a 0.6% unfavorable impact of changes in foreign currency exchange rates. Excluding the impact of foreign currency exchange rates, revenues decreased as a result of softness in the U.S. partially offset by growth in our European developed markets.

Revenues from Corporate Buy decreased 58.3% to \$68 million on a reported and constant currency basis. Corporate includes slow growth and non-core services that are part of portfolio pruning initiatives.

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Watch Segment Revenues

Revenues increased 11.9% to \$3,341 million for the year ended December 31, 2017 from \$2,987 million for the year ended December 31, 2016 or an increase of 11.7% on a constant currency basis, excluding a 0.2% unfavorable impact of changes in foreign currency exchange rates. Excluding the Gracenote acquisition, revenues increased 4.7% (4.5% on a constant currency basis). Excluding a 0.2% unfavorable impact of changes in foreign currency exchange rates, revenue growth was primarily driven by growth in Audience Measurement of Video and Text, which increased 16.7% (16.3% on a constant currency basis). Excluding the Gracenote acquisition, Audience Measurement of Video and Text revenues increased 5.8% (5.5% on a constant currency basis), due to our ongoing investments and continued client adoption of our Total Audience Measurement initiative. Audio revenues increased 0.2% on a reported and constant currency basis. Our Marketing Effectiveness revenue grew 22.0% (21.1% on a constant currency basis), due to the continued strength in audience-based solutions, including data deliveries, that help advertisers and publishers measure the return on investment in media spend and investments in our product portfolio. Corporate/Other Watch revenues decreased by 18.0% (16.5% on a constant currency basis) due to our continued exit of non-core media analytics products. Our Core Watch revenue grew 14.2% (13.9% on a constant currency basis). Excluding the Gracenote acquisition, our Core Watch revenue grew 6.5% (6.2% on a constant currency basis).

Business Segment Profitability

We do not allocate items below operating income/(loss) to our business segments and therefore the tables below set forth a reconciliation of operating income/(loss) at the business segment level for the years ended December 31, 2017 and 2016, adjusting for certain items affecting operating income/(loss), such as restructuring charges, depreciation and amortization, share-based compensation expense and certain other items described below resulting in a presentation of our non-GAAP business segment profitability. Non-GAAP business segment profitability provides useful supplemental information to management and investors regarding financial and business trends related to our results of operations. When this non-GAAP financial information is viewed with our GAAP financial information, investors are provided with a meaningful understanding of our ongoing operating performance. It is important to note that the non-GAAP business segment profitability corresponds in total to our consolidated Adjusted EBITDA described within our consolidated results of operations above, which our chief operating decision maker and other members of management use to measure our performance from period to period both at the consolidated level as well as within our operating segments, to evaluate and fund incentive compensation programs and to compare our results to those of our competitors. These non-GAAP measures should not be considered as an alternative to net income/(loss), operating income/(loss), cash flows from operating activities or any other performance measures derived in accordance with GAAP as measures of operating performance or cash flows as measures of liquidity. These non-GAAP measures may differ from similarly-titled measures used by others and have important limitations as analytical tools. Accordingly, they should not be considered in isolation or as a substitute for analysis of our results as reported under GAAP.

YEAR ENDED DECEMBER 31, Operating	Share-based	Non-GAAP
Income/	Restructuring	Business Segment
(Loss)	Charges	Income/(Loss)
	Depreciation and	
	Amortization	
	Compensation	
	Other Items ⁽¹⁾	
2017 (IN MILLIONS)		
Buy	\$ 319	\$ 584
Watch	1,034	1,486
Corporate and Eliminations	(139)	(46)
Total Nielsen	\$ 1,214	\$ 2,024

YEAR ENDED DECEMBER 31, Operating	Restructuring	Depreciation	Share-based	Other Items ⁽¹⁾	Non-GAAP
Income/	Charges	and	Compensation		Business

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2016 (IN MILLIONS)	(Loss)		Amortization	Expense		Segment Income/(Loss)
Buy	\$ 327	\$ 61	\$ 212	\$ 16	\$ 3	\$ 619
Watch	931	18	387	10	2	1,348
Corporate and Eliminations	(128)	26	4	25	31	(42)
Total Nielsen	\$ 1,130	\$ 105	\$ 603	\$ 51	\$ 36	\$ 1,925

(1) For the year ended December 31, 2017, other items consist primarily of transaction related costs and business optimization costs. For the year ended December 31, 2016, other items consist primarily of business optimization costs.

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(IN MILLIONS)	Year Ended December 31, 2017	Year Ended December 31, 2016	% Variance		Year Ended December 31, 2017 Constant Currency	% Variance	
			2017 vs. 2016 Reported			2017 vs. 2016 Constant Currency	
Non-GAAP Business Segment Income/(Loss)							
Buy	\$ 584	\$ 619	(5.7	)%	\$ 629	(7.2)%
Watch	1,486	1,348	10.2	%	1,351	10.0	%
Corporate and Eliminations	(46)	(42)	NA		(42)	NA	
Total Nielsen	\$ 2,024	\$ 1,925	5.1	%	\$ 1,938	4.4	%

Buy Segment Profitability

Operating income was \$319 million for the year ended December 31, 2017 as compared to \$327 million for the year ended December 31, 2016. The decrease was driven by the revenue performance discussed above, partially offset by lower restructuring charges. Non-GAAP business segment income decreased 7.2% on a constant currency basis.

Watch Segment Profitability

Operating income was \$1,034 million for the year ended December 31, 2017 as compared to \$931 million for the year ended December 31, 2016. The increase was driven by the revenue performance discussed above, partially offset by higher depreciation and amortization expense. Non-GAAP business segment income increased 10.0% on a constant currency basis.

Corporate Expenses and Eliminations

Operating expenses were \$139 million for the year ended December 31, 2017 as compared to \$128 million for the year ended December 31, 2016, primarily due to an increase in transaction related costs and business optimization costs partially offset by the decrease in restructuring charges and share-based compensation expense.

Liquidity and Capital Resources

Cash flows from operations provided a source of funds of \$1,058 million, \$1,310 million and \$1,296 million during the years ended December 31, 2018, 2017 and 2016, respectively. This decrease in 2018 was driven primarily by the Adjusted EBITDA performance discussed above, higher interest payments during the year ended December 31, 2018 related to the full year impact of a 2017 bond issuance and higher USD LIBOR senior secured term loan interest rates, partially offset by lower tax payments.

We provide for additional liquidity through several sources, including maintaining an adequate cash balance, access to global funding sources and a committed revolving credit facility. The following table provides a summary of the major sources of liquidity for the years ended December 31, 2018, 2017 and 2016:

(IN MILLIONS)	2018	2017	2016
Net cash from operating activities	\$ 1,058	\$ 1,310	\$ 1,296

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Cash and short-term marketable securities	\$524	\$656	\$754
Revolving credit facility	\$850	\$575	\$575

Of the \$524 million in cash and cash equivalents at December 31, 2018, approximately \$419 million was held in jurisdictions outside the U.S. We regularly review the amount of cash and cash equivalents held outside of the U.S. to determine the amounts necessary to fund the current operations of our foreign operations and their growth initiatives and amounts needed to service our U.S. indebtedness and related obligations.

The below table illustrates our weighted average interest rate and cash paid for interest over the last three years.

	2018	2017	2016
Weighted average interest rate	4.67%	4.32%	4.04%
Cash paid for interest, net of amounts capitalized (in millions)	\$380	\$352	\$319

Our contractual obligations, commitments and debt service requirements over the next several years are significant. We believe we will have available resources to meet both our short-term and long-term liquidity requirements, including our senior secured debt service. We expect the cash flow from our operations, combined with existing cash and amounts available under the revolving credit facility, will provide sufficient liquidity to fund our current obligations, projected working capital requirements, restructuring obligations, dividend payments and capital spending over the next year. In addition, we may, from time to time, purchase, repay, redeem or retire any of our outstanding debt securities (including any publicly issued debt securities) in privately negotiated or open market transactions, by tender offer or otherwise.

Long-term borrowings

The following table provides a summary of our outstanding long-term borrowings as of December 31, 2018:

(IN MILLIONS)	Weighted Interest Rate	Carrying Amount
\$1,125 million Senior secured term loan (LIBOR based variable rate of 4.14%) due 2023		\$ 1,112
\$2,303 million Senior secured term loan (LIBOR based variable rate of 4.39%) due 2023		2,285
€545 million Senior secured term loan (Euro LIBOR based variable rate of 2.50%) due 2023		623
\$850 million senior secured revolving credit facility (Euro LIBOR or LIBOR based variable rate) due 2023		-
Total senior secured credit facilities (with weighted average interest rate)	4.09	% \$ 4,020
\$800 million 4.50% senior debenture loan due 2020		797
\$625 million 5.50% senior debenture loan due 2021		621
\$2,300 million 5.00% senior debenture loan due 2022		2,290
\$500 million 5.00% senior debenture loan due 2025		496
Total debenture loans (with weighted average interest rate)	5.22	% \$ 4,204
Other loans		1
Total long-term debt	4.67	% \$ 8,225
Capital lease and other financing obligations		161
Bank Overdrafts		1
Total debt and other financing arrangements		\$ 8,387
Less: Current portion of long-term debt, capital lease and other financing obligations and other short-term borrowings		107
Non-current portion of long-term debt and capital lease and other financing obligations		\$ 8,280

Term Loan Facilities

In June 2018, we entered into an Amendment Agreement to amend and restate our Fourth Amended and Restated Credit Agreement (the “Prior Credit Agreement”) in the form of the Fifth Amended and Restated Credit Agreement (the “Amended Credit Agreement”). Among other things, the Amendment Agreement provided for: (i) the refinancing and replacement of the prior Tranche A Revolving Credit Facility with a new Tranche A Revolving Credit Facility having commitments in an aggregate principal amount of \$850,000,000; (ii) the refinancing and replacement of the prior Class A Term Loans with new Class A Term Loans in an aggregate principal amount of \$1,125,000,000; (iii) the refinancing and replacement of the prior Class B-2 Euro Term Loans with new Class B-2 Euro Term Loans in an

aggregate principal amount of € 545,245,518; and (iv) incurring incremental term loans in the form of Class B-4 Term Loans in an aggregate principal amount of \$75,000,000.

The proceeds of loans under each replacement facility were used to replace or refinance the entire outstanding principal amount of loans under the prior facility that was replaced, and the proceeds of the incremental Class B-4 Term Loans, together with a portion of the proceeds of the Class B-2 Euro Term Loans in excess of the amount of the prior Class B-2 Euro Term Loans that were replaced, were used to prepay the amount of prior Class A Term Loans in excess of the amount of new Class A Term Loans.

The new Class A Term Loans will mature in full on July 9, 2023 and are required to be repaid in quarterly installments in an aggregate amount equal to 0.63% of the original principal amount of the Class A Term Loans for each of the first eight quarters following the effective date of the Amendment Agreement, 1.25% of the original principal amount of the Class A Term Loans for each of the subsequent eight quarters and 2.50% of the original principal amount of the Class A Term Loans for each of the subsequent three quarters, with the balance payable on July 9, 2023. The new Class B-2 Euro Term Loans will mature in full on October 4, 2023 and are required to be repaid in equal quarterly installments in an aggregate amount equal to 0.25% of the original principal amount of the Class B-2 Euro Term Loans, with the balance payable on October 4, 2023. The Class B-4 Term Loans will mature in full on October 4, 2023 and are required to be repaid in equal quarterly installments in an aggregate amount equal to 0.25% of the original principal amount of the Class B-4 Term Loans, with the balance payable on October 4, 2023. The new Tranche A Revolving Credit Facility matures on July 9, 2023.

The new Class A Term Loans and loans under the new Tranche A Revolving Credit Facility bear interest at a rate per annum equal to, at our election, (i) a base rate or eurocurrency rate, plus (ii) an applicable margin determined by reference to the Total Leverage Ratio (as defined in the Amended Credit Agreement), which varies from 0.25% to 1.00%, in the case of base rate loans, and from 1.25% to 2.00%, in the case of eurocurrency rate loans. The Class B-2 Euro Term Loans bear interest at a rate per annum equal to (i) a eurocurrency rate plus (ii) an applicable margin equal to 2.50%. The Class B-4 Term Loans bear interest at a rate per annum equal to, at our election, (i) a base rate or eurocurrency rate, plus (ii) an applicable margin, which is equal to 2.00%, in the case of eurocurrency loans, or 1.00%, in the case of base rate loans.

The Amended Credit Agreement contains substantially the same affirmative and negative covenants as those of the Prior Credit Agreement, except the exceptions to the restrictions on restricted payments and investments that are determined by reference to the Total Leverage Ratio were amended to increase the applicable limits.

Obligations under the Amended Credit Agreement are guaranteed by TNC B.V., substantially all of the wholly-owned U.S. subsidiaries of TNC B.V. and certain of the non-U.S. wholly-owned subsidiaries of TNC B.V., and are secured by substantially all of the existing and future property and assets of the U.S. subsidiaries of TNC B.V. and by a pledge of substantially all of the capital stock of the guarantors, the capital stock of substantially all of the U.S. subsidiaries of TNC B.V., and up to 65% of the capital stock of certain of the non-U.S. subsidiaries of TNC B.V. Under a separate security agreement, substantially all of the assets of TNC B.V. are pledged as collateral for amounts outstanding under the Amended Credit Agreement.

Covenants

The Amended Credit Agreement contains a number of covenants that, among other things, restrict, subject to certain exceptions, the ability of Nielsen Holding and Finance B.V. and its restricted subsidiaries (which together constitute most of our subsidiaries) to incur additional indebtedness or guarantees, incur liens and engage in sale and leaseback transactions, make certain loans and investments, declare dividends, make payments or redeem or repurchase capital stock, engage in certain mergers, acquisitions and other business combinations, prepay, redeem or purchase certain indebtedness, amend or otherwise alter terms of certain indebtedness, sell certain assets, transact with affiliates, enter into agreements limiting subsidiary distributions and alter the business they conduct. These entities are restricted, subject to certain exceptions, in their ability to transfer their net assets to us. Such restricted net assets amounted to approximately \$2.8 billion at December 31, 2018. In addition, these entities are subject to a total leverage covenant. The leverage ratio requires that we not permit the ratio of total net debt (as defined in the Amended Credit Agreement) at the end of any calendar quarter to Consolidated EBITDA (as defined in the Amended Credit Agreement) for the four quarters then ended to exceed a specified threshold. The maximum permitted ratio is 5.50 to 1.00. Neither we nor TNC B.V. is currently bound by any financial or negative covenants contained in the Amended Credit Agreement. The Amended Credit Agreement also contains certain customary affirmative covenants and events of default. Certain

significant financial covenants are described further below.

Failure to comply with this financial covenant would result in an event of default under our Amended Credit Agreement unless waived by certain of our term lenders and our revolving lenders. An event of default under our Amended Credit Agreement can result in the acceleration of our indebtedness under the facilities, which in turn would result in an event of default and possible acceleration of indebtedness under the agreements governing our debt securities as well. As our failure to comply with the financial covenant described above can cause us to go into default under the agreements governing our indebtedness, management believes that our Amended Credit Agreement and this covenant are material to us. As of December 31, 2018, we were in full compliance with the financial covenant described above.

Pursuant to our Amended Credit Agreement, we are subject to making mandatory prepayments on the term loans within our Amended Credit Agreement to the extent in any full calendar year we generate Excess Cash Flow (“ECF”), as defined in the Amended Credit Agreement. The percentage of ECF that must be applied as a repayment is a function of several factors, including our ratio of total net debt to Covenant EBITDA, as well other adjustments, including any voluntary term loan repayments made in the course of the calendar year. To the extent any mandatory repayment is required pursuant to this ECF clause; such payment must generally occur

on or around the time of the delivery of the annual consolidated financial statements to the lenders. At December 31, 2018, our ratio of total net debt to Covenant EBITDA was less than 5.00 to 1.00 and therefore no mandatory repayment was required. Our next ECF measurement date will occur upon completion of the 2019 results, and although we do not expect to be required to issue any mandatory repayments in 2018 or beyond, it is uncertain at this time if any such payments will be required in future periods.

Revolving Credit Facility

The Amended Credit Agreement contains a senior secured revolving credit facility with aggregate revolving credit commitments of \$850 million and a final maturity of July 2023 under which Nielsen Finance LLC, TNC (US) Holdings, Inc., and Nielsen Holding and Finance B.V. can borrow revolving loans. The revolving credit facility can also be used for letters of credit, guarantees and swingline loans.

The senior secured revolving credit facility is provided under the Amended Credit Agreement and so contains covenants and restrictions as noted above with respect to the Amended Credit Agreement. Obligations under the revolving credit facility are guaranteed by the same entities that guarantee obligations under the Amended Credit Agreement.

As of December 31, 2018, we had zero borrowings outstanding and outstanding letters of credit of \$16 million. As of December 31, 2017, we had zero borrowings outstanding and outstanding letters of credit of \$13 million. As of December 31, 2018, we had \$834 million available for borrowing under the revolving credit facility.

Debenture Loans

The indentures governing certain of our debenture loans limit the majority of our subsidiaries' ability to incur additional indebtedness, pay dividends or make other distributions or repurchase our capital stock, make certain investments, enter into certain types of transactions with affiliates, use assets as security in other transactions and sell certain assets or merge with or into other companies subject to certain exceptions. Upon a change in control, we are required to make an offer to redeem all of the Senior Notes at a redemption price equal to the 101% of the aggregate accreted principal amount plus accrued and unpaid interest. The Senior Notes are jointly and severally guaranteed by Nielsen Holdings plc, substantially all of the wholly owned U.S. subsidiaries of Nielsen Holdings plc, and certain of the non-U.S. wholly-owned subsidiaries of Nielsen Holdings plc.

Dividends and Share Repurchase Program

We remain committed to driving shareholder value as evidenced in 2013 with the adoption of a quarterly cash dividend policy by our Board of Directors, under which we have paid \$494 million and \$474 million in cash dividends during the years ended December 31, 2018 and 2017, respectively. Any decision to declare and pay dividends in the future will be made at the discretion of our Board of Directors and will be subject to the Board of Directors' continuing determination that the dividend policy and the declaration of dividends thereunder are in the best interests of our shareholders, and are in compliance with all laws and agreements to which we are subject. The below table summarizes the dividends declared on our common stock during 2017 and 2018.

Declaration Date	Record Date	Payment Date	Dividend Per Share
February 16, 2017	March 2, 2017	March 16, 2017	\$ 0.31

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April 24, 2017	June 2, 2017	June 16, 2017	\$	0.34
July 20, 2017	August 24, 2017	September 7, 2017	\$	0.34
October 19, 2017	November 21, 2017	December 5, 2017	\$	0.34
February 21, 2018	March 7, 2018	March 21, 2018	\$	0.34
April 19, 2018	June 6, 2018	June 20, 2018	\$	0.35
July 19, 2018	August 22, 2018	September 5, 2018	\$	0.35
October 19, 2018	November 21, 2018	December 5, 2018	\$	0.35

On February 21, 2019, the Board declared a cash dividend of \$0.35 per share on our common stock. The dividend is payable on March 21, 2019 to shareholders of record at the close of business on March 7, 2019.

Our Board of Directors approved a share repurchase program, as included in the below table, for up to \$2 billion of our outstanding common stock. The primary purposes of the program are to return value to shareholders and to mitigate dilution associated with our equity compensation plans.

	Share
	Repurchase
	Authorization
	(\$ in
	millions)
Board Approval	
July 25, 2013	\$ 500
October 23, 2014	1,000
December 11, 2015	500
Total Share Repurchase Authorization	\$ 2,000

Repurchases under these plans will be made in accordance with applicable securities laws from time to time in the open market or otherwise depending on our evaluation of market conditions and other factors. This program has been executed within the limitations of the authority granted by our shareholders.

As of December 31, 2018, there have been 39,426,521 shares of our common stock purchased at an average price of \$44.95 per share (total consideration of approximately \$1,772 million) under this program.

The activity for the year ended December 31, 2018 consisted of open market share repurchases and is summarized in the following table:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Dollar Value of Shares that may yet be Purchased under the Publicly Announced Plans or Programs
As of December 31, 2017	37,206,365	\$ 45.74	37,206,365	\$298,118,746
2018 Activity				
January 1- 31	—	—	—	\$298,118,746
February 1- 28	187,048	\$ 33.31	187,048	\$291,887,826
March 1- 31	424,324	\$ 33.04	424,324	\$277,868,369
April 1-30	155,878	\$ 32.24	155,878	\$272,843,463
May 1-31	922,862	\$ 30.79	922,862	\$244,424,375
June 1-30	208,510	\$ 30.85	208,510	\$237,992,519
July 1-31	321,534	\$ 31.26	321,534	\$227,942,536

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August 1-31	—	\$ —	—	\$227,942,536
September 1-30	—	\$ —	—	\$227,942,536
October 1-31	—	—	—	\$227,942,536
November 1-30	—	\$ —	—	\$227,942,536
December 1-31	—	\$ —	—	\$227,942,536
Total	39,426,521	\$ 44.95	39,426,521	

Cash Flows 2018 versus 2017

Operating activities. Net cash provided by operating activities was \$1,058 million for the year ended December 31, 2018, compared to \$1,310 million for the year ended December 31, 2017. This decrease was driven primarily by the Adjusted EBITDA performance discussed above, higher interest payments during the year ended December 31, 2018 related to the full year impact of a 2017 bond issuance and higher USD LIBOR senior secured term loan interest rates, partially offset by lower tax payments. Our key collections performance measure, days billing outstanding (DBO), stayed consistent for the year ended December 31, 2018 and 2017.

Investing activities. Net cash used in investing activities was \$506 million for the year ended December 31, 2018, compared to \$1,236 million for the year ended December 31, 2017. The decrease was primarily driven by decreased acquisition payments, partially offset by an increase in capital expenditures during the year ended December 31, 2018, as compared to 2017.

Financing activities. Net cash used in financing activities was \$676 million for the year ended December 31, 2018, compared to \$215 million for the year ended December 31, 2017. The increase in cash used in financing activities was primarily due to decreased net proceeds from the issuance and repayment of debt during the year ended December 31, 2018, higher dividend payments, as described in the “Dividends and Share Repurchase Program” section above, and an increase in capital lease financing, partially offset by lower share repurchasing, as described in the “Dividends and Share Repurchase Program” section above during the year ended December 31, 2018, as compared to the same period of 2017.

Cash Flows 2017 versus 2016

Operating activities. Net cash provided by operating activities was \$1,310 million for the year ended December 31, 2017, compared to \$1,296 million for the year ended December 31, 2016. This increase was driven primarily by the Adjusted EBITDA performance discussed above and the \$36 million cash contribution to the Nielsen Foundation during the year ended December 31, 2016, partially offset by higher tax payments, and higher interest payments during the year ended December 31, 2017 related to higher debt balances and higher USD LIBOR senior secured term loan interest rates. Our key collections performance measure, days billing outstanding (DBO), stayed consistent for the year ended December 31, 2017, as compared to a 3 day decrease for the year ended December 31, 2016.

Investing activities. Net cash used in investing activities was \$1,236 million for the year ended December 31, 2017, compared to \$642 million for the year ended December 31, 2016. The increase was primarily driven by increased acquisition payments and capital expenditures during the year ended December 31, 2017, as compared to 2016.

Financing activities. Net cash used in financing activities was \$215 million for the year ended December 31, 2017, compared to \$248 million for the year ended December 31, 2016. The decrease in cash used in financing activities was primarily due to lower share repurchasing, as described in the “Dividends and Share Repurchase Program” section above, partially offset by decreased net proceeds from the issuance and repayment of debt during the year ended December 31, 2017, higher dividend payments, as described in the “Dividends and Share Repurchase Program” section above, and an increase in capital lease financing during the year ended December 31, 2017, as compared to the same period of 2016.

Capital Expenditures

Investments in property, plant, equipment, software and other assets totaled \$520 million, \$489 million and \$433 million in 2018, 2017 and 2016, respectively. In addition, the Company received \$4 million, \$42 million and \$42 million of proceeds from the sale of certain property, plant and equipment and other assets during the years ended December 31, 2018, 2017 and 2016, respectively.

Commitments and Contingencies

Outsourced Services Agreements

In October 2017, we amended and restated in its entirety, our Amended and Restated Master Services Agreement, dated as of October 1, 2007, with Tata America International Corporation and Tata Consultancy Services Limited (jointly, “TCS”) (as amended prior to the Second Amendment and Restatement, the “Prior Agreement”) by entering into a Second Amended and Restated Master Services Agreement (the “Agreement”), dated as of October 1, 2017 and effective as of January 1, 2017 (the “Effective Date”), with TCS. The term of the Agreement has been extended for an additional five years, so as to expire on December 31, 2025, with three one-year renewal options granted to us. We have committed to purchase services from TCS from the Effective Date through the remaining term of the Agreement (the “Minimum Commitment”) in the amount of \$2.25 billion, including a commitment to purchase at least \$320 million

in services per year from 2017 through 2020, \$186 million in services per year from 2021 through 2024, and \$139.5 million in services in 2025 (in each of the foregoing cases, the “Annual Commitment”). We met the Minimum Commitment in 2018. In connection with the entry into the Agreement, the parties have agreed to terminate the separate Global Infrastructure Services Agreement between them as of the Effective Date and include the services provided thereunder in one or more Statements of Work (“SOWs”) arising under the Agreement. TCS’s charges under such SOWs will continue to be credited against the Minimum Commitment and the Annual Commitment. TCS globally provides us with professional services relating to information technology (including application development and maintenance), business process outsourcing, client service knowledge process outsourcing, management sciences, analytics, and financial planning. As we order specific services under the Agreement, the parties will execute SOWs describing the specific scope of the services to be performed by TCS. The amount of the Minimum Commitment and the Annual Commitment may be reduced on the occurrence of certain events, some of which also provide us with the right to terminate the Agreement or SOWs, as applicable. As of December 31, 2018, the remaining TCS commitment was approximately \$1.6 billion.

Nielsen Foundation, Inc.

In November 2015, we established the Nielsen Foundation, Inc. (the “Foundation”) for charitable, educational, scientific, and literary purposes including the making of distributions to organizations that qualify as tax exempt organizations under section 501(c)(3) of the Internal Revenue Code. The assets and transactions of the Foundation are not included in our consolidated financial statements. Donations to the Foundation are expensed when committed by us. In December 2015, our Board of Directors approved an unconditional donation of \$36 million to the Foundation, at which time it was recorded in selling, general and administrative expenses in the consolidated statement of operations. In March 2016, we paid the cash contribution to the Foundation.

Other Contractual Obligations

Our other contractual obligations include capital lease obligations (including interest portion), facility leases, leases of certain computer and other equipment, agreements to purchase data and telecommunication services, the payment of principal and interest on debt and pension fund obligations.

At December 31, 2018, the minimum annual payments under these agreements and other contracts that had initial or remaining non-cancelable terms in excess of one year are as listed in the following table. Due to the uncertainty with respect to the timing of future cash flows associated with our unrecognized tax positions at December 31, 2018, we are unable to make reasonably reliable estimates of the timing of any potential cash settlements with the respective taxing authorities. Therefore, \$641 million in uncertain tax positions (which includes interest and penalties of \$70 million) have been excluded from the contractual obligations table below. See Note 14 – “Income Taxes” – to the consolidated financial statements for a discussion on income taxes.

(IN MILLIONS)	Payments due by period						
	Total	2019	2020	2021	2022	2023	Thereafter
Capital lease obligations ^(a)	\$184	\$58	\$52	\$35	\$19	\$13	\$ 7
Operating leases ^(b)	404	99	72	52	36	26	119
Other contractual obligations ^(c)	2,093	579	490	373	202	191	258
Long-term debt, including current portion ^(a)	8,225	45	855	703	2,401	3,724	497
Interest ^(d)	1,465	364	366	331	237	130	37
Pension fund obligations ^(e)	28	28	—	—	—	—	—
Total	\$12,399	\$1,173	\$1,835	\$1,494	\$2,895	\$4,084	\$ 918

(a) Our short-term and long-term debt obligations, including capital lease and other financing obligations, are described in Note 11 – “Long-Term Debt and Other Financing Arrangements” – to our consolidated financial statements.

(b) Our operating lease obligations are described in Note 16 – “Commitments and Contingencies” – to our consolidated financial statements.

(c) Other contractual obligations represent obligations under agreements, which are not unilaterally cancelable by us, are legally enforceable and specify fixed or minimum amounts or quantities of goods or services at fixed or minimum prices. We generally require purchase orders for vendor and third party spending. The amounts presented above represent the minimum future annual services covered by purchase obligations including data processing, building maintenance, equipment purchasing, photocopiers, land and mobile telephone service, computer software and hardware maintenance, and outsourcing. Our remaining commitments as of December 31, 2018, under the

outsourced services agreement with TCS have been included above based on the Annual Commitment minimum required payments. As of December 31, 2018, the remaining TCS commitment was approximately \$1.6 billion.

- (d) Interest payments consist of interest on both fixed-rate and variable-rate debt based on LIBOR as of December 31, 2018.
- (e) Our contributions to pension and other post-retirement defined benefit plans were \$29 million, \$21 million and \$21 million during 2018, 2017 and 2016, respectively. Future minimum pension and other post-retirement benefits contributions are not determinable for time periods after 2019. See Note 10 – “Pensions and Other Post-Retirement Benefits” – to our consolidated financial statements for a discussion on plan obligations.

Guarantees and Other Contingent Commitments

At December 31, 2018, we were committed under the following significant guarantee arrangements:

Sub-lease guarantees. We provide sub-lease guarantees in accordance with certain agreements pursuant to which we guarantee all rental payments upon default of rental payment by the sub-lessee. To date, we have not been required to perform under such arrangements, and do not anticipate making any significant payments related to such guarantees and, accordingly, no amounts have been recorded.

Letters of credit. Letters of credit issued and outstanding amount to \$16 million at December 31, 2018.

Legal Proceedings and Contingencies

In August 2018, a putative shareholder class action lawsuit was filed in the Southern District of New York, naming as defendants Nielsen, former Chief Executive Officer Dwight Mitchell Barns, and former Chief Financial Officer Jamere Jackson. Another lawsuit, which alleges similar facts but also names other defendants, including former Chief Operating Officer Stephen Hasker, was filed in the Northern District of Illinois in September 2018 and transferred to the Southern District of New York in December 2018. These lawsuits assert violations of certain provisions of the Exchange Act, based on allegedly false and materially misleading statements relating to the outlook of our Buy segment, our preparedness for changes in global data privacy laws and our reliance on third-party data. We expect that an amended or consolidated complaint relating to these cases will be filed after appointment of a lead plaintiff and intend to file a motion to dismiss the amended or consolidated complaint. In addition, in January 2019, a shareholder derivative lawsuit was filed in New York Supreme Court against a number of our current and former officers and directors. The derivative lawsuit alleges that the named officers and directors breached their fiduciary duties to the Company in connection with factual assertions substantially similar to those in the putative class action complaints. The derivative lawsuit further alleges that certain officers and directors engaged in trading our stock based on material, nonpublic information. We intend to defend these lawsuits vigorously. Based on currently available information, we believe that we have meritorious defenses to these actions and that their resolution is not likely to have a material adverse effect on our business, financial position, or results of operations.

We are also subject to litigation and other claims in the ordinary course of business, some of which include claims for substantial sums. Accruals have been recorded when the outcome is probable and can be reasonably estimated. While the ultimate results of claims and litigation cannot be determined, we expect that the ultimate disposition of these matters will not have a material adverse effect on our operations or financial condition. However, depending on the amount and the timing, an unfavorable resolution of some or all of these matters could materially affect our future results of operations or cash flows in a particular period.

Off-Balance Sheet Arrangements

Except as disclosed above, we have no off-balance sheet arrangements that currently have or are reasonably likely to have a material effect on our consolidated financial condition, changes in financial condition, results of operations, liquidity, capital expenditure or capital resources.

Summary of Recent Accounting Pronouncements

Revenue Recognition

In May 2014, the FASB issued an Accounting Standards Update (“ASU”), “Revenue from Contracts with Customers.” The new revenue recognition standard provides a five step analysis of transactions to determine when and how

revenue is recognized. The new model requires revenue recognition to depict the transfer of promised goods or services to customers in an amount that reflects the consideration a company expects to receive in exchange for those goods or services and is applied retrospectively to each period presented or as a cumulative-effect adjustment as of the date of adoption if using the modified retrospective transition method. In addition, the new standard requires disclosure of the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. We adopted this ASU effective January 1, 2018 using the modified retrospective transition method. Except for the required financial statement disclosures, included in Note 3 –“Revenue Recognition” to the consolidated financial statements, there was no impact to our consolidated financial statements.

Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost

In March 2017, the FASB issued an ASU, “Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost,” which changes the presentation of net periodic benefit cost related to employer sponsored defined benefit plans and other postretirement benefits. Service cost is included within the same income statement

line item as other compensation costs arising from services rendered during the period, while other components of net periodic benefit pension cost is presented separately outside of operating income/(loss). Additionally, only service costs may be capitalized in assets. This ASU was adopted effective January 1, 2018 and was applied retrospectively. As a result of the adoption of this ASU, we reclassified \$11 million and \$13 million from selling, general and administrative expenses to other income/(expense), net in our consolidated statement of operations for the year ended December 31, 2017 and 2016, respectively.

Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets

In February 2017, the FASB issued an ASU, “Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets,” which clarifies the scope and application of ASC 610-20 on the sale or transfer of nonfinancial assets and in substance nonfinancial assets to noncustomers, including partial sales. It requires the application of certain recognition and measurement principles in ASC 606 when derecognizing nonfinancial assets and in substance nonfinancial assets, and the counterparty is not a customer. We adopted this ASU in the first quarter of 2018 and it did not have a material impact on our consolidated financial statements.

Compensation- Stock Compensation

In May 2017, the FASB issued an ASU, Compensation- Stock Compensation (Topic 718), “Scope of Modification Accounting,” which amends the scope of modification accounting for share-based payment arrangements. The standard provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting under ASC 718. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. We adopted this ASU in the first quarter of 2018 and it did not have a material impact on our consolidated financial statements.

Intra-Entity Transfers of Assets

On October 24, 2016, the FASB issued an ASU, Intra-Entity Transfers of Assets Other Than Inventory. The FASB issued the ASU as part of its simplification initiative aimed at reducing complexity in accounting standards. This guidance requires that the tax effects of all intra-entity sales of assets other than inventory be recognized in the period in which the transaction occurs. We were subject to this standard effective in the first quarter of 2018. The guidance is applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption. The adoption of this guidance did not have a material impact on our consolidated financial statements.

Leases

In February 2016, the FASB issued an ASU, “Leases.” The new standard amends the recognition of lease assets and lease liabilities by lessees for those leases currently classified as operating leases and amends disclosure requirements associated with leasing arrangements. The new standard is effective for fiscal years and interim periods within those

fiscal years beginning after December 15, 2018. We have elected to use the transition method approved by the FASB on July 30, 2018, which allows companies to apply the provisions of the new leasing standard as of January 1, 2019, without adjusting the comparative periods presented by recognizing a cumulative-effect adjustment to the opening balance of retained earnings.

In 2016, we established a cross-functional implementation team consisting of representatives from across all of its business segments. Management utilized a bottom-up approach to analyze the impact of the standard on our leasing portfolio by reviewing the current accounting policies and practices to identify potential differences that would result from applying the requirements of the new standard. We have developed our accounting policy, including the practical expedients provided for in ASU 2018-11, "Leases (Topic 842) Targeted Improvements," and are in the process of implementing appropriate changes to our business processes, systems and controls to support the recognition and disclosure under the new standard. Nielsen is implementing an enterprise-wide lease management system to support the ongoing accounting requirements, has finalized our process of accumulating all of the necessary information required for our lease portfolio under the new standard and is in the final stage of inputting the information into the lease management system. The Company's ability to calculate its right of use asset and related liability is dependent on finalizing this process, which is expected to be completed by the end of the first quarter 2019.

While we continue to evaluate the effect of the standard on the Company's consolidated financial statements, the Company expects that the adoption of the ASU will increase assets and liabilities with an estimated immaterial effect to Nielsen's retained earnings and cash flows.

Income taxes

In February 2018, the FASB issued an ASU, “Reclassification of Certain Tax Effects From Accumulated Comprehensive Income”. The new standard will give companies the option to reclassify stranded tax effects caused by the TCJA from AOCI to retained earnings. The new standard will take effect for all companies for the fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. We are assessing the impact the adoption of this ASU will have on our consolidated financial statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market risk is the potential loss arising from adverse changes in market rates and market prices such as interest rates, foreign currency exchange rates, and changes in the market value of equity instruments. We are exposed to market risk, primarily related to foreign exchange and interest rates. We actively monitor these exposures. Historically, in order to manage the volatility relating to these exposures, we entered into a variety of derivative financial instruments, mainly interest rate swaps, cross-currency swaps and forward rate agreements. Currently we only employ basic contracts, that is, without options, embedded or otherwise. Our objective is to reduce, where it is deemed appropriate to do so, fluctuations in earnings, cash flows and the value of our net investments in subsidiaries resulting from changes in interest rates and foreign currency rates. It is our policy not to trade in financial instruments.

Foreign Currency Exchange Rate Risk

We operate globally and we predominantly generate revenues and expenses in local currencies. Because of fluctuations (including possible devaluations) in currency exchange rates or the imposition of limitations on conversion of foreign currencies into our reporting currency, we are subject to currency translation exposure on the profits of our operations, in addition to transaction exposure.

For the years ended December 31, 2018 and 2017, we recorded a net loss of \$2 million and zero, respectively, associated with foreign currency derivative financial instruments within foreign currency exchange transactions losses, net in our consolidated statements of operations. As of December 31, 2018 and 2017, the notional amounts of outstanding foreign currency derivative financial instruments were \$76 million and \$74 million, respectively.

The table below details the percentage of revenues and expenses by currency for the years ended December 31, 2018 and 2017:

	U.S. Dollars		Euro		Other Currencies	
Year ended December 31, 2018						
Revenues	57	%	11	%	32	%
Operating costs	57	%	11	%	32	%
Year ended December 31, 2017						
Revenues	59	%	10	%	31	%
Operating costs	56	%	11	%	33	%

Based on the year ended December 31, 2018, a one cent change in the U.S. dollar/Euro exchange rate would have impacted revenues by approximately \$6 million annually, with an immaterial impact on operating income/(loss).

Operations in Argentina

We have operations in both the Buy and Watch segments in Argentina and the functional currency for those operations is the Argentine Peso. In accordance with U.S. GAAP, Argentina's currency has been considered hyperinflationary since July 1, 2018, and, accordingly, local currency transactions have been denominated in U.S. dollars since July 1, 2018, and will continue to be denominated in U.S. dollars until Argentina's currency is no longer deemed to be hyperinflationary. We will continue to assess the appropriate conversion rate based on events in Argentina and our Argentina operations. This event has had an immaterial impact on our consolidated financial statements.

Interest Rate Risk

We continually review our fixed and variable rate debt along with related hedging opportunities in order to ensure our portfolio is appropriately balanced as part of our overall interest rate risk management strategy and through this process we consider both short-term and long-term considerations in the U.S. and global financial markets in making adjustments to our tolerable exposures to interest rate risk. At December 31, 2018, we had \$4,020 million of floating-rate debt under our senior secured credit facilities, of

which \$2,050 million was subject to effective floating-fixed interest rate swaps. A one percent increase in interest rates applied to our floating rate indebtedness would therefore increase annual interest expense by approximately \$20 million (\$40 million without giving effect to any of our interest rate swaps).

In May 2018, the Company entered into \$250 million aggregate notional amount of a five-year interest rate swap agreement with a starting date of May 9, 2018. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 2.72%. This derivative has been designated as an interest rate cash flow hedge.

In August 2017, the Company entered into \$250 million in aggregate notional amount of a four-year forward interest rate swap agreement with a starting date of October 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.60%. This derivative has been designated as an interest rate cash flow hedge.

In July 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of October 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.66%. This derivative has been designated as an interest rate cash flow hedge.

In April 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.63%. This derivative has been designated as an interest rate cash flow hedge.

In March 2017, the Company entered into \$250 million in aggregate notional amount of a five-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 2.00%. This derivative has been designated as an interest rate cash flow hedge.

In February 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.73%. This derivative has been designated as an interest rate cash flow hedge.

In June 2016, we entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of June 9, 2016. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of our variable-rate debt at an average rate of 0.86%. This derivative instrument has been designated as an interest rate cash flow hedge.

In July 2015, we entered into a \$150 million in notional amount of three-year forward interest rate swap agreement with a starting date in July 2016. This agreement fixes the LIBOR-related portion of the interest rates of a corresponding amount of our variable-rate debt at an average rate of 1.62%. This derivative instrument has been designated as an interest rate cash flow hedge.

In April 2015, we entered into a \$150 million in notional amount of three-year forward interest rate swap agreement with a starting date in April 2016. This agreement fixes the LIBOR-related portion of the interest rates of a corresponding amount of our variable-rate debt at an average rate of 1.40%. This derivative instrument has been designated as an interest rate cash flow hedge.

Derivative instruments involve, to varying degrees, elements of non-performance, or credit risk. We do not believe that we currently face a significant risk of loss in the event of non-performance by the counterparties associated with these instruments, as these transactions were executed with a diversified group of major financial institutions with a minimum investment-grade or better credit rating. Our credit risk exposure is managed through the continuous monitoring of our exposures to such counterparties.

Item 8. Financial Statements and Supplementary Data

Nielsen Holdings plc

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Management's Annual Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company as defined in Rules 13a-15(f) or 15d-15(f) under the Securities Exchange Act of 1934, as amended. Our 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 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.

Management has performed an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2018, based on the framework and criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework).

Based on this evaluation, management has concluded that our internal controls over financial reporting were effective as of December 31, 2018.

Ernst & Young LLP, independent registered public accounting firm, has provided an attestation report on the Company's internal control over financial reporting. The Company's financial statements included in this annual report on Form 10-K also have been audited by Ernst & Young LLP. Their reports follow.

/s/ David Kenny	/s/ David J. Anderson
David Kenny	David J. Anderson
Chief Executive Officer	Chief Financial Officer
February 28, 2019	February 28, 2019

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Nielsen Holdings plc

Opinion on Internal Control over Financial Reporting

We have audited Nielsen Holdings plc's internal control over financial reporting as of December 31, 2018, based on the criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Nielsen Holdings plc (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

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, 2018 and 2017, and the related consolidated statements of operations, comprehensive income/(loss), changes in equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedules listed in the Index to Financial Statements in Item 8 and our report dated February 28, 2019 expressed an unqualified opinion thereon.

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 included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and 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/ Ernst & Young LLP

New York, New York

February 28, 2019

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Nielsen Holdings plc

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Nielsen Holdings plc (the Company) as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income/(loss), changes in equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedules listed in the Index to Financial Statements in Item 8 (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We have also 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, 2018, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 28, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s 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 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 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company’s auditor since 2006.

New York, New York

February 28, 2019

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Nielsen Holdings plc

Consolidated Statements of Operations

(IN MILLIONS EXCEPT SHARE AND PER SHARE DATA)	Year Ended December 31,		
	2018	2017	2016
Revenues	\$6,515	\$6,572	\$6,309
Cost of revenues, exclusive of depreciation and amortization shown separately below	2,805	2,765	2,607
Selling, general and administrative expenses, exclusive of depreciation and amortization shown separately below	1,958	1,873	1,864
Depreciation and amortization	675	640	603
Impairment of goodwill and other long-lived assets	1,413	—	—
Restructuring charges	139	80	105
Operating income/(loss)	(475)	) 1,214	1,130
Interest income	8	4	4
Interest expense	(394)	) (374)	) (333)
Foreign currency exchange transaction gains/(losses), net	(16)	) (10)	) (6)
Other income/(expense), net	(5)	) (6)	) 21
Income/(loss) from continuing operations before income taxes	(882)	) 828	816
Benefit/(provision) for income taxes	182	(388)	) (309)
Net income/(loss)	(700)	) 440	507
Net income/(loss) attributable to noncontrolling interests	12	11	5
Net income/(loss) attributable to Nielsen shareholders	\$(712)	) \$429	\$502
Net income/(loss) per share of common stock, basic	\$(2.00)	) \$1.20	\$1.40
Net income/(loss) per share of common stock, diluted	\$(2.00)	) \$1.20	\$1.39
Weighted-average shares of common stock outstanding, basic	355,601,564	356,714,940	358,830,080
Dilutive shares of common stock	—	1,337,493	3,337,049
Weighted-average shares of common stock outstanding, diluted	355,601,564	358,052,433	362,167,129
Dividends declared per common share	\$1.39	\$1.33	\$1.21

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

Nielsen Holdings plc

Consolidated Statements of Comprehensive Income/(Loss)

(IN MILLIONS)	Year Ended		
	December 31,		
	2018	2017	2016
Net income/(loss)	\$(700)	\$440	\$507
Other comprehensive income/(loss), net of tax			
Foreign currency translation adjustments ⁽¹⁾	(170)	248	(94)
Changes in the fair value of cash flow hedges ⁽²⁾	1	11	2
Defined benefit pension plan adjustments ⁽³⁾	(2)	14	(65)
Total other comprehensive income/(loss)	(171)	273	(157)
Total comprehensive income/(loss)	(871)	713	350
Less: comprehensive income/(loss) attributable to noncontrolling interests	11	13	–
Total comprehensive income/(loss) attributable to Nielsen shareholders	\$(882)	\$700	\$350

(1) Net of tax of \$(6) million, \$23 million and \$(9) million for the year ended December 31, 2018, 2017 and 2016 respectively.

(2) Net of tax of \$(1) million, \$(7) million and \$(2) million for the year ended December 31, 2018, 2017 and 2016 respectively.

(3) Net of tax of zero, \$(2) million and \$20 million for the year ended December 31, 2018, 2017 and 2016 respectively.

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

Nielsen Holdings plc

Consolidated Balance Sheets

(IN MILLIONS, EXCEPT SHARE AND PER SHARE DATA)	December 31,	
	2018	2017
Assets:		
Current assets		
Cash and cash equivalents	\$ 524	\$ 656
Trade and other receivables, net of allowances for doubtful accounts and sales		
returns of \$31 and \$29 as of December 31, 2018 and 2017, respectively	1,118	1,280
Prepaid expenses and other current assets	361	346
Total current assets	2,003	2,282
Non-current assets		
Property, plant and equipment, net	468	482
Goodwill	6,987	8,495
Other intangible assets, net	5,024	5,077
Deferred tax assets	333	170
Other non-current assets	364	360
Total assets	\$ 15,179	\$ 16,866
Liabilities and equity:		
Current liabilities		
Accounts payable and other current liabilities	\$ 1,119	\$ 1,141
Deferred revenues	355	361
Income tax liabilities	76	111
Current portion of long-term debt, capital lease obligations and short-term borrowings	107	84
Total current liabilities	1,657	1,697
Non-current liabilities		
Long-term debt and capital lease obligations	8,280	8,357
Deferred tax liabilities	1,108	1,435
Other non-current liabilities	1,091	934
Total liabilities	12,136	12,423
Commitments and contingencies (Note 16)		
Equity:		
Nielsen shareholders' equity		
Common stock, €0.07 par value, 1,185,800,000 and 1,185,800,000 shares authorized; 355,323,822 and 355,956,031 shares issued and 355,271,737 and 355,944,976 shares outstanding at December 31, 2018 and 2017, respectively	32	32
Additional paid-in capital	4,720	4,742
Retained earnings/(accumulated deficit)	(795)	411
Accumulated other comprehensive loss, net of income taxes	(1,110)	(940)
Total Nielsen shareholders' equity	2,847	4,245
Noncontrolling interests	196	198
Total equity	3,043	4,443
Total liabilities and equity	\$ 15,179	\$ 16,866

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

Nielsen Holdings plc

Consolidated Statements of Cash Flows

(IN MILLIONS)	Year Ended		
	December 31,		
	2018	2017	2016
Operating Activities			
Net income/(loss)	\$(700)	\$440	\$507
Adjustments to reconcile net income/(loss) to net cash provided by operating activities:			
Share-based compensation expense	35	45	51
Deferred income tax	(514)	162	88
Currency exchange rate differences on financial transactions and other (gains)/losses	17	(20)	(32)
Equity in net income/(loss) of affiliates, net of dividends received	—	2	2
Depreciation and amortization	675	640	603
Impairment of goodwill and other long-lived assets	1,413	—	—
Changes in operating assets and liabilities, net of effect of businesses acquired			
and divested:			
Trade and other receivables, net	95	10	53
Prepaid expenses and other assets	(76)	(28)	4
Accounts payable and other current liabilities and deferred revenues	(21)	41	(50)
Other non-current liabilities	(6)	2	(8)
Interest payable	14	22	14
Income taxes	126	(6)	64
Net cash provided by operating activities	1,058	1,310	1,296
Investing Activities			
Acquisition of subsidiaries and affiliates, net of cash acquired	(43)	(778)	(285)
Proceeds from the sale of subsidiaries and affiliates, net	51	2	34
Additions to property, plant and equipment and other assets	(106)	(119)	(109)
Additions to intangible assets	(414)	(370)	(324)
Proceeds from the sale of property, plant and equipment and other assets	4	42	42
Other investing activities	2	(13)	—
Net cash used in by investing activities	(506)	(1,236)	(642)
Financing Activities			
Net borrowings under revolving credit facility	—	—	(164)
Proceeds from issuances of debt, net of issuance costs	781	2,745	2,502
Repayment of debt	(819)	(2,296)	(1,765)
Cash dividends paid to shareholders	(494)	(474)	(434)
Repurchase of common stock	(70)	(140)	(418)
Proceeds from exercise of stock options	15	21	81
Proceeds from employee stock purchase plan	5	6	1
Capital leases	(76)	(55)	(40)
Other financing activities	(18)	(22)	(11)
Net cash used in financing activities	(676)	(215)	(248)
Effect of exchange-rate changes on cash and cash equivalents	(8)	43	(9)
Net increase/(decrease) in cash and cash equivalents	(132)	(98)	397

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Cash and cash equivalents at beginning of period	656	754	357
Cash and cash equivalents at end of period	\$524	\$656	\$754
Supplemental Cash Flow Information			
Cash paid for income taxes	\$(206)	\$(232)	\$(157)
Cash paid for interest, net of amounts capitalized	\$(380)	\$(352)	\$(319)

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

Nielsen Holdings plc

Consolidated Statements of Changes in Equity

(IN MILLIONS)	Accumulated Other Comprehensive Income (Loss), Net								
	Common Stock	Additional Paid-in Capital	Retained Earnings	Currency Translation Adjustments	Cash Flow Hedges	Post Employment Benefits	Total Nielsen Shareholders' Equity	Noncontrolling Interests	Total Equity
Balance, December 31, 2015	\$ 32	\$ 5,119	\$ 341	\$(767)	\$(3)	\$(289)	\$ 4,433	\$ 194	\$ 4,627
Adoption of share-based compensation standard	—	—	47	—	—	—	47	—	47
Balance, January 1, 2016	32	5,119	388	(767)	(3)	(289)	4,480	194	4,674
Net income/(loss)	—	—	502	—	—	—	502	5	507
Currency translation adjustments, net of tax of \$(9)	—	—	—	(89)	—	—	(89)	(5)	(94)
Cash flow hedges, net of tax of \$(2)	—	—	—	—	2	—	2	—	2
Unrealized loss on pension liability, net of tax of \$20	—	—	—	—	—	(65)	(65)	—	(65)
Capital contribution by non-controlling partner	—	—	—	—	—	—	—	7	7
Acquisition/Divestiture of an interest in a consolidated subsidiary	—	(5)	—	—	—	—	(5)	—	(5)
Dividends to shareholders	—	—	(434)	—	—	—	(434)	—	(434)
Dividends to non-controlling interest	—	—	—	—	—	—	—	(10)	(10)
Common stock issued under share-based compensation plans	—	78	—	—	—	—	78	—	78
Repurchase of common stock	—	(418)	—	—	—	—	(418)	—	(418)
Share-based compensation expense	—	51	—	—	—	—	51	—	51
Balance, December 31, 2016	\$ 32	\$ 4,825	\$ 456	\$(856)	\$(1)	\$(354)	\$ 4,102	\$ 191	\$ 4,293

Consolidated Statements of Changes in Equity

(IN MILLIONS)	Common Stock	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss), Net			Total Nielsen Shareholders' Equity	Noncontrolling Interests	Total Equity
				Currency Translation Adjustments	Cash Flow Hedges	Post Employment Benefits			
Balance, December 31, 2016	\$ 32	\$ 4,825	\$ 456	\$(856)	\$ (1)	\$ (354)	\$ 4,102	\$ 191	\$ 4,293
Net income/(loss)	—	—	429	—	—	—	429	11	440
Currency translation adjustments, net of tax of \$23	—	—	—	246	—	—	246	2	248
Cash flow hedges, net of tax of \$(7)	—	—	—	—	11	—	11	—	11
Unrealized loss on pension liability, net of tax of \$(2)	—	—	—	—	—	14	14	—	14
Capital contribution by a non-controlling partner	—	—	—	—	—	—	—	6	6
Acquisition of an interest in a consolidated subsidiary	—	(12)	—	—	—	—	(12)	—	(12)
Employee stock purchase plan	—	6	—	—	—	—	6	—	6
Dividends to shareholders	—	—	(474)	—	—	—	(474)	(12)	(486)
Common stock issued under share-based compensation plans	—	21	—	—	—	—	21	—	21
Repurchase of common stock	—	(140)	—	—	—	—	(140)	—	(140)
Share-based compensation expense	—	42	—	—	—	—	42	—	42
Balance, December 31, 2017	\$ 32	\$ 4,742	\$ 411	\$(610)	\$ 10	\$ (340)	\$ 4,245	\$ 198	\$ 4,443

Consolidated Statements of Changes in Equity

(IN MILLIONS)			Accumulated Other Comprehensive Income (Loss), Net				Total Nielsen Shareholders' Equity	Noncontrolling Interests	Total Equity
	Common Stock	Additional Paid-in Capital	Retained Earnings (Accumulated Deficit)	Currency Translation Adjustments	Cash Flow Hedges	Post Employment Benefits			
Balance, December 31, 2017	\$ 32	\$ 4,742	\$ 411	\$(610)	\$ 10	\$ (340)	\$ 4,245	\$ 198	\$ 4,443
Net income/(loss)	—	—	(712)	—	—	—	(712)	12	(700)
Currency translation adjustments, net of tax of \$(6)	—	—	—	(169)	—	—	(169)	(1)	(170)
Cash flow hedges, net of tax of (1)	—	—	—	—	1	—	1	—	1
Unrealized loss on pension liability, net of tax of zero	—	—	—	—	—	(2)	(2)	—	(2)
Employee stock purchase plan	—	5	—	—	—	—	5	—	5
Dividends to shareholders	—	—	(494)	—	—	—	(494)	(13)	(507)
Common stock issued under share-based compensation plans	—	15	—	—	—	—	15	—	15
Repurchase of common stock	—	(70)	—	—	—	—	(70)	—	(70)
Share-based compensation expense	—	28	—	—	—	—	28	—	28
Balance, December 31, 2018	\$ 32	\$ 4,720	\$ (795)	\$(779)	\$ 11	\$ (342)	\$ 2,847	\$ 196	\$ 3,043

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

Nielsen Holding plc

Notes to Consolidated Financial Statements

1. Description of Business, Basis of Presentation and Significant Accounting Policies

Nielsen, together with its subsidiaries, is a leading global information and measurement company that provides clients with a comprehensive understanding of consumers and consumer behavior. Nielsen is aligned into two reportable segments: what consumers buy (“Buy”), what consumers watch and listen to (“Watch”). Nielsen has a presence in more than 100 countries, with its registered office located in Oxford, and headquarters located in New York, U.S. See Note 17 – “Segments” for a discussion of the Company’s reportable segments.

On August 31, 2015, Nielsen N.V., a Dutch public company listed on the New York Stock Exchange, merged with Nielsen Holdings plc, by way of a cross-border merger under the European Cross-Border Merger Directive, with Nielsen Holdings plc being the surviving company (the “Merger”). The Merger effectively changed the place of incorporation of Nielsen’s publically traded parent holding company from the Netherlands to England and Wales, with no changes made to the business being conducted by Nielsen prior to the Merger. Due to the fact that the Merger was a business combination between entities under common control, the exchange of assets and liabilities were made at carrying value. Therefore, there were no direct accounting implications in the Company’s consolidated financial statements.

The accompanying consolidated financial statements are presented in conformity with U.S. generally accepted accounting principles (“GAAP”). All amounts are presented in U.S. Dollars (“\$”), except for share and per share data or where expressly stated as being in other currencies, e.g., Euros (“€”). The consolidated financial statements include the accounts of Nielsen and all subsidiaries and other controlled entities. The Company has evaluated events occurring subsequent to December 31, 2018 for potential recognition or disclosure in the consolidated financial statements and concluded there were no subsequent events that required recognition or disclosure other than those provided.

Consolidation

The consolidated financial statements include the accounts of Nielsen and all subsidiaries and other controlled entities. Noncontrolling interests in subsidiaries are reported as a component of equity in the consolidated financial statements with disclosure on the face of the consolidated statements of operations of the amounts of consolidated net income/(loss) attributable to Nielsen shareholders and to the noncontrolling interests. The equity method of accounting is used for investments in affiliates and joint ventures where Nielsen has significant influence but not control, usually supported by a shareholding of between 20% and 50% of the voting rights. Investments in which Nielsen owns less than 20% and does not have significant influence are accounted for either as available-for-sale securities if the shares are publicly traded or as cost method investments. Intercompany accounts and transactions between consolidated companies have been eliminated in consolidation.

Foreign Currency Translation

Nielsen has significant investments outside the U.S., primarily in the Euro-zone, Canada and the United Kingdom. Therefore, changes in the value of foreign currencies affect the consolidated financial statements when translated into U.S. Dollars. The functional currency for substantially all subsidiaries outside the U.S. is the local currency. Financial statements for these subsidiaries are translated into U.S. Dollars at period-end exchange rates as to the assets and liabilities and monthly average exchange rates as to revenues, expenses and cash flows. For these countries, currency

translation adjustments are recognized in shareholders' equity as a component of accumulated other comprehensive income/(loss), net, whereas transaction gains and losses are recognized in foreign exchange transaction losses, net in the consolidated statement of operations.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reporting periods. Actual results could differ from those estimates.

Research and Development Costs

Research and development costs, which were not material for any periods presented, are expensed as incurred.

Deferred Costs

Incremental direct costs incurred related to establishing or significantly expanding a panel in a designated market are deferred at the point when Nielsen determines them to be recoverable. Prior to this point, these cost are expensed as incurred. These deferred costs are typically amortized through cost of revenues over the original contract period beginning when the panel or infrastructure to service new clients is ready for its intended use.

Advertising and Marketing Costs

Advertising and marketing costs are expensed as incurred and are reflected as selling, general and administrative expenses in the consolidated statements of operations. These costs include all brand advertising, telemarketing, direct mail and other sales promotion associated with marketing/media research services. Advertising and marketing costs totaled \$18 million, \$21 million and \$25 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Computation of Net Income per Share

Basic net income per share is computed using the weighted-average number of common stock outstanding during the period. Diluted net income per share is computed using the weighted-average number of shares of common stock and dilutive potential shares of common stock outstanding during the period. Dilutive potential shares of common stock primarily consist of employee stock options and restricted stock.

Employee stock options, restricted stock and similar equity instruments granted by the Company are treated as potential common stock outstanding in computing diluted earnings per share. Diluted stock outstanding includes nonvested restricted stock units and the dilutive effect of in-the-money options which is calculated based on the average share price for each period using the treasury stock method. Under the treasury stock method, the amount the employee must pay for exercising stock options, the amount of compensation cost for future service that the Company has not yet recognized are assumed to be used to repurchase stock. In 2016, upon the adoption of ASU 2016-09, "Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting," the Company removed the excess tax benefit from its assumed proceeds under the treasury stock method.

The effect of 8,519,133, 4,351,564 and 1,650,708 shares of common stock equivalents under stock compensation plans were excluded from the calculation of diluted earnings per share for the years ended December 31, 2018, 2017 and 2016, respectively, as such shares would have been anti-dilutive.

Comprehensive Income/(Loss)

Comprehensive income/(loss) is reported in the accompanying consolidated statements of comprehensive income/(loss) and consists of net income/(loss) and other gains and losses, net of tax affecting equity that are excluded from net income/(loss).

Cash and Cash Equivalents

Cash and cash equivalents include cash and short-term, highly liquid investments with an original maturity date of three months or less. Cash and cash equivalents are carried at fair value.

Accounts Receivable

The Company extends non-interest bearing trade credit to its customers in the ordinary course of business. To minimize credit risk, ongoing credit evaluations of client's financial condition are performed. An estimate of the

allowance for doubtful accounts is made when collection of the full amount is no longer probable or returns are expected.

During the years ended December 31, 2018, 2017 and 2016, the Company sold \$295 million, \$202 million and \$137 million, respectively, of accounts receivables to third parties and recorded an immaterial loss on the sale to interest expense, net in the consolidated statement of operations. As of December 31, 2018, 2017 and 2016, \$105 million, \$110 million and \$71 million, respectively, remained outstanding. The sales were accounted for as true sales, without recourse. Nielsen maintains servicing responsibilities of the majority of the receivables sold during the year, for which the related costs are not significant. The proceeds of \$295 million, \$202 million and \$137 million from the sales were reported as a component of the changes in trade and other receivables, net within operating activities in the consolidated statement of cash flows.

Other Significant Accounting Policies

The following table includes other significant accounting policies that are described in other notes to the financial statements, including the related note:

Significant Accounting Policy	Note
Revenue recognition	3
Goodwill and Other Intangible Assets	5
Impairment of Long-Lived Assets	5&7
Property, Plant and Equipment	7
Investments	8
Financial Instruments	8
Derivative Financial Instruments	8
Pensions and Other Post Retirement Benefits	10
Share-Based Compensation	13
Income Taxes	14

2. Summary of Recent Accounting Pronouncements

Revenue Recognition

In May 2014, the Financial Accounting Standards Board (“FASB”) issued an Accounting Standards Update (“ASU”), “Revenue from Contracts with Customers .” The new revenue recognition standard provides a five step analysis of transactions to determine when and how revenue is recognized. The new model requires revenue recognition to depict the transfer of promised goods or services to customers in an amount that reflects the consideration a company expects to receive in exchange for those goods or services and is applied retrospectively to each period presented or as a cumulative-effect adjustment as of the date of adoption if using the modified retrospective transition method. In addition, the new standard requires disclosure of the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. The Company adopted this ASU effective January 1, 2018 using the modified retrospective transition method. Except for the required financial statement disclosures included in Note 3 –“Revenue Recognition”, there was no impact to the Company’s consolidated financial statements.

Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost

In March 2017, the FASB issued an ASU, “Compensation — Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost,” which will change the presentation of net periodic benefit cost related to employer sponsored defined benefit plans and other postretirement benefits. Service cost will be included within the same income statement line item as other compensation costs arising from services rendered during the period, while other components of net periodic benefit pension cost will be presented separately outside of operating income/(loss). Additionally, only service costs may be capitalized in assets. This ASU is required to be applied retrospectively. The Company adopted this ASU effective January 1, 2018 and reclassified \$11 million and \$13 million from selling, general and administrative expenses to other income/(expense), net in its consolidated statement of operations for the twelve months ended December 31, 2017 and 2016, respectively.

Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets

In February 2017, the FASB issued an ASU, “Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets,” which clarifies the scope and application of ASC 610-20 on the sale or transfer of nonfinancial assets and in substance nonfinancial assets to noncustomers, including partial sales. It requires the application of certain recognition and measurement principles in ASC 606 when derecognizing nonfinancial assets and in substance nonfinancial assets, and the counterparty is not a customer. The Company adopted this ASU in the first quarter of 2018 and it did not have a material impact on the Company’s consolidated financial statements.

Compensation- Stock Compensation

In May 2017, the FASB issued an ASU, Compensation- Stock Compensation (Topic 718), “Scope of Modification Accounting,” which amends the scope of modification accounting for share-based payment arrangements. The standard provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting under ASC 718. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. The Company adopted this ASU in the first quarter of 2018 and it did not have a material impact on the Company’s consolidated financial statements.

Leases

In February 2016, the FASB issued an ASU, “Leases.” The new standard amends the recognition of lease assets and lease liabilities by lessees for those leases currently classified as operating leases and amends disclosure requirements associated with leasing arrangements. The new standard is effective for fiscal years and interim periods within those fiscal years beginning after December 15, 2018. Nielsen has elected to use the transition method approved by the FASB on July 30, 2018, which allows companies to apply the provisions of the new leasing standard as of January 1, 2019, without adjusting the comparative periods presented by recognizing a cumulative-effect adjustment to the opening balance of retained earnings.

In 2016, the Company established a cross-functional implementation team consisting of representatives from across all of its business segments. Management utilized a bottom-up approach to analyze the impact of the standard on Nielsen’s leasing portfolio by reviewing the current accounting policies and practices to identify potential differences that would result from applying the requirements of the new standard. The Company has developed its accounting policy, including the practical expedients provided for in ASU 2018-11, “Leases (Topic 842) Targeted Improvements,” and is in the process of implementing appropriate changes to Nielsen’s business processes, systems and controls to support the recognition and disclosure under the new standard. Nielsen is implementing an enterprise-wide lease management system to support the ongoing accounting requirements, has finalized its process of accumulating all of the necessary information required for its lease portfolio under the new standard and is in the final stage of inputting the information into the lease management system. The Company’s ability to calculate its right of use asset and related liability is dependent on finalizing this process, which is expected to be completed by the end of the first quarter 2019.

While Nielsen continues to evaluate the effect of the standard on the Company’s consolidated financial statements, the Company expects that the adoption of the ASU will increase assets and liabilities with an estimated immaterial effect to Nielsen’s retained earnings and cash flows.

Intra-Entity Transfers of Assets

On October 24, 2016, the FASB issued an ASU, Intra-Entity Transfers of Assets Other Than Inventory. The FASB issued the ASU as part of its simplification initiative aimed at reducing complexity in accounting standards. This guidance requires that the tax effects of all intra-entity sales of assets other than inventory be recognized in the period in which the transaction occurs. Nielsen was subject to this standard effective in the first quarter of 2018. The guidance is applied on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption. The adoption of this guidance did not have a material impact on the Company’s consolidated financial statements

Income taxes

In February 2018, the FASB issued an ASU, “Reclassification of Certain Tax Effects From Accumulated Comprehensive Income”. The new standard will give companies the option to reclassify stranded tax effects caused by the newly-enacted US Tax Cuts and Jobs Act (“TCJA”) from accumulated other comprehensive income/(loss) (AOCI) to retained earnings. The new standard will take effect for all companies for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Nielsen is assessing the impact that the adoption of this ASU will

have on the Company's consolidated financial statements.

3. Revenue Recognition

Revenue is measured based on the consideration specified in a contract with a customer. A significant portion of the Company's revenue is generated from information (primarily retail measurement and consumer panel services) and measurement (primarily from television, radio, internet and mobile audiences) services. The Company recognizes revenue when it satisfies a performance obligation by transferring control of a product or service to a customer, which generally occurs over time. Substantially all of the Company's customer contracts are non-cancelable and non-refundable.

The following is a description of principal activities, by reportable segment, from which the Company generates its revenues.

Revenue from the Buy segment consists primarily of retail measurement services, which provide market share, competitive sales volumes and insights into such activities as distribution, pricing, merchandising and promotion, and consumer panel services, which provide clients with insights into shopper behavior such as trial and repeat purchase for new products and likely substitutes as well as customer segmentation. Revenues for these services are recognized over the period during which the performance obligations are satisfied as the customer receives and consumes the benefits provided by the Company and control of the services is transferred to the customer.

The Company also provides consumer intelligence and analytical services that help clients make smarter business decisions throughout their product development and marketing cycles. The Company's performance under these arrangements do not create an asset with an alternative use to the company and generally include an enforceable right to payment for performance completed to date. As such, revenue for these services is typically recognized over time. Revenue for contracts that do not include an enforceable right to payment for performance completed to date is recognized at a point in time when the performance obligation is satisfied, generally upon delivery of the services, and when control of the services is transferred to the customer.

Revenue from our Watch segment is primarily generated from television, radio, digital and mobile measurement services which are used by the Company's clients to establish the value of airtime and more effectively schedule and promote their programming. As the customer simultaneously receives and consumes the benefits provided by the Company's performance, revenues for these services is recognized over the period during which the performance obligations are satisfied and control of the service is transferred to the customer.

The Company enters into cooperation arrangements with certain of its customers, under which the customer provides Nielsen with its data in exchange for Nielsen's services. Nielsen records these transactions at fair value, which is determined based on the fair value of goods or services received, if reasonably estimable. If not reasonably estimable, the Company considers the fair value of the goods or services surrendered.

The table below sets forth the Company's revenue disaggregated within each segment, including by primary geographic markets for Buy and by major product offerings for Watch and by timing of revenue recognition.

(IN MILLIONS)	Year Ended		
	December 31,		
	2018	2017	2016
Buy Segment (primary geographical markets)			
Developed Markets	\$1,922	\$1,999	\$2,096
Emerging Markets	1,145	1,164	1,063
Core Buy	\$3,067	\$3,163	\$3,159
Corporate	\$30	\$68	\$163
Buy	\$3,097	\$3,231	\$3,322
Watch Segment (major product/service lines)			
Audience Measurement (Video and Text)	\$2,446	\$2,308	\$1,978
Audio	497	501	500
Marketing Effectiveness	337	350	287
Core Watch	\$3,280	\$3,159	\$2,765
Corporate/Other Watch	138	182	222
Watch	\$3,418	\$3,341	\$2,987
Total Core Buy and Watch	\$6,347	\$6,322	\$5,924
Total	\$6,515	\$6,572	\$6,309
Timing of revenue recognition			
Products transferred at a point in time	\$576	\$495	\$556
Products and services transferred over time	5,939	6,077	5,753
Total	\$6,515	\$6,572	\$6,309

Contract Assets and Liabilities

Contract assets represent the Company's rights to consideration in exchange for services transferred to a customer that have not been billed as of the reporting date. While the Company's rights to consideration are generally unconditional at the time its performance obligations are satisfied, under certain circumstances the related billing occurs in arrears, generally within one month of the services being rendered.

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At the inception of a contract, the Company generally expects the period between when it transfers its services to its customers and when the customer pays for such services will be one year or less. The Company has elected to apply the practical expedient to not adjust the promised amount of consideration for the effects of a significant financing component.

Contract liabilities relate to advance consideration received or the right to consideration that is unconditional from customers for which revenue is recognized when the performance obligation is satisfied and control transferred to the customer.

The table below sets forth the Company's contract assets and contract liabilities from contracts with customers.

(IN MILLIONS)	Year Ended December 31,	
	2018	2017
Contract assets	\$ 210	\$ 259
Contract liabilities	\$ 359	\$ 361

The decrease in the contract assets balance during the period was primarily due to \$233 million of contract assets included in the December 31, 2017 balance that were subsequently invoiced to our clients and therefore transferred to trade receivables offset by \$183 million of revenue recognized that was not billed, in accordance with the terms of the contracts, as of December 31, 2018.

The movement in the contract liability balance during the period was primarily due to \$346 million of revenue recognized during the period that had been included in the December 31, 2017 contract liability balance offset by \$342 million of advance consideration received or the right to consideration that is unconditional from customers for which revenue was not recognized during the period.

Transaction Price Allocated to the Remaining Performance Obligations

As of December 31, 2018, approximately \$6.3 billion of revenue is expected to be recognized from remaining performance obligations that are unsatisfied (or partially unsatisfied) for our services. This amount excludes variable consideration allocated to performance obligations related to sales and usage based royalties on licenses of intellectual property.

The Company expects to recognize revenue on approximately 78% of these remaining performance obligations through December 31, 2020, with the balance recognized thereafter.

Deferred Costs

Incremental direct costs incurred to build the infrastructure to service new contracts are capitalized as a contract cost. As of December 31, 2018 and 2017, the balances of such capitalized costs were \$18 million and \$37 million, respectively. These costs are typically amortized through cost of revenues over the original contract period beginning when the infrastructure to service new clients is ready for its intended use. The amortization of these costs for the year ended December 31, 2018 was \$23 million. There was no impairment loss recorded in any of the periods presented.

4. Business Acquisitions and Dispositions

Gracenote

On February 1, 2017, Nielsen completed the acquisition of Gracenote Inc., Gracenote Canada, Inc., Gracenote Netherlands Holdings B.V., Tribune Digital Ventures, LLC, and Tribune International Holdco, LLC (each, a “Gracenote Company” and together “Gracenote”) through the purchase of 100% of Gracenote’s outstanding common stock for a total purchase price of \$585 million. Nielsen acquired the data and technology that underpins the programming guides and personnel user experience for major video, music, audio and sports content. This acquisition expands Nielsen’s footprint with major clients including Gracenote’s global content database which spans across platforms including multichannel video programing distributors (MVPD’s), smart television, streaming music services, connected devices, media players and in-car infotainment systems.

The Company incurred acquisition-related expenses of \$6 million for the year ended December 31, 2017, which primarily consisted of transaction fees, legal, accounting and other professional services that are included in selling, general and administrative expense in the consolidated statement of operations.

The following unaudited pro forma information presents the consolidated results of operations of the Company and Gracenote for the year ended December 31, 2017, as if the acquisition had occurred on January 1, 2016, with pro forma adjustments to give effect to amortization of intangible assets, an increase in interest expense from acquisition financing, and certain other adjustments:

(IN MILLIONS)	Year Ended December 31,	
	2017	2016
Revenues	\$6,590	\$6,532
Income from continuing operations	\$443	\$499

The unaudited pro forma results do not reflect any synergies and are not necessarily indicative of the results that the Company would have attained had the acquisition of Gracenote been completed as of the beginning of the reporting period.

For the year ended December 31, 2018, Nielsen paid cash consideration of \$43 million associated with current period acquisitions, net of cash acquired. Had these 2018 acquisitions occurred as of January 1, 2018, the impact on Nielsen's consolidated results of operations would not have been material.

For the year ended December 31, 2017, excluding Gracenote, Nielsen paid cash consideration of \$210 million associated with both current period and previously executed acquisitions, net of cash acquired. Had these 2017 acquisitions occurred as of January 1, 2017, the impact on Nielsen's consolidated results of operations would not have been material.

For the year ended December 31, 2016, Nielsen paid cash consideration of \$285 million associated with both current period and previously executed acquisitions, net of cash acquired. Had these 2016 acquisitions occurred as of January 1, 2016, the impact on Nielsen's consolidated results of operations would not have been material.

Dispositions

In December 2016, Nielsen completed the sale of Claritas, a business focusing on consumer segmentation insights within the Company's Buy segment, for cash consideration of \$34 million and a note receivable of \$60 million. The note is payable at any time over three years and bears interest at 3% in year one, 5% in year two and 7% in year three. As a result of this transaction the Company recorded a \$14 million gain on the sale to other income/(expense), net in the consolidated statement of operations. This disposition did not qualify as a discontinued operation. In 2017, upon finalization of working capital and other settlement matters the Company reduced the note receivable to \$51 million and recorded a charge of \$13 million to other income/(expense), net in the consolidated statement of operations. In December 2018, Nielsen received \$51 million as payment for the note receivable.

There were no discontinued operations for the years ended December 31, 2018, 2017 and 2016.

5. Goodwill and Other Intangible Assets

Goodwill

Goodwill and other indefinite-lived intangible assets, consisting of certain trade names and trademarks, are each tested for impairment on an annual basis and whenever events or circumstances indicate that the carrying amount of such asset may not be recoverable. Nielsen has designated October 1st as the date in which the annual assessment is performed as this timing corresponds with the development of the Company's formal budget and business plan review. Nielsen reviews the recoverability of its goodwill by comparing the estimated fair values of reporting units with their respective carrying amounts. The Company established, and continues to evaluate, its reporting units based on its internal reporting structure and defines such reporting units at its operating segment level or one level below. The estimates of fair value of a reporting unit are determined using a combination of valuation techniques, primarily an income approach using a discounted cash flow analysis supplemented by a market-based approach.

A discounted cash flow analysis requires the use of various assumptions, including expectations of future cash flows, growth rates, discount rates and tax rates in developing the present value of future cash flow projections. The market-based approach utilizes available market comparisons such as indicative industry multiples that are applied to current year revenue and earnings as well as recent comparable transactions.

As previously disclosed, during the second quarter of 2018, in connection with its quarterly forecasting cycle, the Company updated the forecasted operating results for each of its businesses based on the most recent financial results and best estimates of future operations. The updated forecasts reflected a decline in near-term revenue growth and profitability, primarily in its Buy

business. Accordingly, in connection with the preparation of the condensed consolidated financial statements for the period ended June 30, 2018, the Company identified indicators of impairment and performed an updated impairment analysis. Based on this analysis, Nielsen concluded that the fair value of its reporting units was in excess of carrying value as of such date. Therefore, management concluded it was not more-likely-than-not that an impairment had occurred. However, the fair value of one of Nielsen's reporting units exceeded its carrying value by less than 10%, compared to greater than 20% during our last annual impairment assessment performed as of October 1, 2017. Nielsen also concluded that the fair value of other indefinite-lived assets exceeded carrying value. Furthermore, based on the operating results for the three months ended September 30, 2018, management similarly concluded it was not more-likely-than-not that an impairment had occurred. However, the Company indicated that should operating results decline versus management's latest forecast for any reason, including if the Buy business results do not meet current expectations or should the Company's announced review of strategic alternatives lead to changes in investment strategies, then goodwill may be at risk for impairment in the future.

The Company performed its annual impairment assessment as of October 1, 2018. Based on the results of the Company's testing, the fair values of each of our reporting units exceeded their carrying values except for the Buy reporting unit. With respect to the Buy reporting unit, ongoing challenging conditions in its operating environment and the Company's review and analysis of strategic alternatives have resulted in downward revisions of management's forecasts on future projected earnings and cash flows. Given these declines and overall market conditions, the Company reassessed the market comparable data inputs used in the market-based approach and selected the lower end of the range of indicative industry multiples. Additionally, such conditions resulted in the use of a higher discount rate in the Company's valuation. As a result of all of these factors, the fair value calculated was less than the carrying value and the Company recorded a non-cash goodwill impairment charge of \$1,411 million for its Buy reporting unit during the fourth quarter of 2018.

The Company's 2017 and 2016 annual assessments of its reporting units did not result in an impairment for goodwill.

Goodwill is stated at historical cost less accumulated impairments losses, if any.

The table below summarizes the changes in the carrying amount of goodwill by reportable segment for the years ended December 31, 2018 and 2017, respectively.

(IN MILLIONS)	Buy	Watch	Total
Balance, December 31, 2016	\$2,696	\$5,149	\$7,845
Acquisitions, divestitures and other adjustments	2	473	475
Effect of foreign currency translation	146	29	175
Balance, December 31, 2017	\$2,844	\$5,651	\$8,495
Acquisitions, divestitures and other adjustments	11	15	26
Impairment	(1,411)	—	(1,411)
Effect of foreign currency translation	(107)	(16)	(123)
Balance, December 31, 2018	\$1,337	\$5,650	\$6,987
Cumulative impairments	\$1,411	\$376	\$1,787

At December 31, 2018, \$54 million of goodwill is expected to be deductible for income tax purposes.

Other Intangible Assets

Intangible assets with finite lives are stated at historical cost, less accumulated amortization and impairment losses. These intangible assets are amortized on a straight-line basis over the following estimated useful lives, which are reviewed annually.

Nielsen has purchased and internally developed software to facilitate its global information processing, financial reporting and client access needs. Costs that are related to the conceptual formulation and design of software programs are expensed as incurred. Costs that are incurred to produce the finished product after technological feasibility has been established are capitalized as an intangible asset and are amortized over the estimated useful life. If events or changes in circumstances indicate that the carrying value of software may not be recovered, a recoverability analysis is performed based on estimated undiscounted cash flows to be generated from the software in the future. If the analysis indicates that the carrying value is not recoverable from the future cash flows, the software cost is written down to estimated fair value and an impairment is recognized. These estimates are subject to revision as market conditions and as our assessments change.

The impairment test for other indefinite-lived intangible assets consists of a comparison of the fair value of the intangible asset with its carrying amount. If the carrying amount of the intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. The estimates of fair value of trade names and trademarks are determined using a “relief from royalty” discounted cash flow valuation methodology. Significant assumptions inherent in this methodology include estimates of royalty rates and discount rates. Discount rate assumptions are based on an assessment of the risk inherent in the respective intangible assets. Assumptions about royalty rates are based on the rates at which comparable trade names and trademarks are being licensed in the marketplace. There was no impairment noted in any period presented with respect to the Company’s indefinite-lived intangible assets.

Nielsen is required to assess whether the value of the Company’s amortizable intangible assets have been impaired whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Nielsen does not perform a periodic assessment of assets for impairment in the absence of such information or indicators. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used or a significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. Recoverability of assets that are held and used is measured by comparing the sum of the future undiscounted cash flows expected to be derived from an asset (or a group of assets) to their carrying value. If the carrying value of the asset (or the group of assets) exceeds the sum of the future undiscounted cash flows, impairment is considered to exist. If impairment is considered to exist based on undiscounted cash flows, the impairment charge is measured using an estimation of the assets’ fair value, typically using a discounted cash flow method. The identification of impairment indicators, the estimation of future cash flows and the determination of fair values for assets (or groups of assets) requires Nielsen to make significant judgments concerning the identification and validation of impairment indicators, expected cash flows and applicable discount rates. These estimates are subject to revision as market conditions and our assessments change.

The Company’s impairment assessments resulted in the recognition of a non-cash self-developed software asset impairment charge of \$2 million during the fourth quarter of 2018.

There was no impairment or indicators of impairment noted in 2017 and 2016 with respect to the Company’s amortizable intangible assets.

The table below summarizes the carrying value of such intangible assets and their estimated useful lives:

(IN MILLIONS)	Estimated Useful Lives	Weighted Average	Gross Amounts		Accumulated Amortization	
			December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Indefinite-lived intangibles:						
Trade names and trademarks			\$1,921	\$ 1,921	\$—	\$ —
Amortized intangibles:						
Trade names and trademarks	5-20 years	13 years	140	139	(102)	(92)
Customer-related intangibles	6-25 years	21 years	3,145	3,174	(1,604)	(1,463)
Covenants-not-to-compete	1-7 years	3 years	39	39	(38)	(37)
Content databases ⁽¹⁾	12-16 years	12 years	167	168	(26)	(12)
Computer software	3-10 years	5 years	3,029	2,681	(1,694)	(1,498)

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Patents and other	3-10 years	6 years	173	171	(126)	(114)
Total			\$6,693	\$ 6,372	\$(3,590)	\$(3,216)

(1) The content databases were acquired as part of the Gracenote acquisition on February 1, 2017. These databases represent metadata used in Gracenote's Video, Music/Auto and Sports product offerings that is not easily replicated due to its quantity and the relationships needed to acquire the data. The estimated remaining useful life of these content databases is 12 to 16 years.

The amortization expense for the years ended December 31, 2018, 2017 and 2016 was \$490 million, \$454 million and \$425 million, respectively. These amounts include amortization expense associated with computer software of \$283 million, \$250 million and \$232 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Certain of the trade names associated with Nielsen are deemed indefinite-lived intangible assets, as their associated Nielsen brand awareness and recognition has existed for over 50 years and the Company intends to continue to utilize these trade names. There are also no legal, regulatory, contractual, competitive, economic or other factors that may limit their estimated useful lives. Nielsen reconsiders the remaining estimated useful life of indefinite-lived intangible assets each reporting period.

The Company's 2018, 2017 and 2016 annual assessments did not result in an impairment for any of its indefinite-lived intangible assets.

All other intangible assets are subject to amortization. Future amortization expense is estimated to be as follows:

(IN MILLIONS)	
For the year ending December 31:	
2019	\$525
2020	495
2021	447
2022	318
2023	261
Thereafter	1,057
Total	\$3,103

6. Changes in and Reclassification out of Accumulated Other Comprehensive Income/(Loss) by Component

The table below summarizes the changes in accumulated other comprehensive income/(loss), net of tax, by component for the years ended December 31, 2018 and 2017, respectively.

(IN MILLIONS)	Currency Translation Adjustments	Cash Flow	Hedges	Post Employment Benefits	Total
Balance December 31, 2017	\$ (610)	\$ 10		\$ (340)	\$ (940)
Other comprehensive income/(loss) before reclassifications	\$ (170)	\$ 6		\$ (21)	\$ (185)
Amounts reclassified from accumulated other comprehensive (income)/loss	—	(5 )	)	19	14
Net current period other comprehensive income/(loss)	(170)	1		(2)	(171)
Net current period other comprehensive income/(loss) attributable to noncontrolling interest	(1)	—		—	(1)
Net current period other comprehensive income/(loss) attributable to Nielsen shareholders	(169)	1		(2)	(170)
Balance December 31, 2018	\$ (779)	\$ 11		\$ (342)	\$ (1,110)

(IN MILLIONS)	Currency Translation Adjustments	Cash Flow	Hedges	Post Employment Benefits	Total
Balance December 31, 2016	\$ (856)	\$ (1))	\$ (354)	\$ (1,211)
Other comprehensive income/(loss) before reclassifications	\$ 248	\$ 8		\$ (3)	\$ 253

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Amounts reclassified from accumulated other comprehensive (income)/loss	—	3	17	20
Net current period other comprehensive income/(loss)	248	11	14	273
Net current period other comprehensive income/(loss) attributable to noncontrolling interest	2	—	—	2
Net current period other comprehensive income/(loss) attributable to Nielsen shareholders	246	11	14	271
Balance December 31, 2017	\$ (610)	\$ 10	\$ (340)	\$ (940)

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The table below summarizes the reclassification of accumulated other comprehensive loss by component for the years ended December 31, 2018 and 2017, respectively.

(IN MILLIONS) Details about Accumulated Other Comprehensive	Amount Reclassified from Accumulated Other Comprehensive Loss		Affected Line Item in the Consolidated Statement of Operations
	Year Ended December 31, 2018	2017	
Income components			
Cash flow hedges			
Interest rate contracts	\$ (7)	\$ 5	Interest (income)/ expense
	2	(2)	(Benefit)/provision for income taxes
	\$ (5)	\$ 3	Total, net of tax
Amortization of Post-Employment Benefits			
Actuarial loss	\$ 19	\$ 19	(a)
	—	(2)	(Benefit)/provision for income taxes
	\$ 19	\$ 17	Total, net of tax
Total reclassification for the period	\$ 14	\$ 20	Net of tax

(a) This accumulated other comprehensive loss component is included in the computation of net periodic pension cost.

7. Property, Plant and Equipment

Property, plant and equipment are carried at historical cost less accumulated depreciation and impairment losses. Property, plant and equipment are depreciated on a straight-line basis over the estimated useful lives.

Nielsen is required to assess whether the value of our long-lived assets, including the Company's buildings, improvements, technical and other equipment have been impaired whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Nielsen does not perform a periodic assessment of assets for impairment in the absence of such information or indicators. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used or a significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. Recoverability of assets that are held and used is measured by comparing the sum of the future undiscounted cash flows expected to be derived from an asset (or a group of assets) to their carrying value. If the carrying value of the asset (or the group of assets) exceeds the sum of the future undiscounted cash flows, impairment is considered to exist. If impairment is considered to exist based on undiscounted cash flows, the impairment charge is measured using an estimation of the assets' fair value, typically using a discounted cash flow method. The identification of impairment indicators, the estimation of future cash flows and the determination of fair values for assets (or groups of assets) requires Nielsen to make significant judgments concerning the identification and validation of impairment indicators, expected cash flows and applicable discount rates. These estimates are subject to revision as market conditions and our assessments change. There was no

impairment or indicators of impairment noted in any period presented with respect to the Company's finite long-lived assets.

The following tables summarizes the carrying value of our property, plant and equipment including the associated useful lives:

(IN MILLIONS)	Estimated Useful Life	December 31, 2018	December 31, 2017
Land and buildings	25-50 years	\$ 378	\$ 371
Information and communication equipment	3-10 years	1,014	994
Furniture, equipment and other	3-10 years	109	121
		1,501	1,486
Less accumulated depreciation and amortization		(1,033)	(1,004)
		\$ 468	\$ 482

Depreciation and amortization expense from operations related to property, plant and equipment was \$169 million, \$171 million and \$165 million for the years ended December 31, 2018, 2017 and 2016, respectively.

The above amounts include amortization expense on assets under capital leases and other financing obligations of \$49 million, \$47 million and \$37 million for the years ended December 31, 2018, 2017 and 2016, respectively. Capital leases and other financing obligations are comprised primarily of land and buildings and information and communication equipment.

Gross and net book value of assets under capital leases were as follows:

(IN MILLIONS)	December 31, 2018			Net Book Value
	Gross Book Value	Accumulated Depreciation		
Land and buildings	\$175	\$ (79)	)	\$ 96
Information and communication equipment	221	(147)	)	74
	\$396	\$ (226)	)	\$ 170
	December 31, 2017			
	Gross Book Value	Accumulated Depreciation		Net Book Value
Land and buildings	\$178	\$ (75)	)	\$ 103
Information and communication equipment	151	(84)	)	67
	\$329	\$ (159)	)	\$ 170

8. Fair Value Measurements

Nielsen's financial instruments include cash and cash equivalents, investments, long-term debt and derivative financial instruments. These financial instruments potentially subject Nielsen to concentrations of credit risk. To minimize the risk of credit loss, these financial instruments are primarily held with acknowledged financial institutions. The carrying value of Nielsen's financial instruments approximate fair value, except for differences with respect to long-term, fixed and variable-rate debt and certain differences relating to investments accounted for at cost. The fair value of financial instruments is generally determined by reference to market values resulting from trading on a national securities exchange or in an over-the-counter market. In cases where quoted market prices are not available, fair value is based on estimates using present value or other valuation techniques. Cash equivalents have original maturities of three months or less.

In addition, the Company has accounts receivable that are not collateralized. The Buy and Watch segments service high quality clients dispersed across many geographic areas. The Company analyzes the aging of accounts receivable, historical bad debts, customer creditworthiness and current economic trends in determining the allowance for doubtful accounts.

Investments include investments in affiliates and a trading asset portfolio maintained to generate returns to offset changes in certain liabilities related to deferred compensation arrangements. Nielsen assesses declines in the value of

individual investments to determine whether such decline is other than temporary and thus the investment is impaired by considering available evidence. No impairment charge was recorded for the years ended December 31, 2018, 2017 and 2016.

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining fair value, the Company considers the principal or most advantageous market in which the Company would transact, and also considers assumptions that market participants would use when pricing the asset or liability, such as inherent risk, transfer restrictions, and risk of non-performance.

There are three levels of inputs that may be used to measure fair value:

Level 1: Quoted market prices available in active markets for identical assets or liabilities as of the reporting date.

Level 2: Pricing inputs other than quoted prices in active markets included in Level 1, which are either directly or indirectly observable as of the reporting date.

Level 3: Pricing inputs that are generally unobservable and may not be corroborated by market data.

Financial Assets and Liabilities Measured on a Recurring Basis

The Company's financial assets and liabilities are measured and recorded at fair value, except for equity method investments, cost method investments, and long-term debt. Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurements. The Company's assessment of the significance of a particular input to the fair value measurements requires judgment, and may affect the valuation of the assets and liabilities being measured and their placement within the fair value hierarchy.

The following table summarizes the valuation of the Company's material financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2018 and 2017:

(IN MILLIONS)	December			
	31, 2018	Level 1	Level 2	Level 3
Assets:				
Plan assets for deferred compensation ⁽¹⁾	\$ 25	\$ 25	\$ —	\$ —
Investment in mutual funds ⁽²⁾	2	2	—	—
Interest rate swap arrangements ⁽³⁾	23	—	23	—
Total	\$ 50	\$ 27	\$ 23	\$ —
Liabilities:				
Interest rate swap arrangements ⁽³⁾	\$ 3	\$ —	\$ 3	\$ —
Deferred compensation liabilities ⁽⁴⁾	27	27	—	—
Total	\$ 30	\$ 27	\$ 3	\$ —

	December			
	31, 2017	Level 1	Level 2	Level 3
Assets:				
Plan assets for deferred compensation ⁽¹⁾	\$ 33	\$ 33	\$ —	\$ —
Investment in mutual funds ⁽²⁾	2	2	—	—
Interest rate swap arrangements ⁽³⁾	17	—	17	—
Total	\$ 52	\$ 35	\$ 17	\$ —

Liabilities:

Interest rate swap arrangements ⁽³⁾	\$ —	\$ —	\$ —	—\$—
Deferred compensation liabilities ⁽⁴⁾	33	33	—	—
Total	\$ 33	\$ 33	\$ —	—\$—

- (1) Plan assets are comprised of investments in mutual funds, which are intended to fund liabilities arising from deferred compensation plans. These investments are carried at fair value, which is based on quoted market prices at period end in active markets. These investments are classified as equity securities with any gains or losses resulting from changes in fair value recorded in other income/(expense), net in the consolidated statement of operations.
- (2) Investments in mutual funds are money-market accounts held with the intention of funding certain specific retirement plans.
- (3) Derivative financial instruments include interest rate swap arrangements recorded at fair value based on externally-developed valuation models that use readily observable market parameters and the consideration of counterparty risk.

- (4) The Company offers certain employees the opportunity to participate in a deferred compensation plan. A participant's deferrals are invested in a variety of participant directed stock and bond mutual funds and are classified as equity securities. Changes in the fair value of these securities are measured using quoted prices in active markets based on the market price per unit multiplied by the number of units held exclusive of any transaction costs. A corresponding adjustment for changes in fair value of the equity securities is also reflected in the changes in fair value of the deferred compensation obligation.

Derivative Financial Instruments

Nielsen uses interest rate swap derivative instruments principally to manage the risk that changes in interest rates will affect the cash flows of its underlying debt obligations.

To qualify for hedge accounting, the hedging relationship must meet several conditions with respect to documentation, probability of occurrence, hedge effectiveness and reliability of measurement. Nielsen documents the relationship between hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking various hedge transactions as well as the hedge effectiveness assessment, both at the hedge inception and on an ongoing basis. Nielsen recognizes all derivatives at fair value either as assets or liabilities in the consolidated balance sheets and changes in the fair values of such instruments are recognized currently in earnings unless specific hedge accounting criteria are met. If specific cash flow hedge accounting criteria are met, Nielsen recognizes the changes in fair value of these instruments in accumulated other comprehensive income/(loss).

Nielsen manages exposure to possible defaults on derivative financial instruments by monitoring the concentration of risk that Nielsen has with any individual bank and through the use of minimum credit quality standards for all counterparties. Nielsen does not require collateral or other security in relation to derivative financial instruments. A derivative contract entered into between Nielsen or certain of its subsidiaries and a counterparty that was also a lender under Nielsen's senior secured credit facilities at the time the derivative contract was entered into is guaranteed under the senior secured credit facilities by Nielsen and certain of its subsidiaries (see Note 11 - Long-term Debt and Other Financing Arrangements for more information). Since it is Nielsen's policy to only enter into derivative contracts with banks of internationally acknowledged standing, Nielsen considers the counterparty risk to be remote.

It is Nielsen's policy to have an International Swaps and Derivatives Association ("ISDA") Master Agreement established with every bank with which it has entered into any derivative contract. Under each of these ISDA Master Agreements, Nielsen agrees to settle only the net amount of the combined market values of all derivative contracts outstanding with any one counterparty should that counterparty default. Certain of the ISDA Master Agreements contain cross-default provisions where if the Company either defaults in payment obligations under its credit facility or if such obligations are accelerated by the lenders, then the Company could also be declared in default on its derivative obligations. At December 31, 2018, Nielsen had no material exposure to potential economic losses due to counterparty credit default risk or cross-default risk on its derivative financial instruments.

Interest Rate Risk

Nielsen is exposed to cash flow interest rate risk on the floating-rate U.S. Dollar and Euro Term Loans, and uses floating-to-fixed interest rate swaps to hedge this exposure. For these derivatives, Nielsen reports the after-tax gain or loss from the effective portion of the hedge as a component of accumulated other comprehensive income/(loss) and reclassifies it into earnings in the same period or periods in which the hedged transaction affects earnings, and within the same income statement line item as the impact of the hedged transaction.

In May 2018, the Company entered into \$250 million aggregate notional amount of a five-year interest rate swap agreement with a starting date of May 9, 2018. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 2.72%. This derivative has been designated as an interest rate cash flow hedge.

In August 2017, the Company entered into \$250 million in aggregate notional amount of a four-year forward interest rate swap agreement with a starting date of October 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.60%. This derivative has been designated as an interest rate cash flow hedge.

In July 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of October 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.66%. This derivative has been designated as an interest rate cash flow hedge.

In April 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.63%. This derivative has been designated as an interest rate cash flow hedge.

In March 2017, the Company entered into \$250 million in aggregate notional amount of a five-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 2.00%. This derivative has been designated as an interest rate cash flow hedge.

In February 2017, the Company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of July 10, 2017. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.73%. This derivative has been designated as an interest rate cash flow hedge.

In June 2016, the company entered into \$250 million in aggregate notional amount of a three-year forward interest rate swap agreement with a starting date of June 9, 2016. This agreement fixes the LIBOR-related portion of interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 0.86%. This derivative has been designated as an interest rate cash flow hedge.

In July 2015, the Company entered into a \$150 million in notional amount of three-year forward interest rate swap agreement with a starting date in July 2016. This agreement fixes the LIBOR-related portion of the interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.62%. This derivative instrument has been designated as an interest rate cash flow hedge.

In April 2015, the Company entered into a \$150 million in notional amount of three-year forward interest rate swap agreement with a starting date in April 2016. This agreement fixes the LIBOR-related portion of the interest rates of a corresponding amount of the Company's variable-rate debt at an average rate of 1.40%. This derivative instrument has been designated as an interest rate cash flow hedge.

As of December 31, 2018 the Company had the following outstanding interest rate swaps utilized in the management of its interest rate risk:

	Notional Amount	Maturity Date	Currency
Interest rate swaps designated as hedging instruments			
US Dollar term loan floating-to-fixed rate swaps	\$ 150,000,000	April 2019	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 250,000,000	June 2019	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 150,000,000	July 2019	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 250,000,000	July 2020	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 250,000,000	July 2020	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 250,000,000	October 2020	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$ 250,000,000	October 2021	US Dollar

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US Dollar term loan floating-to-fixed rate swaps	\$250,000,000	July 2022	US Dollar
US Dollar term loan floating-to-fixed rate swaps	\$250,000,000	May 2023	US Dollar

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The effect of cash flow hedge accounting on the consolidated statement of operations for the years ended December 31, 2018, 2017 and 2016:

(IN MILLIONS)	Interest Expense Year Ended December 31,		
	2018	2017	2016
Interest expense (Location in the consolidated statement of operations in which			
the effects of cash flow hedges are recorded)	\$ 394	\$ 374	\$ 333
Amount of (gain)/loss reclassified from accumulated other comprehensive			
income/(loss) into income, net of tax	\$ (5)	\$ 3	\$ 5
Amount of income/(loss) reclassified from accumulated other comprehensive			
income/(loss) into income as a result that a forecasted transaction is no longer			
probable of occurring, net of tax	\$ —	\$ —	\$ —

Nielsen expects to recognize approximately \$13 million of net pre-tax gains from accumulated other comprehensive loss to interest expense in the next 12 months associated with its interest-related derivative financial instruments.

Foreign Currency Exchange Risk

During the years ended December 31, 2018 and 2017, Nielsen recorded a net loss of \$2 million and zero respectively, associated with foreign currency derivative financial instruments within Foreign currency exchange transactions losses, net in Nielsen's consolidated statements of operations. As of December 31, 2018 and 2017, the notional amounts of the outstanding foreign currency derivative financial instruments were \$76 million and \$74 million, respectively.

See Note 11 – “Long-term Debt and Other Financing Arrangements” for more information on the long-term debt transactions referenced in this note.

Fair Values of Derivative Instruments in the Consolidated Balance Sheets

The fair values of the Company's derivative instruments as of December 31, 2018 and 2017 were as follows:

Derivatives Designated as Hedging Instruments (IN MILLIONS)	December 31, 2018		December 31, 2017			
	Prepaid Expense and Other		Accounts Payable			
	Other Non-Current Assets	Other Non-Current Liabilities	Other Non-Current Assets	Other Non-Current Liabilities	Other Non-Current Liabilities	Other Non-Current Liabilities
Interest rate swaps	\$3	\$20	\$3	\$17	\$—	\$—

Derivatives in Cash Flow Hedging Relationships

The pre-tax effect of derivative instruments in cash flow hedging relationships for the years ended December 31, 2018, 2017 and 2016 was as follows (amounts in millions):

Derivatives in Cash Flow Hedging Relationships (IN MILLIONS)	Amount of (Gain)/Loss Recognized in OCI on Derivatives (Effective Portion)			Location of (Gain)/Loss Reclassified from OCI into Income (Effective Portion)	Amount of (Gain)/Loss Reclassified from OCI into Income (Effective Portion)		
	December 31,				December 31,		
	2018	2017	2016		2018	2017	2016
Interest rate swaps	\$ (9)	\$ (13)	\$ 3	Interest expense	\$ (7)	\$ 5	\$ 7

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

The Company is required, on a nonrecurring basis, to adjust the carrying value for certain assets using fair value measurements. The Company's equity method investments, and non-financial assets, such as goodwill, intangible assets, and property, plant and equipment, are measured at fair value when there is an indicator of impairment and recorded at fair value only when an impairment charge is recognized.

The Company did not measure any material non-financial assets or liabilities at fair value during the years ended December 31, 2018 and 2017.

9. Restructuring Activities

Productivity Initiatives

Restructuring charges are primarily related to programs associated with Nielsen's plans to reduce selling, general and administrative expenses and consolidate operations centers, as well as automation initiatives. These charges primarily relate to employee separation packages. The amounts are calculated based on salary levels and past service periods. Severance costs are generally charged to earnings when planned employee terminations are approved.

A summary of the changes in the liabilities for restructuring activities is provided below:

(IN MILLIONS)	Total Initiatives
Balance at December 31, 2015	\$ 38
Charges	105
Non cash charges and other adjustments	(1)
Payments	(69)
Balance at December 31, 2016	73
Charges	80
Non cash charges and other adjustments	2
Payments	(97)
Balance at December 31, 2017	58
Charges	139
Non cash charges and other adjustments	(2)
Payments	(127)
Balance at December 31, 2018	\$ 68

Of the \$68 million in remaining liabilities for restructuring actions, \$62 million is expected to be paid within one year and is classified as a current liability within the consolidated financial statements as of December 31, 2018.

The Company recorded \$139 million, \$80 million and \$105 million in restructuring charges primarily relating to the productivity initiatives referenced above during the years ended December 31, 2018, 2017 and 2016, respectively.

10. Pensions and Other Post-Retirement Benefits

Nielsen sponsors both funded and unfunded defined benefit pension plans (the “Pension Plans”) and post-retirement medical plans for some of its employees in the Netherlands, the U.S. and other international locations. Pension costs, in respect of defined benefit pension plans, primarily represent the increase in the actuarial present value of the obligation for pension benefits based on employee service during the year and the interest on this obligation in respect of employee service in previous years, net of the expected return on plan assets. Differences between this expected return and the actual return on these plan assets and actuarial changes are not recognized in the statement of operations, unless the accumulated differences and changes exceed a certain threshold. Nielsen recognizes obligations for contributions to defined contribution pension plans as expenses in the statement of operations as they are incurred.

The determination of benefit obligations and expenses is based on actuarial models. In order to measure benefit costs and obligations using these models, critical assumptions are made with regard to the discount rate, the expected return on plan assets and the assumed rate of compensation increases. Nielsen provides retiree medical benefits to a limited number of participants in the U.S. Therefore, retiree medical care cost trend rates are not a significant driver of our post retirement costs. Management reviews these critical assumptions at least annually. Other assumptions involve demographic factors such as turnover, retirement and mortality rates. Management reviews these assumptions periodically and updates them as necessary.

The discount rate is the rate at which the benefit obligations could be effectively settled. For Nielsen's U.S. plans, the discount rate is based on a bond portfolio that includes only long-term bonds with an Aa rating, or equivalent, from a major rating agency. For the Dutch and other non-U.S. plans, the discount rate is set by reference to market yields on high-quality corporate bonds. Nielsen believes the timing and amount of cash flows related to the bonds in these portfolios are expected to match the estimated payment benefit streams of our plans.

Effective January 1, 2016, the Company changed its approach to calculating the discount rate for its retirement benefit pension plans from a weighted-average yield curve approach to a spot-rate approach. Under the spot-rate approach, the Company uses individual spot rates along the yield curve that correspond with the timing of each future cash outflow for benefit payments in order to calculate interest cost and service cost within net periodic benefit costs. The spot-rate approach represents a more precise measurement of interest and service cost. The new approach represents a change in accounting estimate that is inseparable from a change in accounting principle and accordingly is accounted for prospectively.

To determine the expected long-term rate of return on pension plan assets, Nielsen considers, for each country, the structure of the asset portfolio and the expected rates of return for each of the components. For Nielsen's U.S. plans, a 50 basis point decrease in the expected return on assets would increase pension expense on our principal plans by approximately \$1 million per year. A similar 50 basis point decrease in the expected return on assets would increase pension expense on the Company's principal Dutch plans by approximately \$3 million per year. The Company assumed that the weighted-averages of long-term returns on our pension plans were 4.4% for the year ended December 31, 2018, 4.6% for the year ended December 31, 2017 and 5.1% for the year ended December 31, 2016. The expected long-term rate of return is applied to the fair value of pension plan assets. The actual return on plan assets will vary year to year from this assumption. Although the actual return on plan assets will vary from year to year, it is appropriate to use long-term expected forecasts in selecting Nielsen's expected return on plan assets. As such, there can be no assurance that the Company's actual return on plan assets will approximate the long-term expected forecasts.

A summary of the activity for the Pension Plans follows:

(IN MILLIONS)	Year Ended December 31, 2018			
	The Netherlands	United States	Other	Total
Change in projected benefit obligation				
Benefit obligation at beginning of period	\$724	\$370	\$678	\$1,772
Service cost	3	—	6	9
Interest cost	10	12	13	35
Plan participants' contributions	—	—	1	1
Actuarial (gain)/loss	(29)	(29)	(28)	(86)
Benefits paid	(30)	(15)	(24)	(69)
Expenses paid	—	—	—	—
Premiums paid	—	—	(1)	(1)
Settlements	—	—	(4)	(4)
Combinations	—	—	2	2
Amendments	—	—	1	1
Effect of foreign currency translation	(31)	—	(31)	(62)
Benefit obligation at end of period	647	338	613	1,598
Change in plan assets				
Fair value of plan assets at beginning of period	718	260	581	1,559
Actual return on plan assets	(25)	(23)	(14)	(62)
Employer contributions	5	9	15	29
Plan participants' contributions	—	—	1	1
Benefits paid	(30)	(15)	(24)	(69)
Expenses paid	—	—	—	—
Premiums paid	—	—	(1)	(1)
Settlements	—	—	(4)	(4)
Combinations	—	—	2	2
Effect of foreign currency translation	(31)	—	(28)	(59)
Fair value of plan assets at end of period	637	231	528	1,396
Funded status	\$(10)	\$(107)	\$(85)	\$(202)
Amounts recognized in the Consolidated Balance Sheets				
Pension assets included in other non-current assets	—	—	17	17
Current liabilities	—	(1)	(1)	(2)
Accrued benefit liability included in other non-current liabilities	(10)	(106)	(101)	(217)
Net amount recognized	\$(10)	\$(107)	\$(85)	\$(202)
Amounts recognized in Other Comprehensive Income/(Loss), before tax				
Net (gain)/loss	\$11	\$10	\$1	\$22
Settlement loss	—	—	(1)	(1)
Amortization of prior service cost	—	—	1	1
Amortization of net loss	6	9	4	19
Total recognized in other comprehensive income/(loss)	\$(5)	\$(1)	\$3	\$(3)
Amounts not yet reflected in net periodic benefit cost and included in				

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Accumulated Other Comprehensive Income/(Loss), before tax				
Unrecognized losses	\$ 190	\$ 114	\$ 129	\$ 433

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(IN MILLIONS)	Year Ended December 31, 2017			
	The Netherlands	United States	Other	Total
Change in projected benefit obligation				
Benefit obligation at beginning of period	\$669	\$344	\$629	\$ 1,642
Service cost	5	—	8	13
Interest cost	9	12	13	34
Plan participants' contributions	1	—	1	2
Actuarial (gain)/loss	(21)	27	—	6
Benefits paid	(30)	(13)	(23)	(66)
Expenses paid	(1)	—	(1)	(2)
Premiums paid	—	—	(1)	(1)
Settlements	—	—	(6)	(6)
Effect of foreign currency translation	92	—	58	150
Benefit obligation at end of period	724	370	678	1,772
Change in plan assets				
Fair value of plan assets at beginning of period	625	233	507	1,365
Actual return on plan assets	32	37	40	109
Employer contributions	3	3	15	21
Plan participants' contributions	1	—	1	2
Benefits paid	(30)	(13)	(23)	(66)
Expenses paid	(1)	—	(1)	(2)
Premiums paid	—	—	(1)	(1)
Settlements	—	—	(6)	(6)
Effect of foreign currency translation	88	—	49	137
Fair value of plan assets at end of period	718	260	581	1,559
Funded status	\$(6)	\$(110)	\$(97)	\$ (213)
Amounts recognized in the Consolidated Balance Sheets				
Pension assets included in other non-current assets	—	—	23	23
Current liabilities	—	—	(2)	(2)
Accrued benefit liability included in other non-current liabilities	(6)	(110)	(118)	(234)
Net amount recognized	\$(6)	\$(110)	\$(97)	\$ (213)
Amounts recognized in Other Comprehensive Income/(Loss), before tax				
Net (gain)/loss	\$(3)	\$7	\$(6)	\$ (2)
Settlement loss	—	—	(1)	(1)
Amortization of net loss	(7)	(6)	(5)	(18)
Total recognized in other comprehensive income/(loss)	\$(10)	\$1	\$(12)	\$ (21)
Amounts not yet reflected in net periodic benefit cost and included in Accumulated Other Comprehensive Income/(Loss), before tax				
Unrecognized losses	\$185	\$113	\$132	\$ 430

The total accumulated benefit obligation and minimum liability changes for the Pension Plans were as follows:

(IN MILLIONS)	Year Ended December 31, 2018	Year Ended December 31, 2017	Year Ended December 31, 2016
Accumulated benefit obligation.	\$ 1,579	\$ 1,750	\$ 1,622

	Pension Plans with Accumulated Benefit Obligation in Excess of Plan Assets at December 31, 2018			
	The	United		
(IN MILLIONS)	Nether-	States	Other	Total
Projected benefit obligation	\$646	\$ 338	\$ 506	\$ 1,490
Accumulated benefit obligation	644	338	491	1,473
Fair value of plan assets	637	231	404	1,272

	Pension Plans with Projected Benefit Obligation in Excess of Plan Assets at December 31, 2018			
	The	United		
(IN MILLIONS)	Nether-	States	Other	Total
Projected benefit obligation	\$646	\$ 338	\$ 506	\$ 1,490
Accumulated benefit obligation	644	338	597	1,579
Fair value of plan assets	637	231	404	1,272

	Pension Plans with Accumulated Benefit Obligation in Excess of Plan Assets at December 31, 2017			
	The	United		
(IN MILLIONS)	Nether-	States	Other	Total
Projected benefit obligation	\$80	\$ 370	\$ 560	\$ 1,010
Accumulated benefit obligation	80	370	542	992
Fair value of plan assets	76	260	440	776

	Pension Plans with Projected Benefit Obligation in Excess of Plan Assets at December 31, 2017			
	The	United		
(IN MILLIONS)	Nether-	States	Other	Total
Projected benefit obligation	\$724	\$ 370	\$ 560	\$ 1,654
Accumulated benefit obligation	721	370	541	1,632
Fair value of plan assets	718	260	440	1,418

Net periodic benefit cost for the years ended December 31, 2018, 2017 and 2016, respectively, includes the following components:

(IN MILLIONS)	Net Periodic Pension Costs			
	The Netherlands	United States	Other	Total
Year ended December 31, 2018				
Service cost	\$3	\$ —	\$ 6	\$ 9
Interest cost	10	12	13	35
Expected return on plan assets	(23)	(17)	(21)	(61)
Settlement loss recognized	—	—	1	1
Amortization of prior service costs	—	—	(1)	(1)
Amortization of net loss	6	9	4	19
Net periodic pension cost	\$(4)	4	2	2
Year ended December 31, 2017				
Service cost	\$5	\$ —	\$ 8	\$ 13
Interest cost	9	12	13	34
Expected return on plan assets	(24)	(17)	(22)	(63)
Curtailment gain recognized	—	—	1	1
Settlement loss recognized	—	—	(1)	(1)
Amortization of net loss	7	6	5	18
Net periodic pension cost	\$(3)	1	4	2
Year ended December 31, 2016				
Service cost	\$5	\$ —	\$ 9	\$ 14
Interest cost	11	13	16	40
Expected return on plan assets	(26)	(18)	(25)	(69)
Settlement loss recognized	—	—	(1)	(1)
Amortization of prior service costs	—	—	2	2
Amortization of net loss	5	6	4	15
Net periodic pension cost	\$(5)	\$ 1	\$ 5	\$ 1

The settlement loss of \$1 million in 2018 resulted primarily from settling benefit liabilities in Mexico. The settlement loss of \$1 million in 2017 resulted primarily from settling benefit liabilities in Canada and Switzerland.

The deferred loss included as a component of accumulated other comprehensive income/(loss) that is expected to be recognized as a component of net periodic benefit cost during 2019 is as follows:

	The Netherlands	United States	Other	Total
Net actuarial loss	\$ (5)	\$ (6)	\$ (7)	\$(18)

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Actuarial gains and losses are amortized over the average remaining service lives for plans with active participants, and over the average remaining lives for legacy plans with no active participants.

The weighted average assumptions underlying the pension computations were as follows:

	Year Ended December 31,								
	2018			2017			2016		
	NL	US	Other	NL	US	Other	NL	US	Other
Pension benefit obligation:									
—discount rate	2.0%	4.4%	2.5%	1.9%	3.7%	2.3%	1.8%	4.4%	2.3%
—rate of compensation increase	1.8%	—	1.1%	1.8%	—	1.1%	1.8%	—	1.1%
Net periodic pension costs:									
—discount rate	1.9%	3.7%	2.3%	1.8%	4.4%	2.3%	2.4%	4.6%	3.2%
—rate of compensation increase	1.8%	—	1.1%	3.8%	—	1.1%	1.8%	—	2.5%
—expected long-term return on plan assets	3.6%	6.9%	4.3%	3.8%	7.0%	4.4%	4.2%	7.3%	5.3%

The assumptions for the expected return on plan assets for the Pension Plans were based on a review of the historical returns of the asset classes in which the assets of the Pension Plans are invested and long-term economic forecast for the type of investments held by the plans. The historical returns on these asset classes were weighted based on the expected long-term allocation of the assets of the Pension Plans.

Nielsen's pension plans' weighted average asset allocations by asset category are as follows:

	The Netherlands		United States		Other		Total
At December 31, 2018							
Equity securities	21	%	52	%	41	%	33 %
Fixed income securities	62		47		28		50
Other	17		1		31		17
Total	100	%	100	%	100	%	100 %
At December 31, 2017							
Equity securities	27	%	55	%	45	%	37 %
Fixed income securities	56		44		31		47
Other	17		1		24		16
Total	100	%	100	%	100	%	100 %

No Nielsen shares are held by the Pension Plans.

Nielsen's primary objective with regard to the investment of the Pension Plans' assets is to ensure that in each individual plan, sufficient funds are available to satisfy future benefit obligations. For this purpose, asset and liability management studies are made periodically at each pension fund. For each of the Pension Plans, an appropriate mix is determined on the basis of the outcome of these studies, taking into account the national rules and regulations. The overall target asset allocation among all plans for 2018 was 33% equity securities and 50% long-term interest-earning investments (debt or fixed income securities), and 17% other investments.

Equity securities primarily include investments in U.S. and non U.S. companies. Fixed income securities include corporate bonds of companies from diversified industries and mortgage-backed securities. Insurance contracts are categorized as level 3 and are valued based on contractual terms.

Assets at fair value (See Note 8 – "Fair Value Measurements" for additional information on fair value measurement and the underlying fair value hierarchy) as of December 31, 2018 and 2017 are as follows:

Our fair value hierarchy shown below excludes investments using the NAV per share practical expedient. Application of the NAV per share practical expedient coincided with the change in investment management for one of the Company's Pension Plans during 2016.

(IN MILLIONS)	December 31, 2018				December 31, 2017			
Asset Category	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total

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Cash and equivalents	\$30	\$ —	\$ —	\$30	\$8	\$ —	\$ —	\$8
Equity securities – U.S.	53	10	—	63	60	12	—	72
Equity securities – Global.	37	206	—	243	40	270	—	310
Equity securities – non-U.S.	9	68	—	77	8	94	—	102
Real estate	—	—	42	42	—	—	47	47
Corporate bonds	100	270	—	370	142	243	—	385
Debt issued by national, state or								
local government	31	194	—	225	39	191	—	230
Other	—	2	132	134	—	2	149	151
Total assets at fair value, excluding								
NAV per share practical expedient								
at December 31, 2018 and								
December 31, 2017	\$260	\$ 750	\$ 174	\$1,184	\$297	\$ 812	\$ 196	\$1,305

The following presents our total fair value of plan assets including the NAV per share practical expedient:

(IN MILLIONS)	December 31, 2018	December 31, 2017
Fair value of investments, excluding NAV per share practical expedient.	\$1,184	\$ 1,305
Fair value of investments, using NAV per share practical expedient		
Asset Category		
Cash	\$4	\$ 7
Equity securities – U.S.	23	26
Equity securities – Global.	29	32
Corporate debt securities or bonds.	—	7
Debt issued by national, state or local government	10	8
Liability driven investments	59	88
Real estate	6	7
Private equity and hedge funds	60	60
Insurance and other	21	19
Total assets at fair value including NAV per share practical expedient at December 31, 2018 and December 31, 2017	\$1,396	\$ 1,559

The following is a summary of changes in the fair value of the Pension Plans' Level 3 assets for the years ended December 31, 2018 and 2017:

(IN MILLIONS)	Real Estate	Other	Total
Balance, end of year December 31, 2016	\$ 38	\$ 129	\$ 167
Actual return on plan assets:			
(Sales)/investments	5	—	5
Unrealized gains	—	3	3
Effect of foreign currency translation	4	17	21
Balance, end of year December 31, 2017	\$ 47	\$ 149	\$ 196
Actual return on plan assets:			
(Sales)/Investments	(4)	(8)	(12)
Unrealized losses	—	(1)	(1)
Effect of foreign currency translation	(1)	(8)	(9)
Balance, end of year December 31, 2018	\$ 42	\$ 132	\$ 174

Real estate investment valuations require significant judgment due to the absence of quoted market prices, the inherent lack of liquidity and the long-term nature of such assets. These assets are initially valued at cost and are reviewed

periodically utilizing available and relevant market data to determine if the carrying value of these assets should be adjusted. The valuation methodology is applied consistently from period to period.

Other types of investments categorized as Level 3 are primarily insurance contracts and are valued based on contractual terms.

Contributions to the Pension Plans in 2019 are expected to be approximately \$3 million for the Netherlands plan, \$10 million for the U.S. plan and \$15 million for other plans.

Estimated future benefit payments are as follows:

(IN MILLIONS)	The Netherlands	United States	Other	Total
For the years ending December 31,				
2019	\$ 30	\$ 15	\$ 20	\$ 65
2020	30	16	20	66
2021	30	17	21	68
2022	30	17	22	69
2023	30	18	24	72
2024-2028	147	101	137	385

Defined Contribution Plans

Nielsen also offers defined contribution plans to certain participants, primarily in the U.S. Nielsen's expense related to these plans was \$59 million, \$53 million and \$49 million for the years ended December 31, 2018, 2017 and 2016, respectively. In the U.S., Nielsen contributes cash to each employee's account in an amount up to 3% of compensation (subject to IRS limitations). No contributions are made in shares of the Company's common stock.

11. Long-term Debt and Other Financing Arrangements

Unless otherwise stated, interest rates are as of December 31, 2018.

(IN MILLIONS)	December 31, 2018		December 31, 2017	
	Weighted Interest Rate	Fair Value	Weighted Interest Rate	Fair Value
	Carrying Amount		Carrying Amount	