UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

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

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2019
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 001-34295

SIRIUS XM HOLDINGS INC.

(Exact name of registrant as specified in its charter)

Delaware	**38-3916511**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

1221 Avenue of the Americas, 35th Floor, New York, NY
(Address of Principal Executive Offices)
10020
(Zip Code)

Registrant's telephone number, including area code: (212) 584-5100
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common stock, $0.001 par value	**SIRI**	**NASDAQ Global Select Market**

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T 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 whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or 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 Act). Yes ☐ No ☑

The aggregate market value of the registrant's common stock held by non-affiliates as of June 30, 2019 was $7,370,915,284. All executive officers and directors of the registrant have been deemed, solely for the purpose of the foregoing calculation, to be "affiliates" of the registrant.

The number of shares of the registrant's common stock outstanding as of January 31, 2020 was 4,413,944,475.

DOCUMENTS INCORPORATED BY REFERENCE

Information included in our definitive proxy statement for our 2020 annual meeting of stockholders scheduled to be held on Thursday, June 4, 2020 is incorporated by reference into Items 10, 11, 12, 13 and 14 of Part III of this report.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
2019 FORM 10-K ANNUAL REPORT
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PART I

ITEM 1. *BUSINESS*

This Annual Report on Form 10-K presents information for Sirius XM Holdings Inc. ("Holdings"), a Delaware corporation. The terms "Holdings," "we," "us," "our," and "our company" as used herein and unless otherwise stated or indicated by context, refer to Sirius XM Holdings Inc. and its subsidiaries. "Sirius XM" refers to our wholly owned subsidiary Sirius XM Radio Inc. and its subsidiaries other than Pandora. "Pandora" refers to Sirius XM's wholly owned subsidiary Pandora Media, LLC (the successor to Pandora Media, Inc.) and its subsidiaries.

Sirius XM Holdings Inc.

Holdings was incorporated in the State of Delaware on May 21, 2013. Holdings has no operations independent of its wholly owned subsidiaries, Sirius XM and Pandora.

Relationship with Liberty Media

As of December 31, 2019, Liberty Media Corporation ("Liberty Media") beneficially owned, directly and indirectly, approximately72% of the outstanding shares of Holdings' common stock. Liberty Media owns interests in a range of media, communications and entertainment businesses.

Our Businesses

We operate two complementary audio entertainment businesses - our Sirius XM business and our Pandora business.

Sirius XM

Our Sirius XM business features music, sports, entertainment, comedy, talk, news, traffic and weather channels, as well as infotainment services, in the United States on a subscription fee basis. The Sirius XM service is distributed through our two proprietary satellite radio systems and streamed via applications for mobile devices, home devices and other consumer electronic equipment. Satellite radios are primarily distributed through automakers, retailers and our website. Our Sirius XM service is also available through our user interface which we call "360L," that combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience.

The primary source of revenue from our Sirius XM business is subscription fees, with most of our customers subscribing to monthly, quarterly, semi-annual or annual plans. We also derive revenue from advertising on select non-music channels, direct sales of our satellite radios and accessories, and other ancillary services. As of December 31, 2019, our Sirius XM business had approximately34.9 million subscribers.

In addition to our audio entertainment businesses, we provide connected vehicle services to several automakers and directly to consumers through aftermarket devices. These services are designed to enhance the safety, security and driving experience of consumers. We also offer a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings, a traffic information service that includes information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems, and real-time weather services in vehicles, boats and planes.

Sirius XM also holds a 70% equity interest and 33% voting interest in Sirius XM Canada Holdings Inc. ("Sirius XM Canada").

Pandora

Our Pandora business operates a music, comedy and podcast streaming discovery platform, offering a personalized experience for each listener wherever and whenever they want to listen, whether through mobile devices, car speakers or connected devices. Pandora enables listeners to create personalized stations and playlists, discover new content, hear artist- and expert-curated playlists, podcasts and select Sirius XM content as well as search and play songs and albums on-demand. Pandora is available as (1) an ad-supported radio service, (2) a radio subscription service, called Pandora Plus, and (3) an on-demand subscription service, called Pandora Premium. As of December 31, 2019, Pandora had approximately 6.2 million subscribers.

The majority of Pandora's listener hours occur on mobile devices, with the majority of its revenue generated from advertising on its ad-supported radio service on these devices. With billions of data points that help it understand users' preferences, Pandora offers both local and national advertisers the opportunity to deliver targeted messages to listeners using a combination of audio, display and video advertisements. In addition, through AdsWizz Inc., a Pandora subsidiary, Pandora provides a comprehensive digital audio advertising technology platform, which connects audio publishers and advertisers. As of December 31, 2019, our Pandora business had approximately 63.5 million monthly active users.

Our Sirius XM Business

Programming

We offer a dynamic programming lineup of commercial-free music plus sports, entertainment, comedy, talk, and news, including:

- an extensive selection of music genres, ranging from rock, pop and hip-hop to country, dance, jazz, Latin and classical;
- live play-by-play sports from major leagues and colleges;
- a multitude of talk and entertainment channels for a variety of audiences;
- a wide range of national, international and financial news; and
- exclusive limited run channels.

We believe that our diverse programming, including our lineup of exclusive content, is a significant differentiator from terrestrial radio and other audio entertainment providers. We make changes to our programming lineup from time to time as we strive to attract new subscribers and offer content which appeals to a broad range of audiences and to our existing subscribers. The channel lineups for our services are available at siriusxm.com.

Streaming Service

Our streaming service includes a variety of music and non-music channels and podcasts as well as channels that are not available on our satellite radio service. We offer applications to allow consumers to access our streaming service on smartphones, tablets, computers, home devices and other consumer electronic equipment.

Our streaming product currently features: the broad range of music, sports, talk, news and entertainment channels available on satellite radio; access to over 100 additional music channels, which we refer to as Xtra Music Channels; and a rich offering of video content, including video from The Howard Stern Show and memorable performances and interviews from Sirius XM's archives, including in-studio performances and behind-the-scenes moments with artists, personalities and newsmakers. SiriusXM On Demand offers our streaming subscribers the ability to choose their favorite episodes from a catalog of content whenever they want as well as select material from a growing library of podcasts we are assembling.

Our streaming service is included as part of the price of Sirius XM's Select and All Access packages. Our Personalized Stations Powered by Pandora, which allows subscribers to create their own customized commercial-free music station within the Sirius XM app, feature is offered to consumers as part of the price of Sirius XM's All Access package. We also offer our streaming service in several standalone packages, which do not include a satellite radio subscription. These packages, which include the Premier Streaming Plan, Essentials Plan, Student Plan and Military Plan, are available to consumers at various prices and include a variety of content.

In 2019, we also entered into agreements to increase the distribution and ease of use of our streaming service, including through connected devices and smart speakers. We entered into a marketing agreement with Amazon to distribute their Echo smart speakers with Sirius XM's streaming service. We entered into an agreement with Google to distribute the Google Home Hub with a subscription to Sirius XM's streaming services. We also have various arrangements with various services and consumer electronics manufactures to include the Sirius XM streaming functionality with their service and devices.

360L

Our user interface, which we call "360L," combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience. Our 360L interface has been deployed in Ram trucks and a variety of vehicles from General Motors and is in the process of being introduced by several other automakers. 360L allows us to take advantage of advanced in-dash infotainment systems. 360L is intended to leverage the ubiquitous signal coverage and low delivery costs of our satellite infrastructure with the two-way communication capability of a wireless streaming service to provide consumers seamless access to our content, including our live channels, on demand service and even more personalized music services. The wireless streaming connection included in 360L enables enhanced search and recommendations functions, making discovery of our content in the vehicle easier. In certain cases, 360L also allows consumers to manage aspects of their subscriptions directly through their vehicles' equipment and provides us important data to better enable us to understand how our subscribers use our service and how we can more effectively market our service to consumers.

Distribution of Radios

New Vehicles

We distribute satellite radios through the sale and lease of new vehicles. We have agreements with every major automaker to offer satellite radios in their vehicles. Satellite radios are available as a factory or dealer-installed option in substantially all vehicle makes sold in the United States.

Most automakers include a subscription to our service in the sale or lease of their new vehicles. In certain cases, we receive subscription payments from automakers in advance of the activation of our service. We share with certain automakers a portion of the revenues we derive from subscribers using vehicles equipped to receive our service. We also reimburse various automakers for certain costs associated with the satellite radios installed in new vehicles, including in certain cases hardware costs, engineering expenses and promotional and advertising expenses.

Previously Owned Vehicles

We acquire subscribers through the sale and lease of previously owned vehicles with factory-installed satellite radios. We have entered into agreements with many automakers to market subscriptions to purchasers and lessees of vehicles which include satellite radios sold through their certified pre-owned programs. We also work directly with franchise and independent dealers on programs for non-certified used vehicles.

We have developed systems and methods to identify purchasers and lessees of previously owned vehicles which include satellite radios and have established marketing plans to promote our services to these potential subscribers.

Retail

We sell satellite radios directly to consumers through our website. Satellite radios are also marketed and distributed through national, regional and online retailers, such as amazon.com.

Our Satellite Radio Systems

Our satellite radio systems are designed to provide clear reception in most areas of the continental United States despite variations in terrain, buildings and other obstructions. We continually monitor our infrastructure and regularly evaluate improvements in technology.

Our satellite radio systems have three principal components:

- satellites, terrestrial repeaters and other satellite facilities;
- studios; and
- radios.

Satellites, Terrestrial Repeaters and Other Satellite Facilities

Satellites. We provide our service through a fleet of five orbiting geostationary satellites, two in the Sirius system, FM-5 and FM-6, and three in the XM system, XM-3, XM-4 and XM-5. Our XM-5 satellite serves as a spare for both the XM and Sirius systems.

We have entered into agreements for the design, construction and launch of two new satellites, SXM-7 and SXM-8, which we plan to launch into geostationary orbits in 2020 as replacements for XM-3 and XM-4.

Satellite Insurance. We have procured insurance for SXM-7 and SXM-8 to cover the risks associated with each satellite's launch and first year in orbit. We do not have insurance policies covering our in-orbit satellites, as we consider the premium costs to be uneconomical relative to the risk of satellite failure.

Terrestrial Repeaters. In some areas with high concentrations of tall buildings, such as urban centers, signals from our satellites may be blocked and reception of satellite signals can be adversely affected. In other areas with a high density of next generation wireless systems our service may experience interference. In many of these areas, we have deployed terrestrial repeaters to supplement and enhance our signal coverage and, in many other areas, we are planning to deploy additional repeaters to mitigate interference. We operate over 1,000 terrestrial repeaters across the United States as part of our systems.

Other Satellite Facilities. We control and communicate with our satellites from facilities in North America. Our satellites are monitored, tracked and controlled by a third party satellite operator.

Studios

Our programming originates from studios in New York City, Los Angeles and Washington D.C. and, to a lesser extent, from smaller studios in Nashville and a variety of venues across the country. Our corporate headquarters is in New York City.

Radios

We do not manufacture radios. We have authorized manufacturers and distributors to produce and distribute radios, and have licensed our technology to various electronics manufacturers to develop, manufacture and distribute radios under certain brands. We do manage various aspects of the production of satellite radios. To facilitate the sale of radios, we may subsidize a portion of the radio manufacturing costs to reduce the hardware price to consumers.

Connected Vehicle Services

We provide connected vehicle services to several automakers and directly to consumers through aftermarket devices. Our connected vehicle services are designed to enhance the safety, security and driving experience for vehicle operators while providing marketing and operational benefits to automakers and their dealers. We offer a portfolio of location-based services through two-way wireless connectivity, including safety, security, convenience, maintenance and data services, remote vehicles diagnostics, and stolen or parked vehicle locator services.

Through our subsidiary, Automatic Labs Inc. ("Automatic"), we offer a service for consumers and auto dealers. By pairing Automatic's install-it-yourself adapter and mobile application, many older vehicles can be transformed into connected vehicles. Using the Automatic service, drivers have access to various services, such as crash alerts, roadside assistance, vehicle location monitoring and sharing, vehicle health and performance monitoring, and recall notifications and service reminders. Auto dealers can also employ the Automatic service to, among other things, assist in managing vehicle inventory, monitoring the status of vehicles and delivering notifications and reminders to purchasers and lessees of vehicles. The Automatic adapter collects detailed information about each vehicle's geolocation, use, operation, performance and maintenance status in order to operate, maintain, and provide the features and functionality of the Automatic service.

Subscribers to our connected vehicle services are not included in our subscriber count or subscriber-based operating metrics.

Other Services

Commercial Accounts. Our programming is available for commercial establishments. Commercial subscription accounts are available through providers of in-store entertainment solutions and directly from us.

Satellite Television Service. Certain of our music channels are offered as part of select programming packages on the DISH Network satellite television service.

Travel Link. We offer Travel Link, a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings.

Real-Time Traffic Services. We offer services that provide graphic information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems.

Real-Time Weather Services. We offer several real-time weather services in vehicles, boats and planes.

Commercial subscribers are included in our subscriber count. Subscribers to the DISH Network satellite television service are not included in our subscriber count and subscribers to our Travel Link, real-time traffic services and real-time weather services are not included in our subscriber count, unless the applicable service is purchased by the subscriber separately and not as part of a radio subscription to our service.

Sirius XM Canada

Sirius XM holds a 70% equity interest and 33% voting interest in Sirius XM Canada, with the remainder of Sirius XM Canada's voting and equity interests held by two shareholders.

Sirius XM has entered into a Services Agreement and an Advisory Services Agreement with Sirius XM Canada. Each agreement has a thirty year term. Pursuant to the Services Agreement, Sirius XM Canada pays Sirius XM 25% of its gross revenues on a monthly basis and pursuant to the Advisory Services Agreement, Sirius XM Canada pays Sirius XM 5% of its gross revenues on a monthly basis.

As of December 31, 2019, Sirius XM Canada had approximately 2.7 million subscribers. Sirius XM Canada's subscribers are not included in our subscriber count or subscriber-based operating metrics.

Our Pandora Business

On February 1, 2019, through a series of transactions, Pandora Media, Inc., became an indirect wholly owned subsidiary of Sirius XM and continues to operate as Pandora Media, LLC (the "Pandora Acquisition"). Information regarding the Pandora Acquisition is included in Note 3 to the financial statements in Item 8 of this Annual Report on Form 10-K.

Streaming Radio and On-Demand Music Services

Our Pandora business offers a personalized music discovery platform for each listener. Subscribers are able to create personalized stations and playlists and search and play songs and albums on-demand. The Pandora service utilizes content programing algorithms and data collected from listeners - called the Music Genome Project - to predict user music preferences, play content suited to the tastes of each listener, and introduce each listener to music consistent with the consumer's preferences.

The service is available through our Pandora mobile device applications for smartphones, mobile operating systems, and tablets. The mobile applications are free to download. Our Pandora service is also available in most major automaker's vehicles in the United States which allow for smartphone connectivity. Certain automakers now provide embedded streaming connectivity which supports and makes available the Pandora service in vehicles without the need for smartphone connectivity. In addition, our Pandora service is integrated into consumer electronic, voice-based devices and smart speakers, including Sonos, Fitbit, Roku, Google Home, Amazon Echo, Comcast Xfinity, Apple TV and Microsoft Xbox.

Our Pandora service is available as an ad-supported radio service, a radio subscription service (Pandora Plus), or an on-demand subscription service (Pandora Premium). Local and national advertisers deliver targeted messages to our Pandora listeners.

Ad-Supported Radio Service

Our Pandora business offers an ad-supported radio service which allows listeners to access our catalog of music, comedy, live streams and podcasts through personalized stations. This service is free across all platforms and uses the Music Genome Project to generate stations specific to each listener. Each listener can personalize his or her stations by adding variety to the content and renaming the stations.

Listeners of the ad-supported service are provided with the option to temporarily access on-demand listening which includes certain features of the Pandora Premium service. We refer to this temporary access as "Premium Access".

Subscription Radio Service (Pandora Plus)

Our Pandora business offers Pandora Plus - an ad-free, subscription version of the radio service that includes options for replaying songs, skipping songs, offline listening, higher quality audio on supported devices and longer timeout-free listening. Content provided to each listener of Pandora Plus is more tailored when the listener interacts more with the platform. Premium Access is also available to Pandora Plus listeners.

On-Demand Subscription Service (Pandora Premium)

Our Pandora business offers Pandora Premium - an on-demand subscription service that combines the radio features of Pandora Plus with an on-demand experience. The on-demand experience provides listeners with the ability to search, play and collect songs and albums, build playlists, listen to curated playlists and share playlists on social networks. Listeners can also create partial playlists that Pandora can complete based on the listener's activity and the Music Genome Project. Listeners through mobile devices have access to customized profiles which identify information specific to each listener such as recent favorites, playlists and thumbs.

Pandora Premium incorporates social networking features including a centralized stream where listeners can view the music that their social connections are experiencing and provide and receive recommendations for songs, albums and playlists. Pandora Premium also includes a "share" feature where consumers can share their stations, songs, albums or playlists through social media, messaging applications and email.

Advertising Revenue

Our Pandora business maintains a portfolio of proprietary advertising technologies which include order management, advertising serving and timing, native advertising formats, targeting and reporting. The Pandora business's primary source of revenue is our sale of audio, display and video advertising for our connected device platforms, including computers and mobile devices. Our Pandora business also has an agreement to sell the available advertising inventory in the United States for SoundCloud, one of the world's largest open audio platforms, powered by a connected community of creators, listeners, and curators. Our Pandora platforms provides advertisers with the ability to target and connect with listeners based on various criteria including age, gender, geographic location and content preferences.

AdsWizz

Through its AdsWizz subsidiary, our Pandora business is a global leader in digital audio advertising technology. AdsWizz operates a digital audio advertising market with an end-to-end technology platform, including a digital audio software suite of solutions that connect audio publishers to the advertising community. AdsWizz offers a range of products -- from dynamic ad insertion to advanced programmatic platforms to innovative new audio formats. AdsWizz's advertising technology also includes ad campaign monitoring tools and other innovative audio advertising products, such as audio formats that can let consumers trigger an action while listening to an ad as well as other personalization-based technology.

AdsWizz's technology is employed by Pandora in its ad-supported business as well as by third party customers. AdsWizz's third party customers include well-known music platforms, podcasts and broadcasting groups worldwide.

Competition

We face significant competition for listeners and advertisers in our Sirius XM business and our Pandora business, including from providers of radio and other audio services.

Competition for Subscribers and Listeners

Traditional AM/FM Radio

Our Sirius XM services and Pandora services compete with traditional AM/FM radio. Traditional AM/FM radio has a well-established demand for its services and offers free broadcasts paid for by commercial advertising rather than by subscription fees. Many radio stations offer information programming of a local nature, such as local news and sports. The availability of traditional free AM/FM radio may reduce the likelihood that customers would be willing to pay for our subscription services and, by offering free broadcasts, it may impose limits on what we can charge for our services. Several traditional radio companies own large numbers of radio stations or other media properties.

Streaming and On-Demand Competitors

Streaming and on-demand services, including Amazon Prime, Apple Music, Google Play Music, Spotify and YouTube, compete with our Sirius XM and Pandora services. Major online providers make high fidelity digital streams available at no cost or, in some cases, for less than the cost of a satellite radio subscription. Certain of these services include advanced functionality, such as personalization and customization and allow the user to access large libraries of content. These services, in some instances, are also offered through devices sold by the service providers including Apple, Google and Amazon. For some consumers, these services may compete with our services, at home, in vehicles, and wherever audio entertainment is consumed.

Advanced In-Dash Infotainment Systems

Nearly all automakers have deployed integrated multimedia systems in dashboards, including in many cases Apple CarPlay and Android Auto. These systems combine control of audio entertainment from a variety of sources, including AM/FM/HD radio broadcasts, satellite radio, streaming radio, smartphone applications and stored audio, with navigation and other advanced applications. Streaming radio and other data are typically connected to the system through an Internet-enabled smartphone or wireless modem installed in the vehicle, and the entire system may be controlled by touchscreen or voice recognition. These systems may enhance the attractiveness of Internet-based competitors by making such applications more prominent, easier to access, and safer to use in vehicles.

Direct Broadcast Satellite and Cable Audio

A number of providers offer specialized audio services through either direct broadcast satellite or cable audio systems. These services are targeted to fixed locations, mostly in-home, but also include mobile entertainment. The radio service offered by direct broadcast satellite and cable audio is often included as part of a package of digital services with video service, and video customers generally do not pay an additional monthly charge for the audio service. In addition, other services offered by these providers, such as cable television, on-demand video streaming, and interactive video games compete with our services to the extent they utilize existing or potential users' and listeners' time that could otherwise be allocated to the use of our Sirius XM or Pandora services.

Other Digital Media Services

The audio entertainment marketplace continues to evolve rapidly, with a steady emergence of new media platforms that compete with both our Sirius XM and Pandora services now or that could compete with those services in the future.

Traffic Services

For our Sirius XM business, a number of providers compete with our traffic services. In-dash navigation is threatened by smartphones that provide data services through a direct vehicle interface. Most of these smartphones offer GPS mapping with sophisticated data-based turn-by-turn navigation.

Connected Vehicle Services

Our Sirius XM connected vehicle services business operates in a highly competitive environment and competes with several providers, including Verizon Telematics, as well as with products being developed by automakers for vehicles. OnStar, a division of General Motors, also offers connected vehicle services in GM vehicles. Wireless devices, such as mobile phones, are also competitors. In addition, we compete against other connected vehicle service providers for automaker arrangements on the basis of innovation, service quality and reliability, technical capabilities and system customization, scope of service, industry experience, past performance and price.

Competition for Advertisers

Our competition for advertisers include large scale online advertising platforms such as Amazon, Facebook and Google; traditional media companies such as television broadcasters and national print outlets; broadcast radio providers; and companies in the broadcast radio market. We compete against these providers for advertisers on the basis of several factors, including advertisers' overall budgets, perceived return on investment, effectiveness and relevance of our advertising platforms, price, delivery of large volumes or precise types of advertisements to targeted demographics, transactional capabilities and reporting capabilities.

The online advertising marketplace continues to evolve rapidly, particularly with the introduction of new digital advertising technologies and expanding capabilities of larger internet companies.

Government Regulation

General

We are subject to a number of foreign and domestic laws and regulations relating to consumer protection, information security and data protection. There are several states that require specific information security controls to protect certain types of information and specific notifications to consumers in the event of a security breach that compromises certain categories of personal information. Certain of our services are also subject to laws in the United States and abroad pertaining to privacy of user data and other information, including the California Consumer Protection Act and the European General Data Protection Regulation. Our Privacy Policies and customer agreements describe our practices pertaining to the foregoing. We believe we comply with all of our obligations under all applicable laws and regulations.

Our Sirius XM Business

As operators of a privately-owned satellite system, we are regulated by the FCC under the Communications Act of 1934, principally with respect to:

- the licensing of our satellite systems;
- preventing interference with or to other users of radio frequencies; and
- compliance with FCC rules established specifically for U.S. satellites and satellite radio services.

Any assignment or transfer of control of our FCC licenses must be approved by the FCC. The FCC's order approving the merger of our wholly owned subsidiary, Vernon Merger Corporation, with and into XM Satellite Radio Holdings Inc. in July 2008 requires us to comply with certain voluntary commitments we made as part of the FCC merger proceeding. We believe we comply with those commitments.

In 1997, we were the winning bidders for FCC licenses to operate a satellite digital audio radio service and provide other ancillary services. Our FCC licenses for our Sirius satellites expire in 2022 and 2025. Our FCC licenses for our XM satellites expire in 2021, 2022 and 2026. The FCC has also granted us licenses to construct, deploy and operate SXM-7 and SXM-8 as replacement satellites. We anticipate that, absent significant misconduct on our part, the FCC will renew our licenses to permit operation of our satellites for their useful lives, and grant licenses for any replacement satellites.

In some areas, we have installed terrestrial repeaters to supplement our satellite signal coverage. The FCC has established rules governing terrestrial repeaters and has granted us a license through 2027 to operate our repeater network.

In certain cases, we obtain FCC certifications for satellite radios, including satellite radios that include FM modulators. We believe our radios that are in production comply with all applicable FCC rules.

We are required to obtain export licenses or other approvals from the United States government to export certain equipment, services and technical data related to our satellites and their operations. The transfer of such equipment, services and technical data outside the United States or to foreign persons is subject to strict export control and prior approval requirements from the United States government (including prohibitions on the sharing of certain satellite-related goods and services with China).

Changes in law or regulations relating to communications policy or to matters affecting our services could adversely affect our ability to retain our FCC licenses or the manner in which we operate.

Copyrights to Programming

In connection with our businesses, we must enter into royalty arrangements with two sets of rights holders: holders of musical compositions copyrights (that is, the music and lyrics) and holders of sound recordings copyrights (that is, the actual recording of a work). Our Sirius XM business and our Pandora business use both statutory and direct music licenses as part of their businesses. We license varying rights - such as performance and mechanical rights - for use in our Sirius XM and Pandora businesses based on the various radio and interactive services they offer. Set forth below is a brief overview of the music composition and sound recording licenses employed by our Sirius XM and Pandora businesses. These music licensing arrangements are complex and the description below is only a summary of these complicated licensing schemes.

Musical Compositions: Performance Rights and Mechanical Rights

The holders of performance rights in musical compositions, generally songwriters and music publishers, have been traditionally represented by performing rights organizations such as the American Society of Composers, Authors and Publishers ("ASCAP"), Broadcast Music, Inc. ("BMI") and SESAC, Inc. ("SESAC"). However, some songwriters and music publishers have withdrawn from the traditional performing rights organizations, particularly ASCAP and BMI, and new entities, such as Global Music Rights LLC ("GMR"), have been formed to represent rights holders. These organizations negotiate fees with copyright users, collect royalties and distribute them to the rights holders.

The holders of the mechanical rights in musical compositions, generally songwriters and their music publishers, have traditionally licensed these rights through the statutory license set forth in Section 115 of the United States Copyright Act; however, mechanical rights can also be licensed directly.

The changing market for musical compositions may have an adverse effect on our Sirius XM business and our Pandora business, including increasing our costs and limiting the musical works available to us.

Sirius XM Business. We have arrangements with ASCAP, BMI, SESAC, and GMR to license the musical compositions we use on our satellite radio and streaming services. These arrangements generally include fixed payments during the term of the agreement. Our Sirius XM business does not require a mechanical license.

Pandora Business. We have arrangements with ASCAP, BMI, SESAC, GMR and a variety of other copyright owners to license the musical compositions performance rights we use on our Pandora services. For our Pandora ad-supported radio service, each copyright holder receives as a performance royalty its usage-based and ownership-based share of a royalty pool equal to 21.5% of the content acquisition costs that we pay for sound recordings on our ad-supported service.

Pandora must also license "reproduction rights" or "mechanical rights" to offer the interactive features of the Pandora services. For our Pandora subscription services, copyright holders receive payments for these rights at the rates determined in accordance with the statutory license set forth in Section 115 of the United States Copyright Act. In January 2018, the Copyright Royalty Board (the "CRB") set a new rate structure for the five-year period commencing January 1, 2018 and ending on December 31, 2022. The rate was 12.3% of revenues or 23.1% of record label payments in 2019, and in 2020, the rate is 13.3% of revenues or 24.1% of record label payments. The rate will increase over the five-year period to 15.1% of revenues or 26.2% of record label payments by 2022. Certain per-subscriber minimum royalty floors also apply depending on the type of service.

Sound Recordings

Operators of a non-interactive satellite radio or streaming service are entitled to license sound recordings under the statutory license contained in Section 114 of the United States Copyright Act (the "statutory license"). Under the statutory license, we may negotiate royalty arrangements with the owners of sound recordings or, if negotiation is unsuccessful, the royalty rate is established by the CRB. Sound recording rights holders, typically large record companies, are primarily represented by SoundExchange, Inc. ("SoundExchange") an organization which negotiates licenses, and collects and distributes royalties on behalf of record companies and performing artists.

Interactive streaming services, such as Pandora Plus and Pandora Premium, do not qualify for the statutory license and the services must negotiate direct license arrangements with the owners of copyrights in sound recordings.

Sirius XM Business. For the ten-year period commencing January 1, 2018 and ending on December 31, 2027, the CRB set the royalty rate payable by us under the statutory license covering the performance of sound recordings over our Sirius XM satellite radio service, and the making of ephemeral (server) copies in support of such performances, to be 15.5% of gross revenues, subject to exclusions and adjustments. The revenue subject to royalty includes subscription revenue from our U.S. satellite digital audio radio subscribers, and advertising revenue from channels other than those channels that make only incidental performances of sound recordings. The rates and terms permit us to reduce the payment due each month for those sound recording directly licensed from copyright owners and exclude from our revenue certain other items, such as royalties paid to us for intellectual property, sales and use taxes, bad debt expense and generally revenue attributable to areas of our business that do not involve the use of copyrighted sound recordings.

In 2019, we paid a per performance rate for the streaming of certain sound recordings of $0.0023 on our Sirius XM streaming service. This royalty rate may increase further through 2020 based on changes in the consumer price index.

Pandora Business. For our Pandora business, we have entered into direct license agreements with major and independent music labels and distributors for a significant majority of the sound recordings that stream on the Pandora ad-supported service, Pandora Plus and Pandora Premium.

For sound recordings that we stream and for which we have not entered into a direct license agreement with the sound recording rights holders, the sound recordings are streamed pursuant to the statutory license, and applicable rates thereunder, set by the CRB for the period commencing on January 1, 2016 and ending on December 31, 2020. Effective January 1, 2019, the rate for our non-subscription services, such as our ad-supported radio service, was adjusted for inflation to $0.0018 per play, and the rate for our subscription services, such as Pandora Plus and Pandora Premium, was adjusted for inflation to $0.0023. Sound recordings subject to the statutory license can only be played through our radio mode services and not through services that are offered on-demand or offline or through any replay or additional skip features.

Prior to the enactment of the Orrin G. Hatch-Bob Goodlatte Music Modernization Act in October 2018, our rights to perform certain sound recordings that were fixed before February 15, 1972 were governed by state law. We still face class action lawsuits brought by plaintiffs who allege that Pandora violated their alleged exclusive copyright ownership rights to the reproduction and public performance of sound recordings created prior to February 15, 1972. See "Item 3. Legal Proceedings" of this Annual Report on Form 10-K for information on these actions.

Trademarks

Sirius XM Business

We have registered, and intend to maintain, the trademarks "Sirius", "XM", "SiriusXM" and "SXM" with the United States Patent and Trademark Office in connection with the services we offer. We are not aware of any material claims of infringement or other challenges to our right to use the "Sirius", "XM", "SiriusXM" or "SXM" trademarks in the United States. We also have registered, and intend to maintain, trademarks for the names of certain of our channels. We have also registered the trademarks "Sirius", "XM" and "SiriusXM" in Canada. We have granted a license to use certain of our trademarks in Canada to Sirius XM Canada.

Pandora Business

We have registered, and intend to maintain, the trademarks "Pandora," "Ampcast" and "Music Genome Project," in addition to a number of other Pandora logos and marks, with the United States Patent and Trademark Office in connection with the services we offer. We also have registered the trademark "Pandora" in Australia, Canada, Chile, the European Union, India, Israel, Mexico, New Zealand, Switzerland, Taiwan and other countries, and the trademark "Music Genome Project" in Australia, Canada, China and New Zealand.

Personnel

As of December 31, 2019, we had 4,534 full-time employees. In addition, we rely upon a number of part-time employees, consultants, other advisors and outsourced relationships. None of our employees are represented by a labor union, and we believe that our employee relations are good.

Corporate Information and Available Information

Our executive offices are located at 1221 Avenue of the Americas, 35th floor, New York, New York 10020 and our telephone number is (212) 584-5100. Our internet address is www.siriusxm.com. Our annual, quarterly and current reports, and any amendments to those reports, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), may be accessed free of charge through our website as soon as reasonably practicable after we have electronically filed or furnished such material with the SEC. The SEC maintains an Internet site (http://www.sec.gov) that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. Siriusxm.com (including any other reference to such address in this Annual Report) is an inactive textual reference only, meaning that the information contained on or accessible from the website is not part of this Annual Report on Form 10-K and is not incorporated in this report by reference. We may use our website as a distribution channel of material company information. Financial and other important information regarding us is routinely posted on and accessible through our website at https://www.siriusxm.com. In addition, you may automatically receive email alerts and other information about us when you enroll your email address by visiting the "Email Alerts" section under the "Shareholder Services" heading at http://investor.siriusxm.com/investor-overview.

Information About Our Executive Officers

Certain information regarding our executive officers as of January 31, 2020 is provided below:

Name	Age	Position
James E. Meyer	65	Chief Executive Officer
Scott A. Greenstein	60	President, Chief Content Officer
Jennifer C. Witz	51	President Sales, Marketing and Operations
David J. Frear	63	Senior Executive Vice President and Chief Financial Officer
Dara F. Altman	61	Executive Vice President and Chief Administrative Officer
Patrick L. Donnelly	58	Executive Vice President, General Counsel and Secretary

James E. Meyer has served as our Chief Executive Officer since December 2012. From May 2004 to December 2012, Mr. Meyer was our President, Operations and Sales. Prior to May 2004, Mr. Meyer was President of Aegis Ventures Incorporated, a consulting firm that provided general management services. From December 2001 until 2002, Mr. Meyer served as special advisor to the Chairman of Thomson S.A., a leading consumer electronics company. From January 1997 until December 2001, Mr. Meyer served as the Senior Executive Vice President for Thomson as well as a member of its executive committee. From 1992 until 1996, Mr. Meyer served as Thomson's Senior Vice President of Product Management. Mr. Meyer is a director of Charter Communications, Inc. and Chairman of the Board of Directors and a director of TiVo Corporation.

Scott A. Greenstein has served as our President and Chief Content Officer since May 2004. Prior to May 2004, Mr. Greenstein was Chief Executive Officer of The Greenstein Group, a media and entertainment consulting firm. From 1999 until 2002, he was Chairman of USA Films, a motion picture production, marketing and distribution company. From 1997 until 1999, Mr. Greenstein was Co-President of October Films, a motion picture production, marketing and distribution company. Prior to joining October Films, Mr. Greenstein was Senior Vice President of Motion Pictures, Music, New Media and Publishing at Miramax Films, and held senior positions at Viacom Inc.

Jennifer C. Witz has served as our President, Sales, Marketing and Operations, since March 2019. From August 2017 until March 2019 she was our Executive Vice President, Chief Marketing Officer. Ms. Witz joined us in March 2002 and has served in a variety of senior financial and operating roles. From September 2005 to August 2017, she was our Senior Vice President, Finance, from May 2003 to September 2005, she was our Vice President, Finance, and from March 2002 to May 2003, she was our Senior Director, Finance. Before joining Sirius XM, Ms. Witz was Vice President, Planning and Development, at Viacom Inc., a global media company, and prior to that she was Vice President, Finance and Corporate Development, at Metro-Goldwyn-Mayer, Inc., an entertainment company focused on the production and global distribution of film and television content. Ms. Witz began her career in the Investment Banking Department at Kidder, Peabody & Co Inc.

David J. Frear has served as our Senior Executive Vice President and Chief Financial Officer since June 2015. From June 2003 to June 2015, he served as our Executive Vice President and Chief Financial Officer. From 1999 to 2003, Mr. Frear was Executive Vice President and Chief Financial Officer of Savvis Communications Corporation, a global managed service provider, delivering internet protocol applications for business customers. Mr. Frear also served as a director of Savvis. From 1993 to 1998, Mr. Frear was Senior Vice President and Chief Financial Officer of Orion Network Systems Inc., an international satellite communications company that was acquired by Loral Space & Communications Ltd. in 1998. From 1990 to 1993, Mr. Frear was Chief Financial Officer of Millicom Incorporated, a cellular, paging and cable television company. Prior to joining Millicom, he was an investment banker at Bear, Stearns & Co., Inc. and Credit Suisse. Mr. Frear is a member of the board of directors of The NASDAQ Stock Market LLC, NASDAQ PHLX LLC, and NASDAQ BX, Inc., subsidiaries of Nasdaq, Inc., a leading provider of trading, clearing, exchange technology, listing, information and public company services.

Dara F. Altman has served as our Executive Vice President and Chief Administrative Officer since September 2008. From January 2006 until September 2008, Ms. Altman served as Executive Vice President, Business and Legal Affairs, of XM. Ms. Altman was Executive Vice President of Business Affairs for Discovery Communications from 1997 to 2005. From 1993 to 1997, Ms. Altman served as Senior Vice President and General Counsel of Reiss Media Enterprises, which owned Request TV, a national pay-per-view service. Before Request TV, Ms. Altman served as counsel for Home Box Office. Ms. Altman started her career as an attorney at the law firm of Willkie Farr & Gallagher LLP.

Patrick L. Donnelly has served as our Executive Vice President, General Counsel and Secretary, since May 1998. From June 1997 to May 1998, he was Vice President and Deputy General Counsel of ITT Corporation, a hotel, gaming and entertainment company that was acquired by Starwood Hotels & Resorts Worldwide, Inc. in February 1998. From October

1995 to June 1997, he was assistant general counsel of ITT Corporation. Prior to October 1995, Mr. Donnelly was an attorney at the law firm of Simpson Thacher & Bartlett LLP.

ITEM 1A. *RISK FACTORS*

In addition to the other information in this Annual Report on Form 10-K, including the information under the caption Item 1. Business "Competition," the following risk factors should be considered carefully in evaluating us and our business. This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Actual results and the timing of events could differ materially from those projected in forward-looking statements due to a number of factors, including those set forth below and elsewhere in this Annual Report on Form 10-K. See "Special Note About Forward-Looking Statements" following this Item 1A. Risk Factors.

We face substantial competition and that competition is likely to increase over time.

We compete for the time and attention of our listeners with other content providers on the basis of a number of factors, including quality of experience, relevance, acceptance and perception of content quality, ease of use, price, accessibility, brand awareness, reputation and, in the case of our ad-supported Pandora service, perception of ad load, features and functionality. Our ability to attract and retain subscribers and listeners depends on our success in creating and providing popular or unique programming. A summary of certain services that compete with us is contained in the section entitled "Item 1. Business - Competition" of this Annual Report on Form 10-K.

Our subscribers and listeners can obtain similar content for free through terrestrial radio stations, YouTube and other internet services. We also compete for the time and attention of our listeners with providers of other in-home and mobile entertainment services, and we compete for advertising sales with large scale online advertising platforms, such as Amazon, Facebook and Google, and with traditional media companies.

Our streaming services also compete for listeners on the basis of the presence and visibility of our apps, which are distributed via app stores operated by Apple and Google. We face significant competition for listeners from these companies, which also promote their own music and content. In addition, our competitors' products may be pre-loaded or integrated into consumer electronics products or automobiles more broadly than our products, creating a visibility advantage. If we are unable to compete successfully for listeners against other media providers, then our business may suffer. Additionally, the operator of an app store may reject our app or amend the terms of their license in a way that inhibits our ability to distribute our apps, negatively affects our business, or limits our ability to increase subscribers and listeners.

Competition could result in lower subscription, advertising or other revenue and an increase in our expenses and, consequently, lower our earnings and free cash flow. We cannot assure you we will be able to compete successfully with our existing or future competitors or that competition will not have an adverse impact on our operations and financial condition.

If our efforts to attract and retain subscribers and listeners, or convert listeners into subscribers, are not successful, our business will be adversely affected.

Our business will be adversely affected if we are unable to attract new subscribers and listeners and retain our current subscribers and listeners.

Our ability to increase the number of subscribers and listeners to our services, retain our subscribers and listeners or convert listeners into subscribers, is uncertain and subject to many factors, including:

- the price of our service;
- the ease of use of our service;
- the effectiveness of our marketing programs;
- with respect to our Sirius XM service, the sale or lease rate of new vehicles in the United States;
- the rate at which our self-pay subscribers to our Sirius XM service buy and sell new and used vehicles in the United States;
- our ability to convince owners and lessees of new and used vehicles that include satellite radios to purchase subscriptions to our Sirius XM service;
- the perceived value of our programming and the packages and services we offer;
- our ability to introduce features in a manner that is favorably received by our listeners and subscribers;

- our ability to keep up with rapidly evolving technology and features in audio entertainment;
- our ability to respond to evolving consumer tastes; and
- actions by our competitors, such as Apple, Google, Amazon, Facebook and other audio entertainment and information providers.

Our Pandora ad-supported business has suffered a loss of monthly active users, which may adversely affect our Pandora business.

The number of monthly active users to our ad-supported Pandora business has declined consistently for several years, and may further contract in the future.

The size of our ad-supported listener base is an important element of our Pandora business. The decline in our listener base has resulted in fewer listener hours and available advertising spots on our Pandora service, which ultimately may result in declines in our advertising revenue, and adversely affect our Pandora business. The contraction of our ad-supported listener base also decreases the size of demographic groups targeted by advertisers, which may hurt our ability to deliver advertising in a manner that maximizes advertisers' return on investment and compete with other digital advertising platforms.

Privacy and data security laws and regulations may hinder our ability to market our services, sell advertising and impose legal liabilities.

We receive a substantial amount of data on purchasers and lessees of new and used vehicles from third parties. We use this data to market our Sirius XM service. We collect and use demographic and other information, including location information, from and about our listeners through the internet. Further, we and third parties use tracking technologies, including "cookies" and related technologies, to help us manage and track our listeners' interactions with our services and deliver relevant advertising.

Various federal and state laws and regulations, as well as the laws of foreign jurisdictions, govern the collection, use, retention, sharing and security of the data we receive. Privacy groups and government authorities have increasingly scrutinized the ways in which companies collect and share data, including linking personal identities and data associated with particular users or devices with data collected through the internet, and we expect such scrutiny to increase. Alleged violations of laws and regulations relating to privacy and data may expose us to potential liability, may require us to expend significant resources in responding to and defending such allegations and claims and could in the future result in negative publicity and a loss of confidence in us by our subscribers, listeners and advertisers.

Existing and new privacy-related laws and regulations, such as the California Consumer Privacy Act and the European General Data Protection Regulation, are evolving and subject to potentially differing interpretations. Various federal and state legislative and regulatory bodies as well as foreign legislative and regulatory bodies may expand current or enact new laws regarding privacy and data security-related matters. New laws, amendments to or re-interpretations of existing laws and contractual obligations, as well as changes in our listeners' expectations and demands regarding privacy and data security, may limit our ability to collect and use consumer data. Restrictions on our ability to collect, access and harness listener data, or to use or disclose listener data or profiles that we develop using such data, could limit our ability to deliver personalized content to our listeners and offer targeted advertising opportunities to our advertising customers, each of which are important to the success of our business. Increased regulation of data utilization and distribution practices could increase our cost of operation or otherwise adversely affect our business.

We engage in extensive marketing efforts and the continued effectiveness of those efforts are an important part of our business.

We engage in extensive marketing efforts across a broad range of media to attract and retain subscribers and listeners to our services. We employ a wide variety of communications tools as part of our marketing campaigns, including telemarketing efforts and email solicitations. The effectiveness of our marketing efforts is affected by a broad range of factors, including creative and execution factors. Our ability to reach consumers with radio and television advertising, direct mail materials, email solicitations and telephone calls is an important part of our efforts and a significant factor in the effectiveness of our marketing. If we are unable to reach consumers through email solicitations or telemarketing, including as a result of "spam" and email filters or call blocking technologies, our marketing efforts will be adversely affected. A decline in the effectiveness of our marketing efforts could have an adverse impact on our operations and financial condition.

Consumer protection laws and our failure to comply with them could damage our business.

Federal and state consumer protection laws, rules and regulations cover nearly all aspects of our marketing efforts, including the content of our advertising, the terms of consumer offers and the manner in which we communicate with consumers. The nature of our business requires us to expend significant resources to try to ensure that our marketing activities comply with consumer protection laws, including laws relating to telemarketing activities and privacy. There can be no assurance that these efforts will be successful or that we will not have to expend even greater resources in our compliance efforts.

Modifications to consumer protection laws, including decisions by courts and administrative agencies interpreting these laws, could have an adverse impact on our ability to attract and retain subscribers and listeners to our services. There can be no assurance that new laws or regulations will not be enacted or adopted, preexisting laws or regulations will not be more strictly enforced or that our operations will comply with all applicable laws, which could have an adverse impact on our operations and financial condition.

A substantial number of our Sirius XM service subscribers periodically cancel their subscriptions and we cannot predict how successful we will be at retaining customers.

As part of our business, we experience, and expect to experience in the future, subscriber turnover (i.e., churn). If we are unable to retain current subscribers at expected rates, or the costs of retaining subscribers are higher than expected, our financial performance and operating results could be adversely affected.

We cannot predict how successful we will be at retaining customers who purchase or lease vehicles that include a subscription to our Sirius XM service. A substantial percentage of our Sirius XM subscribers are on discounted pricing plans and our ability to retain these subscribers or migrate them to higher priced plans is uncertain. In addition, a substantial number of those subscribers periodically cancel their subscriptions when offered a subscription at a higher price.

Our ability to profitably attract and retain subscribers to our Sirius XM service as our marketing efforts reach more price-sensitive consumers is uncertain.

Our efforts to acquire subscribers purchasing or leasing used vehicles may attract price sensitive consumers. For example, consumers purchasing or leasing used vehicles may be more price sensitive than consumers purchasing or leasing new vehicles, may convert from trial subscribers to self-paying subscribers at a lower rate, and may cancel their subscriptions more frequently than consumers purchasing or leasing new vehicles. Some of our marketing efforts may also attract more price sensitive subscribers; and our efforts to increase the penetration of satellite radios in new, lower-priced vehicle lines may result in the growth of more economy-minded subscribers. In addition, over time the changing demographics of our subscriber base, such as the expected increase in "Millennial generation customers," may increase the number of subscribers accustomed to consuming entertainment through ad-supported products. Each of these factors may harm our revenue or require additional spending on marketing efforts to demonstrate the value of our Sirius XM service.

Our failure to convince advertisers of the benefits of our Pandora ad-supported service could harm our business.

We derive substantial revenue on our Pandora service from the sale of advertising. Our ability to attract and retain advertisers, and ultimately to sell our advertising inventory, depends on a number of factors, including:

- the number of listener hours on the Pandora ad-supported service, particularly the number of listener hours attributable to high-value demographics;
- keeping pace with changes in technology and our competitors, some of which have significant influence over the distribution of our Pandora app;
- competing effectively for advertising with other dominant online services, such as Google and Facebook, as well as other marketing and media outlets, some of which provide services to us that we depend upon to fulfill the advertising we sell;
- successfully competing for local radio advertising;
- demonstrating the ability of advertisements to reach targeted audiences, including the value of mobile digital advertising;
- ensuring that new ad formats and ad product offerings are attractive to advertisers and that inventory management decisions (such as changes to ad load, frequency, prominence and quality of ads that we serve listeners) do not have a negative impact on listener hours;

- continuing to develop and diversify our advertising platform, which currently includes delivery of display, audio and video advertising products through multiple delivery channels; and
- adapting to technologies designed to block the display of our ads.

Our agreements with advertisers are generally short-term and may be terminated at any time by the advertiser. Advertisers may leave us for competing alternatives at any time. Failure to demonstrate to advertisers the value of our Pandora service would result in reduced spending by, or loss of, advertisers, which would harm our revenue and business.

If we are unable to maintain revenue growth from our advertising products, particularly in mobile advertising, our results of operations will be adversely affected.

The substantial majority of the total listening to our Pandora service occurs on mobile devices, and we expect that mobile listening will continue to be the largest portion of our total usage for the foreseeable future. We are engaged in efforts to continue to convince advertisers of the capabilities and value of mobile digital advertising and to direct an increasing portion of their advertising spend to our ad-supported Pandora service.

We are continuing to build our sales capability to penetrate local advertising markets, which places us in competition with terrestrial radio. We may not be able to capture an increasing share of local and audio advertising revenue, which may have an adverse impact on our future revenue.

We continue to work on initiatives to increase our number of listener hours on mobile and other connected devices, including efforts to expand the reach of our Pandora service by making it available on a variety of devices, such as devices connected to or installed in automobiles. In order to effectively monetize listener hours, we must, among other things, convince advertisers to migrate spending to nascent advertising markets, penetrate local advertising markets and develop compelling ad product solutions.

If we fail to accurately predict and play music, comedy or other content that our Pandora listeners enjoy, we may fail to retain existing and attract new listeners.

A key differentiating factor between our Pandora service and other music content providers is our ability to predict music that our listeners will enjoy. The effectiveness of our personalized playlist generating system depends, in part, on our ability to gather and effectively analyze large amounts of listener data and feedback. We have no assurance that we will continue to be successful in enticing listeners to our Pandora service to give a thumbs-up or thumbs-down to enough songs to effectively predict and select new and existing songs. In addition, our ability to offer listeners songs that they have not previously heard and impart a sense of discovery depends on our ability to acquire and appropriately categorize additional tracks that will appeal to our listeners’ diverse and changing tastes. Many of our competitors currently have larger music and content catalogs than we offer and they may be more effective in providing their listeners with an appealing listener experience.

We also provide comedy and podcast content on our Pandora service, and we try to predict what our listeners will enjoy using technology similar to the technology that we use to generate personalized playlists for music. The risks that apply to our ability to satisfy our listeners’ musical tastes apply to comedy, podcasts and other content to an even greater extent, particularly since we do not yet have as large a data set on listener preferences for comedy, podcasts and other content, and have a smaller catalog of such content as compared to music.

Our ability to predict and select music, comedy, podcasts and other content that our listeners enjoy is important to the perceived value of our Pandora service to consumers and the failure to make accurate predictions would adversely affect our ability to attract and retain subscribers and listeners, increase listener hours and sell advertising.

If we fail to protect the security of personal information about our customers, we could be subject to costly government enforcement actions and private litigation and our reputation could suffer.

The nature of our business involves the receipt and storage of personal information about our subscribers and listeners including, in many cases, credit and debit card information. We have a program in place to detect and respond to data security incidents. However, the techniques used to gain unauthorized access to data systems are constantly evolving and may be difficult to detect for long periods of time. We may be unable to anticipate or prevent unauthorized access to data pertaining to our customers, including credit card and debit card information and other personally identifiable information. Our services, which are supported by our own systems and those of third-party vendors, are vulnerable to computer malware and attacks, any of which could lead to system interruptions, delays, or shutdowns, causing loss of critical data or the unauthorized access to personally identifiable information.

If we fail to protect the security of personal information about our customers or if an actual or perceived breach of security occurs on our systems or a vendor's systems, we could be exposed to costly government enforcement actions and private litigation and our reputation could suffer. We may also be required to expend significant resources to address these problems, including notification under various data privacy regulations, and our reputation and operating results could suffer. In addition, our subscribers and listeners, as well as potential customers, could lose confidence in our ability to protect their personal information, which could cause them to discontinue the use of our services. This loss of confidence would also harm our efforts to attract and retain advertisers, and unauthorized access to our programming would potentially create additional royalty expense with no corresponding revenue. Such events could adversely affect our results of operations. The costs of maintaining adequate protection, including insurance protection, against such threats as they develop in the future (or as legal requirements related to data security increase) could be material.

In addition, hardware, software, or applications we develop or procure from third parties may contain defects in design or manufacture or other problems that could unexpectedly compromise information security. Unauthorized parties may also attempt to gain access to our systems or facilities, or those of third parties with whom we do business, through fraud, trickery, or other forms of deceiving our employees, contractors or other agents. We may not be able to effectively control the unauthorized actions of third parties who may have access to the data we collect.

We may integrate the Pandora service with apps provided by third parties. In such case, we may not be able to control such third parties' use of listeners' data, ensure their compliance with the terms of our privacy policies, or prevent unauthorized access to, or use or disclosure of, information, any of which could expose us to potential liability and negative publicity and could cause our listeners and advertisers to discontinue use of our services.

To date, we have not had a significant cyber-attack or breach that has had a material impact on our business or results of operations. We have implemented systems and processes intended to secure our information technology systems and prevent unauthorized access to or loss of sensitive, confidential and personal data, including through the use of encryption and authentication technologies. Additionally, we have increased our monitoring capabilities to enhance early detection and timely response to potential security anomalies. These security measures may not be sufficient for all possible occurrences and may be vulnerable to hacking, employee error, malfeasance, system error, faulty password management or other irregularities. Further, the development and maintenance of these measures are costly and require ongoing monitoring and updating as technologies change and efforts to overcome security measures become increasingly sophisticated.

Interruption or failure of our information technology and communications systems could impair the delivery of our service and harm our business.

We rely on systems housed at our own premises and at those of third party vendors to enable subscribers and listeners to access our Pandora and Sirius XM services in a dependable and efficient manner. Any degradation in the quality, or any failure, of our systems could reduce our revenues, cause us to lose customers and damage our brands. Although we have implemented practices designed to maintain the availability of the information technology systems we rely on and mitigate the harm of any unplanned interruptions, we cannot anticipate all eventualities. We occasionally experience unplanned outages or technical difficulties. We could also experience loss of data or processing capabilities, which could cause us to lose customers and could harm our reputation and operating results.

We rely on internal systems and external systems maintained by manufacturers, distributors and service providers to take, fulfill and handle customer service requests and host certain online activities. Any interruption or failure of our internal or external systems could prevent us from servicing customers or cause data to be unintentionally disclosed. Our services have experienced and we expect them to continue to experience periodic service interruptions and delays involving our own systems and those of our third-party vendors.

Our data centers and our information technology and communications systems are vulnerable to damage or interruption from natural disasters, malicious attacks, fire, power loss, telecommunications failures, computer viruses or other attempts to harm our systems. The occurrence of any of these events could result in interruptions in our services and unauthorized access to, or alteration of, the content and data contained on our systems and that these third party vendors store and deliver on our behalf.

Damage or interruption to our data centers and information technology and communications centers could expose us to data loss or manipulation, disruption of service, monetary and reputational damages, competitive disadvantage and significant increases in compliance costs and costs to improve the security and resiliency of our computer systems. The compromise of personal, confidential or proprietary information could also subject us to legal liability or regulatory action under evolving cybersecurity, data protection and privacy laws and regulations enacted by the U.S. federal and state governments or other foreign jurisdictions or by various regulatory organizations. As a result, our ability to conduct our business and our results of operations might be adversely affected.

We rely on third parties for the operation of our business, and the failure of third parties to perform could adversely affect our business.

Our business depends, in part, on various third parties, including:

- manufacturers that build and distribute satellite radios;
- companies that manufacture and sell integrated circuits for satellite radios;
- third-party software that we incorporate in and include with our apps and service;
- programming providers, including agreements with owners of various copyrights in music, and on-air talent;
- vendors that operate our call centers;
- vendors that have designed or built, and vendors that support or operate, other important elements of our systems, including our satellites and cloud-based systems we use;
- Apple, who distributes our apps through its App Store and who, in the case of our Pandora service, we rely on to collect fees and approve the terms of our consumer offers; and
- Google, who distributes our apps through its App Store and who, in the case of our Pandora service, we rely on to collect fees and approve the terms of our consumer offers, and who plays an important role in the fulfillment of the ads we sell on our Pandora platform.

If one or more of these third parties do not perform in a satisfactory or timely manner, including complying with our standards and practices relating to business integrity, personnel and cybersecurity, our business could be adversely affected. For example, Space Systems/Loral (which is now the space solutions group of Maxar) has announced that it is restructuring its business and will no longer focus on manufacturing large geostationary communications satellites. The company is currently building two satellites for our Sirius XM service (our SXM-7 and SXM-8 satellites). Maxar’s new business focus could adversely affect the delivery schedules of these satellites and the on-going technical support for our existing in-orbit satellites.

The operation of our apps and service offerings could be impaired if errors occur in the third party software that we use. It is difficult for us to correct any defects in third party software because the development and maintenance of the software is not within our control. There can be no assurance that any third party licensors will continue to make their software available to us on acceptable terms, invest the appropriate levels of resources in their software to maintain and enhance its capabilities, or remain in business. Failure of these third party licensors could harm our streaming services.

In addition, a number of third parties on which we depend have experienced, and may in the future experience, financial difficulties or file for bankruptcy protection. Such third parties may not be able to perform their obligations to us in a timely manner, if at all, as a result of their financial condition or may be relieved of their obligations to us as part of seeking bankruptcy protection.

Our business depends in part upon the auto industry.

A substantial portion of the subscription growth for our satellite radio service has come from purchasers and lessees of new and used automobiles in the United States, and we expect this to be an important source of subscribers for our satellite radio service in the future.

We have agreements with every major automaker to include satellite radios in new vehicles, although these agreements do not require automakers to install specific or minimum quantities of radios in any given period. Our business could be adversely affected if automakers do not continue to include our Sirius XM service in their products.

Automotive production and sales are dependent on many factors, including the availability of consumer credit, general economic conditions, consumer confidence and fuel costs. To the extent vehicle sales by automakers decline, or the penetration of factory-installed satellite radios in those vehicles is reduced, subscriber growth for our satellite radio service may be adversely impacted.

Sales of used vehicles represent a significant source of new subscribers for our satellite radio service. We have agreements with auto dealers and companies operating in the used vehicle market to provide us with data on sales of used satellite radio enabled vehicles, including in many cases the consumer’s name and address. The continuing availability of this data is important to our future growth, and the loss of such data may harm our revenue and business.

Our Pandora business depends in part upon consumer electronics manufacturers.

A key element of our strategy to expand the reach of our Pandora service and increase the number of its subscribers and listeners is to establish and maintain relationships with automakers and consumer electronics manufacturers that integrate the service into and with their products. Our business could be adversely affected if automakers and consumer electronics manufacturers do not continue to provide access to our service or are unwilling to do so on terms acceptable to us.

The market for music rights is changing and is subject to significant uncertainties.

We must maintain music programming royalty arrangements with, and pay license fees to, owners of rights in musical works in order to operate our services. Traditionally, BMI, ASCAP and SESAC have negotiated for these copyright users, collected royalties and distributed them to songwriters and music publishers. These traditional arrangements are changing. The fracturing of the traditional system for licensing rights in musical works may have significant consequences to our business, including increasing licensing costs and reducing the availability of certain pieces for use on our services.

ASCAP and BMI have historically been subject to antitrust consent decrees which govern, among other things, the prices they may permissibly charge licensees. The United States Department of Justice, Antitrust Division, has announced a review of those consent decrees. A termination or material modification of those consent decrees could affect our ability to license musical compositions.

Under the United States Copyright Act, we also must pay royalties to copyright owners of sound recordings for the performance of such sound recordings on our Sirius XM service. Those royalty rates may be established through negotiation or, if negotiation is unsuccessful, by the Copyright Royalty Board. Owners of copyrights in sound recordings have created SoundExchange, a collective organization, to collect and distribute royalties. SoundExchange is exempt by statute from certain U.S. antitrust laws and exercises significant market power in the licensing of sound recordings. Under the terms of the Copyright Royalty Board’s existing decision governing sound recording royalties for satellite radio, we are required to pay a royalty based on our gross revenues associated with our satellite radio service, subject to certain exclusions, of 15.5% per year for each of the next eight years.

Our ability to offer interactive features in our Pandora services depends upon maintaining licenses with copyright owners.

Pandora has direct license agreements with many sound recording copyright owners and with thousands of musical work copyright owners. These agreements grant us the right to operate Pandora Premium, and add interactive features, such as replays, additional skips and offline play, to Pandora’s ad-supported service and to Pandora Plus.

These direct licenses are complex. We may not be in compliance with the terms of these licenses, which could result in the loss of some or all of these licenses and some or all of the rights they convey. Similarly, many of these licenses provide that if the licensor loses rights in a portion of the content licensed under the agreement, that content may be removed from the license going-forward.

If Pandora fails to maintain these direct licenses, or if rights to certain music were no longer available under these licenses, then we may have to remove the affected music from Pandora’s services, or discontinue certain interactive features for such music, and it might become commercially impractical for us to operate Pandora Premium. Any of these occurrences could have an adverse effect on our business, financial condition and results of operations.

Several of these direct licenses also include provisions related to the terms of those agreements relative to other content licensing arrangements, which are commonly referred to as “most favored nation” clauses. If we breach those provisions it could, among other things, cause our payments under those agreements to escalate substantially or the counterparty could terminate our agreement. In addition, many record labels, music publishers and performing rights organizations have the right to audit our royalty payments, and audits can result in disputes over whether we have paid the proper amounts. As a result of such audits, we could be required to pay additional amounts, audit fees and interest or penalties, and the amounts involved could adversely affect our business, financial condition and results of operations.

There is no guarantee that these direct licenses will be renewed in the future or that such licenses will be available on the economic terms associated with the current licenses. If we are unable to secure and maintain direct licenses for the rights to provide music on our Pandora services on terms similar to those under our current direct licenses, our content costs could rise and adversely affect our business, financial condition and results of operations.

The rates we must pay for "mechanical rights" to use musical works on our Pandora service have increased substantially and these new rates may adversely affect our business.

Pandora has direct licenses with thousands of music publishers. Those licenses provide that the royalty rate for "reproduction rights" or "mechanical rights", which are required to offer the interactive features of our Pandora services, are determined by the rate formula set by the Copyright Royalty Board for the compulsory license made available by Section 115 of the Copyright Act. These royalty rates also apply to Pandora's use of musical works for which we do not have a direct license with the copyright owners.

The Copyright Royalty Board has issued a rate formula for the period from January 1, 2018 through December 31, 2022. The rate that we pay to music publishers and songwriters for the mechanical rights and performance rights needed in connection with interactive streaming will increase annually between 2018 and 2022. Certain per-subscriber minimums also apply depending on the type of service. Unless our appeal of this decision is successful, Pandora's royalty costs will significantly increase compared to prior rates, which could harm our financial condition and hinder our ability to provide interactive features in our services, or may cause one or more of our subscription services to not be commercially viable.

Failure of our satellites would significantly damage our business.

The lives of the satellites required to operate our Sirius XM service vary depending on a number of factors, including:

- degradation and durability of solar panels;
- quality of construction;
- random failure of satellite components, which could result in significant damage to or loss of a satellite;
- amount of fuel the satellite consumes; and
- damage or destruction as a result of electrostatic storms, terrorist attacks, collisions with other objects in space or other events, such as nuclear detonations, occurring in space.

In the ordinary course of operation, satellites experience failures of component parts and operational and performance anomalies. Components on our in-orbit satellites have failed, and from time to time we have experienced anomalies in the operation and performance of these satellites. These failures and anomalies are expected to continue in the ordinary course, and we cannot predict if any of these possible future events will have a material adverse effect on our operations or the life of our existing in-orbit satellites. In addition, our Sirius network of terrestrial repeaters communicates with a single third party satellite. Our XM network of terrestrial repeaters communicates with a single XM satellite. If the satellites communicating with the applicable repeater network fail unexpectedly, the services would be disrupted for several hours or longer.

Any material failure of our satellites could cause us to lose customers for our Sirius XM service and could materially harm our reputation and our operating results. We do not have insurance for our existing in-orbit satellites. Additional information regarding our fleet of satellites is contained in the section entitled "Item 1. Business - Satellites, Terrestrial Repeaters and Other Satellite Facilities" of this Annual Report on Form 10-K.

Our Sirius XM service may experience harmful interference from wireless operations.

The development of applications and services in spectrum adjacent to the frequencies licensed to us, as well as the combination of signals in other frequencies, may cause harmful interference to our satellite radio service in certain areas of the United States. Certain operations or combination of operations permitted by the FCC in spectrum, other than our licensed frequencies, results in the loss of signal to our service, and the reception of our satellite radio service can be adversely affected in certain areas. Elimination of this interference may not be possible in all cases. In other cases, our efforts to reduce this interference may require extensive engineering efforts and additions to our terrestrial infrastructure. These mitigation efforts may be costly and take several years to implement and may not be entirely effective. In certain cases, we are dependent on the FCC to assist us in preventing harmful interference to our service.

Failure to comply with FCC requirements could damage our business.

We hold FCC licenses and authorizations to operate commercial satellite radio services in the United States, including satellites, terrestrial repeaters and related authorizations. The FCC generally grants licenses and authorizations for a fixed term. Although we expect our licenses and authorizations to be renewed in the ordinary course upon their expiration, there can be no assurance that this will be the case. Any assignment or transfer of control of any of our FCC licenses or authorizations must be approved in advance by the FCC.

The operation of our satellite radio systems is subject to significant regulation by the FCC under authority granted through the Communications Act of 1934 and related federal law. We are required, among other things, to operate only within specified frequencies; to meet certain conditions regarding the interoperability of our satellite radios with those of other licensed satellite radio systems; to coordinate our satellite radio services with radio systems operating in the same range of frequencies in neighboring countries; and to coordinate our communications links to our satellites with other systems that operate in the same frequency band.

Noncompliance by us with these requirements or other conditions or with other applicable FCC rules and regulations could result in fines, additional license conditions, license revocation or other detrimental FCC actions. There is no guarantee that Congress will not modify the statutory framework governing our services, or that the FCC will not modify its rules and regulations in a manner that would have an adverse impact on our operations.

Economic conditions, including advertising budgets and discretionary spending, may adversely affect our business and operating results.

Our business is affected by general economic conditions, including their impact on advertising spending. Expenditures by advertisers generally tend to reflect overall economic conditions, and reductions in spending by advertisers could have an adverse impact on our business.

The purchase of a Sirius XM or Pandora subscription may be considered discretionary. To the extent that general economic conditions reduce consumer spending on discretionary activities, our ability to attract and retain subscribers could be hindered, which could reduce our subscription revenue and negatively impact our business, including subscriber churn and conversion rates for our subscription services.

If we are unable to attract and retain qualified personnel, our business could be harmed.

We believe that our success depends on our ability to attract and retain qualified management, sales, technical and other personnel. All of our employees, including our executive officers, are free to terminate their employment with us at any time, and their knowledge of our business may be difficult to replace.

Qualified individuals are in high demand, particularly in the media and technology industries in New York and in the San Francisco Bay Area, where we have substantial operations, and we may incur significant costs to attract and retain employees. If we are unable to attract and retain our key employees, we may not be able to achieve our objectives, and our business could be harmed.

We may not realize the benefits of acquisitions or other strategic investments and initiatives, including the acquisition of Pandora.

Our strategy includes selective acquisitions, other strategic investments and initiatives that allow us to expand our business. The success of any acquisition, including the acquisition of Pandora, depends upon effective integration, cultural assimilation and management of acquired businesses and assets into our operations, which is subject to risks and uncertainties, including realizing the growth potential, the anticipated synergies and cost savings, the ability to retain and attract personnel, the diversion of management’s attention for other business concerns, and undisclosed or potential legal liabilities of the acquired business or assets.

We are devoting significant management attention and resources to integrate the businesses and operations of Pandora. The integration process could result in the distraction of our management, the disruption of our ongoing business or inconsistencies in our services, standards, controls, procedures and policies, any of which could adversely affect our ability to maintain relationships with customers, vendors and employees or to achieve the anticipated benefits of the acquisition.

Our use of pre-1972 sound recordings on our Pandora service could result in additional costs.

Federal copyright protection previously did not apply to sound recordings created prior to February 15, 1972. The protection of such recordings was instead governed by a patchwork of state statutory and common laws. Copyright owners of pre-1972 sound recordings have brought litigation against Pandora alleging violations of state statutory and common laws arising from the reproduction and public performance of pre-1972 sound recordings. A number of suits brought by various plaintiffs remain pending against Pandora.

If Pandora is found liable for the violation of the exclusive rights of any pre-1972 sound recording copyright owners, then we could be subject to liability, the amount of which could be significant.

We may from time to time modify our business plan, and these changes could adversely affect us and our financial condition.

We regularly evaluate our plans and strategy. These evaluations often result in changes to our plans and strategy, some of which may be material. These changes in our plans or strategy may include: the acquisition or termination of unique or compelling programming; the introduction of new features or services; significant new or enhanced distribution arrangements; investments in infrastructure, such as satellites, equipment or radio spectrum; and investments in, and/or acquisitions of, other businesses, including acquisitions that are not directly related to our business.

We have a significant amount of indebtedness, and our debt contains certain covenants that restrict our operations.

As of December 31, 2019, we had an aggregate principal amount of approximately$7.9 billion of indebtedness outstanding.

Our indebtedness increases our vulnerability to general adverse economic and industry conditions; requires us to dedicate a portion of our cash flow from operations to payments on indebtedness, reducing the availability of cash flow to fund capital expenditures, marketing and other general corporate activities; limits our ability to borrow additional funds; and may limit our flexibility in planning for, or reacting to, changes in our business and the audio entertainment industry.

In addition, our borrowings under our Senior Secured Revolving Credit Facility carry a variable interest rate based on London Inter-bank Offered Rate (“LIBOR”) as a benchmark for establishing the rate of interest. LIBOR is the subject of recent national, international and other regulatory guidance and proposals for reform. On July 27, 2017, the United Kingdom's Financial Conduct Authority, which regulates LIBOR, announced that it intends to phase out LIBOR by the end of 2021. It is unclear if at that time LIBOR will cease to exist or if new methods of calculating LIBOR will be established such that it continues to exist after 2021. The consequences of these developments cannot be entirely predicted, but could include an increase in the cost of our borrowings under the Credit Facility

Our facilities could be damaged by natural catastrophes or terrorist activities.

An earthquake, hurricane, tornado, flood, cyber-attack, terrorist attack or other catastrophic event could damage our data centers, studios, terrestrial repeater networks or satellite uplink facilities, interrupt our services and harm our business. We also have significant operations in the San Francisco Bay Area, a region known for seismic activity.

Any damage to the satellites that transmit to our terrestrial repeater networks would likely result in degradation of the affected service for some Sirius XM subscribers and could result in complete loss of Sirius XM satellite service in certain or all areas. Damage to our satellite uplink facilities could result in a complete loss of our Sirius XM satellite service until we could transfer operations to suitable back-up facilities.

The unfavorable outcome of pending or future litigation could have an adverse impact on our operations and financial condition.

We are parties to several legal proceedings arising out of various aspects of our business, including class actions arising out of our marketing practices. The outcome of these proceedings may not be favorable, and one or more unfavorable outcomes could have an adverse impact on our financial condition.

Failure to protect our intellectual property or actions by third parties to enforce their intellectual property rights could substantially harm our business and operating results.

Development of our systems has depended upon the intellectual property that we have developed, as well as intellectual property licensed from third parties. If the intellectual property that we have developed or use is not adequately protected, others will be permitted to and may duplicate portions of our systems or services without liability. In addition, others may challenge, invalidate, render unenforceable or circumvent our intellectual property rights, patents or existing licenses or we may face significant legal costs in connection with defending and enforcing those intellectual property rights. Some of the know-how and technology we have developed, and plan to develop, is not now, nor will it be, covered by U.S. patents or trade secret protections. Trade secret protection and contractual agreements may not provide adequate protection if there is any unauthorized use or disclosure. The loss of necessary technologies could require us to substitute technologies of lower quality performance standards, at greater cost or on a delayed basis, which could harm us.

Other parties may have patents or pending patent applications, which will later mature into patents or inventions that may block or put limits on our ability to operate our system or license our technologies. We may have to resort to litigation to enforce our rights under license agreements or to determine the scope and validity of other parties' proprietary rights in the subject matter of those licenses. This may be expensive and we may not succeed in any such litigation.

Third parties may assert claims or bring suit against us for patent, trademark or copyright infringement, or for other infringement or misappropriation of intellectual property rights. Any such litigation could be costly, divert our efforts from our business, subject us to significant liabilities to third parties, require us to seek licenses from third parties, block our ability to operate our services or license our technology, or otherwise adversely affect our ability to successfully develop and market our services.

Some of our services and technologies may use "open source" software, which may restrict how we use or distribute our services or require that we release the source code subject to those licenses.

We may incorporate in some products software licensed under "open source" licenses. Open source licenses often require that the source code be made available to the public and that any modifications or derivative works to the open source software continue to be licensed under open source licenses. Few courts have interpreted open source licenses, and the manner in which these licenses may be interpreted and enforced is therefore subject to uncertainty. In the event that portions of our proprietary technology are determined to be subject to an open source license, we may be required to publicly release portions of our source code, be forced to re-engineer all or a portion of our technologies, or otherwise be limited in the licensing of our technologies, each of which could adversely affect our ability to sustain and grow our business.

Rapid technological and industry changes and new entrants could adversely impact our services.

The audio entertainment industry is characterized by rapid technological change, frequent product and feature innovations, changes in customer requirements and expectations, evolving standards and new entrants offering products and services. If we are unable to keep pace with these changes, our business may not succeed. Products using new technologies could make our services less competitive in the marketplace.

Existing or future laws and regulations could harm our business.

We are subject to many laws, including federal, state, local and foreign laws. These laws and regulations include user privacy, behavioral advertising, data collection and protection, automatic renewal of agreements, credit card processing procedures, pricing, fraud, electronic waste, mobile and electronic device communications, broadband internet access, content restrictions, quality of products and services, taxation, advertising, intellectual property rights and information security. The expansion of these laws, both in terms of their number and their applicability, could harm our business.

We cannot guarantee that we have been or will be fully compliant in every jurisdiction, as it is not entirely clear how existing laws and regulations governing privacy, taxation and consumer protection apply to internet-based businesses, such as Pandora. Moreover, as internet commerce continues to evolve, increasing regulation by federal, state and foreign agencies becomes more likely. The adoption of any laws or regulations that adversely affect the internet, including laws limiting internet neutrality, could decrease listener demand for our service and increase our cost of doing business.

We may be exposed to liabilities that other entertainment service providers would not customarily be subject to.

We design, establish specifications, source or specify parts and components, and manage various aspects of the logistics of the production of satellite radios and our apps. As a result of these activities, we may be exposed to liabilities associated with the design, manufacture and distribution of radios that the providers of an entertainment service would not customarily be subject to, such as liabilities for design defects, patent infringement and compliance with applicable laws, as well as the costs of returned product.

Our business and prospects depend on the strength of our brands.

Maintaining and enhancing our brands is an important part of our strategy to expand our base of subscribers, listeners and advertisers. Our brands may be impaired by a number of factors, including service outages, data privacy and security issues and exploitation of our trademarks by others without permission. Our ability to maintain and enhance our brands also depends in part on our ability to continue to develop and provide an innovative and high-quality entertainment experience, which we may not do successfully.

We are a "controlled company" within the meaning of the NASDAQ listing rules and, as a result, qualify for, and rely on, exemptions from certain corporate governance requirements.

We are a “controlled company” for the purposes of the NASDAQ Stock Market listing rules. As such, we have elected not to comply with certain NASDAQ corporate governance requirements. Although a majority of our board of directors consists of independent directors, we do not have a compensation committee and nominating and corporate governance committee that consist entirely of independent directors. Accordingly, you may not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of NASDAQ.

While we currently pay a quarterly cash dividend to holders of our common stock, we may change our dividend policy at any time.

We currently pay a quarterly cash dividend to holders of our common stock, although we have no obligation to do so, and our dividend policy may change at any time without notice to our stockholders. The declaration and payment of dividends is at the discretion of our board of directors in accordance with applicable law after considering various factors, including our financial condition, operating results, current and anticipated cash needs, limitations imposed by our indebtedness, legal requirements and other factors that our board of directors deems relevant.

Our principal stockholder has significant influence, including over actions requiring stockholder approval, and its interests may differ from the interests of other holders of our common stock.

As of December 31, 2019, Liberty Media beneficially owned approximately 72% of Holdings’ common stock and has the ability to influence our affairs, policies and operations. One Liberty Media executive, one Liberty Media senior advisor, and one other member of the board of directors of Liberty Media are members of our board of directors. Our board of directors currently has thirteen members. Gregory B. Maffei, the President and Chief Executive Officer of Liberty Media, is the Chairman of Holdings’ board of directors. Our board of directors is responsible for, among other things, the appointment of executive management, future issuances of common stock or other securities, the payment of dividends, if any, the incurrence of debt, and the approval of various transactions.

Liberty Media can also determine the outcome of all matters requiring general stockholder approval, including the election of the board of directors and changes to our certificate of incorporation or by-laws. Liberty Media can also cause or prevent a change of control of Holdings and could preclude any unsolicited acquisition of our company. The concentration of ownership could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and might ultimately affect the market price of our common stock. In certain cases, the interests of Liberty Media may not be aligned with the interests of other stockholders of Holdings.

Special Note About Forward-Looking Statements

We have made various statements in this Annual Report on Form 10-K that may constitute “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may also be made in our other reports filed with or furnished to the SEC, in our press releases and in other documents. In addition, from time to time, we, through our management, may make oral forward-looking statements. For example, these forward-looking statements may include, among other things, our statements about our outlook and our future results of operations and financial condition; share repurchase plans; the impact of economic and market conditions; and the impact of our acquisition of Pandora. The words “will likely result,” “are expected to,” “will continue,” “is anticipated,” “estimated,” “believe,” “intend,” “plan,” “may,” “should,” “could,” “would,” “likely,” “projection,” “outlook” and similar expressions are intended to identify forward-looking statements. Forward-looking statements are subject to risks and uncertainties, including those identified above, which could cause actual results to differ materially from such statements. We caution you that the risk factors described above are not exclusive. There may also be other risks that we are unable to predict at this time that may cause actual results to differ materially from those in forward-looking statements. New factors emerge from time to time, and it is not possible for us to predict which will arise or to assess with any precision the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. We undertake no obligation to update publicly or revise any forward-looking statements, except as required by law.

ITEM 1B. ***UNRESOLVED STAFF COMMENTS***

None.

ITEM 2. *PROPERTIES*

Below is a list of the principal properties that we own or lease:

Sirius XM

Location	Purpose	Own/Lease
New York, NY	Corporate headquarters, office facilities and studio/production facilities	Lease
Washington, DC	Office, studio/production facilities and data center	Own
Lawrenceville, NJ	Office and technical/engineering facilities	Lease
Deerfield Beach, FL	Office and technical/engineering facilities	Lease
Farmington Hills, MI	Office and technical/engineering facilities	Lease
Nashville, TN	Studio/production facilities	Lease
Vernon, NJ	Technical/engineering facilities	Own
Ellenwood, GA	Technical/engineering facilities	Lease
Fredericksburg, VA	Warehouse and technical/engineering facilities	Lease
Los Angeles, CA	Office and studio/production facilities	Lease
Irving, TX	Office and engineering facilities/call center	Lease
San Francisco, CA	Office and engineering facilities	Lease

We also lease other small facilities that we use as offices for our advertising sales personnel, studios and warehouse and maintenance space. These facilities are not material to our business or operations.

In addition, we lease or license space at approximately 540 locations for use in connection with the terrestrial repeater networks that support our satellite radio services. In general, these leases and licenses are for space on building rooftops and communications towers. None of these individual locations are material to our business or operations.

Pandora

Location	Purpose	Own/Lease
Oakland, CA	Office and technical/engineering facilities	Lease
New York, NY	Office, sales and studio/production facilities	Lease
Atlanta, GA	Office, sales and technical/engineering facilities	Lease
Santa Monica, CA	Office and sales facilities	Lease

We also lease other small facilities that we use as offices for our sales and office personnel. These facilities are not material to our business or operations.

ITEM 3. LEGAL PROCEEDINGS

In the ordinary course of business, we are a defendant or party to various claims and lawsuits, including those discussed below.

Telephone Consumer Protection Act Suits. On March 13, 2017, Thomas Buchanan, individually and on behalf of all others similarly situated, filed a class action complaint against Sirius XM in the United States District Court for the Northern District of Texas, Dallas Division. The plaintiff alleges that Sirius XM violated the Telephone Consumer Protection Act of 1991 (the "TCPA") by, among other things, making telephone solicitations to persons on the National Do-Not-Call registry, a database established to allow consumers to exclude themselves from telemarketing calls unless they consent to receive the calls in a signed, written agreement, and making calls to consumers in violation of our internal Do-Not-Call registry. The plaintiff is seeking various forms of relief, including statutory damages of $500 for each violation of the TCPA or, in the alternative, treble damages of up to $1,500 for each knowing and willful violation of the TCPA and a permanent injunction prohibiting us from making, or having made, any calls to land lines that are listed on the National Do-Not-Call registry or our internal Do-Not-Call registry.

Following a mediation, in April 2019, Sirius XM entered into an agreement to settle this purported class action suit. The settlement resolves the claims of consumers for the period October 2013 through January 2019. As part of the settlement, Sirius XM paid $25 million into a non-reversionary settlement fund from which cash to class members, notice, administrative costs, and attorney's fees and costs will be paid. The settlement also contemplates that Sirius XM will provide three months of service to its All Access subscription package for those members of the class that elect to receive it, in lieu of cash, at no cost to those class members and who are not active subscribers at the time of the distribution. The availability of this three-month service option will not diminish the $25 million common fund. As part of the settlement, Sirius XM will also implement change relating to its "Do-Not-Call" practices and telemarketing programs. On January 28, 2020, the Court issued an order and final judgment approving the settlement.

Pre-1972 Sound Recording Litigation. On October 2, 2014, Flo & Eddie Inc. filed a class action suit against Pandora in the federal district court for the Central District of California. The complaint alleges a violation of California Civil Code Section 980, unfair competition, misappropriation and conversion in connection with the public performance of sound recordings recorded prior to February 15, 1972 (which we refer to as, "pre-1972 recordings"). On December 19, 2014, Pandora filed a motion to strike the complaint pursuant to California's Anti-Strategic Lawsuit Against Public Participation ("Anti-SLAPP") statute, which following denial of Pandora's motion was appealed to the Ninth Circuit Court of Appeals. In March 2017, the Ninth Circuit requested certification to the California Supreme Court on the substantive legal questions. The California Supreme Court accepted certification. In May 2019, the California Supreme Court issued an order dismissing consideration of the certified questions on the basis that, following the enactment of the Orrin G. Hatch-Bob Goodlatte Music Modernization Act, Pub. L. No. 115-264, 132 Stat. 3676 (2018) (the "MMA"), resolution of the questions posed by the Ninth Circuit Court of Appeals was no longer "necessary to . . . settle an important question of law."

The MMA grants a potential federal preemption defense to the claims asserted in the aforementioned lawsuits. In July 2019, Pandora took steps to avail itself of this preemption defense, including making the required payments under the MMA for certain of its uses of pre-1972 recordings. Based on the federal preemption contained in the MMA (along with other considerations), Pandora asked the Ninth Circuit to order the dismissal of the *Flo & Eddie, Inc. v. Pandora Media, Inc.* case. On October 17, 2019, the Ninth Circuit Court of Appeals issued a memorandum disposition concluding that the question of whether the MMA preempts Flo and Eddie's claims challenging Pandora's performance of pre-1972 recordings "depends on various unanswered factual questions" and remanded the case to the District Court for further proceedings.

After Flo & Eddie filed its action in 2014 against Pandora, several other plaintiffs commenced separate actions, both on an individual and class action basis, alleging a variety of violations of common law and state copyright and other statutes arising from allegations that Pandora owed royalties for the public performance of pre-1972 recordings. Many of these separate actions have been dismissed or are in the process of being dismissed. None of the remaining pending actions is likely to have a material adverse effect on our business, financial condition or results of operations.

We believe we have substantial defenses to the claims asserted in these actions, and we intend to defend these actions vigorously.

Copyright Royalty Board Proceeding to Determine the Rate for Statutory Webcasting. Pursuant to Sections 112 and 114 of the Copyright Act, the Copyright Royalty Board (the "CRB") initiated a proceeding in January 2019 to set the rates and terms by which webcasters may perform sound recordings via digital transmission over the internet and make ephemeral reproductions of those recordings during the 2021-2025 rate period under the authority of statutory licenses provided under Sections 112 and 114 of the Copyright Act. We filed a petition to participate in the proceeding on behalf of our Sirius XM and Pandora businesses, as did other webcasters including Google Inc. and the National Association of Broadcasters. SoundExchange, a collective organization that collects and distributes digital performance royalties to artists and copyright holders, represents the various copyright owner participants in the proceeding, including Sony Music Entertainment, Universal Music Group, and Warner Music Group. Because the proceeding focuses on setting statutory rates for non-interactive online music streaming (commonly identified as "webcasting"), the proceeding will set the rates that our Pandora business pays for music streaming on its free, ad-supported tier, and that our Sirius XM business pays for streaming on its subscription internet radio service. This proceeding will not set the rates that we pay for our other music offerings (satellite radio, business establishment services) or that we pay for interactive streaming on our Pandora Plus and Pandora Premium services.

In September 2019, the participants filed written direct statements, including proposed rates and terms for the 2021-2025 period. We and other webcaster participants proposed rates below the existing statutory rates, which for commercial webcasters are currently set at $0.0018 per performance for non-subscription transmissions (such as offered by our Pandora ad-supported business) and $0.0024 per performance for subscription transmissions (such as offered by our Sirius XM internet radio service). SoundExchange has proposed increasing the commercial webcasting rates to $0.0028 per performance for non-subscription transmissions and $0.0031 per performance for subscription transmissions.

In January 2020, the participants filed written rebuttal statements, responding to each other's proposals. Discovery in the matter is ongoing, and a multi-week hearing has been set to begin before the CRB in March 2020. The CRB's initial determination of the rates and terms for the 2021-2025 period is required to be delivered in December 2020.

Other Matters. In the ordinary course of business, we are a defendant in various other lawsuits and arbitration proceedings, including derivative actions; actions filed by subscribers, both on behalf of themselves and on a class action basis; former employees; parties to contracts or leases; owners of patents, trademarks, copyrights or other intellectual property and certain contingencies related to Pandora. None of these other matters, in our opinion, is likely to have a material adverse effect on our business, financial condition or results of operations.

ITEM 4. *MINE SAFETY DISCLOSURES*

Not applicable.

PART II

ITEM 5. *MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES*

Our common stock is traded on the NASDAQ Global Select Market under the symbol "SIRI." On January 31, 2020, there were approximately 7,743 record holders of our common stock.

Issuer Purchases of Equity Securities

As of December 31, 2019, our board of directors had authorized us to repurchase an aggregate of $14.0 billion of our common stock and have not establish an end date for this stock repurchase program. Shares of common stock may be purchased from time to time on the open market, pursuant to pre-set trading plans meeting the requirements of Rule 10b5-1 under the Exchange Act, in privately negotiated transactions, including transactions with Liberty Media and its affiliates, or otherwise. As of December 31, 2019, our cumulative repurchases since December 2012 under our stock repurchase program totaled 3.0 billion shares for approximately $12.8 billion, and approximately $1.2 billion remained available under our existing $14.0 billion stock repurchase program. The size and timing of our repurchases will be based on a number of factors, including price and business and market conditions.

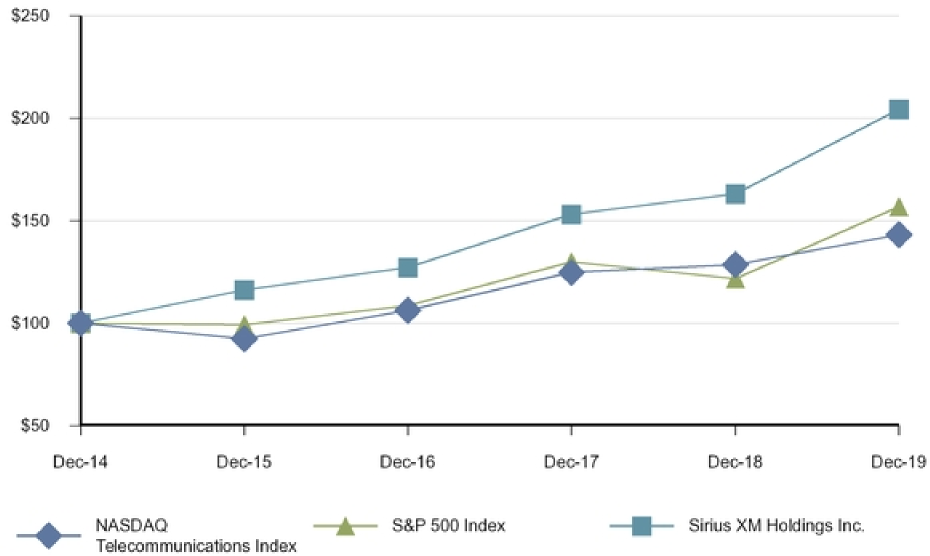
The following table provides information about our purchases of equity securities registered pursuant to Section 12 of the Exchange Act during the quarter ended December 31, 2019:

Period	Total Number of Shares Purchased	Average Price Paid Per Share (a)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (a)
October 1, 2019 - October 31, 2019	8,831,735	$ 6.34	8,831,735	$ 1,303,879,917
November 1, 2019 - November 30, 2019	20,279,670	$ 6.78	20,279,670	$ 1,166,420,573
December 1, 2019 - December 31, 2019	—	$ —	—	$ 1,166,420,573
Total	29,111,405	$ 6.65	29,111,405	

(a) These amounts include fees and commissions associated with the shares repurchased. All of these repurchases were made pursuant to our share repurchase program.

COMPARISON OF CUMULATIVE TOTAL RETURNS

Set forth below is a graph comparing the cumulative performance of our common stock with the Standard & Poor's Composite-500 Stock Index, or the S&P 500, and the NASDAQ Telecommunications Index from December 31, 2014 to December 31, 2019. The graph assumes that $100 was invested on December 31, 2014 in each of our common stock, the S&P 500 and the NASDAQ Telecommunications Index. In November 2016, we paid our first quarterly dividend. Our board of directors expects to declare regular quarterly dividends.



Stockholder Return Performance Table

	NASDAQ Telecommunications Index	S&P 500 Index	Sirius XM Holdings Inc.
December 31, 2014	$ 100.00	$ 100.00	$ 100.00
December 31, 2015	$ 92.50	$ 99.27	$ 116.29
December 31, 2016	$ 106.25	$ 108.74	$ 127.14
December 31, 2017	$ 124.78	$ 129.86	$ 153.14
December 31, 2018	$ 128.57	$ 121.76	$ 163.14
December 31, 2019	$ 143.20	$ 156.92	$ 204.29

Equity Compensation Plan Information

Plan Category *(shares in millions)*	Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights[(1)]	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights[(2)]	Number of Securities Remaining Available for Future Issuance under Equity Compensation Plans
Equity compensation plans approved by security holders	283	$ 4.46	165
Equity compensation plans not approved by security holders	—	—	—
Total	283	$ 4.46	165

(1) In addition to shares issuable upon exercise of stock options, amount also includes approximately 75 shares underlying restricted stock units, including performance-based restricted stock units ("PRSUs") and dividend equivalents thereon. The number of shares to be issued in respect of PRSUs and dividend equivalents thereon have been calculated based on the assumption that the maximum levels of performance applicable to the PRSUs will be achieved.

(2) The weighted-average exercise price of outstanding options, warrants and rights relates solely to stock options, which are the only currently outstanding exercisable security.

ITEM 6. *SELECTED FINANCIAL DATA*

The operating and balance sheet data included in the following selected financial data has been derived from our audited consolidated financial statements. The data below includes Pandora's results for the year ended December 31, 2019 (since the date of the Pandora Acquisition on February 1, 2019). This selected financial data should be read in conjunction with the audited Consolidated Financial Statements and related notes thereto included in Item 8 of this Annual Report on Form 10-K and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Item 7 of this Annual Report on Form 10-K.

	As of and for the Years Ended December 31,				
(in millions, except per share data)	2019	2018	2017	2016	2015
Statements of Comprehensive Income Data:					
Total revenue	$ 7,794	$ 5,771	$ 5,425	$ 5,017	$ 4,570
Net income	$ 914	$ 1,176	$ 648	$ 746	$ 510
Net income per share - basic (1)	$ 0.20	$ 0.26	$ 0.14	$ 0.15	$ 0.09
Net income per share - diluted (1)	$ 0.20	$ 0.26	$ 0.14	$ 0.15	$ 0.09
Weighted average common shares outstanding - basic	4,501	4,462	4,638	4,917	5,376
Weighted average common shares outstanding - diluted	4,616	4,561	4,724	4,965	5,435
Cash dividends declared per share	$ 0.04961	$ 0.0451	$ 0.0410	$ 0.0100	$ —
Balance Sheet Data:					
Cash and cash equivalents	$ 106	$ 54	$ 69	$ 214	$ 112
Restricted investments	$ 14	$ 11	$ 10	$ 10	$ 10
Total assets (2) (3)	$ 11,149	$ 8,173	$ 8,329	$ 8,004	$ 8,047
Long-term debt, net of current portion (3)	$ 7,842	$ 6,885	$ 6,741	$ 5,843	$ 5,444
Stockholders' (deficit) equity (2)	$ (736)	$ (1,817)	$ (1,524)	$ (792)	$ (166)

(1) The 2017 net income per basic and diluted share includes the impact of $185 in income tax expense, or a decrease of approximately $0.04 per share, due to the reduction in our net Deferred tax asset balance as a result of the Tax Cut and Jobs Act signed into law on December 22, 2017. For additional information refer to Note 17 to our consolidated financial statements in Item 8 of this Annual Report on Form 10-K.

(2) For the year ended December 31, 2016, we recorded $294 as an increase to our Deferred tax assets and decrease to our Accumulated deficit as a result of the adoption of Accounting Standards Update 2016-09, *Compensation-Stock Compensation (Topic 718).*

(3) The 2015 balance reflects the adoption of Accounting Standards Update 2015-03, *Interest-Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs,* and Accounting Standards Update 2015-15,

Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Agreements. As a result of our adoption of these ASUs, Total Assets was reduced by $7 for the year ended December 31, 2015 and Long-term debt, net of current portion, was reduced by $7 for the year ended December 31, 2015.

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

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Actual results and the timing of events could differ materially from those projected in forward-looking statements due to a number of factors, including those described under "Item 1A - Risk Factors" and elsewhere in this Annual Report on Form 10-K. See "Special Note About Forward-Looking Statements."

All amounts referenced in this Item 7 are in millions, except subscriber amounts are in thousands and per subscriber and per installation amounts are in ones, unless otherwise stated.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

Executive Summary

We operate two complementary audio entertainment businesses - our Sirius XM business and our Pandora business.

Sirius XM

Our Sirius XM business features music, sports, entertainment, comedy, talk, news, traffic and weather channels, as well as infotainment services, in the United States on a subscription fee basis. The Sirius XM service is distributed through our two proprietary satellite radio systems and through the internet via applications for mobile devices, home devices and other consumer electronic equipment. Satellite radios are primarily distributed through automakers, retailers and our website. Our Sirius XM service is also available through our user interface, which we call "360L," that combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience. The primary source of revenue from our Sirius XM business is generated from subscription fees, with most of our customers subscribing to monthly, quarterly, semi-annual or annual plans. We also derive revenue from advertising on select non-music channels, direct sales of our satellite radios and accessories, and other ancillary services. As of December 31, 2019, our Sirius XM business had approximately 34.9 million subscribers.

In addition to our audio entertainment businesses, we provide connected vehicle services to several automakers and directly to consumers through aftermarket devices. These services are designed to enhance the safety, security and driving experience of consumers. We also offer a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings, a traffic information service that includes information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems, and real-time weather services in vehicles, boats and planes.

Sirius XM also holds a 70% equity interest and 33% voting interest in Sirius XM Canada Holdings Inc. ("Sirius XM Canada"). Sirius XM Canada's subscribers are not included in our subscriber count or subscriber-based operating metrics.

Pandora

Our Pandora business operates a music, comedy and podcast streaming discovery platform, offering a personalized experience for each listener wherever and whenever they want to listen, whether through mobile devices, car speakers or connected devices. Pandora enables listeners to create personalized stations and playlists, discover new content, hear artist- and expert-curated playlists, podcasts and select Sirius XM content as well as search and play songs and albums on-demand. Pandora is available as an ad-supported radio service, a radio subscription service, called Pandora Plus, and an on-demand subscription service, called Pandora Premium. As of December 31, 2019, Pandora had approximately 6.2 million subscribers. The majority of revenue from our Pandora business is generated from advertising on our Pandora ad-supported radio service. In addition, through AdsWizz, Pandora provides a comprehensive digital audio advertising technology platform, which connects audio publishers and advertisers. As of December 31, 2019, our Pandora business had approximately 63.5 million monthly active users.

Liberty Media

As of December 31, 2019, Liberty Media beneficially owned, directly and indirectly, approximately 72% of the outstanding shares of our common stock. As a result, we are a "controlled company" for the purposes of the NASDAQ corporate governance requirements.

Results of Operations

Actual Results

Set forth below are our results of operations for the year ended December 31, 2019 compared with the year ended December 31, 2018 and for the year ended December 31, 2018 compared with the year ended December 31, 2017. The inclusion of Pandora's results in the year ended December 31, 2019 (since the date of the Pandora Acquisition on February 1, 2019) may render direct comparisons with results for prior periods less meaningful. The results of operations are presented for each of our reporting segments for revenue and cost of services and on a consolidated basis for all other items.

	For the Years Ended December 31,			2019 vs 2018 Change		2018 vs 2017 Change	
	2019	2018	2017	Amount	%	Amount	%
Revenue							
Sirius XM:							
Subscriber revenue	$ 5,644	$ 5,264	$ 4,990	$ 380	7 %	$ 274	5 %
Advertising revenue	205	188	160	17	9 %	28	18 %
Equipment revenue	173	155	132	18	12 %	23	17 %
Other revenue	165	164	143	1	1 %	21	15 %
Total Sirius XM revenue	6,187	5,771	5,425	416	7 %	346	6 %
Pandora:							
Subscriber revenue	476	—	—	476	nm	—	nm
Advertising revenue	1,131	—	—	1,131	nm	—	nm
Total Pandora revenue	1,607	—	—	1,607	nm	—	nm
Total consolidated revenue	7,794	5,771	5,425	2,023	35 %	346	6 %
Cost of services							
Sirius XM:							
Revenue share and royalties	1,431	1,394	1,210	37	3 %	184	15 %
Programming and content	444	406	388	38	9 %	18	5 %
Customer service and billing	398	382	385	16	4 %	(3)	(1)%
Transmission	112	96	83	16	17 %	13	16 %
Cost of equipment	29	31	35	(2)	(6)%	(4)	(11)%
Total Sirius XM cost of services	2,414	2,309	2,101	105	5 %	208	10 %
Pandora:							
Revenue share and royalties	860	—	—	860	nm	—	nm
Programming and content	18	—	—	18	nm	—	nm
Customer service and billing	77	—	—	77	nm	—	nm
Transmission	58	—	—	58	nm	—	nm
Total Pandora cost of services	1,013	—	—	1,013	nm	—	nm
Total consolidated cost of services	3,427	2,309	2,101	1,118	48 %	208	10 %
Subscriber acquisition costs	427	470	499	(43)	(9)%	(29)	(6)%
Sales and marketing	937	484	438	453	94 %	46	11 %
Engineering, design and development	280	123	112	157	128 %	11	10 %
General and administrative	524	354	335	170	48 %	19	6 %
Depreciation and amortization	468	301	299	167	55 %	2	1 %
Acquisition and other related costs	84	3	—	81	nm	3	nm
Total operating expenses	6,147	4,044	3,784	2,103	52 %	260	7 %
Income from operations	1,647	1,727	1,641	(80)	(5)%	86	5 %
Other (expense) income:							
Interest expense	(390)	(350)	(346)	(40)	(11)%	(4)	(1)%
Loss on extinguishment of debt	(57)	—	(44)	(57)	nm	44	100 %
Other (expense) income	(3)	44	13	(47)	(107)%	31	238 %
Total other (expense) income	(450)	(306)	(377)	(144)	(47)%	71	19 %
Income before income taxes	1,197	1,421	1,264	(224)	(16)%	157	12 %
Income tax expense	(283)	(245)	(616)	(38)	(16)%	371	60 %
Net income	$ 914	$ 1,176	$ 648	$ (262)	(22)%	$ 528	81 %

nm - not meaningful

Sirius XM Revenue

Refer to page 38 for our discussion on Sirius XM revenue.

Pandora Revenue

Pandora revenue includes actual results for the period from the acquisition date to December 31, 2019. Refer to page 40 for our discussion on Pandora revenue.

Sirius XM Cost of Services

Refer to page 40 for our discussion on Sirius XM cost of services.

Pandora Cost of Services

Pandora cost of services includes actual results for the period from the acquisition date to December 31, 2019. Refer to page 42 for our discussion on Pandora cost of services.

Operating Costs

Subscriber Acquisition Costs are costs associated with our satellite radio service and include hardware subsidies paid to radio manufacturers, distributors and automakers; subsidies paid for chipsets and certain other components used in manufacturing radios; device royalties for certain radios and chipsets; product warranty obligations; and freight. The majority of subscriber acquisition costs are incurred and expensed in advance of acquiring a subscriber. Subscriber acquisition costs do not include advertising costs, marketing, loyalty payments to distributors and dealers of satellite radios or revenue share payments to automakers and retailers of satellite radios.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, subscriber acquisition costs were $427 and $470, respectively, a decrease of 9%, or $43, and decreased as a percentage of total revenue. The decrease was driven by reductions to OEM hardware subsidy rates, lower subsidized costs related to the transition of chipsets, and a decrease in the volume of satellite radio installations.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, subscriber acquisition costs were $470 and $499, respectively, a decrease of 6%, or $29, and decreased as a percentage of total revenue. The decrease was driven by reductions to OEM hardware subsidy rates, lower subsidized costs related to the transition of chipsets, and a decrease in the volume of satellite radio installations.

We expect subscriber acquisition costs to fluctuate with OEM installations; however, the subsidized chipsets cost is expected to decline as we transition to a new generation of chipsets. We intend to continue to offer subsidies and other incentives to induce OEMs to include our technology in their vehicles.

Sales and Marketing includes costs for marketing, advertising, media and production, including promotional events and sponsorships; cooperative and artist marketing; and personnel related costs including salaries, commissions, and sales support. Marketing costs include expenses related to direct mail, outbound telemarketing, email communications, and digital performance media.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, sales and marketing expenses were $937 and $484, respectively, an increase of 94%, or $453, and increased as a percentage of total revenue. The increase was primarily due to the inclusion of Pandora, and additional subscriber communications and acquisition campaigns.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, sales and marketing expenses were $484 and $438, respectively, an increase of 11%, or $46, and increased as a percentage of total revenue. The increase was primarily due to additional subscriber communications, retention programs and acquisition campaigns as well as higher personnel-related costs.

We anticipate that sales and marketing expenses will increase as we expand programs to retain our existing subscribers, win back former subscribers, and attract new subscribers.

Engineering, Design and Development consists primarily of compensation and related costs to develop chipsets and new products and services, including streaming and connected vehicle services, research and development for broadcast information systems and the design and development costs to incorporate Sirius XM radios into new vehicles manufactured by automakers.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, engineering, design and development expenses were $280 and $123, respectively, an increase of 128%, or $157, and increased as a percentage of total revenue. The increase was driven primarily by the inclusion of Pandora.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, engineering, design and development expenses were $123 and $112, respectively, an increase of 10%, or $11, and increased as a percentage of total revenue. The increase was driven by the continued development of our Sirius XM streaming product and connected vehicle services.

We expect engineering, design and development expenses to decrease due to lower personnel-related costs, partially offset by increased costs to develop our infrastructure, products and services.

General and Administrative primarily consists of compensation and related costs for personnel and facilities, and include costs related to our finance, legal, human resources and information technologies departments.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, general and administrative expenses were $524 and $354, respectively, an increase of 48%, or $170, and increased as a percentage of total revenue. The increase was driven by the inclusion of Pandora and by a $25 legal settlement associated with Do-Not-Call litigation.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, general and administrative expenses were $354 and $335, respectively, an increase of 6%, or $19, and decreased as a percentage of total revenue. The increase was primarily driven by higher personnel-related costs, information technology costs, and a one-time charge for sales and use taxes. These increases were partially offset by lower legal costs.

We expect our general and administrative expenses to decrease in absence of the legal settlement and due to lower professional services costs, partially offset by increases to support the growth of our business..

Depreciation and Amortization represents the recognition in earnings of the cost of assets used in operations, including our satellite constellations, property, equipment and intangible assets, over their estimated service lives.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, depreciation and amortization expense was $468 and $301, respectively, an increase of 55%, or $167, and increased as a percentage of total revenue. The increase was driven by the amortization of definite life intangibles resulting from the Pandora Acquisition and higher depreciation costs related to additional assets placed in-service.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, depreciation and amortization expense was $301 and $299, respectively, an increase of 1%, or $2, and decreased as a percentage of total revenue. The increase was driven by additional assets placed in-service, partially offset by acceleration of amortization related to a shorter useful life of certain software during 2017.

Acquisition and Other Related Costs represents expenses associated with the Pandora Acquisition and related reorganization costs.

- *2019 vs. 2018*: For the year ended December 31, 2019 and 2018, acquisition and other related costs were $84 and $3, respectively.
- *2018 vs. 2017*: For the year ended December 31, 2018 acquisition and related costs was $3. There were no acquisition and other related costs in 2017.

Other Income (Expense)

Interest Expense includes interest on outstanding debt.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, interest expense was $390 and $350, respectively, an increase of 11%, or $40. The increase was primarily driven by higher average debt due to the issuances of Sirius XM's 5.500% Senior Notes due 2029 and 4.625% Senior Notes due 2024 as well as the inclusion of Pandora debt, partially offset by the redemption of Sirius XM's 6.00% Senior Notes due 2024, lower interest rates and an increase in capitalized interest associated with construction of new satellites.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, interest expense was $350 and $346, respectively, an increase of 1%, or $4. The increase was primarily due to higher average debt outstanding, partially offset by an increase in capitalized interest associated with the construction of new satellites.

Loss on Extinguishment of Debt includes losses incurred as a result of the retirement of certain debt.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, loss on extinguishment of debt was $57 and $0, respectively. During the year ended December 31, 2019, we recorded losses due to the redemption of $1,500 in principal amount of Sirius XM's 6.00% Senior Notes due 2024 and the repurchase of $151 principal amount of Pandora's 1.75% Convertible Senior Notes due 2020. There was no loss on extinguishment of debt in 2018.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, loss on extinguishment of debt was $0 and $44, respectively. During the year ended December 31, 2017, we recorded losses due to the redemption of Sirius XM's 4.25% Senior Notes due 2020, 5.75% Senior Notes due 2021, and 5.25% Senior Secured Notes due 2022.

Other (Expense) Income primarily includes realized and unrealized gains and losses, interest and dividend income, our share of the income or loss from equity investments, and transaction costs related to non-operating investments.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, other (expense) income was $(3) and $44, respectively. Other expense for the year ended December 31, 2019 was driven by losses on other investments of $21; partially offset by interest earned on our loan to Sirius XM Canada of $10, trading gains associated with the investments held for our Deferred Compensation Plan of $4 and interest income of $3. Other income for the year ended December 31, 2018 was driven by unrealized gains of $43 from a fair value adjustment of our investment in Pandora, and interest earned on our loan to Sirius XM Canada of $10, partially offset by losses on other investments of $10.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, other income was $44 and $13, respectively. Other income for the year ended December 31, 2018 was driven by unrealized gains of $43 from a fair value adjustment of our investment in Pandora, and interest earned on our loan to Sirius XM Canada of $10, partially offset by losses on other investments of $10. Other income for the year ended December 31, 2017, included interest earned on our loan to Sirius XM Canada, and our share of Sirius XM Canada's net income, partially offset by transaction costs associated with our investment in Pandora.

Income Taxes

Income Tax Expense includes the change in our deferred tax assets, current federal and state tax expenses, and foreign withholding taxes.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, income tax expense was $283 and $245, respectively, and our effective tax rate was 23.6% and 17.2%, respectively.

  Our effective tax rate of 23.6% for the year ended December 31, 2019 was primarily impacted by the recognition of excess tax benefits related to share-based compensation and benefits related to state and federal research and development and certain other credits, partially offset by the impact of nondeductible officers' compensation. Our effective tax rate of 17.2% for the year ended December 31, 2018 was primarily impacted by the recognition of excess tax benefits related to share based compensation and a benefit related to state and federal research and development credits.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, income tax expense was $245 and $616, respectively, and our effective tax rate was 17.2% and 48.7%, respectively. On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cut and Jobs Act

(the “Tax Act”). The Tax Act made broad and complex changes to the U.S. tax code, including, accelerated depreciation that will allow for full expensing of qualified property. The Tax Act also reduced the U.S. federal corporate income tax rate from 35% to 21%.

Our effective tax rate of17.2% for the year ended December 31, 2018 was primarily impacted by the reduced federal tax rate to 21%, the recognition of excess tax benefits related to share based compensation and a benefit related to state and federal research and development credits. Our effective tax rate of 48.7% for the year ended December 31, 2017 was negatively impacted by the revaluation of our net deferred tax assets, excluding after tax credits, as of December 31, 2017 as a result of the reduction of the federal corporate income tax rate. This was offset by the recognition of excess tax benefits related to share based compensation and a benefit related to federal research and development credits, under the Protecting Americans from Tax Hikes Act of 2015. Based on this revaluation, we recorded an additional tax expense of $185 to reduce our net deferred tax asset balance for the year ended December 31, 2017.

Unaudited Pro Forma Results

Set forth below are our pro forma results of operations for theyear ended December 31, 2019 compared with the year ended December 31, 2018 and for the year ended December 31, 2018 compared with the year ended December 31, 2017. These pro forma results are based on estimates and assumptions, which we believe are reasonable. They are not the results that would have been realized had the Pandora Acquisition actually occurred on January 1, 2017 and are not indicative of our consolidated results of operations in future periods. The pro forma results primarily include adjustments related to amortization of acquired intangible assets, depreciation of property and equipment, acquisition costs, fair value gain or loss on the Pandora investment and associated tax impacts. Please refer to the Footnotes to Results of Operations (pages 45 through 50) following our discussion of results of operations.

	For the Years Ended December 31,			2019 vs 2018 Change		2018 vs 2017 Change	
	2019	2018	2017	Amount	%	Amount	%
Revenue	(Pro Forma)	(Pro Forma)	(Pro Forma)				
Sirius XM:							
Subscriber revenue	$ 5,644	$ 5,264	$ 4,990	$ 380	7 %	$ 274	5 %
Advertising revenue	205	188	160	17	9 %	28	18 %
Equipment revenue	173	155	132	18	12 %	23	17 %
Other revenue	172	171	150	1	1 %	21	14 %
Total Sirius XM revenue	6,194	5,778	5,432	416	7 %	346	6 %
Pandora:							
Subscriber revenue	527	478	315	49	10 %	163	52 %
Advertising revenue	1,200	1,092	1,071	108	10 %	21	2 %
Total Pandora revenue	1,727	1,570	1,386	157	10 %	184	13 %
Total consolidated revenue	7,921	7,348	6,818	573	8 %	530	8 %
Cost of services							
Sirius XM:							
Revenue share and royalties	1,431	1,394	1,210	37	3 %	184	15 %
Programming and content	444	406	388	38	9 %	18	5 %
Customer service and billing	398	382	385	16	4 %	(3)	(1)%
Transmission	112	96	83	16	17 %	13	16 %
Cost of equipment	29	31	35	(2)	(6)%	(4)	(11)%
Total Sirius XM cost of services	2,414	2,309	2,101	105	5 %	208	10 %
Pandora:							
Revenue share and royalties	945	929	826	16	2 %	103	12 %
Programming and content	18	11	14	7	64 %	(3)	(21)%
Customer service and billing	85	95	66	(10)	(11)%	29	44 %
Transmission	63	50	48	13	26 %	2	4 %
Total Pandora cost of services	1,111	1,085	954	26	2 %	131	14 %
Total consolidated cost of services	3,525	3,394	3,055	131	4 %	339	11 %
Subscriber acquisition costs	427	470	499	(43)	(9)%	(29)	(6)%
Sales and marketing	973	883	799	90	10 %	84	11 %
Engineering, design and development	294	266	228	28	11 %	38	17 %
General and administrative	540	517	528	23	4 %	(11)	(2)%
Depreciation and amortization	483	465	452	18	4 %	13	3 %
Total operating expenses	6,242	5,995	5,561	247	4 %	434	8 %
Income from operations	1,679	1,353	1,257	326	24 %	96	8 %
Other (expense) income:							
Interest expense	(392)	(377)	(375)	(15)	(4)%	(2)	(1)%
Loss on extinguishment of debt	(57)	(17)	(53)	(40)	(235)%	36	68 %
Other (expense) income	(2)	8	16	(10)	(125)%	(8)	(50)%
Total other (expense) income	(451)	(386)	(412)	(65)	(17)%	26	6 %
Income before income taxes	1,228	967	845	261	27 %	122	14 %
Income tax expense	(290)	(123)	(510)	(167)	(136)%	387	76 %
Net income	$ 938	$ 844	$ 335	$ 94	11 %	$ 509	152 %
Adjusted EBITDA	$ 2,427	$ 2,131	$ 2,006	$ 296	14 %	$ 125	6 %

nm - not meaningful

Sirius XM Revenue

Sirius XM Subscriber Revenue includes fees charged for self-pay and paid promotional subscriptions, U.S. Music Royalty Fees and other ancillary fees.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, subscriber revenue was $5,644 and $5,264, respectively, an increase of 7%, or $380. The increase was primarily driven by higher U.S. Music Royalty Fees due to a higher music royalty rate, higher self-pay subscription revenue as a result of a 3% increase in the daily weighted average number of subscribers and higher revenue from our connected vehicle services.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, subscriber revenue was $5,264 and $4,990, respectively, an increase of 5%, or $274. The increase was primarily driven by higher U.S. Music Royalty Fees due to a higher music royalty rate and higher self-pay subscription revenue as a result of a 5% increase in the daily weighted average number of subscribers. Subscriber revenue was negatively impacted by $95 for the year ended December 31, 2018 due to the adoption of Accounting Standards Update ("ASU") 2014-09, effective January 1, 2018.

We expect subscriber revenues to increase based on the growth of our subscriber base, increases in the average price charged and the sale of additional services to subscribers.

Sirius XM Advertising Revenue includes the sale of advertising on Sirius XM's non-music channels.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, advertising revenue was $205 and $188, respectively, an increase of 9%, or $17. The increase was primarily due to a greater number of advertising spots sold and transmitted as well as increases in rates charged per spot.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, advertising revenue was $188 and $160, respectively, an increase of 18%, or $28. The increase was primarily due to a greater number of advertising spots sold and transmitted as well as increases in rates charged per spot.

We expect our Sirius XM advertising revenue to continue to grow as more advertisers are attracted to our national platform and growing subscriber base.

Sirius XM Equipment Revenue includes revenue and royalties from the sale of satellite radios, components and accessories.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, equipment revenue was $173 and $155, respectively, an increase of 12%, or $18. The increase was driven by an increase in royalty revenue due to our transition to a new generation of chipsets.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, equipment revenue was $155 and $132, respectively, an increase of 17%, or $23. The increase was driven by an increase in royalty revenue due to our transition to a new generation of chipsets.

We expect equipment revenue to increase as royalty revenue associated with certain new chipsets increases.

Sirius XM Other Revenue includes service and advisory revenue from our Sirius XM Canada, our connected vehicle services, and ancillary revenues.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, other revenue was $172 and $171, respectively, an increase of 1%, or $1. The increase was primarily driven by higher royalty revenue generated from Sirius XM Canada, partially offset by a decrease in data usage revenue generated from our connected vehicle services.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, other revenue was $171 and $150, respectively, an increase of 14%, or $21. The increase was primarily driven by higher revenue generated from our connected vehicle services and from Sirius XM Canada.

We expect other revenue to increase due to additional revenues generated from our connected vehicle services.

Pandora Revenue

Pandora Subscriber Revenue includes fees charged for Pandora Plus and Pandora Premium subscriptions.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, Pandora subscriber revenue was $527 and $478, respectively, an increase of 10%, or $49. The increase was primarily due to a greater weighted average number of subscribers and an increase in the average price per paid subscriber due to the growth of Pandora Premium.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, Pandora subscriber revenue was $478 and $315, respectively, an increase of 52%, or $163. The increase was primarily due to an increase in the weighted average number of subscribers and an increase in the average price per paid subscriber due to the growth of Pandora Premium.

We expect Pandora subscriber revenues to increase with the growth in our Pandora subscriber base.

Pandora Advertising Revenue is generated primarily from audio, display and video advertising.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, Pandora advertising revenue was $1,200 and $1,092, respectively, an increase of 10%, or $108. The increase was primarily due to growth in our off-platform advertising revenue, increased sell-through percentage, increases in the average price per ad and revenue growth in the AdsWizz business.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, Pandora advertising revenue was $1,092 and $1,071, respectively, an increase of 2%, or $21. The increase was primarily due to increases in the average price per ad and increases in our off-platform revenue.

We expect our Pandora advertising revenue to continue to increase due to our off-platform advertising opportunities.

Total Consolidated Revenue

Total Consolidated Revenue for the years ended December 31, 2019 and 2018, was $7,921 and $7,348, respectively, an increase of 8%, or $573. Total Consolidated Revenue for the years ended December 31, 2018 and 2017, was $7,348 and $6,818, respectively, an increase of 8%, or $530.

Sirius XM Cost of Services

Sirius XM Cost of Services includes revenue share and royalties, programming and content, customer service and billing and transmission expenses.

Sirius XM Revenue Share and Royalties include royalties for transmitting content, including streaming royalties, as well as automaker, content provider and advertising revenue share.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, revenue share and royalties were $1,431 and $1,394, respectively, an increase of 3%, or $37, but decreased as a percentage of total Sirius XM revenue. The increase was driven by overall greater revenues subject to royalties and revenue share. The increase was partially offset by a $69 charge during the second quarter of 2018 related to the legal settlement that resolved all outstanding claims, including ongoing audits, under Sirius XM's statutory license for sound recordings for the period January 1, 2007 through December 31, 2017.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, revenue share and royalties were $1,394 and $1,210, respectively, an increase of 15%, or $184, and increased as a percentage of total Sirius XM revenue. The increase was driven by an increase in the statutory royalty rate applicable to our use of post-1972 recordings, which increased from 11% in 2017 to 15.5% in 2018, and overall greater revenues subject to revenue share with the automakers. Included in the increase was a $69 charge related to the legal settlement that resolved outstanding claims, including ongoing audits, under our statutory license for sound recordings for the period January 1, 2007 through December 31, 2017. In 2017, we recorded $45 of expense related to music royalty legal settlements and related reserves. The increase was partially offset by approximately $88 for the year ended December 31, 2018, related to the adoption of ASU 2014-09, which established Accounting Standard Codification (ASC) Topic 606, *Revenue - Revenue from Contracts with Customers,* effective as of January 1, 2018.

We expect our Sirius XM revenue share and royalty costs to increase as our revenues grow.

Sirius XM Programming and Content includes costs to acquire, create, promote and produce content. We have entered into various agreements with third parties for music and non-music programming that require us to pay license fees and other amounts.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, programming and content expenses were $444 and $406, respectively, an increase of 9%, or $38, and increased as a percentage of total Sirius XM revenue. The increase was primarily driven by higher content licensing costs as well as greater personnel-related costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, programming and content expenses were $406 and $388, respectively, an increase of 5%, or $18, but decreased as a percentage of total Sirius XM revenue. The increase was driven primarily by personnel-related costs, and higher music licensing costs.

We expect our Sirius XM programming and content expenses to increase as we offer additional programming and renew or replace expiring agreements.

Sirius XM Customer Service and Billing includes costs associated with the operation and management of internal and third party customer service centers, and our subscriber management systems as well as billing and collection costs, bad debt expense, and transaction fees.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, customer service and billing expenses were $398 and $382, respectively, an increase of 4%, or $16, but decreased as a percentage of total Sirius XM revenue. The increase was driven by increased transaction fees from a larger subscriber base and higher bad debt expense.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, customer service and billing expenses were $382 and $385, respectively, a decrease of 1%, or $3, and decreased as a percentage of total Sirius XM revenue. The decrease was primarily driven by lower call center costs due to lower agent rates, increased customer self-service and improved non-pay processes driving lower bad debt expense, partially offset by increased transaction fees from a larger subscriber base and personnel-related costs.

We expect our Sirius XM customer service and billing expenses to increase as our subscriber base grows.

Sirius XM Transmission consists of costs associated with the operation and maintenance of our terrestrial repeater networks; satellites; satellite telemetry, tracking and control systems; satellite uplink facilities; studios; and delivery of our Internet streaming and connected vehicle services.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, transmission expenses were $112 and $96, respectively, an increase of 17%, or $16, and increased as a percentage of total Sirius XM revenue. The increase was primarily driven by higher cloud hosting and costs associated with our streaming services and higher repeater network costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, transmission expenses were $96 and $83, respectively, an increase of 16%, or $13, and increased as a percentage of total Sirius XM revenue. The increase was primarily driven by higher wireless costs associated with our connected vehicle services and higher streaming costs.

We expect our Sirius XM transmission expenses to increase as costs associated with our investments in streaming grow.

Sirius XM Cost of Equipment includes costs from the sale of satellite radios, components and accessories and provisions for inventory allowance attributable to products purchased for resale in our direct to consumer distribution channels.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, cost of equipment was $29 and $31, respectively, a decrease of 6%, or $2, and decreased as a percentage of equipment revenue. The decrease was primarily due to lower direct sales to satellite radio and connected vehicle consumers, partially offset by an increase in our inventory reserve.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, cost of equipment was $31 and $35, respectively, a decrease of 11%, or $4, and decreased as a percentage of equipment revenue. The decrease was primarily due to lower direct satellite radio sales to consumers.

We expect our Sirius XM cost of equipment to fluctuate primarily as a result of sales of satellite radios and connected vehicle devices.

Pandora Cost of Services

Pandora Cost of Services includes revenue share and royalties, programming and content, customer service and billing, and transmission expenses.

Pandora Revenue Share and Royalties includes licensing fees paid for streaming music or other content to our subscribers and listeners as well as revenue share paid to third party ad servers. We make payments to third party ad servers for the period the advertising impressions are delivered or click-through actions occur, and accordingly, we record this as a cost of service in the related period.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, revenue share and royalties were $945 and $929, respectively, an increase of 2%, or $16, but decreased as a percentage of total Pandora revenue. The increase was primarily attributable to higher revenue share driven by growth of our off platform revenue, partially offset by lower royalty costs resulting from renegotiated agreements with record labels, music and sound recording copyright holders and distributors.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, revenue share and royalties were $929 and $826, respectively, an increase of 12%, or $103, but decreased as a percentage of total Pandora revenue. The increase was due to minimum guarantee accruals related to our direct license agreements with major and independent labels, distributors, performing rights organizations and publishers.

We expect our Pandora revenue share and royalty costs to increase as off-platform revenue increases.

Pandora Programming and Content includes costs to produce live listener events and promote content.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, programming and content expenses were $18 and $11, respectively, an increase of 64%, or $7, and increased as a percentage of total Pandora revenue. The increase was primarily attributable to higher personnel-related and content costs.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, programming and content expenses were $11 and $14, respectively, a decrease of 21%, or $3, and decreased as a percentage of total Pandora revenue. The decrease was primarily attributable to lower content costs.

We expect our Pandora programming and content costs to increase as we offer additional programming and continue to produce live listener events and promote content.

Pandora Customer Service and Billing includes transaction fees on subscription purchases through mobile app stores and bad debt expense.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, customer service and billing expenses were $85 and $95, respectively, a decrease of 11%, or $10, and decreased as a percentage of total Pandora revenue. The decrease was primarily driven by lower bad debt expense due to recoveries and lower transaction fees.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, customer service and billing expenses were $95 and $66, respectively, an increase of 44%, or $29, and increased as a percentage of total Pandora revenue. The increase was primarily driven by higher transaction fees and bad debt expense from higher average subscriber balances.

We expect our Pandora customer service and billing costs to increase as our subscriber base grows.

Pandora Transmission includes costs associated with content streaming, maintaining our streaming radio and on-demand subscription services and creating and serving advertisements through third-party ad servers.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, transmission expenses were $63 and $50, respectively, an increase of 26%, or $13, and increased as a percentage of total Pandora revenue. The increase was primarily driven by web hosting and personnel-related costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, transmission expenses were $50 and $48, respectively, an increase of 4%, or $2, and decreased as a percentage of total Pandora revenue. The increase was primarily driven by web hosting costs.

We expect our Pandora transmission costs to increase with growth in our subscriber base and off-platform advertising.

Operating Costs

Subscriber Acquisition Costs are costs associated with our satellite radio service and include hardware subsidies paid to radio manufacturers, distributors and automakers; subsidies paid for chipsets and certain other components used in manufacturing radios; device royalties for certain radios and chipsets; product warranty obligations; and freight. The majority of subscriber acquisition costs are incurred and expensed in advance of acquiring a subscriber. Subscriber acquisition costs do not include advertising costs, marketing, loyalty payments to distributors and dealers of satellite radios or revenue share payments to automakers and retailers of satellite radios.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, subscriber acquisition costs were $427 and $470, respectively, a decrease of 9%, or $43, and decreased as a percentage of total revenue. The decrease was driven by reductions to OEM hardware subsidy rates, lower subsidized costs related to the transition of chipsets, and a decrease in the volume of satellite radio installations.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, subscriber acquisition costs were $470 and $499, respectively, a decrease of 6%, or $29, and decreased as a percentage of total revenue. The decrease was driven by reductions to OEM hardware subsidy rates, lower subsidized costs related to the transition of chipsets, and a decrease in the volume of satellite radio installations.

We expect subscriber acquisition costs to fluctuate with OEM installations; however, the subsidized chipsets cost is expected to decline as we transition to a new generation of chipsets. We intend to continue to offer subsidies and other incentives to induce OEMs to include our technology in their vehicles.

Sales and Marketing includes costs for marketing, advertising, media and production, including promotional events and sponsorships; cooperative and artist marketing; and personnel related costs including salaries, commissions, and sales support. Marketing costs include expenses related to direct mail, outbound telemarketing, email communications, and digital performance media.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, sales and marketing expenses were $973 and $883, respectively, an increase of 10%, or $90, and increased as a percentage of total revenue. The increase was primarily due to additional acquisition campaigns and subscriber communications as well as higher personnel-related costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, sales and marketing expenses were $883 and $799, respectively, an increase of 11%, or $84, and increased as a percentage of total revenue. The increase was primarily due to additional subscriber communications, retention programs and acquisition campaigns, as well as higher personnel-related costs.

We anticipate that sales and marketing expenses will increase as we expand programs to retain our existing subscribers, win back former subscribers, and attract new subscribers and listeners.

Engineering, Design and Development consists primarily of compensation and related costs to develop chipsets and new products and services, including streaming and connected vehicle services, research and development for broadcast information systems and the design and development costs to incorporate Sirius XM radios into new vehicles manufactured by automakers.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, engineering, design and development expenses were $294 and $266, respectively, an increase of 11%, or $28, and increased as a percentage of total revenue. The increase was driven by higher personnel-related costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, engineering, design and development expenses were $266 and $228, respectively, an increase of 17%, or $38, and increased as a percentage of total revenue. The increase was driven by the continued development of our streaming products and connected vehicle services as well as higher personnel-related costs.

We expect engineering, design and development expenses to decrease due to lower personnel-related costs, partially offset by increased costs to develop our infrastructure, products and services.

General and Administrative primarily consists of compensation and related costs for personnel and facilities, and include costs related to our finance, legal, human resources and information technologies departments.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, general and administrative expenses were $540 and $517, respectively, an increase of 4%, or $23, but decreased as a percentage of total revenue. The increase was primarily driven by a $25 legal settlement associated with Do-Not-Call litigation and higher rent, partially offset by lower personnel-related costs.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, general and administrative expenses were $517 and $528, respectively, a decrease of 2%, or $11, and decreased as a percentage of total revenue. The decrease was primarily driven by lower personnel-related costs offset by higher legal and consulting costs.

We expect our general and administrative expenses to decrease in absence of the legal settlement and due to lower professional services costs, partially offset by increases to support the growth of our business.

Depreciation and Amortization represents the recognition in earnings of the cost of assets used in operations, including our satellite constellations, property, equipment and intangible assets, over their estimated service lives.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, depreciation and amortization expense was $483 and $465, respectively, an increase of 4%, or $18, but decreased as a percentage of total revenue. The increase was driven by higher depreciation costs related to additional assets placed in-service.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, depreciation and amortization expense was $465 and $452, respectively, an increase of 3%, or $13, and decreased as a percentage of total revenue. The depreciation increase was driven by additional assets placed in-service, partially offset by acceleration of amortization related to a shorter useful life of certain software during 2017.

Other (Expense) Income

Interest Expense includes interest on outstanding debt.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, interest expense was $392 and $377, respectively, an increase of 4%, or $15. The increase was primarily driven by higher average debt due to the issuances of Sirius XM's 5.500% Senior Notes due 2029 and 4.625% Senior Notes due 2024, partially offset by the redemption of Sirius XM's 6.00% Senior Notes due 2024, the repurchase of the Pandora 1.75% Convertible Senior Notes due 2020, and lower interest rates.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, interest expense was $377 and $375, respectively, an increase of 1%, or $2. The increase was primarily due to higher average debt outstanding, partially offset by an increase in capitalized interest associated with the construction of new satellites.

Loss on Extinguishment of Debt, includes losses incurred as a result of the redemption of certain debt.

- *2019 vs. 2018*: For the year ended December 31, 2019, we recorded a $57 loss due to the redemption of $1,500 in principal amount of Sirius XM's 6.00% Senior Notes due 2024 and the repurchase of $151 principal amount of Pandora's 1.75% Convertible Senior Notes due 2020. During the year ended December 31, 2018, we recorded a $17 loss on extinguishment of debt primarily due to the exchange of Pandora's 1.75% Convertible Senior Notes due 2020 for new 1.75% Convertible Senior Notes due 2023.

- *2018 vs. 2017*: For the year ended December 31, 2018, Pandora recorded a $17 loss on extinguishment of debt primarily due to the exchange of Pandora's 1.75% Convertible Senior Notes due 2020 for new 1.75% Convertible Senior Notes due 2023. During the year ended December 31, 2017, we recorded a $53 loss on extinguishment of debt due to the redemption of Sirius XM's 4.25% Senior Notes due 2020, 5.75% Senior Notes due 2021, and 5.25% Senior Secured Notes due 2022.

Other (Expense) Income primarily includes realized and unrealized gains and losses, interest and dividend income, our share of the income or loss from equity investments, and transaction costs related to non-operating investments.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, other (expense) income was $(2) and $8, respectively. Other expense for the year ended December 31, 2019 was driven by losses on other investments of $21; partially offset by interest earned on our loan to Sirius XM Canada of $10, trading gains associated with the investments held for our Deferred Compensation Plan of $4 and interest income of $3. Other income for the year ended December 31, 2018 was driven by interest earned on our loan to Sirius XM Canada of $10 and interest income of $8, partially offset by losses on other investments of $10.

- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, other (expense) income was $8 and $16, respectively. During the year ended December 31, 2018, other income was driven by interest earned on our loan to Sirius XM Canada of $10 and interest income of $8, partially offset by losses on other investments of $10. During the year ended December 31, 2017, other income was driven by interest earned on our loan to Sirius XM Canada and gains associated with short-term investments.

Income Taxes

Income Tax Expense includes the change in our deferred tax assets, current federal and state tax expenses, and foreign withholding taxes.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, income tax expense was $290 and $123, respectively, and our effective tax rate was 23.6% and 12.7%, respectively. The effective tax rate of 23.6% was primarily impacted by the recognition of excess tax benefits related to share-based compensation and benefits related to state and federal research and development and certain other credits, partially offset by the impact of nondeductible officers' compensation. The effective tax rate of 12.7% was primarily impacted by the recognition of excess tax benefits related to share based compensation and a benefit related to state and federal research and development credits under the Protecting Americans from Tax Hikes Act of 2015.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, income tax expense was $123 and $510, respectively, and our effective tax rate was 12.7% and 60.4%, respectively. The effective tax rate of 12.7% for the year ended December 31, 2018 was primarily impacted by the reduced federal tax rate to 21%, the recognition of excess tax benefits related to share based compensation and a benefit related to state and federal research and development credits. The effective tax rate of 60.4% for the year ended December 31, 2017 was negatively impacted by the revaluation of our net deferred tax assets, excluding after tax credits, as of December 31, 2017, as a result of the reduction of the federal corporate income tax rate. This was offset by the recognition of excess tax benefits related to share based compensation and a benefit related to federal research and development credits under the Protecting Americans from Tax Hikes Act of 2015. Based on this revaluation, we recorded an additional tax expense of $185 to reduce our net deferred tax asset balance for the year ended December 31, 2017.

Footnotes to Pro Forma Results of Operations

The following tables reconcile our results of operations as reported to our *pro forma* results of operations for the years ended December 31, 2019, 2018 and 2017 which includes the Pandora pre-acquisition financial information for the applicable periods and the effects of purchase price accounting. These pro forma results are based on estimates and assumptions, which we believe are reasonable. They are not the results that would have been realized had the Pandora Acquisition actually occurred on January 1, 2017 and are not indicative of our consolidated results of operations in future periods. The pro forma results primarily include adjustments related to amortization of acquired intangible assets, depreciation of property and equipment, acquisition costs, fair value gain or loss on the Pandora investment and associated tax impacts.

	Unaudited for the Year Ended December 31, 2019				
	As Reported	Predecessor Financial Information (a)	Purchase Price Accounting and Pro Forma Adjustments	Ref	Pro Forma
Revenue					
Sirius XM:					
Subscriber revenue	$ 5,644	$ —	$ —		$ 5,644
Advertising revenue	205	—	—		205
Equipment revenue	173	—	—		173
Other revenue	165	—	7	(b)	172
Total Sirius XM revenue	6,187	—	7		6,194
Pandora:					
Subscriber revenue	476	46	5	(c)	527
Advertising revenue	1,131	68	1	(c)	1,200
Total Pandora revenue	1,607	114	6		1,727
Total consolidated revenue	7,794	114	13		7,921
Cost of services					
Sirius XM:					
Revenue share and royalties	1,431	—	—		1,431
Programming and content	444	—	—		444
Customer service and billing	398	—	—		398
Transmission	112	—	—		112
Cost of equipment	29	—	—		29
Total Sirius XM cost of services	2,414	—	—		2,414
Pandora:					
Revenue share and royalties	860	71	14	(d)	945
Programming and content	18	—	—		18
Customer service and billing	77	8	—		85
Transmission	58	5	—		63
Total Pandora cost of services	1,013	84	14		1,111
Total consolidated cost of services	3,427	84	14		3,525
Subscriber acquisition costs	427	—	—		427
Sales and marketing	937	36	—		973
Engineering, design and development	280	14	—		294
General and administrative	524	16	—		540
Depreciation and amortization	468	6	9	(e)	483
Acquisition and other related costs	84	1	(85)	(f)	—
Total operating expenses	6,147	157	(62)		6,242
Income (loss) from operations	1,647	(43)	75		1,679
Other (expense) income:					
Interest expense	(390)	(2)	—		(392)
Loss on extinguishment of debt	(57)	—	—		(57)
Other (expense) income	(3)	1	—		(2)
Total other (expense) income	(450)	(1)	—		(451)
Income (loss) before income taxes	1,197	(44)	75		1,228
Income tax expense	(283)	—	(7)	(g)	(290)
Net income	$ 914	$ (44)	$ 68		$ 938

(a) Represents Pandora’s results for the period January 1, 2019 through January 31, 2019.

(b) This adjustment eliminates the impact of additional revenue associated with certain programming agreements recorded as part of the merger of Sirius and XM (the "XM Merger").

(c) This adjustment relates to the amortization of deferred subscription and deferred advertising revenue that was fair valued in purchase accounting.

(d) This adjustment includes the impact of additional expense associated with minimum guarantee royalty contracts recorded as part of the Pandora Acquisition.

(e) This adjustment includes the impact of the additional amortization associated with the acquired intangible assets recorded as part of the Pandora Acquisition that are subject to amortization, partially offset by normal depreciation associated with assets revalued in purchase accounting.

(f) This adjustment eliminates the impact of acquisition and other related costs.

(g) This adjustment to income taxes was calculated by applying Sirius XM's statutory tax rate at December 31, 2019 to the pro forma adjustments of $75 and Pandora's pre-acquisition loss before income tax of $(44).

	Unaudited for the Year Ended December 31, 2018				
	As Reported	Predecessor Financial Information (h)	Purchase Price Accounting and Pro Forma Adjustments	Ref	Pro Forma
Revenue					
Sirius XM:					
Subscriber revenue	$ 5,264	$ —	$ —		$ 5,264
Advertising revenue	188	—	—		188
Equipment revenue	155	—	—		155
Other revenue	164	—	7	(i)	171
Total Sirius XM revenue	5,771	—	7		5,778
Pandora:					
Subscriber revenue	—	478	—		478
Advertising revenue	—	1,092	—		1,092
Total Pandora revenue	—	1,570	—		1,570
Total consolidated revenue	5,771	1,570	7		7,348
Cost of services					
Sirius XM:					
Revenue share and royalties	1,394	—	—		1,394
Programming and content	406	—	—		406
Customer service and billing	382	—	—		382
Transmission	96	—	—		96
Cost of equipment	31	—	—		31
Total Sirius XM cost of services	2,309	—	—		2,309
Pandora:					
Revenue share and royalties	—	929	—		929
Programming and content	—	11	—		11
Customer service and billing	—	95	—		95
Transmission	—	50	—		50
Total Pandora cost of services	—	1,085	—		1,085
Total consolidated cost of services	2,309	1,085	—		3,394
Subscriber acquisition costs	470	—	—		470
Sales and marketing	484	399	—		883
Engineering, design and development	123	143	—		266
General and administrative	354	169	(6)	(j)	517
Depreciation and amortization	301	61	103	(k)	465
Acquisition and other related costs	3	12	(15)	(l)	—
Total operating expenses	4,044	1,869	82		5,995
Income (loss) from operations	1,727	(299)	(75)		1,353
Other (expense) income:					
Interest expense	(350)	(27)	—		(377)
Loss on extinguishment of debt	—	(17)	—		(17)
Other (expense) income	44	7	(43)	(m)	8
Total other (expense) income	(306)	(37)	(43)		(386)
Income (loss) before income taxes	1,421	(336)	(118)		967
Income tax expense	(245)	8	114	(n)	(123)
Net income	$ 1,176	$ (328)	$ (4)		$ 844

(h) Represents Pandora's results for the period January 1, 2018 through December 31, 2018.

(i) This adjustment eliminates the impact of additional revenue associated with certain programming agreements recorded as part of the XM Merger.

(j) This adjustment eliminates the impact of contract termination fees.

(k) This adjustment includes the impact of the additional amortization associated with the acquired intangible assets recorded as part of the Pandora Acquisition that are subject to amortization, partially offset by normal depreciation associated with assets revalued in purchase accounting.

(l) This adjustment eliminates the impact of transaction related costs, recorded by Pandora, to advisers for the planned acquisition by Sirius XM.

(m) This adjustment eliminates the unrealized gain for the fair value adjustment of our preferred stock investment in Pandora.

(n) This adjustment to income taxes was calculated by applying Sirius XM's statutory tax rate at December 31, 2018 to the pro forma adjustments of $(118) and Pandora's loss before income tax of $(336).

	Unaudited for the Year Ended December 31, 2017				
	As Reported	Predecessor Financial Information (o)	Purchase Price Accounting and Pro Forma Adjustments	Ref	Pro Forma
Revenue					
Sirius XM:					
Subscriber revenue	$ 4,990	$ —	$ —		$ 4,990
Advertising revenue	160	—	—		160
Equipment revenue	132	—	—		132
Other revenue	143	—	7	(p)	150
Total Sirius XM revenue	5,425	—	7		5,432
Pandora:					
Subscriber revenue	—	315	—		315
Advertising revenue	—	1,075	(4)	(q)	1,071
Other revenue	—	77	(77)	(q)	—
Total Pandora revenue	—	1,467	(81)		1,386
Total consolidated revenue	5,425	1,467	(74)		6,818
Cost of services					
Sirius XM:					
Revenue share and royalties	1,210	—	—		1,210
Programming and content	388	—	—		388
Customer service and billing	385	—	—		385
Transmission	83	—	—		83
Cost of equipment	35	—	—		35
Total Sirius XM cost of services	2,101	—	—		2,101
Pandora:					
Revenue share and royalties	—	862	(36)	(q)	826
Programming and content	—	14	—		14
Customer service and billing	—	73	(7)	(q)	66
Transmission	—	59	(11)	(q)	48
Total Pandora cost of services	—	1,008	(54)		954
Total consolidated cost of services	2,101	1,008	(54)		3,055
Subscriber acquisition costs	499	—	—		499
Sales and marketing	438	379	(18)	(q)	799
Engineering, design and development	112	127	(11)	(q)	228
General and administrative	335	374	(181)	(q)	528
Depreciation and amortization	299	63	90	(r)	452
Total operating expenses	3,784	1,951	(174)		5,561
Income (loss) from operations	1,641	(484)	100		1,257
Other (expense) income:					
Interest expense	(346)	(29)	—		(375)
Loss on extinguishment of debt	(44)	(9)	—		(53)
Other (expense) income	13	3	—		16
Total other (expense) income	(377)	(35)	—		(412)
Income (loss) before income taxes	1,264	(519)	100		845
Income tax expense	(616)	1	105	(s)	(510)
Net income	$ 648	$ (518)	$ 205		$ 335

(o) Represents Pandora’s results for the period January 1, 2017 through December 31, 2017.

(p) This adjustment eliminates the impact of additional revenue associated with certain programming agreements recorded as part of the XM Merger.

(q) This adjustment eliminates the impact of revenues and expenses attributable to Pandora's Ticketfly business which was disposed of on September 1, 2017 and Pandora's Australia and New Zealand business activities which were discontinued in the year ended December 31, 2017.

(r) This adjustment includes the impact of the additional amortization associated with the acquired intangible assets recorded as part of the Pandora Acquisition that are subject to amortization, partially offset by normal depreciation associated with assets revalued in purchase accounting.

(s) This adjustment to income taxes was calculated by applying Sirius XM's statutory tax rate at December 31, 2017 to the pro forma adjustments of $100 and Pandora's loss before income tax of $(519).

Recent Accounting Pronouncements

- In May 2014, the Financial Accounting Standards Board ("FASB") issued *ASU 2014-09, Revenue - Revenue from Contracts with Customers.*
- In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*.
- In February 2018, the FASB issued ASU 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.*
- In June 2018, the FASB issued ASU 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting.*
- In August 2018, the FASB issued ASU 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*.

For additional information regarding "Recent Accounting Pronouncements," refer to Note 2 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K.

Key Financial and Operating Performance Metrics

In this section, we present certain financial performance measures some of which are presented as Non-GAAP items, which include free cash flow and adjusted EBITDA. We also present certain operating performance measures. Our adjusted EBITDA excludes the impact of share-based payment expense and certain purchase price accounting adjustments related to the XM Merger and the Pandora Acquisition. Additionally, when applicable, our adjusted EBITDA metric excludes the effect of significant items that do not relate to the on-going performance of our business. We use these Non-GAAP financial and operating performance measures to manage our business, to set operational goals and as a basis for determining performance-based compensation for our employees. See the accompanying glossary on pages 58 through 61 for more details and for the reconciliation to the most directly comparable GAAP measure (where applicable).

We believe these Non-GAAP financial and operating performance measures provide useful information to investors regarding our financial condition and results of operations. We believe these Non-GAAP financial and operating performance measures may be useful to investors in evaluating our core trends because they provide a more direct view of our underlying costs. We believe investors may use our adjusted EBITDA to estimate our current enterprise value and to make investment decisions. We believe free cash flow provides useful supplemental information to investors regarding our cash available for future subscriber acquisitions and capital expenditures, to repurchase or retire debt, to acquire other companies and our ability to return capital to stockholders. By providing these Non-GAAP financial and operating performance measures, together with the reconciliations to the most directly comparable GAAP measure (where applicable), we believe we are enhancing investors' understanding of our business and our results of operations.

Our Non-GAAP financial measures should be viewed in addition to, and not as an alternative for or superior to, our reported results prepared in accordance with GAAP. In addition, our Non-GAAP financial measures may not be comparable to similarly-titled measures by other companies. Please refer to the glossary (pages 58 through 61) for a further discussion of such Non-GAAP financial and operating performance measures and reconciliations to the most directly comparable GAAP measure (where applicable). Subscribers and subscription related revenues and expenses associated with our connected vehicle services and Sirius XM Canada are not included in Sirius XM's subscriber count or subscriber-based operating metrics.

Set forth below are our subscriber balances as of December 31, 2019 compared to December 31, 2018 and as of December 31, 2018 compared to December 31, 2017.

	As of December 31,			2019 vs 2018 Change		2018 vs 2017 Change	
(subscribers in thousands)	2019	2018 (1)	2017 (2)	Amount	%	Amount	%
Sirius XM							
Self-pay subscribers	29,978	28,915	27,513	1,063	4 %	1,402	5 %
Paid promotional subscribers	4,931	5,124	5,223	(193)	(4)%	(99)	(2)%
Ending subscribers	34,909	34,039	32,736	870	3 %	1,303	4 %
Traffic users	9,334	8,606	7,489	728	8 %	1,117	15 %
Sirius XM Canada subscribers	2,707	2,644	2,565	63	2 %	79	3 %
Pandora							
Monthly active users - all services	63,508	69,399	74,693	(5,891)	(8)%	(5,294)	(7)%
Self-pay subscribers	6,165	5,914	5,478	251	4 %	436	8 %
Paid promotional subscribers	49	756	—	(707)	(94)%	756	nm
Ending subscribers	6,214	6,670	5,478	(456)	(7)%	1,192	22 %

nm - not meaningful

(1) Includes Pandora's results as of December 31, 2018.

(2) Includes Pandora's results as of December 31, 2017.

The following table contains our Non-GAAP pro forma financial and operating performance measures which are based on our adjusted results of operations for the years ended December 31, 2019, 2018, and 2017.

	For the Years Ended December 31,			2019 vs 2018 Change		2018 vs 2017 Change	
(subscribers in thousands)	2019	2018	2017	Amount	%	Amount	%
Sirius XM							
Self-pay subscribers	1,063	1,402	1,562	(339)	(24)%	(160)	(10)%
Paid promotional subscribers	(193)	(99)	(172)	(94)	95 %	73	(42)%
Net additions	870	1,303	1,390	(433)	(33)%	(87)	(6)%
Weighted average number of subscribers	34,314	33,345	31,866	969	3 %	1,479	5 %
Average self-pay monthly churn	1.7%	1.7%	1.8%	—%	— %	(0.1)%	(6)%
ARPU (1)	$ 13.82	$ 13.34	$ 13.25	$ 0.48	4 %	$ 0.09	1 %
SAC, per installation	$ 22.91	$ 25.66	$ 29.53	$ (2.75)	(11)%	$ (3.87)	(13)%
Pandora							
Self-pay subscribers	251	436	1,139	(185)	(42)%	(703)	(62)%
Paid promotional subscribers	(707)	756	—	(1,463)	(194)%	756	nm
Net additions	(456)	1,192	1,139	(1,648)	(138)%	53	5 %
Weighted average number of subscribers	6,654	6,080	4,885	574	9 %	1,195	24 %
ARPU	$ 6.61	$ 6.53	$ 5.34	$ 0.08	1 %	$ 1.19	22 %
Ad supported listener hours (in billions)	13.44	14.79	16.28	(1.35)	(9)%	(1.49)	(9)%
Advertising revenue per thousand listener hours (RPM)	$ 80.41	$ 71.60	$ 65.54	$ 8.81	12 %	$ 6.06	9 %
Licensing costs per thousand listener hours (LPM)	$ 38.94	$ 37.80	$ 35.68	$ 1.14	3 %	$ 2.12	6 %
Licensing costs per paid subscriber (LPU)	$ 4.06	$ 4.47	$ 3.63	$ (0.41)	(9)%	$ 0.84	23 %
Total Company							
Adjusted EBITDA	$ 2,427	$ 2,131	$ 2,006	$ 296	14 %	$ 125	6 %
Free cash flow (2)	$ 1,647	$ 1,517	$ 1,560	$ 130	9 %	$ (43)	(3)%

nm - not meaningful

(1) ARPU for Sirius XM excludes subscriber revenue from our connected vehicle services of $159, $111, and $84 for the years ended December 31, 2019, 2018 and 2017, respectively.
(2) Free cash flow has not been adjusted to include Pandora's pre-acquisition results.

Sirius XM

Subscribers. At December 31, 2019, we had approximately 34.9 million subscribers, an increase of approximately 0.9 million subscribers, or 3%, from the approximately 34.0 million subscribers as of December 31, 2018. The increase in total subscribers was primarily due to growth in our self-pay subscriber base, which increased by approximately 1.1 million. The increase in self-pay subscribers was primarily driven by trial conversions by owners and lessees of new and used vehicles as well as subscriber win back programs, partially offset by deactivations.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, net additions were 0.9 million and 1.3 million, respectively, a decrease of 33%, or 0.4 million. Self-pay net additions decreased primarily due to a flat churn rate on a growing subscriber base and lower gross add win-backs, offset by increases in trial conversions. The reduction of paid promotional subscribers increased due to lower shipments and trial starts from automakers offering paid promotional subscriptions.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, net additions were 1.3 million and 1.4 million, respectively, a decrease of 6%, or 0.1 million. Self-pay net additions decreased primarily due to a growing subscriber base and lower gross add win-backs, offset by improvements in churn rate and increases in trial conversions. The reduction of paid promotional subscribers decreased due to higher shipments from automakers offering paid promotional subscriptions.

Traffic Users. We offer services that provide graphic information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems.

Average Self-pay Monthly Churn is derived by dividing the monthly average of self-pay deactivations for the period by the average number of self-pay subscribers for the period. (See accompanying glossary on pages 58 through 61 for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, our average self-pay monthly churn rate was 1.7%.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, our average self-pay monthly churn rate was1.7% and 1.8%, respectively. The decrease was due to improvements in non-pay and voluntary churn.

ARPU is derived from total earned subscriber revenue (excluding revenue derived from our connected vehicle services) and net advertising revenue, divided by the number of months in the period, divided by the daily weighted average number of subscribers for the period. (See the accompanying glossary on pages 58 through 61 for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, ARPU was $13.82 and $13.34, respectively. The increase was driven by increases in the U. S. Music Royalty Fee, increases in self-pay revenue and higher advertising revenue.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, ARPU was $13.34 and $13.25, respectively. The increase in certain of our subscription rates, including the U. S. Music Royalty Fee, and higher advertising revenue was negatively impacted by the adoption of the new revenue standard, effective as of January 1, 2018 of $0.24, and the growth in subscription discounts offered through customer acquisition and retention programs.

SAC, Per Installation, is derived from subscriber acquisition costs and margins from the sale of radios, components and accessories (excluding connected vehicle services), divided by the number of satellite radio installations in new vehicles and shipments of aftermarket radios for the period. (See the accompanying glossary on pages 58 through 61 for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, SAC, per installation, was $22.91 and $25.66, respectively. The decrease was driven by our transition to a new generation of chipsets and reductions to OEM hardware subsidy rates.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, SAC, per installation, was $25.66 and $29.53, respectively. The decrease was driven by reductions to OEM hardware subsidy rates, our transition to a new

generation of chipsets as well as the impact of the adoption of the new revenue standard, effective as of January 1, 2018, of $0.26.

Pandora

Monthly Active Users. At December 31, 2019, Pandora had approximately 63.5 million monthly active users, a decrease of 5.9 million monthly active users, or 8%, from the 69.4 million monthly active users as of December 31, 2018. The decrease in monthly active users was driven by an increase in ad-supported listener churn and a decrease in the number of new users.

Subscribers. At December 31, 2019, Pandora had approximately 6.2 million subscribers, a decrease of 0.5 million, or 7%, from the approximately 6.7 million subscribers as of December 31, 2018.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, net additions were (0.5) million and 1.2 million, respectively, a decrease of 138%, or 1.6 million. Net additions decreased due to a loss of paid promotional subscribers from the expiration of an agreement with T-Mobile.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, net additions were 1.2 million and 1.1 million, respectively, an increase of 5%, or 0.1 million. Net additions increased as a result of an influx in paid promotional subscribers from an agreement with T-Mobile in 2018, partially offset by a decline in the number of new self-pay subscribers.

ARPU is defined as average monthly revenue per paid subscriber on our Pandora subscription services. (See the accompanying glossary on pages 58 through 61 for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, ARPU was $6.61 and $6.53, respectively. The increase was primarily driven by an increase in the number of Pandora Premium subscribers while the number of lower price Pandora Plus subscribers decreased.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, ARPU was $6.53 and $5.34, respectively. The increase was primarily driven by an increase in the number of Pandora Premium subscribers while the number of lower price Pandora Plus subscribers decreased.

Ad supported listener hours are a key indicator of our Pandora business and the engagement of our Pandora listeners. We include ad supported listener hours related to Pandora's non-radio content offerings in the definition of listener hours.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, ad supported listener hours was 13.44 billion and 14.79 billion, respectively. The decline in ad supported listener hours was primarily driven by a decrease in ad-supported listeners.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, ad supported listener hours was 14.79 billion and 16.28 billion, respectively. The decline in ad supported listener hours was primarily driven by a decrease in ad-supported listeners.

RPM is a key indicator of our ability to monetize advertising inventory created by our listener hours on the Pandora services. Ad RPM is calculated by dividing advertising revenue by the number of thousands of listener hours of our Pandora advertising-based service.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, RPM was $80.41 and $71.60, respectively. The increase was a result of an increase in the average price per ad and increased sell-through percentage.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, RPM was $71.60 and $65.54, respectively. The increase was a result of an increase in the average price per ad and increased sell-through percentage.

LPM is tracked for our non-subscription, ad-supported service across all Pandora delivery platforms. The content acquisition costs included in our ad LPM calculations are based on the rates set by our license agreements with record labels, performing rights organizations and music publishers or the applicable rates set by the Copyright Royalty Board if we have not entered into a license agreement with the copyright owner of a particular sound recording.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, LPM was $38.94 and $37.80, respectively. The increase was primarily driven by higher eligible advertising revenue and increases to track rates.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, LPM was $37.80 and $35.68, respectively. The increase was primarily driven by increases to track rates and higher eligible advertising revenue.

LPU is defined as average monthly licensing costs per paid subscriber on our Pandora subscription services. LPU is a key measure of our ability to manage costs for our subscription services.

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, LPU was $4.06 and $4.47, respectively. The decrease was due to lower minimum guarantees associated with our direct license agreements with major and independent labels, distributors, performing rights organizations and publishers.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, LPU was $4.47 and $3.63, respectively. The increase was primarily driven by increases in content acquisition costs associated with Pandora Premium and minimum guarantee accruals related to our direct license agreements with major and independent labels, distributors, performing rights organizations and publishers.

Total Company

Adjusted EBITDA. EBITDA is defined as net income before interest expense, income tax expense and depreciation and amortization. Adjusted EBITDA excludes the impact of other income, loss on extinguishment of debt, acquisition related costs, other non-cash charges, such as certain purchase price accounting adjustments, share-based payment expense, loss on disposal of assets, and legal settlements and reserves related to the historical use of sound recordings. (See the accompanying glossary on pages 58 through 61 for a reconciliation to GAAP and for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, adjusted EBITDA was $2,427 and $2,131, respectively, an increase of 14%, or $296. The increase was due to: growth of 8% in total revenue which was primarily a result of the increase in our subscriber base; additional revenues from the U.S. Music Royalty Fee; an increase in advertising revenue; and lower subscriber acquisition costs. The increases were partially offset by higher revenue share and royalty, sales and marketing, programming and content, transmission, engineering, design and development costs, and general and administrative costs.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, adjusted EBITDA was $2,131 and $2,006, respectively, an increase of 6%, or $125. The increase was due to: growth of 8% in total revenue which was primarily a result of the increase in our subscriber base; additional revenues from the U.S. Music Royalty Fee; an increase in advertising revenue; and lower subscriber acquisition costs. The increases were partially offset by higher revenue share and royalty, sales and marketing, programming and content, transmission, and general and administrative costs.

Free Cash Flow includes cash provided by operations, net of additions to property and equipment, restricted and other investment activity and the return of capital from an investment in an unconsolidated entity. (See the accompanying glossary on pages 58 through 61 for a reconciliation to GAAP and for more details.)

- *2019 vs. 2018*: For the years ended December 31, 2019 and 2018, free cash flow was $1,647 and $1,517, respectively, an increase of $130, or 9%. The increase was impacted by the one-time lump sum payment of $150 to resolve all outstanding claims under our statutory license for sound recordings for the period January 1, 2007 through December 31, 2017, paid during 2018; partially offset by a payment of $25 for a legal settlement paid during 2019.
- *2018 vs. 2017*: For the years ended December 31, 2018 and 2017, free cash flow was $1,517 and $1,560, respectively, a decrease of $43, or 3%. The decrease was driven primarily by the one-time lump sum payment of $150 to resolve all outstanding claims under our statutory license for sound recordings for the period January 1, 2007 through December 31, 2017, an increase in additions to property and equipment due to the timing of payments for new satellite construction, and the timing of payments to vendors; partially offset by higher net cash provided by operating activities resulting from improved operating performance.

Liquidity and Capital Resources

Cash Flows for the year ended December 31, 2019 compared with the year ended December 31, 2018 and for the year ended December 31, 2018 compared with the year ended December 31, 2017.

The following table presents a summary of our cash flow activity for the periods set forth below:

	For the Years Ended December 31,				
	2019	2018	2017	2019 vs 2018	2018 vs 2017
Net cash provided by operating activities	$ 2,017	$ 1,880	$ 1,856	$ 137	$ 24
Net cash used in investing activities	(3)	(379)	(1,147)	376	768
Net cash used in financing activities	(1,959)	(1,515)	(854)	(444)	(661)
Net increase (decrease) in cash, cash equivalents and restricted cash	55	(14)	(145)	69	131
Cash, cash equivalents and restricted cash at beginning of period	65	79	224	(14)	(145)
Cash, cash equivalents and restricted cash at end of period	$ 120	$ 65	$ 79	$ 55	$ (14)

Cash Flows Provided by Operating Activities

Cash flows provided by operating activities increased by $137 to $2,017 for the year ended December 31, 2019 from $1,880 for the year ended December 31, 2018. Cash flows provided by operating activities increased by $24 to $1,880 for the year ended December 31, 2018 from $1,856 for the year ended December 31, 2017.

Our largest source of cash provided by operating activities is cash generated by subscription and subscription-related revenues. We also generate cash from the sale of advertising on Pandora, advertising on certain non-music channels on Sirius XM and the sale of satellite radios, components and accessories. Our primary uses of cash from operating activities include revenue share and royalty payments to distributors, programming and content providers, and payments to radio manufacturers, distributors and automakers. In addition, uses of cash from operating activities include payments to vendors to service, maintain and acquire listeners and subscribers, general corporate expenditures, and compensation and related costs.

Cash Flows Used in Investing Activities

Cash flows used in investing activities in the year ended December 31, 2019 were primarily due to spending primarily for capitalized software and hardware, and to construct replacement satellites, offset by cash received from the Pandora Acquisition of $313 and from the sale of short-term investments of $73. Cash flows used in investing activities in the year ended December 31, 2018 were primarily due to spending primarily for capitalized software and hardware and to construct replacement satellites of $355. Cash flows used in investing activities in the year ended December 31, 2017 were primarily due to spending primarily for capitalized software and hardware and to construct replacement satellites of $288 as well as our investment in Pandora of $480, loans to related parties of $131, payments to acquire additional ownership in related parties (including transaction costs) of $132 and the acquisition of Automatic for $107 (net of cash and restricted cash acquired). We spent $214, $166 and $140 on capitalized software and hardware as well as $82, $132 and $100 to construct replacement satellites during the years ended December 31, 2019, 2018 and 2017, respectively.

Cash Flows Used in Financing Activities

Cash flows used in financing activities consists of the issuance and repayment of long-term debt, the purchase of common stock under our share repurchase program, the payment of cash dividends and taxes paid in lieu of shares issued for stock-based compensation. Proceeds from long-term debt have been used to fund our operations, construct and launch new satellites, invest in other infrastructure improvements and purchase shares of our common stock.

Cash flows used in financing activities in the year ended December 31, 2019 were primarily due to the purchase and retirement of shares of our common stock under our repurchase program for $2,159, the redemption of Sirius XM's 6.00% Senior Notes due 2024 in the aggregate amount of $1,546, repayment under the Credit Facility of $439, the repurchase for $152 of Pandora's 1.75% Convertible Senior Notes due 2020, the payment of cash dividends of $226, and payment of $150 for taxes paid in lieu of shares issued for share-based compensation, partially offset by cash provided by the issuance of $2,715 in aggregate principal amount of Sirius XM's 5.500% Senior Notes due 2029, net of costs. Cash flows used in financing activities in the year ended December 31, 2018 were primarily due to the purchase and retirement for $1,314 of shares of our common stock under our repurchase program, the payment of cash dividends of $201 and payment of $120 for taxes paid in lieu of shares issued for share-based compensation, partially offset by the net borrowings under the Credit Facility of $136. Cash flows used in financing activities in the year ended December 31, 2017 were primarily due to the redemption of $1,500 aggregate principal amount of then-outstanding notes, the purchase and retirement for $1,409 of shares of our common stock under our repurchase program, the payment of cash dividends of $190, and net repayments of $90 under the Credit Facility, partially offset by the issuance of $1,000 aggregate principal amount of Sirius XM's 3.875% Senior Notes due 2022 and $1,500 in aggregate principal amount of Sirius XM's 5.00% Senior Notes due 2027.

Future Liquidity and Capital Resource Requirements

Based upon our current business plans, we expect to fund operating expenses, capital expenditures, including the construction of replacement satellites, working capital requirements, interest payments, taxes and scheduled maturities of our debt with existing cash, cash flow from operations and borrowings under our Credit Facility. As of December 31, 2019, $0 was outstanding under our Credit Facility. As the amount available for future borrowing is reduced by $1 related to letters of credit issued for the benefit of Pandora, $1,749 was available for future borrowing under our Credit Facility. We believe that we have sufficient cash and cash equivalents, as well as debt capacity, to cover our estimated short-term and long-term funding needs, including amounts to construct, launch and insure replacement satellites, as well as fund stock repurchases, future dividend payments and strategic opportunities.

Our ability to meet our debt and other obligations depends on our future operating performance and on economic, financial, competitive and other factors. We continually review our operations for opportunities to adjust the timing of expenditures to ensure that sufficient resources are maintained.

We regularly evaluate our business plans and strategy. These evaluations often result in changes to our business plans and strategy, some of which may be material and significantly change our cash requirements. These changes in our business plans or strategy may include: the acquisition of unique or compelling programming; the development and introduction of new features or services; significant new or enhanced distribution arrangements; investments in infrastructure, such as satellites, equipment or radio spectrum; and acquisitions and investments, including acquisitions and investments that are not directly related to our existing business.

We may from time to time purchase our outstanding debt through open market purchases, privately negotiated transactions or otherwise. Purchases or retirement of debt, if any, will depend on prevailing market conditions, liquidity requirements, contractual restrictions and other factors. The amounts involved may be material.

Capital Return Program

As of December 31, 2019, our board of directors had authorized for repurchase an aggregate of $14,000 of our common stock. As of December 31, 2019, our cumulative repurchases since December 2012 under our stock repurchase program totaled 3,047 shares for $12,834, and $1,166 remained available for additional repurchases under our existing stock repurchase program authorization.

Shares of common stock may be purchased from time to time on the open market and in privately negotiated transactions, including in accelerated stock repurchase transactions and transactions with Liberty Media and its affiliates. We intend to fund the additional repurchases through a combination of cash on hand, cash generated by operations and future borrowings.

On January 30, 2020, our board of directors declared a quarterly dividend in the amount of $0.01331 per share of common stock payable on February 28, 2020 to stockholders of record as of the close of business on February 12, 2020. Our board of directors expects to declare regular quarterly dividends, in an aggregate annual amount of $0.05324 per share of common stock.

Debt Covenants

The indentures governing Sirius XM's senior notes and Pandora's convertible notes and the agreement governing the Sirius XM Credit Facility include restrictive covenants. As of December 31, 2019, we were in compliance with such covenants. For a discussion of our “Debt Covenants,” refer to Note 13 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K.

Off-Balance Sheet Arrangements

We do not have any significant off-balance sheet arrangements other than those disclosed in Note 16 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K that are reasonably likely to have a material effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Contractual Cash Commitments

For a discussion of our “Contractual Cash Commitments,” refer to Note 16 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K.

Related Party Transactions

For a discussion of “Related Party Transactions,” refer to Note 12 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with GAAP, which requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the periods. Accounting estimates require the use of significant management assumptions and judgments as to future events, and the effect of those events cannot be predicted with certainty. The accounting estimates will change as new events occur, more experience is acquired and more information is obtained. We evaluate and update our assumptions and estimates on an ongoing basis and use outside experts to assist in that evaluation when we deem necessary. We have identified all significant accounting policies in Note 2 to our consolidated financial statements in Part II, Item 8, of this Annual Report on Form 10-K.

Intangible Assets and Purchase Accounting. We perform purchase price accounting upon an acquisition. We allocate the purchase consideration to the identifiable assets acquired and liabilities assumed based on their fair values at the acquisition date. The excess of the purchase consideration over the fair value of assets acquired and liabilities assumed is recorded as goodwill. The determination of the acquisition date fair value of the assets acquired and liabilities assumed required us to make significant estimates and assumptions regarding projected revenues and related growth rates, royalty rates, customer attrition rates, discount rates and the remaining useful lives of intangible and other long-term assets. Our intangible assets include goodwill, other indefinite-lived assets (our FCC licenses and trademarks) and definite-lived assets. Our annual impairment assessment of our goodwill and our indefinite-lived assets is performed as of the fourth quarter of each year. We also review our intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset is not recoverable. If an impairment exists, the impairment is measured as the amount by which the carrying amount of an intangible asset exceeds its implied fair value.

- *Goodwill:* ASC 350, *Intangibles - Goodwill and Other*, states that an entity should perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value. Under the updated guidance, the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment is eliminated.
- *Indefinite-lived Assets:* ASC 350-30-35, *Intangibles - General Intangibles Other than Goodwill*, provides for an option to first perform a qualitative assessment to determine whether it is more likely than not that an asset is impaired. If the qualitative assessment supports that it is more likely than not that the fair value of the asset exceeds its carrying value, a company is not required to perform a quantitative impairment test. If the qualitative assessment does not support that the fair value of the asset exceeds its carrying value, then a quantitative assessment is performed.
- *Definite-lived:* We carry our definite-lived assets at cost less accumulated amortization.

Useful Life of Broadcast/Transmission System. Our satellite system includes the costs of our satellite construction, launch vehicles, launch insurance, capitalized interest, spare satellites, terrestrial repeater network and satellite uplink facilities. We monitor our satellites for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset is not recoverable.

We operate two in-orbit Sirius satellites, FM-5 and FM-6, which launched in 2009 and 2013, respectively, and estimate they will operate effectively through the end of their depreciable lives in 2024 and 2028, respectively.

We operate three in-orbit XM satellites, XM-3, XM-4 and XM-5. We estimate that our XM-3 and XM-4 satellites launched in 2005 and 2006, respectively, will reach the end of their depreciable lives in 2020 and 2021, respectively. We have entered into agreements for the design, construction and launch of two new satellites, SXM-7 and SXM-8, which we plan to launch into geostationary orbits in 2020 as replacements for XM-3 and XM-4. Our XM-5 satellite was launched in 2010, is used as an in-orbit spare for the Sirius and XM systems and is expected to reach the end of its depreciable life in 2025.

Our satellites have been designed to last fifteen-years. Our in-orbit satellites may experience component failures which could adversely affect their useful lives. We monitor the operating condition of our in-orbit satellites and if events or circumstances indicate that the depreciable lives of our in-orbit satellites have changed, we will modify the depreciable life accordingly. If we were to revise our estimates, our depreciation expense would change.

Income Taxes. Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income.

We assess the recoverability of deferred tax assets at each reporting date and, where applicable, a valuation allowance is recognized when, based on the weight of all available evidence, it is considered more likely than not that all, or some portion, of the deferred tax assets will not be realized. Our assessment includes an analysis of whether deferred tax assets will be realized in the ordinary course of operations based on the available positive and negative evidence, including the scheduling of deferred tax liabilities and forecasted income from operations. The underlying assumptions we use in forecasting future taxable income require significant judgment. In the event that actual income from operations differs from forecasted amounts, or if we change our estimates of forecasted income from operations, we could record additional charges or reduce allowances in order to adjust the carrying value of deferred tax assets to their realizable amount. Such adjustments could be material to our consolidated financial statements.

As of December 31, 2019, we had a valuation allowance of $70 relating to deferred tax assets that are not more likely than not to be realized due to the timing of certain state net operating loss limitations and acquired net operating losses that were not likely to be utilized.

ASC 740, *Income Taxes*, requires a company to first determine whether it is more likely than not that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more likely than not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority. If the tax position is not more likely than not to be sustained, the gross amount of the unrecognized tax position will not be recorded in the financial statements but will be shown in tabular format within the uncertain income tax positions. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs due to the following conditions: (1) the tax position is “more likely than not” to be sustained, (2) the tax position, amount, and/or timing is ultimately settled through negotiation or litigation, or (3) the statute of limitations for the tax position has expired. A number of years may elapse before an uncertain tax position is effectively settled or until there is a lapse in the applicable statute of limitations. We record interest and penalties related to uncertain tax positions in Income tax expense in our consolidated statements of comprehensive income. As of December 31, 2019, the gross liability for income taxes associated with uncertain tax positions was $406.

Glossary

Monthly active users - the number of distinct registered users on the Pandora services, including subscribers, which have consumed content within the trailing 30 days to the end of the final calendar month of the period. The number of monthly active users on the Pandora services may overstate the number of unique individuals who actively use our Pandora service, as one individual may use multiple accounts. To become a registered user on the Pandora services, a person must sign-up using an email address or phone number, or access our service using a device with a unique identifier, which we use to create an account for our service.

Average self-pay monthly churn - the Sirius XM monthly average of self-pay deactivations for the period divided by the average number of self-pay subscribers for the period.

Adjusted EBITDA - EBITDA is defined as net income before interest expense, income tax expense and depreciation and amortization. We adjust EBITDA to exclude the impact of other expense (income) as well as certain other charges discussed below. Adjusted EBITDA is a Non-GAAP financial measure that excludes or adjusts for (if applicable): (i) certain adjustments as a result of the purchase price accounting for the XM Merger and the Pandora Acquisition, (ii) predecessor net income adjusted for certain expenses, including depreciation and amortization, other income (loss), and share-based payment expense for January 2019 and the twelve months ended December 31, 2018 and 2017, (iii) share-based payment expense and (iv) other significant operating expense (income) that do not relate to the on-going performance of our business. We believe adjusted EBITDA is a useful measure of the underlying trend of our operating performance, which provides useful information about our business apart from the costs associated with our capital structure and purchase price accounting. We believe investors find this Non-GAAP financial measure useful when analyzing our past operating performance with our current performance and comparing our operating performance to the performance of other communications, entertainment and media companies. We believe investors use adjusted EBITDA to estimate our current enterprise value and to make investment decisions. As a result of large capital investments in our satellite radio system, our results of operations reflect significant charges for depreciation expense. We believe the exclusion of share-based payment expense is useful as it is not directly related to the operational conditions of our business. We also believe the exclusion of the legal settlements and reserves, acquisition related costs, and loss on extinguishment of debt, to the extent they occur during the period, is useful as they are significant expenses not incurred as part of our normal operations for the period.

Adjusted EBITDA has certain limitations in that it does not take into account the impact to our statements of comprehensive income of certain expenses, including share-based payment expense and certain purchase price accounting for the XM Merger and the Pandora Acquisition. We endeavor to compensate for the limitations of the Non-GAAP measure presented by also providing the comparable GAAP measure with equal or greater prominence and descriptions of the reconciling items, including quantifying such items, to derive the Non-GAAP measure. Investors that wish to compare and evaluate our operating results after giving effect for these costs, should refer to net income as disclosed in our consolidated statements of comprehensive income. Since adjusted EBITDA is a Non-GAAP financial performance measure, our calculation of adjusted EBITDA may be susceptible to varying calculations; may not be comparable to other similarly titled measures of other companies; and should not be considered in isolation, as a substitute for, or superior to measures of financial performance prepared in accordance with GAAP. The reconciliation of net income to the adjusted EBITDA is calculated as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Net income:	$ 914	$ 1,176	$ 648
Add back items excluded from Adjusted EBITDA:			
Legal settlements and reserves	25	69	45
Acquisition and other related costs (1)	84	3	—
Share-based payment expense	229	133	124
Depreciation and amortization	468	301	299
Interest expense	390	350	346
Loss on extinguishment of debt	57	—	44
Other expense (income)	3	(44)	(13)
Income tax expense	283	245	616
Purchase price accounting adjustments:			
Revenues	13	7	7
Operating expenses	(14)	—	—
Pro forma adjustments (2)	(25)	(109)	(110)
Adjusted EBITDA	$ 2,427	$ 2,131	$ 2,006

(1) Acquisition and other related costs include $21 of share-based compensation expense for the year ended December 31, 2019.

(2) Pro forma adjustment for the year ended December 31, 2019 includes Pandora's January 2019 Net income of $(44) plus Depreciation and amortization of $6, Share-based payment expense of $11, Acquisition and other related costs of $1, and Interest expense of $2 offset by Other expense (income) of $1. Pro forma adjustment for year ended December 31, 2018 includes Pandora's Net income for the year ended December 31, 2018 of $(328) plus Depreciation and amortization of $61, Share-based payment expense of $111, Loss on extinguishment of debt of $17, Interest expense of $27, transaction related costs recorded by Pandora related to its acquisition by Sirius XM of $12, and contract termination fees of $6, offset by Other expense (income) of $7 and Income tax benefit of $8. Pro forma adjustment for year ended December 31, 2017 includes Pandora's Net income for the year ended December 31, 2017 of $(518) plus Depreciation and amortization of $63, Share-based payment expense of $128, Interest expense of $29, contract termination fees of $23, loss on extinguishment of debt of $9 and activity related to discontinued operations of $160, offset by Other expense (income) of $3 and Income tax benefit of $1.

Free cash flow - is derived from cash flow provided by operating activities, net of additions to property and equipment and purchases of other investments. Free cash flow is a metric that our management and board of directors use to evaluate the cash generated by our operations, net of capital expenditures and other investment activity. In a capital intensive business, with significant investments in satellites, we look at our operating cash flow, net of these investing cash outflows, to determine cash available for future subscriber acquisition and capital expenditures, to repurchase or retire debt, to acquire other companies and to evaluate our ability to return capital to stockholders. We exclude from free cash flow certain items that do not relate to the on-going performance of our business, such as cash flows related to acquisitions, strategic and short-term investments, and net loan activity with related parties and other equity investees. We believe free cash flow is an indicator of the long-term financial stability of our business. Free cash flow, which is reconciled to “Net cash provided by operating activities,” is a Non-GAAP financial measure. This measure can be calculated by deducting amounts under the captions “Additions to property and equipment” and deducting or adding Restricted and other investment activity from “Net cash provided by operating activities” from the consolidated statements of cash flows. Free cash flow should be used in conjunction with other GAAP financial performance measures and may not be comparable to free cash flow measures presented by other companies. Free cash flow should be viewed as a supplemental measure rather than an alternative measure of cash flows from operating activities, as determined in accordance with GAAP. Free cash flow is limited and does not represent remaining cash flows available for discretionary expenditures due to the fact that the measure does not deduct the payments required for debt maturities. We believe free cash flow provides useful supplemental information to investors regarding our current cash flow, along with other GAAP measures (such as cash flows from operating and investing activities), to determine our financial condition, and to compare our operating performance to other communications, entertainment and media companies. Free cash flow is calculated as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Cash Flow information			
Net cash provided by operating activities	$ 2,017	$ 1,880	$ 1,856
Net cash used in investing activities	$ (3)	$ (379)	$ (1,147)
Net cash used in financing activities	$ (1,959)	$ (1,515)	$ (854)
Free Cash Flow			
Net cash provided by operating activities	$ 2,017	$ 1,880	$ 1,856
Additions to property and equipment	(363)	(355)	(288)
Purchases of other investments	(7)	(8)	(8)
Free cash flow	$ 1,647	$ 1,517	$ 1,560

ARPU - Sirius XM ARPU is derived from total earned subscriber revenue (excluding revenue associated with our connected vehicle services), advertising revenue, divided by the number of months in the period, divided by the daily weighted average number of subscribers for the period. Pandora ARPU is defined as average monthly subscriber revenue per paid subscriber on our Pandora subscription services.

Subscriber acquisition cost, per installation - or SAC, per installation, is derived from subscriber acquisition costs and margins from the sale of radios and accessories (excluding connected vehicle services), divided by the number of satellite radio installations in new vehicles and shipments of aftermarket radios for the period. SAC, per installation, is calculated as follows:

	For the Years Ended December 31,		
	2019	2018	2017
Subscriber acquisition costs, excluding connected vehicle services	$ 427	$ 470	$ 499
Less: margin from sales of radios and accessories, excluding connected vehicle services	(144)	(122)	(96)
	$ 283	$ 348	$ 403
Installations	12,355	13,563	13,662
SAC, per installation [(a)]	$ 22.91	$ 25.66	$ 29.53

(a) Amounts may not recalculate as a result of rounding.

Ad supported listener hours - is based on the total bytes served over our Pandora advertising supported platforms for each track that is requested and served from our Pandora servers, as measured by our internal analytics systems, whether or not a listener listens to the entire track. For non-music content such as podcasts, episodes are divided into approximately track-length parts, which are treated as tracks. To the extent that third-party measurements of advertising hours are not calculated using a similar server-based approach, the third-party measurements may differ from our measurements.

RPM - is calculated by dividing advertising revenue, excluding AdsWizz and other off-platform revenue, by the number of thousands of listener hours on our Pandora advertising-based service.

LPM - is calculated by dividing advertising licensing costs by the number of thousands of listener hours on our Pandora advertising-based service.

LPU - is calculated by dividing subscriber licensing costs by the number of paid subscribers on our Pandora subscription services.

ITEM 7A. *QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK*

As of December 31, 2019, we did not hold or issue any derivatives. We hold investments in money market funds and certificates of deposit. These securities are consistent with the objectives contained within our investment policy. The basic objectives of our investment policy are the preservation of capital, maintaining sufficient liquidity to meet operating requirements and maximizing yield.

As of December 31, 2019, we also held the following investments:

In connection with the recapitalization of Sirius XM Canada on May 25, 2017, we loaned Sirius XM Canada $130.8 million. The loan is considered a long-term investment with any unrealized gains or losses reported within Accumulated other comprehensive (loss) income. The loan has a term of fifteen years, bears interest at a rate of 7.62% per annum and includes customary covenants and events of default, including an event of default relating to Sirius XM Canada's failure to maintain specified leverage ratios. The carrying value of the loan as of December 31, 2019 was $131.0 million and approximated its fair value. The loan is denominated in Canadian dollars and it is subject to changes in foreign currency. Had the Canadian to U.S. dollar exchange rate been 10% lower as of December 31, 2019, the value of this loan would have been approximately $13.1 million lower.

Our debt includes fixed rate instruments and the fair market value of our debt is sensitive to changes in interest rates. Sirius XM's borrowings under the Credit Facility carry a variable interest rate, which is currently based on LIBOR, plus an applicable rate based on its debt to operating cash flow ratio. We currently do not use interest rate derivative instruments to manage our exposure to interest rate fluctuations.

ITEM 8. *FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA*

See the Index to Consolidated Financial Statements and financial statements and financial statement schedule contained in Part IV, Item 15, herein, which are incorporated herein by reference.

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

None.

ITEM 9A. *CONTROLS AND PROCEDURES*

Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosures. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. An evaluation was performed under the supervision and with the participation of our management, including James E. Meyer, our Chief Executive Officer, and David J. Frear, our Senior Executive Vice President and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as that term is defined in Rule 13a-15(e) and 15d-15(e) under the Exchange Act) as of December 31, 2019. Based on that evaluation, our management, including our Chief Executive Officer and our Chief Financial Officer, concluded that our disclosure controls and procedures were effective as of December 31, 2019 at the reasonable assurance level.

We acquired Pandora in February 2019. Except for the changes in internal controls at Pandora, there has been no change in our internal control over financial reporting (as that term is defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act) during the year ended December 31, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act. We have performed an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, of the effectiveness of our internal control over financial reporting. Our management used the Internal Control-Integrated Framework (*2013*) issued by the Committee of Sponsoring Organizations of the Treadway Commission to perform this evaluation. Based on that evaluation, our management, including our Chief Executive Officer and Chief Financial Officer, concluded that our internal control over financial reporting was effective as of December 31, 2019.

KPMG LLP, an independent registered public accounting firm, which has audited and reported on the consolidated financial statements contained in this Annual Report on Form 10-K, has issued its report on the effectiveness of our internal control over financial reporting.

Audit Report of the Independent Registered Public Accounting Firm

The effectiveness of our internal control over financial reporting as ofDecember 31, 2019 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their audit report appearing on page F-4 of this Annual Report on Form 10-K.

ITEM 9B. *OTHER INFORMATION*

None.

PART III

ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE*

Information about our executive officers is contained in the discussion entitled "Information About Our Executive Officers" in Part I of this Annual Report on Form 10-K.

The additional information required by this Item 10 is incorporated in this report by reference to the applicable information in our definitive proxy statement for the 2020 annual meeting of stockholders set forth under the captions *Stock Ownership*, *Governance of the Company, Item 1. Election of Directors* and *Item 2. Ratification of Independent Registered Public Accountants*, which we expect to file with the Securities and Exchange Commission prior to April 30, 2020.

Code of Ethics

We have adopted a code of ethics that applies to all employees, including executive officers, and to directors. The Code of Ethics is available on the Corporate Governance page of our website at *www.siriusxm.com.* If we ever were to amend or waive any provision of our Code of Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or any person performing similar functions, we intend to satisfy our disclosure obligations with respect to any such waiver or amendment by posting such information on our internet website set forth above rather than filing a Form 8-K.

ITEM 11. *EXECUTIVE COMPENSATION*

The information required by this Item 11 is incorporated in this report by reference to the applicable information in our definitive proxy statement for the 2020 annual meeting of stockholders set forth under the captions *Item 1. Election of Directors* and *Executive Compensation*, which we expect to file with the Securities and Exchange Commission prior to April 30, 2020.

ITEM 12. *SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS*

Certain information required by this Item 12 is set forth under the heading "Equity Compensation Plan Information" in Part II, Item 5, of this Annual Report on Form 10-K.

The additional information required by this Item 12 is incorporated in this report by reference to the applicable information in our definitive proxy statement for the 2020 annual meeting of stockholders set forth under the caption *Stock Ownership*, which we expect to file with the Securities and Exchange Commission prior to April 30, 2020.

ITEM 13. *CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE*

The information required by this Item 13 is incorporated in this report by reference to the applicable information in our definitive proxy statement for the 2020 annual meeting of stockholders set forth under the captions *Governance of the Company* and *Item 1. Election of Directors*, which we expect to file with the Securities and Exchange Commission prior to April 30, 2020.

ITEM 14. *PRINCIPAL ACCOUNTANT FEES AND SERVICES*

The information required by this Item 14 is incorporated in this report by reference to the applicable information in our definitive proxy statement for the 2020 annual meeting of stockholders set forth under the caption *Item 2. Ratification of Independent Registered Public Accountants - Principal Accountant Fees and Services*, which we expect to file with the Securities and Exchange Commission prior to April 30, 2020.

PART IV

ITEM 15. ***EXHIBITS AND FINANCIAL STATEMENT SCHEDULES***

Documents filed as part of this report:

(1) Financial Statements. See Index to Consolidated Financial Statements appearing on page F-1.

(2) Financial Statement Schedules. See Index to Consolidated Financial Statements appearing on page F-1.

(3) Exhibits. See Exhibit Index, which is incorporated herein by reference.

ITEM 16. ***FORM 10-K SUMMARY***

None.

EXHIBIT INDEX

Exhibit	Description
2.1	Certificate of Ownership and Merger, dated as of January 12, 2011, merging XM Satellite Radio Inc. with and into Sirius XM Radio Inc. (incorporated by reference to Exhibit 3.1 to Sirius XM Radio Inc.'s Current Report on Form 8-K filed on January 12, 2011 (File No. 001-34295)).
2.2	Agreement and Plan of Merger, dated as of November 14, 2013, by and among Sirius XM Radio Inc., Sirius XM Holdings Inc. and Sirius XM Merger Sub Inc. (incorporated by reference to Exhibit 2.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on November 15, 2013 (File No. 001-34295)).
2.3	Agreement and Plan of Merger and Reorganization by and among Sirius XM Holdings Inc., Pandora Media, Inc. and White Oaks Acquisition Corp., dated as of September 23, 2018 (incorporated by reference to Exhibit 2.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on September 24, 2018 (File No. 001-34295)).
3.1	Amended and Restated Certificate of Incorporation of Sirius XM Holdings Inc. (incorporated by reference to Exhibit 3.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on November 15, 2013 (File No. 001-34295)).
3.2	Amended and Restated By-Laws of Sirius XM Holdings Inc. (incorporated by reference to Exhibit 3.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on November 15, 2013 (File No. 001-34295)).
4.1	Form of certificate for shares of Sirius XM Holdings Inc.'s common stock (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34295)).
4.2	Indenture, dated as of May 16, 2013, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as trustee, relating to the 4.625% Senior Notes due 2023 (incorporated by reference to Exhibit 4.2 to Sirius XM Radio Inc.'s Current Report on Form 8-K filed on May 20, 2013 (File No. 001-34295)).
4.3	Indenture, dated as of March 6, 2015, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association as trustee, relating to the 5.375% Senior Notes due 2025 (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on March 6, 2015 (File No. 001-34295)).
4.4	Indenture, dated as of May 23, 2016, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as a trustee, relating to the 5.375% Senior Notes due 2026 (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on May 24, 2016 (File No. 001-34295)).
4.5	Indenture, dated as of July 5, 2017, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as trustee, relating to the 3.875% Senior Notes due 2022 (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on July 5, 2017 (File No. 001-34295)).
4.6	Indenture, dated as of July 5, 2017, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as trustee, relating to the 5.000% Senior Notes due 2027 (incorporated by reference to Exhibit 4.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on July 5, 2017 (File No. 001-34295)).
4.7	Indenture, dated as of July 2, 2019, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as trustee, relating to the 4.625% Senior Notes due 2024 (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on July 2, 2019 (File No. 001-34295)).
4.8	Indenture, dated as of June 7, 2019, among Sirius XM Radio Inc., the guarantors named therein and U.S. Bank National Association, as trustee, relating to the 5.500% Senior Notes due 2029 (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 7, 2019 (File No. 001-34295)).
4.9	First Supplemental Indenture, dated as of January 25, 2019, relating to the 1.75% Convertible Senior Notes due 2020, between Pandora Media, Inc. and Citibank, N.A., as trustee (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on January 28, 2019 (File No. 001-34295)).
4.10	Third Supplemental Indenture, dated as of February 1, 2019, relating to the 1.75% Convertible Senior Notes due 2020, among Pandora Media, LLC (f/k/a Pandora Media, Inc.), Sirius XM Holdings Inc. and Citibank, N.A. as trustee ((incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on February 1, 2019 (File No. 001-34295)).
4.11	First Supplemental Indenture, dated as of January 31, 2019, relating to the 1.75% Convertible Senior Notes due 2023, between Pandora Media, Inc. and Citibank, N.A., as trustee (incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on January 31, 2019 (File No. 001-34295)).
4.12	Third Supplemental Indenture, dated as of February 1, 2019, relating to the 1.75% Convertible Senior Notes due 2023, among Pandora Media, LLC (f/k/a Pandora Media, Inc.), Sirius XM Holdings Inc. and Citibank, N.A. as trustee ((incorporated by reference to Exhibit 4.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on February 1, 2019 (File No. 001-34295)).

Exhibit	Description
4.13	Investment Agreement, dated as of February 17, 2009, between Sirius XM Radio Inc. and Liberty Radio LLC (incorporated by reference to Exhibit 4.55 to Sirius XM Radio Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008 (File No. 001-34295)).
4.14	Assignment and Assumption of Investment Agreement among Sirius XM Radio Inc., Sirius XM Holdings Inc. and Liberty Radio LLC, dated as of November 15, 2013 (incorporated by reference to Exhibit 4.15 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34295)).
4.15	Description of Registrant's Securities (filed herewith)
10.1	Credit Agreement, dated as of December 5, 2012, among Sirius XM Radio Inc., JPMorgan Chase Bank, N.A. as administrative agent, and the other agents and lenders party thereto (incorporated by reference to Exhibit 10.1 to Sirius XM Radio Inc.'s Current Report on Form 8-K filed on December 10, 2012 (File No. 001-34295)).
10.2	Amendment No. 1, dated as of April 22, 2014, to the Credit Agreement, dated as of December 5, 2012, among Sirius XM Radio Inc., the Lenders party thereto and JPMorgan Chase Bank, N.A. as administrative agent for the Lenders, as collateral agent for the Secured Parties and as an Issuing Bank (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on April 22, 2014 (File No. 001-34295)).
10.3	Amendment No. 2, dated as of June 16, 2015, to the Credit Agreement, dated as of December 5, 2012, among Sirius XM Radio Inc., JPMorgan Chase Bank, N.A., as administrative agent, and the other agents and lenders parties thereto (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 19, 2015 (File No. 001-34295)).
10.4	Amendment No. 3, dated as of June 29, 2018, to the Credit Agreement, dated as of December 5, 2012, among Sirius XM Radio Inc., JPMorgan Chase Bank, N.A., as administrative agent, and the other agents and lenders parties thereto (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on July 3, 2018 (File No. 001-34295)).
**10.5	Technology Licensing Agreement among XM Satellite Radio Inc., XM Satellite Radio Holdings Inc., WorldSpace Management Corporation and American Mobile Satellite Corporation, dated as of January 1, 1998, amended by Amendment No. 1 to Technology Licensing Agreement (incorporated by reference to Exhibit 10.4 to Amendment No. 1 to XM Satellite Radio Holdings Inc.'s Registration Statement on Form S-1 (File No. 333-83619)).
*10.6	Amended and Restated Sirius Satellite Radio 2003 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.10 to Sirius XM Radio Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 2004 (File No. 001-34295)).
*10.7	XM Satellite Radio Holdings Inc. 2007 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to XM Satellite Radio Holdings Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 2007 (File No. 000-27441)).
*10.8	Form of Non-Qualified Stock Option Agreement pursuant to the XM Satellite Radio Holdings Inc. 2007 Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to XM Satellite Radio Holdings Inc.'s Current Report on Form 8-K filed June 1, 2007 (File No. 000-27441)).
*10.9	Form of Restricted Stock Agreement pursuant to the XM Satellite Radio Holdings Inc. 2007 Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to XM Satellite Radio Holdings Inc.'s Current Report on Form 8-K filed June 1, 2007 (File No. 000-27441)).
*10.10	Sirius XM Radio 401(k) Savings Plan, January 1, 2009 Restatement (incorporated by reference to Exhibit 10.30 to Sirius XM Radio Inc.'s Annual Report on Form 10-K for the year ended December 31, 2009 (File No. 001-34295)).
*10.11	Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 4.9 to Sirius XM Radio Inc.'s Registration Statement on Form S-8 (File No. 333-160386)).
*10.12	Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Appendix A to Sirius XM Holdings Inc.'s definitive Proxy Statement on Schedule 14A filed on April 6, 2015 (File No. 001-34295)).
*10.13	Form of Director Non-Qualified Stock Option Agreement pursuant to the Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.34 to Sirius XM Radio Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011 (File No. 001-34295)).
*10.14	Form of Director Non-Qualified Stock Option Agreement pursuant to the Sirius XM Holdings Inc. 2009 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.18 to Sirius XM Holdings Inc.'s Annual Report for the year ended December 31, 2014 (File No. 001-34295)).

Exhibit	Description
*10.15	Form of Non-Qualified Stock Option Agreement pursuant to the Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.35 to Sirius XM Radio Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011 (File No. 001-34295)).
*10.16	Form of Non-Qualified Stock Option Agreement pursuant to the Sirius XM Holdings Inc. 2009 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.20 to Sirius XM Holdings Inc.'s Annual Report filed for the year ended December 31, 2014 (File No. 001-34295)).
*10.17	Form of Director Non-Qualified Stock Option Agreement pursuant to the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.22 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2015 (File No. 001-34295)).
*10.18	Form of Non-Qualified Stock Option Agreement pursuant to the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.23 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2015 (File No. 001-34295)).
*10.19	Form of SVP Restricted Stock Unit Agreement pursuant to the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.24 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2016 (001-34295)).
*10.20	Form of Performance-Based Restricted Stock Unit Agreement pursuant to the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.25 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2016 (001-34295)).
*10.21	Form of SVP Non-Qualified Stock Option Agreement pursuant to the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (incorporated by reference to Exhibit 10.26 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2016 (001-34295)).
*10.22	Employment Agreement, dated as of May 31, 2018, between Sirius XM Radio Inc. and Dara F Altman (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 5, 2018 (File No. 001-34295)).
*10.23	Employment Agreement, dated as of June 29, 2015, between Sirius XM Radio Inc. and James A. Cady (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 30, 2015 (File No. 001-34295)).
*10.24	Amendment to the Employment Agreement between Sirius XM Radio Inc. and James A Cady, dated as of February 23, 2016 (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-34295)).
*10.25	Employment Agreement, dated as of June 1, 2018, between Sirius XM Radio Inc. and David J. Frear (incorporated by reference to Exhibit 10.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 5, 2018 (File No. 001-34295)).
*10.26	Form of Option Award Agreement between Sirius XM Radio Inc. and James E. Meyer (incorporated by reference to Exhibit 10.1 to Sirius XM Radio Inc.'s Current Report on Form 8-K filed October 16, 2009 (File No. 001-34295)).
*10.27	Employment Agreement, dated December 24, 2018 between Sirius XM Radio Inc. and Scott A. Greenstein (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on December 26, 2018 (File No. 001-34295)).
*10.28	Employment Agreement, dated as of November 22, 2016 between Sirius XM Radio Inc. and Patrick L. Donnelly (incorporated by reference to Exhibit 10.37 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34295)).
*10.29	Employment Agreement, dated as of August 21, 2017 between Sirius XM Radio Inc. and Jennifer Witz (incorporated by reference to Exhibit 10.30 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2017 (File No. 001-34295)).
*10.30	Employment Agreement, dated August 16, 2018, between Sirius XM Radio Inc. and James E. Meyer (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on August 16, 2018 (File No. 001-34295)).
*10.31	Letter agreement, dated August 16, 2018, regarding use of private aircraft between Sirius XM Radio Inc. and James E. Meyer (incorporated by reference to Exhibit 10.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on August 16, 2018 (File No. 001-34295)).

Exhibit	Description
*10.32	Employment Agreement, dated as of March 5, 2019 between Sirius XM Radio Inc. and Jennifer Witz (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on March 6, 2019 (File No. 001-34295)).
*10.33	Letter Agreement, dated March 5, 2019, between Sirius XM Radio Inc. and Stephen R. Cook (incorporated by reference to Exhibit 10.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on March 6, 2019 (File No. 001-34295)).
*10.34	Letter Agreement, dated March 5, 2019, between Sirius XM Radio Inc. and Joseph A. Verbrugge (incorporated by reference to Exhibit 10.3 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on March 6, 2019 (File No. 001-34295)).
*10.35	Assignment and Assumption Agreement, dated as of November 15, 2013, among Sirius XM Holdings Inc. and Sirius XM Radio Inc. (incorporated by reference to Exhibit 10.1 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on November 15, 2013 (File No. 001-34295)).
*10.36	Omnibus Amendment, dated November 15, 2013, to the XM Satellite Radio Holdings Inc. Talent Option Plan, the XM Satellite Radio Holdings Inc. 1998 Shares Award Plan, as amended, the Amended and Restated Sirius Satellite Radio 2003 Long-Term Stock Incentive Plan, the XM Satellite Radio Holdings Inc. 2007 Stock Incentive Plan and the Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan and their Related Stock Option Agreements, Restricted Stock Agreements and Restricted Stock Unit Agreements (incorporated by reference to Exhibit 10.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on November 15, 2013 (File No. 001-34295)).
*10.37	Sirius XM Holdings Inc. Deferred Compensation Plan (incorporated by reference to Exhibit 10.2 to Sirius XM Holdings Inc.'s Current Report on Form 8-K filed on June 30, 2015 (File No. 001-34295)).
21.1	List of Subsidiaries (filed herewith).
23.1	Consent of KPMG LLP (filed herewith).
31.1	Certificate of James E. Meyer, Chief Executive Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Certificate of David J. Frear, Senior Executive Vice President and Chief Financial Officer, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.1	Certificate of James E. Meyer, Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.2	Certificate of David J. Frear, Senior Executive Vice President and Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith).
99.1	Amended and Restated Certificate of Incorporation of Sirius XM Radio Inc., as amended (incorporated by reference to Exhibit 3.3 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34295)).
99.2	Amended and Restated By-Laws of Sirius XM Radio Inc., as amended (incorporated by reference to Exhibit 3.4 to Sirius XM Holdings Inc.'s Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34295)).
101.1	The following financial information from our Annual Report on Form 10-K for the year ended December 31, 2019 formatted in Inline eXtensible Business Reporting Language (Inline XBRL): (i) Consolidated Statements of Comprehensive Income for the years ended December 31, 2019, 2018 and 2017; (ii) Consolidated Balance Sheets as of December 31, 2019 and 2018; (iii) Consolidated Statements of Stockholders' (Deficit) Equity for the years ended December 31, 2019, 2018 and 2017; (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2019, 2018 and 2017; and (v) Combined Notes to Consolidated Financial Statements.
104.1	Cover Page Interactive Data File (Embedded within the Inline XBRL document and included in Exhibit 101.1)

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* This document has been identified as a management contract or compensatory plan or arrangement.

** Pursuant to the Commission's Orders Granting Confidential Treatment under Rule 406 of the Securities Act of 1933 or Rule 24(b)-2 under the Securities Exchange Act of 1934, certain confidential portions of this Exhibit were omitted by means of redacting a portion of the text.

The agreements and other documents filed as exhibits to this report are not intended to provide factual information or other disclosure other than with respect to the terms of the agreements or other documents themselves, and you should not rely on them for any other purpose. In particular, any representations and warranties made by us in these agreements or other documents were made solely within the specific context of the relevant agreement or document and may not describe the actual state of affairs for any other purpose as of the date they were made or at any other time.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on this 4th day of February 2020.

SIRIUS XM HOLDINGS INC.

By: /s/ DAVID J. FREAR

David J. Frear
Senior Executive Vice President and
Chief Financial Officer
(Principal Financial Officer and Authorized Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Gregory B. Maffei **(Gregory B. Maffei)**	Chairman of the Board of Directors and Director	February 4, 2020
/s/ James E. Meyer **(James E. Meyer)**	Chief Executive Officer and Director (Principal Executive Officer)	February 4, 2020
/s/ David J. Frear **(David J. Frear)**	Senior Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 4, 2020
/s/ Thomas D. Barry **(Thomas D. Barry)**	Senior Vice President and Controller (Principal Accounting Officer)	February 4, 2020
/s/ Joan L. Amble **(Joan L. Amble)**	Director	February 4, 2020
/s/ George W. Bodenheimer **(George W. Bodenheimer)**	Director	February 4, 2020
/s/ Mark D. Carleton **(Mark D. Carleton)**	Director	February 4, 2020
/s/ Eddy W. Hartenstein **(Eddy W. Hartenstein)**	Director	February 4, 2020
/s/ James P. Holden **(James P. Holden)**	Director	February 4, 2020
/s/ Evan D. Malone **(Evan D. Malone)**	Director	February 4, 2020
/s/ James F. Mooney **(James F. Mooney)**	Director	February 4, 2020
/s/ Michael Rapino **(Michael Rapino)**	Director	February 4, 2020
/s/ Kristina M. Salen **(Kristina M. Salen)**	Director	February 4, 2020
/s/ Carl E. Vogel **(Carl E. Vogel)**	Director	February 4, 2020
/s/ David M. Zaslav **(David M. Zaslav)**	Director	February 4, 2020

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Sirius XM Holdings Inc. and subsidiaries:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Sirius XM Holdings Inc. and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of comprehensive income, stockholders' equity (deficit), and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes and financial statement schedule in Item 15(2) (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 4, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for leases effective January 1, 2019 due to the adoption of Accounting Standard Update (ASU) 2016-02 and all related amendments, which established Accounting Standard Codification (ASC) Topic 842, *Leases*.

Also as discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for revenue recognition effective January 1, 2018 due to the adoption of ASU 2014-09 and all related amendments, which established ASC Topic 606, *Revenue - Revenue from Contracts with Customers*.

Basis for Opinion

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Evaluation of the sufficiency of audit evidence over certain subscriber and advertising revenues

As discussed in Notes 2 and 18 to the consolidated financial statements, and disclosed in the consolidated statements of comprehensive income, the Company generated $7.8 billion of revenues, of which $5.6 billion was Sirius XM subscriber revenue and $1.1 billion was Pandora (Pandora Media, LLC and subsidiaries, the successor to Pandora Media, Inc. and subsidiaries) advertising revenue, for the year ended December 31, 2019. The Company's accounting for these subscriber and advertising revenues involve multiple information technology (IT) systems.

We identified the evaluation of the sufficiency of audit evidence related to these subscriber and advertising revenues as a critical audit matter. Evaluating the sufficiency of audit evidence required our subjective judgment regarding, among other things, the nature and extent of the evidence relating to each revenue stream, due principally to the number of IT applications utilized in the revenue recognition process to capture and aggregate the data.

The primary procedures we performed to address this critical audit matter included the following. We used our judgment to determine the nature and extent of audit procedures to be performed regarding these subscriber and advertising revenues. We tested certain internal controls over the Company's subscriber and advertising revenue recognition processes. We involved IT professionals with specialized skills and knowledge, who assisted in testing certain IT applications and controls used by the Company in its revenue recognition processes and testing the interface of relevant revenue data between different IT systems used in the revenue recognition processes.

For each revenue stream within Sirius XM subscriber revenues where procedures were performed, we developed an estimate of subscriber revenues. These estimates were based on a combination of internal data and publicly available external data and the estimates were compared to the Company's recorded amounts. In addition, we evaluated the relevance and reliability of the internal and external data used to develop those estimates. On a sample basis, we tested Pandora advertising revenues by tracing the recorded amounts to underlying documents and to data executed and tracked by third parties. In addition, we evaluated the overall sufficiency of audit evidence obtained over Sirius XM subscriber and Pandora advertising revenues.

Assessment of the initial fair value measurement of certain intangible assets acquired in the Pandora acquisition

As discussed in Note 3 to the consolidated financial statements, the Company acquired Pandora in February 2019 for total consideration of $2,879 million. This acquisition resulted in the Company recording customer relationships, trademark and software and technology intangible assets in the consolidated balance sheets. The fair value of these intangible assets was $1,107 million as of the acquisition date. The determination of the acquisition date fair value of certain of these intangible assets required the Company to make key assumptions regarding projected revenues and related growth rates; the trademark, software and technology royalty rates; the estimated advertising customer attrition rate; the discount rates; and the remaining useful life of the software and technology intangible asset.

We identified the assessment of the initial fair value measurement of certain intangible assets acquired in the Pandora acquisition as a critical audit matter. Testing the key assumptions, which were used to estimate the fair values, involved a high degree of auditor judgment. The estimated fair values were also sensitive to changes in these key assumptions.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's acquisition-date valuation process, including controls related to the development of the key assumptions. We performed sensitivity analyses to assess the impact of possible changes to the key assumptions on the acquisition-date fair value of these intangible assets. We evaluated the growth rates used by the Company to determine projected revenues by comparing them to industry benchmarks and publicly available data, as well as third-party market studies. We assessed the advertising customer attrition rate and the remaining useful life of the software and technology intangible asset based on historical data of Pandora. We involved a valuation professional with specialized skills and knowledge, who assisted in:

- Evaluating the discount rates by comparing them to an independently developed range using publicly available market data for comparable entities;
- Evaluating the royalty rates for trademark, software and technology acquired by comparing them to royalty rates for similar companies;
- Developing an estimated range of fair values of the advertising customer relationships acquired using the Company's cash flow forecasts and an independently developed range of discount rates, and comparing it to the Company's fair value estimate; and
- Developing an estimated range of fair values of the trademark, software and technology acquired using the Company's forecasted revenues and an independently developed range of discount rates and royalty rates, and comparing them to the Company's fair value estimates.

/s/ KPMG LLP

We have served as the Company's auditor since 2008.

New York, New York
February 4, 2020

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Sirius XM Holdings Inc. and subsidiaries:

Opinion on Internal Control Over Financial Reporting

We have audited Sirius XM Holdings Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of comprehensive income, stockholders' equity (deficit), and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes and financial statement schedule in Item 15(2) (collectively, the consolidated financial statements), and our report dated February 4, 2020 expressed an unqualified opinion on those consolidated financial statements.

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 Report on Internal Control over Financial Reporting*. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ KPMG LLP

New York, New York
February 4, 2020

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	For the Years Ended December 31,		
(in millions, except per share data)	2019	2018	2017
Revenue:			
Subscriber revenue	$ 6,120	$ 5,264	$ 4,990
Advertising revenue	1,336	188	160
Equipment revenue	173	155	132
Other revenue	165	164	143
Total revenue	7,794	5,771	5,425
Operating expenses:			
Cost of services:			
Revenue share and royalties	2,291	1,394	1,210
Programming and content	462	406	388
Customer service and billing	475	382	385
Transmission	170	96	83
Cost of equipment	29	31	35
Subscriber acquisition costs	427	470	499
Sales and marketing	937	484	438
Engineering, design and development	280	123	112
General and administrative	524	354	335
Depreciation and amortization	468	301	299
Acquisition and other related costs	84	3	—
Total operating expenses	6,147	4,044	3,784
Income from operations	1,647	1,727	1,641
Other (expense) income:			
Interest expense	(390)	(350)	(346)
Loss on extinguishment of debt	(57)	—	(44)
Other (expense) income	(3)	44	13
Total other (expense) income	(450)	(306)	(377)
Income before income taxes	1,197	1,421	1,264
Income tax expense	(283)	(245)	(616)
Net income	$ 914	$ 1,176	$ 648
Foreign currency translation adjustment, net of tax	14	(29)	19
Total comprehensive income	$ 928	$ 1,147	$ 667
Net income per common share:			
Basic	$ 0.20	$ 0.26	$ 0.14
Diluted	$ 0.20	$ 0.26	$ 0.14
Weighted average common shares outstanding:			
Basic	4,501	4,462	4,638
Diluted	4,616	4,561	4,724

See accompanying notes to the consolidated financial statements.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(in millions, except per share data)	As of December 31,	
	2019	2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 106	$ 54
Receivables, net	670	233
Inventory, net	11	22
Related party current assets	22	11
Prepaid expenses and other current assets	194	158
Total current assets	1,003	478
Property and equipment, net	1,626	1,513
Intangible assets, net	3,467	2,501
Goodwill	3,843	2,290
Related party long-term assets	452	960
Deferred tax assets	153	293
Operating lease right-of-use assets	466	—
Other long-term assets	139	138
Total assets	$ 11,149	$ 8,173
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable and accrued expenses	$ 1,151	$ 736
Accrued interest	160	128
Current portion of deferred revenue	1,930	1,932
Current maturities of debt	2	3
Operating lease current liabilities	46	—
Related party current liabilities	4	4
Total current liabilities	3,293	2,803
Long-term deferred revenue	130	149
Long-term debt	7,842	6,885
Related party long-term liabilities	—	4
Deferred tax liabilities	70	47
Operating lease liabilities	456	—
Other long-term liabilities	94	102
Total liabilities	11,885	9,990
Commitments and contingencies (Note 16)		
Stockholders' equity (deficit):		
Common stock, par value $0.001 per share; 9,000 shares authorized; 4,412 and 4,346 shares issued; 4,412 and 4,346 outstanding at December 31, 2019 and December 31, 2018, respectively	4	4
Accumulated other comprehensive income (loss), net of tax	8	(6)
Additional paid-in capital	395	242
Treasury stock, at cost; 0 and 0 shares of common stock at December 31, 2019 and December 31, 2018, respectively	—	—
Accumulated deficit	(1,143)	(2,057)
Total stockholders' equity (deficit)	(736)	(1,817)
Total liabilities and stockholders' equity (deficit)	$ 11,149	$ 8,173

See accompanying notes to the consolidated financial statements.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)

(in millions)	Common Stock Shares	Common Stock Amount	Accumulated Other Comprehensive Income (Loss)	Additional Paid-in Capital	Treasury Stock Shares	Treasury Stock Amount	Accumulated Deficit	Total Stockholders' Equity (Deficit)
Balance at Balance at January 1, 2017	4,746	$ 4	$ —	$ 3,118	5	$ (23)	$ (3,891)	$ (792)
Comprehensive income, net of tax	—	—	19	—	—	—	648	667
Issuance of common stock as part of recapitalization of Sirius XM Canada	35	—	—	179	—	—	—	179
Share-based payment expense	—	—	—	109	—	—	—	109
Exercise of stock options and vesting of restricted stock units	22	—	—	1	—	—	—	1
Withholding taxes on net share settlement of stock-based compensation	—	—	—	(93)	—	—	—	(93)
Cash dividends paid on common stock, $0.04100 per share	—	—	—	(190)	—	—	—	(190)
Common stock repurchased	—	—	—	—	271	(1,403)	—	(1,403)
Common stock retired	(272)	—	—	(1,409)	(273)	1,409	—	—
Balance at December 31, 2017	4,531	$ 4	$ 19	$ 1,715	3	$ (17)	$ (3,243)	$ (1,522)
Cumulative effect of change in accounting principles	—	—	4	30	—	—	10	44
Comprehensive income, net of tax	—	—	(29)	—	—	—	1,176	1,147
Share-based payment expense	—	—	—	133	—	—	—	133
Exercise of stock options and vesting of restricted stock units	27	—	—	—	—	—	—	—
Withholding taxes on net share settlement of stock-based compensation	—	—	—	(121)	—	—	—	(121)
Cash dividends paid on common stock, $0.04510 per share	—	—	—	(201)	—	—	—	(201)
Common stock repurchased	—	—	—	—	209	(1,297)	—	(1,297)
Common stock retired	(212)	—	—	(1,314)	(212)	1,314	—	—
Balance at December 31, 2018	4,346	$ 4	$ (6)	$ 242	—	$ —	$ (2,057)	$ (1,817)
Comprehensive income, net of tax	—	—	14	—	—	—	914	928
Share-based payment expense	—	—	—	263	—	—	—	263
Exercise of stock options and vesting of restricted stock units	38	—	—	8	—	—	—	8
Withholding taxes on net share settlement of stock-based compensation	—	—	—	(150)	—	—	—	(150)
Cash dividends paid on common stock, $0.04961 per share	—	—	—	(226)	—	—	—	(226)
Issuance of common stock as part of Pandora Acquisition	392	1	—	2,354	—	—	—	2,355
Equity component of convertible note	—	—	—	62	—	—	—	62
Common stock repurchased	—	—	—	—	364	(2,159)	—	(2,159)
Common stock retired	(364)	(1)	—	(2,158)	(364)	2,159	—	—
Balance at December 31, 2019	4,412	$ 4	$ 8	$ 395	—	$ —	$ (1,143)	$ (736)

See accompanying notes to the consolidated financial statements.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,		
(in millions)	2019	2018	2017
Cash flows from operating activities:			
Net income	$ 914	$ 1,176	$ 648
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	468	301	299
Non-cash interest expense, net of amortization of premium	17	9	9
Provision for doubtful accounts	53	51	56
Amortization of deferred income related to equity method investment	(3)	(3)	(3)
Loss on extinguishment of debt	57	—	44
Loss (gain) on unconsolidated entity investments, net	21	10	(5)
Gain on fair value instrument	—	(43)	—
Dividend received from unconsolidated entity investment	2	2	4
Share-based payment expense	250	133	124
Deferred income taxes	259	257	584
Changes in operating assets and liabilities:			
Receivables	(137)	(42)	(74)
Inventory	11	(2)	2
Related party, net	(10)	1	(2)
Prepaid expenses and other current assets	(3)	(20)	50
Other long-term assets	4	10	7
Operating lease right-of-use assets	(14)	—	—
Accounts payable and accrued expenses	109	(20)	41
Accrued interest	32	(9)	23
Deferred revenue	(58)	70	42
Operating lease liabilities	36	—	—
Other long-term liabilities	9	(1)	7
Net cash provided by operating activities	2,017	1,880	1,856
Cash flows from investing activities:			
Additions to property and equipment	(363)	(355)	(288)
Purchases of other investments	(7)	(8)	(8)
Acquisition of business, net of cash acquired	313	(2)	(108)
Sale of short-term investments	73	—	—
Investments in related parties and other equity investees	(19)	(17)	(612)
Repayment from (loan to) related party	—	3	(131)
Net cash used in investing activities	(3)	(379)	(1,147)
Cash flows from financing activities:			
Proceeds from exercise of stock options	8	—	1
Taxes paid from net share settlements for stock-based compensation	(150)	(120)	(93)
Revolving credit facility, net of deferred financing costs	(439)	136	(90)
Proceeds from long-term borrowings, net of costs	2,715	—	2,473
Proceeds from sale of capped call security	3	—	—
Principal payments of long-term borrowings	(1,666)	(16)	(1,513)
Payment of premiums on redemption of debt	(45)	—	(33)
Common stock repurchased and retired	(2,159)	(1,314)	(1,409)
Dividends paid	(226)	(201)	(190)
Net cash used in financing activities	(1,959)	(1,515)	(854)
Net increase (decrease) in cash, cash equivalents and restricted cash	55	(14)	(145)
Cash, cash equivalents and restricted cash at beginning of period	65	79	224
Cash, cash equivalents and restricted cash at end of period[1]	$ 120	$ 65	$ 79

See accompanying notes to the consolidated financial statements.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS - Continued

	For the Years Ended December 31,		
(in millions)	2019	2018	2017
Supplemental Disclosure of Cash and Non-Cash Flow Information			
Cash paid during the period for:			
Interest, net of amounts capitalized	$ 337	$ 345	$ 310
Income taxes paid	$ 10	$ 6	$ 28
Non-cash investing and financing activities:			
Capital lease obligations incurred to acquire assets	$ —	$ —	$ 3
Treasury stock not yet settled	$ —	$ 17	$ 6
Fair value of shares issued related to acquisition of a business	$ 2,355	$ —	$ —
Accumulated other comprehensive income (loss), net of tax	$ 14	$ (29)	$ 19
Issuance of common stock as part of recapitalization of Sirius XM Canada	$ —	$ —	$ 179

(1) The following table reconciles cash, cash equivalents and restricted cash per the statement of cash flows to the balance sheet. The restricted cash balances are primarily due to letters of credit which have been issued to the landlords of leased office space. The terms of the letters of credit primarily extend beyond one year.

(in millions)	December 31, 2019	December 31, 2018	December 31, 2017	December 31, 2016
Cash and cash equivalents	$ 106	$ 54	$ 69	$ 214
Restricted cash included in Other long-term assets	14	11	10	10
Total cash, cash equivalents and restricted cash at end of period	$ 120	$ 65	$ 79	$ 224

See accompanying notes to the consolidated financial statements.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(UNAUDITED)
(Dollars and shares in millions, except per share amounts)

(1) Business & Basis of Presentation

This Annual Report on Form 10-K presents information for Sirius XM Holdings Inc. and subsidiaries ("Holdings"). The terms "Holdings," "we," "us," "our," and "our company" as used herein, and unless otherwise stated or indicated by context, refer to Sirius XM Holdings Inc. and its subsidiaries. "Sirius XM" refers to our wholly owned subsidiary Sirius XM Radio Inc. and its subsidiaries. "Pandora" refers to Sirius XM's wholly owned subsidiary Pandora Media, LLC (the successor to Pandora Media, Inc.) and its subsidiaries. Holdings has no operations independent of Sirius XM and Pandora.

Business

We operate two complementary audio entertainment businesses - our Sirius XM business and our Pandora business.

Sirius XM

Our Sirius XM business features music, sports, entertainment, comedy, talk, news, traffic and weather channels, as well as infotainment services, in the United States on a subscription fee basis. The Sirius XM service is distributed through our two proprietary satellite radio systems and through the internet via applications for mobile devices, home devices and other consumer electronic equipment. Satellite radios are primarily distributed through automakers, retailers and our website. Our Sirius XM service is also available through our user interface, which we call "360L," that combines our satellite and streaming services into a single, cohesive in-vehicle entertainment experience. The primary source of revenue from our Sirius XM business is generated from subscription fees, with most of our customers subscribing to monthly, quarterly, semi-annual or annual plans. We also derive revenue from advertising on select non-music channels, direct sales of our satellite radios and accessories, and other ancillary services. As of December 31, 2019, our Sirius XM business had approximately 34.9 million subscribers.

In addition to our audio entertainment businesses, we provide connected vehicle services to several automakers and directly to consumers through aftermarket devices. These services are designed to enhance the safety, security and driving experience of consumers. We also offer a suite of data services that includes graphical weather, fuel prices, sports schedules and scores and movie listings, a traffic information service that includes information as to road closings, traffic flow and incident data to consumers with compatible in-vehicle navigation systems, and real-time weather services in vehicles, boats and planes.

Sirius XM also holds a 70% equity interest and 33% voting interest in Sirius XM Canada Holdings Inc. ("Sirius XM Canada"). Sirius XM Canada's subscribers are not included in our subscriber count or subscriber-based operating metrics.

Pandora

Our Pandora business operates a music, comedy and podcast streaming discovery platform, offering a personalized experience for each listener wherever and whenever they want to listen, whether through mobile devices, car speakers or connected devices. Pandora enables listeners to create personalized stations and playlists, discover new content, hear artist- and expert-curated playlists, podcasts and select Sirius XM content as well as search and play songs and albums on-demand. Pandora is available as an ad-supported radio service, a radio subscription service, called Pandora Plus, and an on-demand subscription service, called Pandora Premium. As of December 31, 2019, Pandora had approximately 6.2 million subscribers. The majority of revenue from our Pandora business is generated from advertising on our Pandora ad-supported radio service. In addition, through AdsWizz Inc., Pandora provides a comprehensive digital audio advertising technology platform, which connects audio publishers and advertisers.

Liberty Media

As of December 31, 2019, Liberty Media Corporation ("Liberty Media") beneficially owned, directly and indirectly, approximately 72% of the outstanding shares of our common stock. As a result, we are a "controlled company" for the purposes of the NASDAQ corporate governance requirements.

(Dollars and shares in millions, except per share amounts)

Basis of Presentation

The accompanying consolidated financial statements of Holdings have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP"). All significant intercompany transactions have been eliminated in consolidation. Certain numbers in our prior period consolidated financial statements and footnotes have been reclassified or consolidated to conform to our current period presentation. Music Royalty Fee revenue was reported as Other revenue in our December 31, 2018 and 2017 Annual Reports on Form 10-K. This revenue was reclassified to Subscriber revenue to conform with the current period presentation.

	For the Year Ended December 31, 2018			For the Year Ended December 31, 2017		
	As Reported	Reclassification	Current Report	As Reported	Reclassification	Current Report
Subscriber revenue	$ 4,594	$ 670	$ 5,264	$ 4,472	$ 518	$ 4,990
Advertising revenue	188	—	188	160	—	160
Equipment revenue	155	—	155	132	—	132
Other revenue	834	(670)	164	661	(518)	143
Total revenue	$ 5,771	$ —	$ 5,771	$ 5,425	$ —	$ 5,425

Public companies are required to disclose certain information about their reportable operating segments. Operating segments are defined as significant components of an enterprise for which separate financial information is available and is evaluated on a regular basis by the chief operating decision maker in deciding how to allocate resources to an individual segment and in assessing performance of the segment. We have determined that we have two reportable segments as our chief operating decision maker, our Chief Executive Officer, assesses performance and allocates resources based on the financial results of these segments. Refer to Note 18 for information related to our segments.

We have evaluated events subsequent to the balance sheet date and prior to the filing of this Annual Report on Form 10-K for the year ended December 31, 2019 and have determined that no events have occurred that would require adjustment to our consolidated financial statements. For a discussion of subsequent events that do not require adjustment to our consolidated financial statements refer to Note 19.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and footnotes. Estimates, by their nature, are based on judgment and available information. Actual results could differ materially from those estimates. Significant estimates inherent in the preparation of the accompanying consolidated financial statements include asset impairment, depreciable lives of our satellites, share-based payment expense, income taxes, and the purchase accounting related to the Pandora Acquisition (defined below).

(Dollars and shares in millions, except per share amounts)

(2) Summary of Significant Accounting Policies

In addition to the significant accounting policies discussed in this Note 2, the following table includes our significant accounting policies that are described in other notes to our consolidated financial statements, including the number and page of the note:

Significant Accounting Policy	Note #	Page #
Acquisition	3	F-17
Fair Value Measurements	4	F-19
Goodwill	8	F-21
Intangible Assets	9	F-22
Property and Equipment	10	F-23
Equity Method Investments	12	F-27
Share-Based Compensation	15	F-31
Legal Reserves	16	F-35
Income Taxes	17	F-38

Cash and Cash Equivalents

Our cash and cash equivalents consist of cash on hand, money market funds, certificates of deposit, in-transit credit card receipts and highly liquid investments purchased with an original maturity of three months or less.

Revenue Recognition

Revenue is measured according to Accounting Standards Codification ("ASC") 606,*Revenue - Revenue from Contracts with Customers*, and is recognized based on consideration specified in a contract with a customer, and excludes any sales incentives and amounts collected on behalf of third parties. We recognize revenue when it satisfies a performance obligation by transferring control over a service or product to a customer. We report revenues net of any tax assessed by a governmental authority that is both imposed on, and concurrent with, a specific revenue-producing transaction between a seller and a customer in our consolidated statements of comprehensive income. Collected taxes are recorded within Other current liabilities until remitted to the relevant taxing authority. For equipment sales, we are responsible for arranging for shipping and handling. Shipping and handling costs billed to customers are recorded as revenue and are reported as a component of Cost of equipment.

The following is a description of the principal activities from which we generate our revenue, including from self-pay and paid promotional subscribers, advertising, and sales of equipment.

Subscriber revenue consists primarily of subscription fees and other ancillary subscription based revenues. Revenue is recognized on a straight line basis when the performance obligations to provide each service for the period are satisfied, which is over time as our subscription services are continuously transmitted and can be consumed by customers at any time. Consumers purchasing or leasing a vehicle with a factory-installed satellite radio may receive between a three and twelve month subscription to our service. In certain cases, the subscription fees for these consumers are prepaid by the applicable automaker. Prepaid subscription fees received from automakers or directly from consumers are recorded as deferred revenue and amortized to revenue ratably over the service period which commences upon sale. Activation fees are recognized over one month as the activation fees are non-refundable and do not provide for a material right to the customer. There is no revenue recognized for unpaid trial subscriptions. In some cases we pay a loyalty fee to the automakers when we receive a certain amount of payments from self-pay customers acquired from that automaker. These fees are considered incremental costs to obtain a contract and are, therefore, recognized as an asset and amortized to Subscriber acquisition costs over an average subscriber life. Revenue share and loyalty fees paid to an automaker offering a paid trial are accounted for as a reduction of revenue as the payment does not provide a distinct good or service.

Music royalty fee primarily consists of U.S. music royalty fees ("MRF") collected from subscribers. The related costs we incur for the right to broadcast music and other programming are recorded as Revenue share and royalties expense. Fees received from subscribers for the MRF are recorded as deferred revenue and amortized to Subscriber revenue ratably over the service period.

We recognize revenue from the sale of advertising as performance obligations are satisfied, which generally occurs as ads are delivered. Agency fees are calculated based on a stated percentage applied to gross billing revenue for our advertising inventory and are reported as a reduction of advertising revenue. Additionally, we pay certain third parties a percentage of advertising revenue. Advertising revenue is recorded gross of such revenue share payments as we control the advertising service, including the ability to establish pricing, and we are primarily responsible for providing the service. Advertising revenue share payments are recorded to Revenue share and royalties during the period in which the advertising is transmitted.

Equipment revenue and royalties from the sale of satellite radios, components and accessories are recognized upon shipment, net of discounts and rebates. Shipping and handling costs billed to customers are recorded as revenue. Shipping and handling costs associated with shipping goods to customers are reported as a component of Cost of equipment. Other revenue primarily includes revenue recognized from royalties received from Sirius XM Canada.

Customers pay for the services in advance of the performance obligation and therefore these prepayments are recorded as deferred revenue. The deferred revenue is recognized as revenue in our consolidated statement of comprehensive income as the services are provided. Changes in the deferred revenue balance during the period ended December 31, 2019 was not materially impacted by other factors.

As the majority of our contracts are one year or less, we have utilized the optional exemption under ASC 606-10-50-14 and will not disclose information about the remaining performance obligations for contracts which have original expected durations of one year or less. As of December 31, 2019, less than ten percent of our total deferred revenue balance related to contracts that extended beyond one year. These contracts primarily include prepaid data trials which are typically provided for three to five years as well as for self-pay customers who prepay for their audio subscriptions for up to three years in advance. These amounts are recognized on a straight-line basis as our services are provided.

Revenue Share

We share a portion of our subscription revenues earned from self-pay subscribers with certain automakers. The terms of the revenue share agreements vary with each automaker, but are typically based upon the earned audio revenue as reported or gross billed audio revenue.

Royalties

In connection with our businesses, we must enter into royalty arrangements with two sets of rights holders: holders of musical compositions copyrights (that is, the music and lyrics) and holders of sound recordings copyrights (that is, the actual recording of a work). Our Sirius XM business and our Pandora business use both statutory and direct music licenses as part of their businesses. We also license varying rights - such as performance and mechanical rights - for use in our Sirius XM and Pandora businesses based on the various radio and interactive services they offer. The music rights licensing arrangement for our Sirius XM and Pandora businesses are complex.

We pay performance royalties for our Sirius XM business and our Pandora business to holders and rights administrators of musical compositions copyrights, including performing rights organizations and other copyright owners. These performance royalties are contained in direct license agreements and are generally fixed fees per year.

For our interactive music services offered by our Pandora business, we pay mechanical royalties to copyright holders at the rates determined by the Copyright Royalty Board (the "CRB") in accordance with the statutory license set forth in Section 115 of the United States Copyright Act. These mechanical royalties are calculated as the greater of a percentage of our revenue or a percentage of our payments to record labels.

For our satellite radio business, we pay performance royalties to owners of sound recordings based on a percentage of our subscription revenue (subject to certain exclusions) through SoundExchange. We pay these royalties at a statutory rate established by the CRB.

For our streaming music and interactive music services offered by our Pandora business, we pay royalties to owners of sound recordings based on either a per-performance fee based on the number of sound recordings transmitted, a percentage of revenue associated with the applicable service, or a per-subscriber minimum amount. The royalty rates paid by our Pandora business are primarily stipulated in direct license agreements with record companies. The performance royalty rates paid to owners of sound recordings by our Sirius XM business for streaming music are primarily set by the CRB.

Programming Costs

Programming costs which are for a specified number of events are amortized on an event-by-event basis; programming costs which are for a specified season or include programming through a dedicated channel are amortized over the season or period on a straight-line basis. We allocate a portion of certain programming costs which are related to sponsorship and marketing activities to Sales and marketing expense on a straight-line basis over the term of the agreement.

Advertising Costs

Media is expensed when aired and advertising production costs are expensed as incurred. Advertising production costs include expenses related to marketing and retention activities, including expenses related to direct mail, outbound telemarketing and email communications. We also incur advertising production costs related to cooperative marketing and promotional events and sponsorships. During the years ended December 31, 2019, 2018 and 2017, we recorded advertising costs of $392, $267 and $263, respectively. These costs are reflected in Sales and marketing expense in our consolidated statements of comprehensive income.

Subscriber Acquisition Costs

Subscriber acquisition costs consist of costs incurred to acquire new subscribers which include hardware subsidies paid to radio manufacturers, distributors and automakers, including subsidies paid to automakers who include a satellite radio and a prepaid subscription to our service in the sale or lease price of a new vehicle; subsidies paid for chipsets and certain other components used in manufacturing radios; device royalties for certain radios and chipsets; commissions paid to retailers and automakers as incentives to purchase, install and activate radios; product warranty obligations; freight; and provisions for inventory allowance attributable to inventory consumed in our automotive and retail distribution channels. Subscriber acquisition costs do not include advertising costs, loyalty payments to distributors and dealers of radios and revenue share payments to automakers and retailers of radios.

Subsidies paid to radio manufacturers and automakers are expensed upon installation, shipment, receipt of product or activation and are included in Subscriber acquisition costs because we are responsible for providing the service to the customers. Commissions paid to retailers and automakers are expensed upon either the sale or activation of radios. Chipsets that are shipped to radio manufacturers and held on consignment are recorded as inventory and expensed as Subscriber acquisition costs when placed into production by radio manufacturers. Costs for chipsets not held on consignment are expensed as Subscriber acquisition costs when the automaker confirms receipt.

Research & Development Costs

Research and development costs are expensed as incurred and primarily include the cost of new product development, chipset design, software development and engineering. During the years ended December 31, 2019, 2018 and 2017, we recorded research and development costs of $231, $106 and $97, respectively. These costs are reported as a component of Engineering, design and development expense in our consolidated statements of comprehensive income.

Accumulated Other Comprehensive Income (Loss), net of tax

Accumulated other comprehensive income of $8 was primarily comprised of the cumulative foreign currency translation adjustments related to Sirius XM Canada (refer to Note 12 for additional information). During the year ended December 31, 2019, we recorded a foreign currency translation adjustment gain of $14, which is recorded net of tax of $5. During the years ended December 31, 2018 and 2017, we recorded foreign currency translation adjustment (loss) gain of $(29) and $19, respectively, net of tax.

(Dollars and shares in millions, except per share amounts)

Recent Accounting Pronouncements

In August 2018, the Financial Accounting Standards Board ("FASB") issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. This ASU aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The implementation costs incurred in a hosting arrangement that is a service contract should be presented as a prepaid asset in the balance sheet and expensed over the term of the hosting arrangement to the same line item in the statement of income as the costs related to the hosting fees. The guidance in this ASU is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, and early adoption is permitted including adoption in any interim period. The amendments should be applied either retrospectively or prospectively to all implementation costs incurred after adoption. This ASU will not have a material impact on our consolidated statements of operations.

Recently Adopted Accounting Policies

ASU 2016-02, Leases (Topic 842). In February 2016, FASB issued ASU 2016-02 which requires companies to recognize lease assets and liabilities arising from operating leases in the statement of financial position. This ASU does not significantly change the previous lease guidance for how a lessee should recognize, measure, and present expenses and cash flows arising from a lease. Additionally, the criteria for classifying a finance lease versus an operating lease are substantially the same as the previous guidance. This ASU was effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years, and early adoption was permitted. In July 2018, the FASB issued ASU 2018-11, *Leases (Topic 842) Targeted Improvements*, amending certain aspects of the new leasing standard. The amendment allows an additional optional transition method whereby an entity records a cumulative effect adjustment to opening retained earnings in the year of adoption without restating prior periods. We adopted this ASU on January 1, 2019 and elected the additional transition method per ASU 2018-11. Our leases consist of repeater leases, facility leases and equipment leases. We elected the package of practical expedients permitted under the transition guidance within the new standard.

Adoption of the new standard resulted in the recording of additional lease assets and lease liabilities of approximately$347 and $369, respectively, as of January 1, 2019. The standard did not impact our consolidated statements of operations, consolidated statements of cash flows or debt. Additionally, we did not record a cumulative effect adjustment to opening retained earnings.

The effect of the changes made to our consolidated balance sheet as of January 1, 2019 for the adoption of ASU 2016-02 is included in the table below.

	Balance at December 31, 2018	Adjustments Due to ASU 2016-02	Balance at January 1, 2019
Balance Sheet			
Assets:			
Operating lease right-of-use assets	$ —	$ 347	$ 347
Liabilities:			
Accounts payable and accrued expenses	$ 736	$ (1)	$ 735
Operating lease current liabilities	—	30	30
Operating lease liabilities	—	339	339
Other long-term liabilities	102	(21)	81

ASU 2014-09, Revenue - Revenue from Contracts with Customers. In May 2014, the FASB issued ASU 2014-09 which requires entities to recognize revenues when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. In addition, the standard requires disclosure of the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. We adopted ASU 2014-09, and all related amendments, which established ASC Topic 606 (the "new revenue standard"), effective as of January 1, 2018. We adopted the new revenue standard using the modified retrospective method by recognizing the cumulative effect of initially applying the new revenue standard to all non-completed contracts as of January 1, 2018 as an adjustment to opening Accumulated deficit in the period of adoption. Results for reporting periods beginning after January 1, 2018 are presented under the new revenue standard, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under Topic 605.

(Dollars and shares in millions, except per share amounts)

The new revenue standard primarily impacts how we account for revenue share payments and also has other immaterial impacts.

Revenue Share - Paid Trials

We previously recorded revenue share related to paid trials as Revenue share and royalties expense. Under the new revenue standard, we have recorded these revenue share payments as a reduction to revenue as the payments do not transfer a distinct good or service to us.

Other Impacts

Other impacts of the new revenue standard include:

- Activation fees were previously recognized over the expected subscriber life using the straight-line method. Under the new revenue standard, activation fees have been recognized over a one month period from activation as the activation fees are non-refundable and they do not convey a material right. As of January 1, 2018, we reduced deferred revenue related to activation fees of $8, net of tax, to Accumulated deficit

- Loyalty payments to OEMs were previously expensed when incurred as Subscriber acquisition costs. Under the new revenue standard, these costs have been capitalized in Prepaid expenses and other current assets as costs to obtain a contract and these costs will be amortized to Subscriber acquisition costs over an average self-pay subscriber life of that OEM. As of January 1, 2018, we capitalized previously expensed loyalty payments of $10, net of tax, to Prepaid expenses and other current assets by reducing Accumulated deficit.

These changes do not have a material impact to our financial statements.

The following tables illustrate the impacts of adopting ASU 2014-09 on our consolidated statement of comprehensive income.

	For the Year Ended December 31, 2018		
	Current Report	Impact of Adopting ASU 2014-09	Balances Without Adoption of ASU 2014-09
Income Statement			
Revenues			
Subscriber revenue [1]	$ 5,264	$ 95	$ 5,359
Expenses			
Revenue share and royalties	1,394	88	1,482
Subscriber acquisition costs	470	4	474
Income tax expense	(245)	—	(245)
Net Income	$ 1,176	$ 3	$ 1,179

(1) Music Royalty Fee revenue was reported as Other revenue in our December 31, 2018 and 2017 Annual Reports on Form 10-K. This revenue was reclassified to Subscriber revenue to conform with the current period presentation. Refer to Note 1 for more information.

ASU 2018-02, Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income. In February 2018, the FASB issued ASU 2018-02 to amend its standard on comprehensive income to provide an option for an entity to reclassify the stranded tax effects of the Tax Cuts and Jobs Act (the “Tax Act”) that was passed in December 2017 from accumulated other comprehensive income (“AOCI”) directly to retained earnings. The stranded tax effects result from the remeasurement of deferred tax assets and liabilities which were originally recorded in comprehensive income but whose remeasurement is reflected in the income statement. The guidance is effective for interim and fiscal years beginning after December 15, 2018, with early adoption permitted. We elected to adopt ASU 2018-02 effective January 1, 2018 and reclassified the stranded tax effects due to the Tax Act of $4 related to the currency translation adjustment from our investment balance and note receivable with Sirius XM Canada from AOCI to Accumulated deficit. The adoption did not have any impact on our consolidated statement of comprehensive income.

(Dollars and shares in millions, except per share amounts)

ASU 2018-07, Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting. In June 2018, the FASB issued ASU 2018-07 which simplifies the accounting for share-based payments made to nonemployees so that the accounting for such payments is substantially the same as those made to employees, with certain exceptions. Under this ASU, equity-classified share based awards to nonemployees will be measured at fair value on the grant date of the awards, entities will need to assess the probability of satisfying performance conditions if any are present, and awards will continue to be classified according to ASC 718 upon vesting which eliminates the need to reassess classification upon vesting, consistent with awards granted to employees, unless the award is modified after the service has been rendered, any other conditions necessary to earn the right to benefit from the instruments have been satisfied, and the nonemployee is no longer providing services. The guidance is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years, and early adoption is permitted. We elected to early adopt ASU 2018-07 effective July 1, 2018 and remeasured our unsettled liability-classified nonemployee awards at their January 1, 2018 fair value by recording a retrospective cumulative effect adjustment to opening Accumulated deficit and reclassified our previously liability-classified awards to equity.

(3) Acquisition

On February 1, 2019, through a series of transactions, Pandora Media, Inc., became an indirect wholly owned subsidiary of Sirius XM and continues to operate as Pandora Media, LLC (the “Pandora Acquisition”). In connection with the Pandora Acquisition, we purchased all of the outstanding shares of the capital stock of Pandora for $2,355 by converting each outstanding share of Pandora common stock into1.44 shares of our common stock and we also canceled our preferred stock investment in Pandora for $524 for total consideration of $2,879. Net cash acquired was $313. As part of the Pandora Acquisition, Holdings unconditionally guaranteed all of the payment obligations of Pandora under its outstanding 1.75% convertible senior notes due 2020 and 1.75% convertible senior notes due 2023.

The table below shows the value of the consideration paid in connection with the Pandora Acquisition:

		Total
Pandora common stock outstanding		272
Exchange ratio		1.44
Common stock issued		392
Price per share of Holdings common stock	$	5.83
Value of common stock issued to Pandora stockholders	$	2,285
Value of replacement equity awards attributable to pre-combination service	$	70
Consideration of common stock and replacement equity awards for pre-combination service	$	2,355
Sirius XM’s Pandora preferred stock investment (related party fair value instrument) canceled	$	524
Total consideration for Pandora Acquisition	$	2,879
Value attributed to par at $0.001 par value	$	1
Balance to capital in excess of par value	$	2,354

(Dollars and shares in millions, except per share amounts)

The table below summarizes the fair value of the assets acquired and liabilities assumed as of the acquisition date:

Acquired Assets:		
Cash and cash equivalents	$	313
Receivables, net		353
Prepaid expenses and other current assets		109
Property and equipment		65
Intangible assets		1,107
Goodwill		1,553
Deferred tax assets		102
Operating lease right-of-use assets		104
Long term assets		7
Total assets	$	3,713
Assumed Liabilities:		
Accounts payable and accrued expenses	$	324
Deferred revenue		37
Operating lease current liabilities		28
Current maturities of debt		151
Long-term debt (a)		218
Operating lease liabilities		69
Other long-term liabilities		7
Total liabilities	$	834
Total consideration	$	2,879

(a) In order to present the assets acquired and liabilities assumed, the conversion feature associated with Pandora's convertible notes for $62 has been included within Long-term debt in the table above and included within Additional paid-in-capital within our statement of stockholders' equity (deficit). Refer to Note 13 for additional information.

The Pandora Acquisition was accounted for using the acquisition method of accounting. As of December 31, 2019, the purchase price allocation has been finalized. The excess purchase price over identifiable net tangible and intangible assets of $1,553 has been recorded to Goodwill in our consolidated balance sheets as ofDecember 31, 2019. A total of $776 has been allocated to identifiable intangible assets subject to amortization and relates to the assessed fair value of the acquired customer relationships and software and technology and is being amortized over the estimated weighted average useful lives of 8 and 5 years, respectively. A total of $331 has been allocated to identifiable indefinite lived intangible assets and relates to the assessed fair value of the acquired trademarks. The fair value assessed for the majority of the remaining assets acquired and liabilities assumed equaled their carrying value. Goodwill represents synergies and economies of scale expected from the combination of services. Goodwill has been allocated to the Pandora segment. Additionally, in connection with the Pandora Acquisition, we acquired gross net operating loss (“NOL”) carryforwards of approximately $1,287 for federal income tax purposes that are available to offset future taxable income. The acquired NOL's are limited by Section 382 of the Internal Revenue Code. Those limitations are not expected to impact our ability to fully utilize those NOL's within the carryforward period.

We recognized acquisition related costs of$84 that were expensed in Acquisition and other related costs in our consolidated statements of comprehensive income during the year ended December 31, 2019.

Pro Forma Financial Information

Pandora was consolidated into our financial statements starting on the acquisition date, February 1, 2019. The aggregate revenue and net loss of Pandora consolidated into our financial statements since the date of acquisition was $1,607 and $303, respectively, for the year ended December 31, 2019. The following pro forma financial information presents our results as if the Pandora Acquisition had occurred on January 1, 2017:

(Dollars and shares in millions, except per share amounts)

	For the Years Ended December 31,		
	2019	2018	2017
Total revenue	$ 7,921	$ 7,348	$ 6,818
Net income	$ 938	$ 844	$ 335

These pro forma results are based on estimates and assumptions, which we believe are reasonable. They are not the results that would have been realized had the acquisition actually occurred on January 1, 2017 and are not indicative of our consolidated results of operations in future periods. The pro forma results primarily include adjustments related to amortization of acquired intangible assets, depreciation of property and equipment, acquisition costs, fair value gain or loss on the Pandora investment and associated tax impacts.

(4) Fair Value Measurements

The fair value of a financial instrument is the amount at which the instrument could be exchanged in an orderly transaction between market participants. As of December 31, 2019 and 2018, the carrying amounts of cash and cash equivalents, receivables, and accounts payable approximated fair value due to the short-term nature of these instruments. ASC 820, *Fair Value Measurements and Disclosures*, establishes a fair value hierarchy for input into valuation techniques as follows:

i. Level 1 input: unadjusted quoted prices in active markets for identical instrument;

ii. Level 2 input: observable market data for the same or similar instrument but not Level 1, including quoted prices for identical or similar assets or liabilities in markets that are not active or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

iii. Level 3 input: unobservable inputs developed using management's assumptions about the inputs used for pricing the asset or liability.

Investments are periodically reviewed for impairment and an impairment is recorded whenever declines in fair value below carrying value are determined to be other than temporary. In making this determination, we consider, among other factors, the severity and duration of the decline as well as the likelihood of a recovery within a reasonable timeframe.

Our assets and liabilities measured at fair value were as follows:

	December 31, 2019				December 31, 2018			
	Level 1	Level 2	Level 3	Total Fair Value	Level 1	Level 2	Level 3	Total Fair Value
Assets:								
Pandora investment [(a)]	—	$ —	—	$ —	—	$ 523	—	$ 523
Liabilities:								
Debt [(b)]	—	$ 8,378	—	$ 8,378	—	$ 6,633	—	$ 6,633

(a) During the year ended December 31, 2017, Sirius XM completed a $480 investment in Pandora. Prior to the Pandora Acquisition, we elected the fair value option to account for this investment. This investment was canceled in conjunction with the Pandora Acquisition. Refer to Note 3 for information on this acquisition.

(b) The fair value for non-publicly traded instruments is based upon estimates from a market maker and brokerage firm. Refer to Note 13 for information related to the carrying value of our debt as of December 31, 2019 and 2018.

(5) Earnings per Share

Basic net income per common share is calculated by dividing the income available to common stockholders by the weighted average common shares outstanding during each reporting period. Diluted net income per common share adjusts the weighted average number of common shares outstanding for the potential dilution that could occur if common stock equivalents (stock options, restricted stock units and convertible debt) were exercised or converted into common stock, calculated using the treasury stock method. We had no participating securities during the years ended December 31, 2019, 2018 and 2017.

(Dollars and shares in millions, except per share amounts)

Common stock equivalents of 66, 40, and 41 for the years ended December 31, 2019, 2018 and 2017, respectively, were excluded from the calculation of diluted net income per common share as the effect would have been anti-dilutive. We issued 392 shares of our common stock in connection with the Pandora Acquisition.

	For the Years Ended December 31,		
	2019	2018	2017[(1)]
Numerator:			
Net Income available to common stockholders for basic net income per common share	$ 914	$ 1,176	$ 648
Effect of interest on assumed conversions of convertible debt, net of tax	7	—	—
Net Income available to common stockholders for dilutive net income per common share	$ 921	$ 1,176	$ 648
Denominator:			
Weighted average common shares outstanding for basic net income per common share	4,501	4,462	4,638
Weighted average impact of assumed convertible notes	28	—	—
Weighted average impact of dilutive equity instruments	87	99	86
Weighted average shares for diluted net income per common share	4,616	4,561	4,724
Net income per common share:			
Basic	$ 0.20	$ 0.26	$ 0.14
Diluted	$ 0.20	$ 0.26	$ 0.14

(1) Our net income per basic and diluted share includes the impact of $185 in income tax expense, or a decrease of approximately $0.04 per share, due to the reduction in our net deferred tax asset balance as a result of the Tax Act.

(6) Receivables, net

Receivables, net, includes customer accounts receivable, receivables from distributors and other receivables. We do not have any customer receivables that individually represent more than ten percent of the receivables.

Customer accounts receivable, net, includes receivables from our subscribers, advertising customers and other customers, and is stated at amounts due, net of an allowance for doubtful accounts. Our allowance for doubtful accounts is based upon our assessment of various factors. We consider historical experience, the age of the receivable balances, current economic conditions, industry experience and other factors that may affect the counterparty's ability to pay. Bad debt expense is included in Customer service and billing expense in our consolidated statements of comprehensive income.

Receivables from distributors primarily include billed and unbilled amounts due from automakers for services included in the sale or lease price of vehicles, as well as billed amounts due from wholesale distributors of our satellite radios. Other receivables primarily include amounts due from manufacturers of our radios, modules and chipsets where we are entitled to subsidies and royalties based on the number of units produced. We have not established an allowance for doubtful accounts for our receivables from distributors or other receivables as we have historically not experienced any significant collection issues with automakers or other third parties.

(Dollars and shares in millions, except per share amounts)

Receivables, net, consists of the following:

	December 31, 2019	December 31, 2018
Gross customer accounts receivable	$ 546	$ 105
Allowance for doubtful accounts	(14)	(7)
Customer accounts receivable, net	$ 532	$ 98
Receivables from distributors	113	107
Other receivables	25	28
Total receivables, net	$ 670	$ 233

(7) Inventory, net

Inventory consists of finished goods, refurbished goods, chipsets and other raw material components used in manufacturing radios and connected vehicle devices. Inventory is stated at the lower of cost or market. We record an estimated allowance for inventory that is considered slow moving or obsolete or whose carrying value is in excess of net realizable value. The provision related to products purchased for resale in our direct to consumer distribution channel and components held for resale by us is reported as a component of Cost of equipment in our consolidated statements of comprehensive income. The provision related to inventory consumed in our OEM channel is reported as a component of Subscriber acquisition costs in our consolidated statements of comprehensive income.

Inventory, net, consists of the following:

	December 31, 2019	December 31, 2018
Raw materials	$ 3	$ 5
Finished goods	13	23
Allowance for obsolescence	(5)	(6)
Total inventory, net	$ 11	$ 22

(8) Goodwill

Goodwill represents the excess of the purchase price over the estimated fair value of the net tangible and identifiable intangible assets acquired in business combinations. Our annual impairment assessment of our two reporting units is performed as of the fourth quarter of each year, and an assessment is performed at other times if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. ASC 350, *Intangibles - Goodwill and Other*, states that an entity should perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value. ASC 350 also states that a reporting unit with a zero or negative carrying amount is not required to perform a qualitative assessment. Our Sirius XM reporting unit, which has an allocated goodwill balance of $2,290, had a negative carrying amount as of December 31, 2019.

As of December 31, 2019, there were no indicators of impairment, andno impairment losses were recorded for goodwill during theyears ended December 31, 2019 and 2018. As of December 31, 2019, the cumulative balance of goodwill impairments recorded was$4,766, which was recognized during the year ended December 31, 2008 and is included in the carrying value of the goodwill allocated to our Sirius XM reporting unit.

As a result of the Pandora Acquisition, we recorded additional goodwill of$1,553 during the year ended December 31, 2019 at our Pandora reporting unit. The goodwill of the acquired company is not deductible for tax purposes. Refer to Note 3 for information on this acquisition.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued
(Dollars and shares in millions, except per share amounts)

Refer to the table below for our goodwill activity for the years ended December 31, 2019 and 2018:

	Sirius XM	Pandora	Total
Balance at December 31, 2017	$ 2,287	$ —	$ 2,287
Acquisition	3	—	3
Balance at December 31, 2018	2,290	—	2,290
Acquisition	—	1,553	1,553
Balance at December 31, 2019	$ 2,290	$ 1,553	$ 3,843

(9) Intangible Assets

Our intangible assets include the following:

		December 31, 2019			December 31, 2018		
	Weighted Average Useful Lives	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Indefinite life intangible assets:							
FCC licenses	Indefinite	$ 2,084	$ —	$ 2,084	$ 2,084	$ —	$ 2,084
Trademarks	Indefinite	251	—	251	251	—	251
Definite life intangible assets:							
OEM relationships	15 years	220	(90)	130	220	(76)	144
Licensing agreements	12 years	45	(42)	3	45	(38)	7
Software and technology	7 years	35	(25)	10	35	(20)	15
Due to Pandora Acquisition:							
Indefinite life intangible assets:							
Trademarks	Indefinite	$ 331	$ —	$ 331	$ —	$ —	$ —
Definite life intangible assets:							
Customer relationships	8 years	403	(49)	354	—	—	—
Software and technology	5 years	373	(69)	304	—	—	—
Total intangible assets		$ 3,742	$ (275)	$ 3,467	$ 2,635	$ (134)	$ 2,501

Indefinite Life Intangible Assets

We have identified our FCC licenses and XM, Pandora and Automatic trademarks as indefinite life intangible assets after considering the expected use of the assets, the regulatory and economic environment within which they are used and the effects of obsolescence on their use. As part of the Pandora Acquisition, we also identified $331 related to its trademarks, for which the fair value was determined using the relief from royalty method as of the acquisition date.

We hold FCC licenses to operate our satellite digital audio radio service and provide ancillary services. Each of the FCC licenses authorizes us to use radio spectrum, a reusable resource that does not deplete or exhaust over time.

ASC 350-30-35, *Intangibles - Goodwill and Other*, provides for an option to first perform a qualitative assessment to determine whether it is more likely than not that an asset is impaired. If the qualitative assessment supports that it is more likely than not that the fair value of the asset exceeds its carrying value, a quantitative impairment test is not required. If the qualitative assessment does not support the fair value of the asset, then a quantitative assessment is performed. Our annual impairment assessment of our identifiable indefinite lived intangible assets is performed as of the fourth quarter of each year. An assessment is performed at other times if an event occurs or circumstances change that would more likely than not reduce the fair value of the asset below its carrying value. If the carrying value of the intangible assets exceeds its fair value, an impairment loss is recognized in an amount equal to that excess.

(Dollars and shares in millions, except per share amounts)

We completed qualitative assessments of our FCC licenses and XM, Pandora and Automatic trademarks during the fourth quarter of 2019, 2018 and 2017. As of the date of our annual assessment for 2019, 2018 and 2017, our qualitative impairment assessment of the fair value of our indefinite intangible assets indicated that the fair value of such assets substantially exceeded their carrying value and therefore was not at risk of impairment. No impairment loss was recognized for intangible assets with indefinite lives during the years ended December 31, 2019, 2018 and 2017.

Definite Life Intangible Assets

Definite-lived intangible assets are amortized over their respective estimated useful lives to their estimated residual values, in a pattern that reflects when the economic benefits will be consumed, and are reviewed for impairment under the provisions of ASC 360-10-35, *Property, Plant and Equipment/Overall/Subsequent Measurement*. We review intangible assets subject to amortization for impairment whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable. If the sum of the expected cash flows, undiscounted and without interest, is less than the carrying amount of the asset, an impairment loss is recognized in an amount by which the carrying amount of the asset exceeds its fair value. No impairments were recorded for intangible assets with definite lives during theyears ended December 31, 2019, 2018 and 2017.

Amortization expense for all definite life intangible assets was$141, $23 and $38 for the years ended December 31, 2019, 2018 and 2017, respectively. We retired definite lived intangible assets of $390 during the year ended December 31, 2018 primarily related to fully amortized subscriber relationships and acquired proprietary software. There were no retirements of definite lived intangible assets during theyears ended December 31, 2019 and 2017. As part of the Pandora Acquisition, $776 was allocated to identifiable intangible assets subject to amortization and related to the assessed fair value of customer relationships and software and technology, which was determined by using the multi-period excess earnings method and the relief from royalty method, respectively, as of the acquisition date.

The expected amortization expense for each of the fiscal years2020 through 2024 and for periods thereafter is as follows:

Years ending December 31,		Amount
2020	$	152
2021		146
2022		144
2023		134
2024		69
Thereafter		156
Total definite life intangible assets, net	$	801

(10) Property and Equipment

Property and equipment, including satellites, are stated at cost, less accumulated depreciation. Equipment under capital leases is stated at the present value of minimum lease payments. Depreciation is calculated using the straight-line method over the following estimated useful life of the asset:

Satellite system	15 years
Terrestrial repeater network	5 - 15 years
Broadcast studio equipment	3 - 15 years
Capitalized software and hardware	2 - 7 years
Satellite telemetry, tracking and control facilities	3 - 15 years
Furniture, fixtures, equipment and other	2 - 7 years
Building	20 or 30 years
Leasehold improvements	Lesser of useful life or remaining lease term

We review long-lived assets, such as property and equipment, for impairment whenever events or changes in circumstances indicate the carrying amount may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds the estimated future cash flows, an impairment charge is recognized in an amount by which the carrying amount exceeds the fair value of the asset. We did not record any impairments during the years ended December 31, 2019, 2018 and 2017.

(Dollars and shares in millions, except per share amounts)

Property and equipment, net, consists of the following:

	December 31, 2019	December 31, 2018
Satellite system	$ 1,587	$ 1,587
Terrestrial repeater network	100	98
Leasehold improvements	105	58
Broadcast studio equipment	137	111
Capitalized software and hardware	1,086	824
Satellite telemetry, tracking and control facilities	87	76
Furniture, fixtures, equipment and other	89	97
Land	38	38
Building	63	63
Construction in progress	505	412
Total property and equipment	3,797	3,364
Accumulated depreciation and amortization	(2,171)	(1,851)
Property and equipment, net	$ 1,626	$ 1,513

Construction in progress consists of the following:

	December 31, 2019	December 31, 2018
Satellite system	$ 371	$ 296
Terrestrial repeater network	7	5
Capitalized software and hardware	107	77
Other	20	34
Construction in progress	$ 505	$ 412

Depreciation and amortization expense on property and equipment was $327, $278 and $261 and for the years ended December 31, 2019, 2018 and 2017, respectively. We retired property and equipment of $9, $35 and $79 during the years ended December 31, 2019, 2018 and 2017, respectively.

We capitalize a portion of the interest on funds borrowed to finance the construction and launch of our satellites. Capitalized interest is recorded as part of the asset's cost and depreciated over the satellite's useful life. Capitalized interest costs were $17, $12 and $5 for the years ended December 31, 2019, 2018 and 2017, respectively, which related to the construction of our SXM-7 and SXM-8 satellites. We also capitalize a portion of share-based compensation related to employee time for capitalized software projects. Capitalized share-based compensation costs were $13 for the year ended December 31, 2019. We did not capitalize any share-based compensation for the years ended December 31, 2018 and 2017.

(Dollars and shares in millions, except per share amounts)

Satellites

As of December 31, 2019, we owned a fleet of five satellites. The chart below provides certain information on our satellites as of December 31, 2019:

Satellite Description	Year Delivered	Estimated End of Depreciable Life
SIRIUS FM-5	2009	2024
SIRIUS FM-6	2013	2028
XM-3	2005	2020
XM-4	2006	2021
XM-5	2010	2025

Each satellite requires an FCC license and prior to the expiration of each license, we are required to apply for a renewal of the FCC satellite licenses. The renewal and extension of our licenses is reasonably certain at minimal cost, which is expensed as incurred.

The following table outlines the years in which each of our satellite licenses expires:

FCC satellite licenses	Expiration year
SIRIUS FM-5	2025
SIRIUS FM-6	2022
XM-3	2021
XM-4	2022
XM-5	2026

(11) Leases

We have operating and finance leases for offices, terrestrial repeaters, data centers and certain equipment. Our leases have remaining lease terms of less than 1 year to 18 years, some of which may include options to extend the leases for up to 5 years, and some of which may include options to terminate the leases within 1 year. We elected the practical expedient to account for the lease and non-lease components as a single component. Additionally, we elected the practical expedient to not recognize right-of-use assets or lease liabilities for short-term leases, which are those leases with a term of twelve months or less at the lease commencement date.

The components of lease expense were as follows:

	For the Year Ended December 31, 2019
Operating lease cost	$ 80
Finance lease cost	4
Sublease income	(3)
Total lease cost	$ 81

(Dollars and shares in millions, except per share amounts)

Supplemental cash flow information related to leases was as follows:

	For the Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 70
Financing cash flows from finance leases	$ 3
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	$ 83

Supplemental balance sheet information related to leases was as follows:

	December 31, 2019
Operating Leases	
Operating lease right-of-use assets	$ 466
Operating lease current liabilities	46
Operating lease liabilities	456
Total operating lease liabilities	$ 502

	December 31, 2019
Finance Leases	
Property and equipment, gross	$ 15
Accumulated depreciation	(12)
Property and equipment, net	$ 3
Current maturities of debt	$ 1
Long-term debt	1
Total finance lease liabilities	$ 2

	December 31, 2019
Weighted Average Remaining Lease Term	
Operating leases	9 years
Finance leases	2 years

	December 31, 2019
Weighted Average Discount Rate	
Operating leases	5.3%
Finance leases	1.7%

(Dollars and shares in millions, except per share amounts)

Maturities of lease liabilities were as follows:

	Operating Leases	Finance Leases
Year ending December 31,		
2020	$ 69	$ 1
2021	74	1
2022	71	—
2023	68	—
2024	59	—
Thereafter	303	—
Total future minimum lease payments	644	2
Less imputed interest	(142)	—
Total	$ 502	$ 2

(12) Related Party Transactions

In the normal course of business, we enter into transactions with related parties such as Liberty Media and Sirius XM Canada. Prior to the Pandora Acquisition, we also had an investment in Pandora that was a related party transaction.

Liberty Media

As of December 31, 2019, Liberty Media beneficially owned, directly and indirectly, approximately 72% of the outstanding shares of our common stock. Liberty Media has one executive, one senior advisor and one of its directors on our board of directors. Gregory B. Maffei, the President and Chief Executive Officer of Liberty Media, is the Chairman of our board of directors.

Sirius XM Canada

In 2017, Sirius XM completed a recapitalization of Sirius XM Canada (the "Transaction"), which is now a privately held corporation. Following the Transaction, Sirius XM holds a 70% equity interest and 33% voting interest in Sirius XM Canada. The total consideration from Sirius XM to Sirius XM Canada during the year ended December 31, 2017 was $309, which included $130 in cash and we issued 35 shares of our common stock with an aggregate value of $179 to the holders of the shares of Sirius XM Canada acquired in the Transaction. We own 591 shares of preferred stock of Sirius XM Canada, which has a liquidation preference of one Canadian dollar per share. Sirius XM also made a loan to Sirius XM Canada in the aggregate amount of $131 in connection with the Transaction. The loan is denominated in Canadian dollars and is considered a long-term investment with any unrealized gains or losses reported within Accumulated other comprehensive (loss) income. During the years ended December 31, 2019 and 2018, Sirius XM Canada repaid less than $1 and $3 of the principal amount of the loan, respectively.

In connection with the Transaction, Sirius XM also entered into a Services Agreement and an Advisory Services Agreement with Sirius XM Canada. Each agreement has a thirty year term. Pursuant to the Services Agreement, Sirius XM Canada currently pays Sirius XM 25% of its gross revenues on a monthly basis and pursuant to the Advisory Services Agreement, Sirius XM Canada pays Sirius XM 5% of its gross revenues on a monthly basis.

Sirius XM Canada is accounted for as an equity method investment, and its results are not consolidated in our consolidated financial statements. Sirius XM Canada does not meet the requirements for consolidation as we do not have the ability to direct the most significant activities that impact Sirius XM Canada's economic performance.

Our related party long-term assets balance as of December 31, 2019 and 2018 included the carrying value of our investment balance in Sirius XM Canada of $321 and $311, respectively, and, as of December 31, 2019 and 2018, also included $131 and $126, respectively, for the long-term value of the outstanding loan to Sirius XM Canada.

(Dollars and shares in millions, except per share amounts)

Sirius XM Canada paid gross dividends to us of $2, $2 and $4 during the years ended December 31, 2019, 2018 and 2017, respectively. Dividends are first recorded as a reduction to our investment balance in Sirius XM Canada to the extent a balance exists and then as Other (expense) income for any remaining portion.

We recorded revenue from Sirius XM Canada as Other revenue in our consolidated statements of comprehensive income of $98, $97 and $87 for the years ended December 31, 2019, 2018 and 2017, respectively.

Pandora

The $523 preferred stock investment in Pandora as of December 31, 2018 was canceled in conjunction with the Pandora Acquisition. Refer to Note 3 for information on this acquisition.

(13) Debt

Our debt as of December 31, 2019 and 2018 consisted of the following:

Issuer / Borrower	Issued	Debt	Maturity Date	Interest Payable	Principal Amount at December 31, 2019	Carrying value[(a)] at December 31, 2019	Carrying value[(a)] at December 31, 2018
Pandora (b) (c)	December 2015	1.75% Convertible Senior Notes	December 1, 2020	semi-annually on June 1 and December 1	$ 1	$ 1	$ —
Sirius XM (d)	July 2017	3.875% Senior Notes	August 1, 2022	semi-annually on February 1 and August 1	1,000	995	994
Sirius XM (d)	May 2013	4.625% Senior Notes	May 15, 2023	semi-annually on May 15 and November 15	500	498	497
Pandora (b) (e)	June 2018	1.75% Convertible Senior Notes	December 1, 2023	semi-annually on June 1 and December 1	193	163	—
Sirius XM (d) (h)	May 2014	6.00% Senior Notes	July 15, 2024	semi-annually on January 15 and July 15	—	—	1,490
Sirius XM (d) (i)	July 2019	4.625% Senior Notes	July 15, 2024	semi-annually on January 15 and July 15	1,500	1,485	—
Sirius XM (d)	March 2015	5.375% Senior Notes	April 15, 2025	semi-annually on April 15 and October 15	1,000	993	992
Sirius XM (d)	May 2016	5.375% Senior Notes	July 15, 2026	semi-annually on January 15 and July 15	1,000	992	991
Sirius XM (d)	July 2017	5.00% Senior Notes	August 1, 2027	semi-annually on February 1 and August 1	1,500	1,488	1,487
Sirius XM (d) (g)	June 2019	5.500% Senior Notes	July 1, 2029	semi-annually on January 1 and July 1	1,250	1,236	—
Sirius XM (f)	December 2012	Senior Secured Revolving Credit Facility (the "Credit Facility")	June 29, 2023	variable fee paid quarterly	—	—	439
Sirius XM	Various	Finance leases	Various	n/a	n/a	2	5
Total Debt						7,853	6,895
Less: total current maturities						2	3
Less: total deferred financing costs						9	7
Total long-term debt						$ 7,842	$ 6,885

(a) The carrying value of the obligations is net of any remaining unamortized original issue discount.
(b) Holdings has unconditionally guaranteed all of the payment obligations of Pandora under these notes.

(c) We acquired $152 in principal amount of the 1.75% Convertible Senior Notes due 2020 as part of the Pandora Acquisition. On February 14, 2019, Pandora announced a tender offer to repurchase for cash any and all of its outstanding 1.75% Convertible Senior Notes due 2020 at a price equal to 100% of the aggregate principal amount thereof plus accrued and unpaid interest thereon to, but not including, the repurchase date. On March 18, 2019, we purchased $151 in aggregate principal amount of the 1.75% Convertible Senior Notes due 2020 that had been validly tendered and not validly withdrawn in the repurchase offer. We recorded a $1 Loss on extinguishment of debt in connection with this transaction. In addition, we unwound a capped call security acquired as part of the Pandora Acquisition in March 2019 for $3.

(d) All material domestic subsidiaries, including Pandora and its subsidiaries, that guarantee the Credit Facility have guaranteed these notes.

(e) We acquired $193 in principal amount of the 1.75% Convertible Senior Notes due 2023 as part of the Pandora Acquisition. We allocate the principal amount of the 1.75% Convertible Senior Notes due 2023 between the liability and equity components. The value assigned to the debt components of the 1.75% Convertible Senior Notes due 2023 is the estimated fair value as of the issuance date of similar debt without the conversion feature. The difference between the fair value of the debt and this estimated fair value represents the value which has been assigned to the equity component. The equity component is recorded to additional paid-in capital and is not remeasured as long as it continues to meet the conditions for equity classification. The excess of the principal amount of the Notes over the carrying amount of the liability component is recorded as a debt discount and is being amortized to interest expense using the effective interest method through the December 1, 2023 maturity date. The 1.75% Convertible Senior Notes due 2023 were not convertible into common stock and not redeemable as of December 31, 2019. As a result, we have classified the debt as Long-term within our consolidated balance sheets.

(f) The $1,750 Credit Facility expires in June 2023. Sirius XM's obligations under the Credit Facility are guaranteed by certain of its material domestic subsidiaries, including Pandora and its subsidiaries, and are secured by a lien on substantially all of Sirius XM's assets and the assets of its material domestic subsidiaries. Interest on borrowings is payable on a monthly basis and accrues at a rate based on LIBOR plus an applicable rate. Sirius XM is also required to pay a variable fee on the average daily unused portion of the Credit Facility which is payable on a quarterly basis. The variable rate for the unused portion of the Credit Facility was 0.25% per annum as of December 31, 2019. All of Sirius XM's outstanding borrowings under the Credit Facility are classified as Long-term debt within our consolidated balance sheets due to the long-term maturity of this debt. Additionally, the amount available for future borrowing under the Credit Facility is reduced by letters of credit issued for the benefit of Pandora, which were $1 as of December 31, 2019.

(g) On June 7, 2019, Sirius XM issued $1,250 aggregate principal amount of the 5.500% Senior Notes due 2029 with a net original issuance discount and deferred financing costs in the aggregate of $16.

(h) On July 18, 2019, Sirius XM redeemed $1,500 in outstanding principal amount of the 6.00% Senior Notes due 2024 for an aggregate purchase price, including premium and interest, of $1,546. We recognized $56 to Loss on extinguishment of debt, consisting primarily of unamortized discount, deferred financing fees and redemption premium, as a result of this redemption.

(i) On July 2, 2019, Sirius XM issued $1,500 aggregate principal amount of the 4.625% Senior Notes due 2024 with a net original issuance discount and deferred financing costs in the aggregate of $19.

Covenants and Restrictions

Under the Credit Facility, Sirius XM, our wholly owned subsidiary, must comply with a debt maintenance covenant that it cannot exceed a total leverage ratio, calculated as consolidated total debt to consolidated operating cash flow, of 5.0 to 1.0. The Credit Facility generally requires compliance with certain covenants that restrict Sirius XM's ability to, among other things, (i) incur additional indebtedness, (ii) incur liens, (iii) pay dividends or make certain other restricted payments, investments or acquisitions, (iv) enter into certain transactions with affiliates, (v) merge or consolidate with another person, (vi) sell, assign, lease or otherwise dispose of all or substantially all of Sirius XM's assets, and (vii) make voluntary prepayments of certain debt, in each case subject to exceptions.

The indentures governing Sirius XM's notes restrict Sirius XM's non-guarantor subsidiaries' ability to create, assume, incur or guarantee additional indebtedness without such non-guarantor subsidiary guaranteeing each such series of notes on a pari passu basis. The indentures governing the notes also contain covenants that, among other things, limit Sirius XM's ability and the ability of its subsidiaries to create certain liens; enter into sale/leaseback transactions; and merge or consolidate.

Under Sirius XM's debt agreements, the following generally constitute an event of default: (i) a default in the payment of interest; (ii) a default in the payment of principal; (iii) failure to comply with covenants; (iv) failure to pay other indebtedness after final maturity or acceleration of other indebtedness exceeding a specified amount; (v) certain events of bankruptcy; (vi) a judgment for payment of money exceeding a specified aggregate amount; and (vii) voidance of subsidiary guarantees, subject to grace periods where applicable. If an event of default occurs and is continuing, our debt could become immediately due and payable.

(Dollars and shares in millions, except per share amounts)

The indentures governing the Pandora Convertible Notes contain covenants that limit Pandora's ability to merge or consolidate and provide for customary events of default, which include nonpayment of principal or interest, breach of covenants, payment defaults or acceleration of other indebtedness and certain events of bankruptcy.

At December 31, 2019 and 2018, we were in compliance with our debt covenants.

Pandora Convertible Notes

Pandora's 1.75% Convertible Senior Notes due 2020 (the "Pandora 2020 Notes") and Pandora's1.75% Convertible Senior Notes due 2023 (the "Pandora 2023 Notes" and, together with the Pandora 2020 Notes, the "Pandora Convertible Notes") are unsecured, senior obligations of Pandora. Holdings has guaranteed the payment and performance obligations of Pandora under the Pandora Convertible Notes and the indentures governing the Pandora Convertible Notes.

The Pandora 2020 Notes will mature on December 1, 2020, unless earlier repurchased or redeemed by Pandora or converted in accordance with their terms. Upon consummation of the Pandora Acquisition, the conversion rate applicable to the Pandora 2020 Notes was 87.7032 shares of Holdings' common stock per$1,000 principal amount of the Pandora 2020 Notes. Pandora has irrevocably elected and determined to settle all conversion obligations from and after February 1, 2019 with respect to the Pandora 2020 Notes solely in cash. During the years ended December 31, 2019, Pandora purchased $151 in aggregate principal amount of the Pandora 2020 Notes. See footnote (c) to the table above.

The Pandora 2023 Notes will mature on December 1, 2023, unless earlier repurchased or redeemed by Pandora or converted in accordance with their terms. Upon consummation of the Pandora Acquisition, the conversion rate applicable to the Pandora 2023 Notes was 150.4466 shares of Holdings' common stock per$1,000 principal amount of the Pandora 2023 Notes.

(14) Stockholders' Equity

Common Stock, par value $0.001 per share

We are authorized to issue up to 9,000 shares of common stock. There were4,412 and 4,346 shares of common stock issued and4,412 and 4,346 shares outstanding on December 31, 2019 and December 31, 2018, respectively. As part of the Pandora Acquisition, we issued 392 shares of our common stock.

As of December 31, 2019, there were 283 shares of common stock reserved for issuance in connection with outstanding stock based awards to be granted to members of our board of directors, employees and third parties.

Quarterly Dividends

During the year ended December 31, 2019, we declared and paid the following dividends:

Declaration Date	Dividend Per Share		Record Date	Total Amount		Payment Date
January 29, 2019	$	0.0121	February 11, 2019	$	57	February 28, 2019
April 23, 2019	$	0.0121	May 10, 2019	$	56	May 31, 2019
July 16, 2019	$	0.0121	August 9, 2019	$	54	August 30, 2019
October 10, 2019	$	0.01331	November 8, 2019	$	59	November 29, 2019

(Dollars and shares in millions, except per share amounts)

Stock Repurchase Program

As of December 31, 2019, our board of directors had approved for repurchase an aggregate of $14,000 of our common stock. Our board of directors did not establish an end date for this stock repurchase program. Shares of common stock may be purchased from time to time on the open market, pursuant to pre-set trading plans meeting the requirements of Rule 10b5-1 under the Exchange Act, in privately negotiated transactions, including transactions with Liberty Media and its affiliates, or otherwise. As of December 31, 2019, our cumulative repurchases since December 2012 under our stock repurchase program totaled 3,047 shares for $12,834, and $1,166 remained available for future share repurchases under our stock repurchase program.

The following table summarizes our total share repurchase activity for the years ended:

	December 31, 2019		December 31, 2018		December 31, 2017	
Share Repurchase Type	**Shares**	**Amount**	**Shares**	**Amount**	**Shares**	**Amount**
Open Market Repurchases	364	$ 2,159	209	$ 1,297	271	$ 1,403

Preferred Stock, par value $0.001 per share

We are authorized to issue up to 50 shares of undesignated preferred stock with a liquidation preference of $0.001 per share. There were no shares of preferred stock issued or outstanding as of December 31, 2019 and 2018.

(15) Benefit Plans

We recognized share-based payment expense of $250, $133 and $124 for the years ended December 31, 2019, 2018 and 2017, respectively. This amount includes $21 of share-based compensation expense recorded in Acquisition and other related costs in our consolidated statements of comprehensive income during the year ended December 31, 2019.

We account for equity instruments granted in accordance with ASC 718, *Compensation - Stock Compensation*. ASC 718 requires all share-based compensation payments to be recognized in the financial statements based on fair value. We use the Black-Scholes-Merton option-pricing model to value stock option awards and have elected to treat awards with graded vesting as a single award. Share-based compensation expense is recognized ratably over the requisite service period, which is generally the vesting period. We measure restricted stock awards and units using the fair market value of the restricted shares of common stock on the day the award is granted. Stock-based awards granted to employees, non-employees and members of our board of directors include stock options and restricted stock units.

Fair value as determined using the Black-Scholes-Merton model varies based on assumptions used for the expected life, expected stock price volatility, expected dividend yield and risk-free interest rates. For the years ended December 31, 2019, 2018 and 2017, we estimated the fair value of awards granted using the hybrid approach for volatility, which weights observable historical volatility and implied volatility of qualifying actively traded options on our common stock. The expected life assumption represents the weighted-average period stock-based awards are expected to remain outstanding. These expected life assumptions are established through a review of historical exercise behavior of stock-based award grants with similar vesting periods. Where historical patterns do not exist for non-employees, contractual terms are used. Dividend yield is based on the current expected annual dividend per share and our stock price. The risk-free interest rate represents the daily treasury yield curve rate at the grant date based on the closing market bid yields on actively traded U.S. treasury securities in the over-the-counter market for the expected term. Our assumptions may change in future periods.

2015 Long-Term Stock Incentive Plan

In May 2015, our stockholders approved the Sirius XM Holdings Inc. 2015 Long-Term Stock Incentive Plan (the “2015 Plan”). Employees, consultants and members of our board of directors are eligible to receive awards under the 2015 Plan. The 2015 Plan provides for the grant of stock options, restricted stock awards, restricted stock units and other stock-based awards that the compensation committee of our board of directors deems appropriate. Stock-based awards granted under the 2015 Plan are generally subject to a graded vesting requirement, which is generally three to four years from the grant date. Stock options generally expire ten years from the date of grant. Restricted stock units include performance-based restricted stock units (“PRSUs”), the vesting of which are subject to the achievement of performance goals and the employee's continued employment and generally cliff vest on the third anniversary of the grant date. Each restricted stock unit entitles the holder to receive one share of common stock upon vesting. As ofDecember 31, 2019, 165 shares of common stock were available for future grants under the 2015 Plan.

(Dollars and shares in millions, except per share amounts)

In connection with the Pandora Acquisition, we assumed all shares available for issuance (including any shares that later become available for issuance in accordance with the terms of the applicable plans) under each of the 2014 Stock Incentive Plan of AdsWizz Inc., the Pandora Media, Inc. 2011 Equity Incentive Plan, the Pandora Media, Inc. 2004 Stock Plan and the TheSavageBeast.com, Inc. 2000 Stock Incentive Plan, which were previously approved by stockholders of Pandora or the applicable adopting entity. All shares available under these stock plans became additional shares available for grant pursuant to the terms of the 2015 Plan (as adjusted, to the extent appropriate, to reflect the application of the exchange ratio). Subject to certain limitations set forth in the 2015 Plan, such shares may be used for awards under the 2015 Plan.

Other Plans

We maintain six additional share-based benefit plans — the Sirius XM Radio Inc. 2009 Long-Term Stock Incentive Plan, the Amended and Restated Sirius Satellite Radio 2003 Long-Term Stock Incentive Plan, the 2014 Stock Incentive Plan of AdsWizz Inc., the Pandora Media, Inc. 2011 Equity Incentive Plan, the Pandora Media, Inc. 2004 Stock Plan and the TheSavageBeast.com, Inc. 2000 Stock Incentive Plan. Excluding dividend equivalent units granted as a result of a declared dividend, no further awards may be made under these plans.

The following table summarizes the weighted-average assumptions used to compute the fair value of options granted to employees and members of our board of directors:

	For the Years Ended December 31,		
	2019	2018	2017
Risk-free interest rate	2.4%	2.7%	1.8%
Expected life of options — years	3.41	4.38	4.59
Expected stock price volatility	26%	23%	24%
Expected dividend yield	0.8%	0.7%	0.7%

The following table summarizes stock option activity under our share-based plans for theyears ended December 31, 2019, 2018 and 2017:

	Options	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at the beginning of January 1, 2017	333	$ 3.50		
Granted	26	$ 5.49		
Exercised	(73)	$ 3.21		
Forfeited, cancelled or expired	(6)	$ 4.07		
Outstanding as of December 31, 2017	280	$ 3.76		
Granted	32	$ 6.59		
Exercised	(65)	$ 3.35		
Forfeited, cancelled or expired	(4)	$ 4.76		
Outstanding as of December 31, 2018	243	$ 4.22		
Options granted in connection with Pandora Acquisition	7	$ 3.85		
Granted	15	$ 6.10		
Exercised	(53)	$ 3.65		
Forfeited, cancelled or expired	(4)	$ 5.58		
Outstanding as of December 31, 2019	208	$ 4.46	5.58	$ 560
Exercisable as of December 31, 2019	148	$ 3.96	4.77	$ 472

(Dollars and shares in millions, except per share amounts)

The weighted average grant date fair value per share of stock options granted during the years ended December 31, 2019, 2018 and 2017 was $1.26, $1.45 and $1.17, respectively. The total intrinsic value of stock options exercised during the years ended December 31, 2019, 2018 and 2017 was $146, $215 and $167, respectively. During the years ended December 31, 2019, 2018 and 2017, the number of net settled shares which were issued as a result of stock option exercises was 15, 19 and 17.

In connection with the Pandora Acquisition, each option granted by Pandora under its stock incentive plans to purchase shares of Pandora common stock, whether vested or unvested, was assumed and converted into an option to purchase shares of our common stock, with appropriate adjustments (based on the 1.44 exchange ratio) to the exercise price and number of shares of our common stock subject to such option, and has the same vesting schedule and exercise conditions as in effect as of immediately prior to the closing of the Pandora Acquisition; provided, that any Pandora stock option that had an exercise price per share that was equal to or greater than the value, at the closing of the Pandora Acquisition, of our common stock issued as merger consideration in exchange for each share of Pandora common stock, was canceled without payment. We recorded $8 to Goodwill related to pre-acquisition replacement equity awards attributable to pre-combination service.

We recognized share-based payment expense associated with stock options of $60, $67 and $78 for the years ended December 31, 2019, 2018 and 2017, respectively.

The following table summarizes the restricted stock unit, including PRSU, activity under our share-based plans for the years ended December 31, 2019, 2018 and 2017:

	Shares	Grant Date Fair Value Per Share
Nonvested at the beginning of January 1, 2017	30	$ 4.03
Granted	12	$ 5.35
Vested	(9)	$ 3.92
Forfeited	(2)	$ 4.42
Nonvested as of December 31, 2017	31	$ 4.54
Granted	18	$ 6.40
Vested	(13)	$ 4.43
Forfeited	(1)	$ 4.99
Nonvested as of December 31, 2018	35	$ 5.50
Units granted in connection with Pandora Acquisition	48	$ 5.83
Granted	38	$ 6.01
Vested	(38)	$ 5.53
Forfeited	(8)	$ 5.85
Nonvested as of December 31, 2019	75	$ 5.95

The total intrinsic value of restricted stock units, including PRSUs, vesting during the years ended December 31, 2019, 2018 and 2017 was $235, $85 and $48, respectively. During the years ended December 31, 2019, 2018 and 2017, the number of net settled shares which were issued as a result of restricted stock units vesting totaled 23, 7 and 5. During the years ended December 31, 2019, 2018 and 2017, we granted 6, 5 and 1 PRSUs to certain employees, respectively. We believe it is probable that the performance target applicable to these PRSUs will be achieved.

In connection with the Pandora Acquisition, each unvested restricted stock unit granted by Pandora under its stock incentive plans was assumed and converted into an unvested restricted stock unit of Holdings, with appropriate adjustments (based on the 1.44 exchange ratio) to the number of shares of our common stock to be received, and has the same vesting schedule and settlement date as in effect as of immediately prior to the closing of the Pandora Acquisition. We recorded $62 to Goodwill related to pre-acquisition replacement equity awards attributable to pre-combination service.

In connection with the cash dividends paid during the years ended December 31, 2019, 2018 and 2017, we granted less than 1 restricted stock units, including PRSUs, in accordance with the terms of existing award agreements. These grants did not result in any additional incremental share-based payment expense being recognized during the years ended December 31, 2019, 2018 and 2017.

We recognized share-based payment expense associated with restricted stock units, including PRSUs, of $190, $66 and $46 for the years ended December 31, 2019, 2018 and 2017, respectively.

Total unrecognized compensation costs related to unvested share-based payment awards for stock options and restricted stock units, including PRSUs, granted to employees, members of our board of directors and third parties at December 31, 2019 and 2018 was $415 and $254, respectively. The total unrecognized compensation costs at December 31, 2019 are expected to be recognized over a weighted-average period of 2.4 years.

401(k) Savings Plans

Sirius XM Radio Inc. 401(k) Savings Plan

Sirius XM sponsors the Sirius XM Radio Inc. 401(k) Savings Plan (the "Sirius XM Plan") for eligible employees. The Sirius XM Plan allows eligible employees to voluntarily contribute from 1% to 50% of their pre-tax eligible earnings, subject to certain defined limits. We match 50% of an employee's voluntary contributions per pay period on the first 6% of an employee's pre-tax salary up to a maximum of 3% of eligible compensation. We may also make additional discretionary matching, true-up matching and non-elective contributions to the Sirius XM Plan. Employer matching contributions under the Sirius XM Plan vest at a rate of 33.33% for each year of employment and are fully vested after three years of employment for all current and future contributions. Our cash employer matching contributions are not used to purchase shares of our common stock on the open market, unless the employee elects our common stock as their investment option for this contribution. We recognized expenses of $9, $9 and $8 for the years ended December 31, 2019, 2018 and 2017, respectively, in connection with the Sirius XM Plan.

Pandora Media, LLC 401(k) Profit Sharing Plan and Trust

Pandora sponsors the Pandora Media, LLC 401(k) Profit Sharing Plan and Trust (the "Pandora Plan") for eligible employees. The Pandora Plan allows eligible employees to voluntarily contribute from 1% to 75% of their pre-tax eligible earnings, subject to certain defined limits. As of December 31, 2019, there was no employer matching of employee contributions under the Pandora Plan.

Sirius XM Holdings Inc. Deferred Compensation Plan

The Sirius XM Holdings Inc. Deferred Compensation Plan (the "DCP") allows members of our board of directors and certain eligible employees to defer all or a portion of their base salary, cash incentive compensation and/or board of directors' cash compensation, as applicable. Pursuant to the terms of the DCP, we may elect to make additional contributions beyond amounts deferred by participants, but we are under no obligation to do so. We have established a grantor (or "rabbi") trust to facilitate the payment of our obligations under the DCP.

Contributions to the DCP, net of withdrawals, for the years ended December 31, 2019, 2018 and 2017 were $7, $8 and $8, respectively. As of December 31, 2019 and 2018, the fair value of the investments held in the trust were $34 and $22, respectively, which is included in Other long-term assets in our consolidated balance sheets and classified as trading securities. Trading gains and losses associated with these investments are recorded in Other (expense) income within our consolidated statements of comprehensive income. The associated liability is recorded within Other long-term liabilities in our consolidated balance sheets, and any increase or decrease in the liability is recorded in General and administration expense within our consolidated statements of comprehensive income. For the years ended December 31, 2019 and 2018, we recorded unrealized gains (losses) on investments held in the trust of $3 and $(1), respectively.

(Dollars and shares in millions, except per share amounts)

(16) Commitments and Contingencies

The following table summarizes our expected contractual cash commitments as ofDecember 31, 2019:

	2020	2021	2022	2023	2024	Thereafter	Total
Debt obligations	$ 2	$ 1	$ 1,000	$ 693	$ 1,500	$ 4,750	$ 7,946
Cash interest payments	396	390	390	339	321	703	2,539
Satellite and transmission	87	4	2	1	1	1	96
Programming and content	333	228	144	84	42	97	928
Sales and marketing	56	28	21	9	3	8	125
Satellite incentive payments	8	9	9	9	9	46	90
Operating lease obligations	72	72	64	56	42	173	479
Advertising sales commitments	20	15	—	—	—	—	35
Royalties, minimum guarantees and other	512	233	162	17	7	—	931
Total [(1)]	$ 1,486	$ 980	$ 1,792	$ 1,208	$ 1,925	$ 5,778	$ 13,169

(1) The table does not include our reserve for uncertain tax positions, which at December 31, 2019 totaled $12.

Debt obligations. Debt obligations include principal payments on outstanding debt and finance lease obligations.

Cash interest payments. Cash interest payments include interest due on outstanding debt and capital lease payments through maturity.

Satellite and transmission. We have entered into agreements with several third parties to design, build, launch and insuretwo satellites, SXM-7 and SXM-8. We also have entered into agreements with third parties to operate and maintain satellite telemetry, tracking and control facilities and certain components of our terrestrial repeater networks.

Programming and content. We have entered into various programming and content agreements. Under the terms of these agreements, our obligations include fixed payments, advertising commitments and revenue sharing arrangements. In certain of these agreements, the future revenue sharing costs are dependent upon many factors and are difficult to estimate; therefore, they are not included in our minimum contractual cash commitments.

Sales and marketing. We have entered into various marketing, sponsorship and distribution agreements to promote our brands and are obligated to make payments to sponsors, retailers, automakers, radio manufacturers and other third parties under these agreements. Certain programming and content agreements also require us to purchase advertising on properties owned or controlled by the licensors.

Satellite incentive payments. Boeing Satellite Systems International, Inc., the manufacturer of certain of our in-orbit satellites, may be entitled to future in-orbit performance payments upon XM-3 and XM-4 meeting their fifteen-year design life, which we expect to occur. Boeing may also be entitled to up to$10 of additional incentive payments if our XM-4 satellite continues to operate above baseline specifications during the five years beyond the satellite's fifteen-year design life.

Maxar Technologies (formerly Space Systems/Loral), the manufacturer of certain of our in-orbit satellites, may be entitled to future in-orbit performance payments upon XM-5, SIRIUS FM-5 and SIRIUS FM-6 meeting their fifteen-year design life, which we expect to occur.

Operating lease obligations. We have entered into both cancelable and non-cancelable operating leases for office space, terrestrial repeaters, data centers and equipment. These leases provide for minimum lease payments, additional operating expense charges, leasehold improvements and rent escalations that have initial terms ranging from one to fifteen years, and certain leases have options to renew. Total rent recognized in connection with leases for the years ended December 31, 2019, 2018 and 2017 was $75, $43 and $43, respectively.

Advertising Sales Commitments. We have entered into agreements with third parties that contain minimum advertising sales guarantees and require that we make guaranteed payments. As of December 31, 2019, we had future minimum guarantee commitments of $35, of which $20 will be paid in 2020 and the remainder will be paid thereafter. On a quarterly basis, we record the greater of the cumulative actual expense incurred or the cumulative minimum guarantee based on our forecast for the minimum guarantee period. The minimum guarantee period is the period of time that the minimum guarantee relates to, as specified in the agreement, which may be annual or a longer period.

Royalties, Minimum Guarantees and Other. We have entered into music royalty arrangements that include fixed payments. Certain of our content agreements also contain minimum guarantees and require that we make upfront minimum guaranteed payments. During the year ended December 31, 2019, we prepaid $25 in content costs related to minimum guarantees. As of December 31, 2019, we had future fixed minimum guarantee commitments of $265, of which $249 will be paid in 2020 and the remainder will be paid thereafter. On a quarterly basis, we record the greater of the cumulative actual content costs incurred or the cumulative minimum guarantee based on forecasted usage for the minimum guarantee period. The minimum guarantee period is the period of time that the minimum guarantee relates to, as specified in each agreement, which may be annual or a longer period. The cumulative minimum guarantee, based on forecasted usage, considers factors such as listening hours, revenue, subscribers and other terms of each agreement that impact our expected attainment or recoupment of the minimum guarantees based on the relative attribution method.

Several of our content agreements also include provisions related to the royalty payments and structures of those agreements relative to other content licensing arrangements, which, if triggered, could cause our payments under those agreements to escalate. In addition, record labels, publishers and performing rights organizations ("PROs") with whom we have entered into direct license agreements have the right to audit our content payments, and any such audit could result in disputes over whether we have paid the proper content costs.

We have also entered into various agreements with third parties for general operating purposes.

In addition to the minimum contractual cash commitments described above, we have entered into other variable cost arrangements. These future costs are dependent upon many factors and are difficult to anticipate; however, these costs may be substantial. We may enter into additional programming, distribution, marketing and other agreements that contain similar variable cost provisions. We also have a surety bond of approximately $45 primarily used as security against non-performance in the normal course of business. We do not have any other significant off-balance sheet financing arrangements that are reasonably likely to have a material effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Legal Proceedings

In the ordinary course of business, we are a defendant or party to various claims and lawsuits, including those discussed below.

We record a liability when we believe that it is both probable that a liability will be incurred, and the amount of loss can be reasonably estimated. We evaluate developments in legal matters that could affect the amount of liability that has been previously accrued and make adjustments as appropriate. Significant judgment is required to determine both probability and the estimated amount of a loss or potential loss. We may be unable to reasonably estimate the reasonably possible loss or range of loss for a particular legal contingency for various reasons, including, among others, because: (i) the damages sought are indeterminate; (ii) the proceedings are in the relative early stages; (iii) there is uncertainty as to the outcome of pending proceedings (including motions and appeals); (iv) there is uncertainty as to the likelihood of settlement and the outcome of any negotiations with respect thereto; (v) there remain significant factual issues to be determined or resolved; (vi) the relevant law is unsettled; or (vii) the proceedings involve novel or untested legal theories. In such instances, there may be considerable uncertainty regarding the ultimate resolution of such matters, including the likelihood or magnitude of a possible eventual loss, if any.

Telephone Consumer Protection Act Suits. On March 13, 2017, Thomas Buchanan, individually and on behalf of all others similarly situated, filed a class action complaint against Sirius XM in the United States District Court for the Northern District of Texas, Dallas Division. The plaintiff alleges that Sirius XM violated the Telephone Consumer Protection Act of 1991 (the "TCPA") by, among other things, making telephone solicitations to persons on the National Do-Not-Call registry, a database established to allow consumers to exclude themselves from telemarketing calls unless they consent to receive the calls in a signed, written agreement, and making calls to consumers in violation of our internal Do-Not-Call registry. The plaintiff is seeking various forms of relief, including statutory damages of five hundred dollars for each violation of the TCPA or, in the alternative, treble damages of up to fifteen hundred dollars for each knowing and willful violation of the TCPA and a permanent injunction prohibiting us from making, or having made, any calls to land lines that are listed on the National Do-Not-Call registry or our internal Do-Not-Call registry.

Following a mediation, in April 2019, Sirius XM entered into an agreement to settle this purported class action suit. The settlement resolves the claims of consumers for the period October 2013 through January 2019. As part of the settlement, Sirius XM paid $25 into a non-reversionary settlement fund from which cash to class members, notice, administrative costs, and attorney's fees and costs will be paid. The settlement also contemplates that Sirius XM will provide three months of service to its All Access subscription package for those members of the class that elect to receive it, in lieu of cash, at no cost to those class members and who are not active subscribers at the time of the distribution. The availability of this three-month service option will not diminish the$25 common fund. As part of the settlement, Sirius XM will also implement certain changes relating to its “Do-Not-Call” practices and telemarketing programs. On January 28, 2020, the Court issued an order and final judgment approving the settlement.

Pre-1972 Sound Recording Litigation. On October 2, 2014, Flo & Eddie Inc. filed a class action suit against Pandora in the federal district court for the Central District of California. The complaint alleges a violation of California Civil Code Section 980, unfair competition, misappropriation and conversion in connection with the public performance of sound recordings recorded prior to February 15, 1972 (which we refer to as, “pre-1972 recordings”). On December 19, 2014, Pandora filed a motion to strike the complaint pursuant to California’s Anti-Strategic Lawsuit Against Public Participation (“Anti-SLAPP”) statute, which following denial of Pandora’s motion was appealed to the Ninth Circuit Court of Appeals. In March 2017, the Ninth Circuit requested certification to the California Supreme Court on the substantive legal questions. The California Supreme Court accepted certification. In May 2019, the California Supreme Court issued an order dismissing consideration of the certified questions on the basis that, following the enactment of the Orrin G. Hatch-Bob Goodlatte Music Modernization Act, Pub. L. No. 115-264, 132 Stat. 3676 (2018) (the “MMA”), resolution of the questions posed by the Ninth Circuit Court of Appeals was no longer “necessary to . . . settle an important question of law.”

The MMA grants a potential federal preemption defense to the claims asserted in the aforementioned lawsuits. In July 2019, Pandora took steps to avail itself of this preemption defense, including making the required payments under the MMA for certain of its uses of pre-1972 recordings. Based on the federal preemption contained in the MMA (along with other considerations), Pandora asked the Ninth Circuit to order the dismissal of the *Flo & Eddie, Inc. v. Pandora Media, Inc.* case. On October 17, 2019, the Ninth Circuit Court of Appeals issued a memorandum disposition concluding that the question of whether the MMA preempts Flo and Eddie's claims challenging Pandora's performance of pre-1972 recordings “depends on various unanswered factual questions” and remanded the case to the District Court for further proceedings.

After Flo & Eddie filed its action in 2014 against Pandora, several other plaintiffs commenced separate actions, both on an individual and class action basis, alleging a variety of violations of common law and state copyright and other statutes arising from allegations that Pandora owed royalties for the public performance of pre-1972 recordings. Many of these separate actions have been dismissed or are in the process of being dismissed. None of the remaining pending actions is likely to have a material adverse effect on our business, financial condition or results of operations.

We believe we have substantial defenses to the claims asserted in these actions, and we intend to defend these actions vigorously.

Copyright Royalty Board Proceeding to Determine the Rate for Statutory Webcasting. Pursuant to Sections 112 and 114 of the Copyright Act, the CRB initiated a proceeding in January 2019 to set the rates and terms by which webcasters may perform sound recordings via digital transmission over the internet and make ephemeral reproductions of those recordings during the 2021-2025 rate period under the authority of statutory licenses provided under Sections 112 and 114 of the Copyright Act. We filed a petition to participate in the proceeding on behalf of our Sirius XM and Pandora businesses, as did other webcasters including Google Inc. and the National Association of Broadcasters. SoundExchange, a collective organization that collects and distributes digital performance royalties to artists and copyright holders, represents the various copyright owner participants in the proceeding, including Sony Music Entertainment, Universal Music Group, and Warner Music Group. Because the proceeding focuses on setting statutory rates for non-interactive online music streaming (commonly identified as "webcasting"), the proceeding will set the rates that our Pandora business pays for music streaming on its free, ad-supported tier, and that our Sirius XM business pays for streaming on its subscription internet radio service. This proceeding will not set the rates that we pay for our other music offerings (satellite radio, business establishment services) or that we pay for interactive streaming on our Pandora Plus and Pandora Premium services.

(Dollars and shares in millions, except per share amounts)

In September 2019, the participants filed written direct statements, including proposed rates and terms for the 2021-2025 period. We and other webcaster participants proposed rates below the existing statutory rates, which for commercial webcasters are currently set at $0.0018 per performance for non-subscription transmissions (such as offered by our Pandora ad-supported business) and $0.0024 per performance for subscription transmissions (such as offered by our Sirius XM internet radio service). SoundExchange has proposed increasing the commercial webcasting rates to $0.0028 per performance for non-subscription transmissions and $0.0031 per performance for subscription transmissions.

In January 2020, the participants filed written rebuttal statements, responding to each other's proposals. Discovery in the matter is ongoing, and a multi-week hearing has been set to begin before the CRB in March 2020. The CRB's initial determination of the rates and terms for the 2021-2025 period is required to be delivered in December 2020.

Other Matters. In the ordinary course of business, we are a defendant in various other lawsuits and arbitration proceedings, including derivative actions; actions filed by subscribers, both on behalf of themselves and on a class action basis; former employees; parties to contracts or leases; and owners of patents, trademarks, copyrights or other intellectual property. None of these other matters, in our opinion, is likely to have a material adverse effect on our business, financial condition or results of operations.

(17) Income Taxes

There is no current U.S. federal income tax provision, as all federal taxable income was offset by utilizing U.S. federal net operating loss carryforwards. The current state income tax provision is primarily related to taxable income in certain states that have suspended or limited the ability to use net operating loss carryforwards or where net operating losses have been fully utilized. Income tax expense is the sum of current income tax plus the change in deferred tax assets and liabilities.

We file a consolidated federal income tax return for all of our wholly owned subsidiaries, including Sirius XM and Pandora. Income tax expense consisted of the following:

	For the Years Ended December 31,		
	2019	2018	2017
Current taxes:			
Federal	$ —	$ —	$ —
State	(24)	12	(32)
Total current taxes	(24)	12	(32)
Deferred taxes:			
Federal	(229)	(259)	(564)
State	(30)	2	(20)
Total deferred taxes	(259)	(257)	(584)
Total income tax expense	$ (283)	$ (245)	$ (616)

(Dollars and shares in millions, except per share amounts)

The following table presents a reconciliation of the U.S. federal statutory tax rate and our effective tax rate:

	For the Years Ended December 31,		
	2019	2018	2017
Federal tax expense, at statutory rate	21.0 %	21.0 %	35.0 %
State income tax expense, net of federal benefit	3.9 %	3.6 %	2.8 %
Change in valuation allowance	0.3 %	1.0 %	(0.1)%
Tax credits	(2.7)%	(6.8)%	(1.7)%
Share-based compensation	(2.4)%	(3.1)%	(2.9)%
Impact of nondeductible officers' compensation	1.6 %	0.7 %	0.3 %
Federal tax reform - deferred rate change	— %	— %	14.6 %
Other, net	1.9 %	0.8 %	0.7 %
Effective tax rate	23.6 %	17.2 %	48.7 %

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Act. The Tax Act made broad and complex changes to the U.S. tax code, including, accelerated depreciation that will allow for full expensing of qualified property. The Tax Act also reduced the U.S. federal corporate income tax rate from 35% to 21%.

Our effective tax rate of23.6% for the year ended December 31, 2019 was primarily impacted by the recognition of excess tax benefits related to share-based compensation and benefits related to state and federal research and development and certain other credits, partially offset by the impact of nondeductible officers' compensation. Our effective tax rate of 17.2% for the year ended December 31, 2018 was primarily impacted by the recognition of excess tax benefits related to share-based compensation and a benefit related to state and federal research and development credits. Our effective tax rate of 48.7% for the year ended December 31, 2017 was negatively impacted by the revaluation of our net deferred tax assets, excluding after tax credits, as of December 31, 2017 as a result of the reduction of the federal corporate income tax rate. This was offset by the recognition of excess tax benefits related to share-based compensation and a benefit related to federal research and development credits, under the Protecting Americans from Tax Hikes Act of 2015.

Deferred income taxes are recognized for the tax consequences related to temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for tax purposes at each year-end, based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences can be carried forward under tax law. Our evaluation of the realizability of deferred tax assets considers both positive and negative evidence, including historical financial performance, scheduled reversal of deferred tax assets and liabilities, projected taxable income and tax planning strategies. The weight given to the potential effects of positive and negative evidence is based on the extent to which it can be objectively verified. A valuation allowance is recognized when, based on the weight of all available evidence, it is considered more likely than not that all, or some portion, of the deferred tax assets will not be realized.

(Dollars and shares in millions, except per share amounts)

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities, shown before jurisdictional netting, are presented below:

	For the Years Ended December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards and tax credits	$ 1,010	$ 952
Deferred revenue	81	89
Accrued bonus	34	27
Expensed costs capitalized for tax	14	16
Investments	22	12
Stock based compensation	72	55
Other	10	6
Total deferred tax assets	1,243	1,157
Deferred tax liabilities:		
Depreciation of property and equipment	(228)	(230)
FCC license	(519)	(515)
Other intangible assets	(340)	(102)
Other	(3)	2
Total deferred tax liabilities	(1,090)	(845)
Net deferred tax assets before valuation allowance	153	312
Valuation allowance	(70)	(66)
Total net deferred tax asset	$ 83	$ 246

Net operating loss carryforwards and tax credits increased as a result of the recognition of $1,287 of net operating losses from the Pandora Acquisition and accelerated depreciation that allowed for full expensing on qualified property under the Tax Act offset by the utilization of net operating losses related to current year taxable income. For the years ended December 31, 2019 and 2018, we recorded $33 and $97 for state and federal tax credits, respectively. As of December 31, 2019, our gross federal net operating loss carryforwards were approximately $2,694.

As of December 31, 2019 and 2018, we had a valuation allowance related to deferred tax assets of $70 and $66, respectively, which were not likely to be realized due to the timing of certain federal and state net operating loss limitations. During the year ended December 31, 2019, our allowance increased primarily due to time limitations associated with federal research and development credits.

ASC 740, *Income Taxes*, requires a company to first determine whether it is more likely than not that a tax position will be sustained based on its technical merits as of the reporting date, assuming that taxing authorities will examine the position and have full knowledge of all relevant information. A tax position that meets this more likely than not threshold is then measured and recognized at the largest amount of benefit that is greater than fifty percent likely to be realized upon effective settlement with a taxing authority. If the tax position is not more likely than not to be sustained, the gross amount of the unrecognized tax position will not be recorded in the financial statements but will be shown in tabular format within the uncertain income tax positions. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs due to the following conditions: (1) the tax position is "more likely than not" to be sustained, (2) the tax position, amount, and/or timing is ultimately settled through negotiation or litigation, or (3) the statute of limitations for the tax position has expired. A number of years may elapse before an uncertain tax position is effectively settled or until there is a lapse in the applicable statute of limitations. We record interest and penalties related to uncertain tax positions in Income tax expense in our consolidated statements of comprehensive income.

As of December 31, 2019 and 2018, the gross liability for income taxes associated with uncertain tax positions was $406 and $387, respectively. If recognized, $297 of unrecognized tax benefits would affect our effective tax rate. Uncertain tax positions are recognized in Other long-term liabilities which, as of December 31, 2019 and 2018, were $12 and $9, respectively, including accrued interest. No penalties have been accrued.

(Dollars and shares in millions, except per share amounts)

We have state income tax audits pending. We do not expect the ultimate outcome of these audits to have a material adverse effect on our financial position or results of operations. We also do not currently anticipate that our existing reserves related to uncertain tax positions as of December 31, 2019 will significantly increase or decrease during the year ending December 31, 2020. Various events could cause our current expectations to change. Should our position with respect to the majority of these uncertain tax positions be upheld, the effect would be recorded in our consolidated statements of comprehensive income as part of the income tax provision. We recorded interest expense of $2 and $1 for the years ended December 31, 2019 and 2018, respectively, related to unrecognized tax benefits.

Changes in our uncertain income tax positions, from January 1 through December 31 are set forth below:

	2019	2018
Balance, beginning of year	$ 387	$ 334
Increases in tax positions for prior years	—	65
Increases in tax positions for current years	31	15
Decreases in tax positions for prior years	(12)	(27)
Balance, end of year	$ 406	$ 387

(18) Segments and Geographic Information

In accordance with FASB ASC Topic 280, *Segment Reporting*, we disaggregate our operations into two reportable segments: Sirius XM and Pandora. The change in segment reporting was due to the acquisition of Pandora. The financial results of these segments are utilized by the chief operating decision maker, who is our Chief Executive Officer, for evaluating segment performance and allocating resources. We report our segment information based on the "management" approach. The management approach designates the internal reporting used by management for making decisions and assessing performance as the source of our reportable segments. For additional information on our segments refer to Note 1.

Segment results include the revenues and cost of services which are directly attributable to each segment. There are no indirect revenues or costs incurred that are allocated to the segments. There are planned intersegment advertising campaigns which will be eliminated. We had less than $1 of intersegment advertising revenue during the year ended December 31, 2019.

Segment revenue and gross profit were as follows during the period presented:

	For the Year Ended December 31, 2019		
	Sirius XM	Pandora	Total
Revenue			
Subscriber revenue	$ 5,644	$ 476	$ 6,120
Advertising revenue	205	1,131	1,336
Equipment revenue	173	—	173
Other revenue	165	—	165
Total revenue	6,187	1,607	7,794
Cost of services [(a)]	(2,378)	(1,005)	(3,383)
Segment gross profit	$ 3,809	$ 602	$ 4,411

(Dollars and shares in millions, except per share amounts)

The reconciliation between reportable segment gross profit to consolidated income before income tax is as follows:

	For the Year Ended December 31, 2019
Segment Gross Profit	$ 4,411
Subscriber acquisition costs	(427)
Sales and marketing [(a)]	(859)
Engineering, design and development [(a)]	(231)
General and administrative [(a)]	(466)
Depreciation and amortization	(468)
Share-based payment expense	(229)
Acquisition and other related costs	(84)
Total other (expense) income	(450)
Consolidated income before income taxes	$ 1,197

(a) Share-based payment expense of $44 related to cost of services, $78 related to sales and marketing, $49 related to engineering, design and development and $58 related to general and administrative has been excluded.

A measure of segment assets is not currently provided to the Chief Executive Officer and has therefore not been provided.

As of December 31, 2019, long-lived assets were predominantly located in the United States. No individual foreign country represented a material portion of our consolidated revenue during the year ended December 31, 2019.

(19) Subsequent Events

Capital Return Program

On January 30, 2020, our board of directors declared a quarterly dividend on our common stock in the amount of $0.01331 per share of common stock payable on February 28, 2020 to stockholders of record as of the close of business on February 12, 2020.

(Dollars and shares in millions, except per share amounts)

(20) Quarterly Financial Data--Unaudited

Our quarterly results of operations are summarized below:

	For the Three Months Ended			
	March 31	June 30	September 30	December 31
2019				
Total revenue	$ 1,744	$ 1,977	$ 2,011	$ 2,062
Cost of services	$ (748)	$ (882)	$ (881)	$ (916)
Income from operations	$ 333	$ 439	$ 476	$ 399
Net income	$ 162	$ 263	$ 246	$ 243
Net income per common share--basic (1)	$ 0.04	$ 0.06	$ 0.06	$ 0.05
Net income per common share--diluted (1)	$ 0.03	$ 0.06	$ 0.05	$ 0.05
2018				
Total revenue	$ 1,375	$ 1,432	$ 1,468	$ 1,496
Cost of services	$ (535)	$ (637)	$ (565)	$ (572)
Income from operations	$ 424	$ 362	$ 482	$ 459
Net income	$ 290	$ 292	$ 343	$ 251
Net income per common share--basic (1)	$ 0.06	$ 0.07	$ 0.08	$ 0.06
Net income per common share--diluted (1)	$ 0.06	$ 0.06	$ 0.07	$ 0.06

(1) Basic and Diluted earnings per share are computed quarterly and the sum of the quarterly calculation may not necessarily agree to the net income per share for the year due to rounding.

SIRIUS XM HOLDINGS INC. AND SUBSIDIARIES
Schedule II - Schedule of Valuation and Qualifying Accounts

(in millions)

Description	Balance January 1,	Charged to Expenses	Write-offs/ Payments/ Other	Balance December 31,
2019				
Allowance for doubtful accounts	$ 7	53	(46)	$ 14
Deferred tax assets—valuation allowance	$ 66	4	—	$ 70
2018				
Allowance for doubtful accounts	$ 10	51	(54)	$ 7
Deferred tax assets—valuation allowance	$ 53	13	—	$ 66
2017				
Allowance for doubtful accounts	$ 9	56	(55)	$ 10
Deferred tax assets—valuation allowance	$ 48	4	1	$ 53

Exhibit 4.15

DESCRIPTION OF CAPITAL STOCK

The following summary is a description of the material terms of Sirius XM Holdings Inc.'s ("Sirius XM") capital stock. This summary is not meant to be complete and is qualified in its entirety by reference to the applicable provisions of the General Corporation Law of the State of Delaware, the amended and restated certificate of incorporation of Sirius XM (the "Sirius XM Charter") and the amended and restated by-laws of Sirius XM (the "Sirius XM Bylaws).

General

Sirius XM's authorized capital stock consists of 9,000,000,000 shares of Sirius XM common stock, par value $0.001 per share (the "Sirius XM Common Stock"), and 50,000,000 shares of Sirius XM preferred stock, par value $0.001 per share (the "Sirius XM Preferred Stock").

Sirius XM Common Stock

Voting Rights

Except as otherwise provided by law, as set forth in the Sirius XM Charter or as otherwise provided in any designation of any outstanding series of Sirius XM Preferred Stock, the holders of Sirius XM Common Stock will have general voting power on all matters as a single class.

Holders of Sirius XM Common Stock are entitled to one vote per share held of record on all matters to be voted on by the holders of Sirius XM Common Stock. Sirius XM stockholders are not entitled to cumulative voting of their shares in elections of directors.

Unless otherwise provided by law, as set forth in the Sirius XM Charter or the Sirius XM Bylaws, when a quorum is present at any meeting, the vote of the holders of Sirius XM Common Stock of a majority in voting power of the stock present in person or represented by proxy and entitled to vote on the matter shall decide any question brought before such meeting.

Liquidation Rights

In the event of the voluntary or involuntary liquidation, dissolution or winding up of Sirius XM, the prior rights of creditors and the aggregate liquidation preference of any Sirius XM Preferred Stock then outstanding must first be satisfied. The holders of Sirius XM Common Stock will be entitled to share in the remaining assets of Sirius XM on a pro rata basis.

Dividends

Shares of Sirius XM Common Stock are entitled to participate equally in dividends when and as dividends may be declared by the Sirius XM board of directors out of funds legally available.

Preemptive and Other Rights

No holder of shares of any class or series of capital stock of Sirius XM or holder of any security or obligation convertible into shares of any class or series of capital stock of Sirius XM will have any preemptive right to subscribe for, purchase or otherwise acquire shares of any class or series of capital stock of Sirius XM.

Shares of Sirius XM Common Stock do not have any conversion rights, are not subject to redemption and are not entitled to the benefit of any sinking fund provisions.

Transfer Agent and Registrar

The transfer agent and registrar for Sirius XM Common Stock is Computershare Inc.

No Stockholder Rights Plan

Sirius XM currently does not have a stockholder rights plan.

Description of Sirius XM Preferred Stock

The Sirius XM board of directors is authorized to provide for the issuance of shares of Sirius XM Preferred Stock in one or more series, to fix the number of shares constituting such series and the designation of such series, the voting powers (if any), and the preferences and relative, participating, optional or other special rights, if any, and any qualifications, limitations or restrictions thereof, of the shares of such series, by resolution or resolutions adopted by the Sirius XM board of directors providing for the issue of such series (a “Preferred Stock Designation”). This authorization includes the right to fix the designation of the series and the number of shares in it, dividend rates and rights, voting rights, conversion rights, redemption rights, sinking fund provisions liquidation rights, and any other relative rights, preferences, and limitations. As of February 4, 2020, there were no shares of Sirius XM Preferred Stock issued and outstanding.

The number of authorized shares of Sirius XM Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the voting power of all of the then outstanding shares of capital stock of Sirius XM entitled to vote generally in the election of directors, voting together as a single class, without a separate vote of the holders of the Sirius XM Preferred Stock, or any series thereof, unless a vote of any such holders is required pursuant to any Preferred Stock Designation.

The issuance of shares of Sirius XM Preferred Stock could adversely affect the availability of earnings for distribution to the holders of Sirius XM Common Stock if the Sirius XM Preferred Stock provides for cumulative dividends, dividend preferences, conversion rights or exchange, redemption or other similar rights or preferences.

Exhibit 21.1

SIRIUS XM HOLDINGS INC.
SUBSIDIARIES

Sirius XM Radio Inc.

Automatic Labs Inc.
Satellite CD Radio LLC
Sirius XM Connected Vehicle Services Inc.
Sirius XM Connected Vehicle Services Holdings Inc.
SXM CVS Canada Inc.
XM 1500 Eckington LLC
XM Emall Inc.
XM Investment LLC
XM Radio LLC
Pandora Media, LLC
AdsWizz Inc.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Sirius XM Holdings Inc. and subsidiaries:

We consent to the incorporation by reference in the registration statements (Nos. 333-229468, 333-228088, 333-152574, 333-159206, 333-160386, 333-179600, 333-204302, and 333-205409) on Form S-8 of Sirius XM Holdings Inc. of our reports dated February 4, 2020, with respect to the consolidated balance sheets of Sirius XM Holdings Inc. and subsidiaries as of December 31, 2019 and 2018, and the related consolidated statements of comprehensive income, stockholders' (deficit) equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes and financial statement schedule in Item 15(2) (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of December 31, 2019, which reports appear in the December 31, 2019 annual report on Form 10-K of Sirius XM Holdings Inc.

Our report on the consolidated financial statements refers to a change in the method of accounting for leases effective January 1, 2019 due to the adoption of Accounting Standard Update (ASU) 2016-02 and all related amendments, which established Accounting Standard Codification (ASC) Topic 842, Leases. Our report on the consolidated financial statements also refers to a change in the method of accounting for revenue recognition effective January 1, 2018 due to the adoption of Accounting Standard Update (ASU) 2014-09 and all related amendments, which established Accounting Standard Codification (ASC) Topic 606, *Revenue - Revenue from Contracts with Customers*.

/s/ KPMG LLP

New York, New York
February 4, 2020

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, James E. Meyer, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal year ended December 31, 2019 of Sirius XM Holdings Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ JAMES E. MEYER

James E. Meyer
Chief Executive Officer
(Principal Executive Officer)

February 4, 2020

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, David J. Frear, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal year ended December 31, 2019 of Sirius XM Holdings Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ DAVID J. FREAR

David J. Frear
Senior Executive Vice President and
Chief Financial Officer
(Principal Financial Officer)

February 4, 2020

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY
ACT OF 2002

In connection with the Annual Report of Sirius XM Holdings Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, James E. Meyer, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ JAMES E. MEYER

James E. Meyer
Chief Executive Officer
(Principal Executive Officer)

February 4, 2020

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY
ACT OF 2002**

In connection with the Annual Report of Sirius XM Holdings Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, David J. Frear, Senior Executive Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ DAVID J. FREAR

David J. Frear
Senior Executive Vice President and
Chief Financial Officer
(Principal Financial Officer)

February 4, 2020

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.