

NABIL AL-NAJJAR

Satellite Radio: An Industry Case Study

Janet Donner, vice president of business strategy at XM Radio, picked up the memo again and stared at it in disbelief. She was shocked that Pierce Roberts, who had served on XM's board of directors for five years, had resigned. Even more troublesome to Donner was a statement in Roberts's resignation letter that, when disclosed to investors, had led to a 5 percent plunge in the price of XM shares in a single day. She read it aloud to herself again: "Significant chance of a crisis on the horizon . . . and . . . troubled about the current direction of the company."¹

Donner reflected on XM Radio's struggling performance over the past year. XM had managed to sign on a net 2.8 million new subscribers, yet the company's net loss had continued to increase, reaching \$667 million in 2005. XM was locked in a fierce and expensive battle with Sirius over new subscribers, sending XM's cost per gross addition (CPGA)² skyrocketing to \$141, a 35 percent increase over the previous year. Furthermore, costs of programming and content had tripled over the last year as the two players competed to sign exclusive deals with popular media personalities such as Howard Stern and Oprah Winfrey.³

Given the high fixed costs of building XM's technological infrastructure and contracting with high-quality content providers, Donner knew the importance of growing the subscriber base. But how could the company afford to keep spending like this on content and subscriber acquisition? Was there any validity to Roberts's warning about the current direction of XM Radio? Considering concerns about the longer-term profitability of the satellite radio industry, Donner felt that it was time to reconsider her company's strategy.

Broadcast Radio and Television—History and Industry Trends

The invention that first enabled wireless data transmission was the "spark gap transmitter," attributed separately to Nikola Tesla, Guglielmo Marconi, and Alexander Popov. Canadian Reginald Fessenden and American Lee de Forest developed amplitude modulation (AM) radio, which allowed more than one station to broadcast a signal. The medium entered the "Golden Age of Radio" in the 1920s through the 1950s, when broadcasts of music, comedy, drama, news, and

¹ "Static at XM Satellite Radio," *Business Week Online*, February 17, 2006, http://www.businessweek.com/technology/content/feb2006/tc20060217_233673.htm?campaign_id=search

² Cost Per Gross Addition (CPGA) is a measure of the average cost to add a new subscriber and includes expenses such as manufacturer subsidies, sales, activation and installation commissions, hardware-related promotions plus advertising, media and other discretionary marketing expenses.

³ "World Markets Equity Research Earnings Update: XM Satellite Radio Holdings, Inc.," CIBC, February 17, 2006.

many other forms of entertainment proliferated. AM radio continued to evolve, and the U.S. Central Intelligence Agency estimated that there were over 16,000 AM radio stations in operation worldwide by the beginning of 2006.

Edwin Armstrong, an American electrical engineer, invented frequency modulation (FM) radio which he patented in 1933. His invention relied on varying the radio wave frequency—rather than the amplitude—to create much clearer sound with less static interference. The first commercial FM station, W47NV in Nashville, Tennessee, began operations on March 1, 1945. Some industry observers have maintained that FM radio was set back decades when RCA, a major AM radio player, successfully lobbied the Federal Communications Commission (FCC) to change the portion of radio spectrum allocated to FM (from 42-49 Mhz to 88-108 MHz). This development made existing FM radios worthless and helped to protect RCA's strong position in AM radio. After losing a patent fight to RCA, Armstrong leapt to his death from a New York City apartment in late January 1954. FM radio began to recover in the 1950s and 1960s with the increasing availability of high-fidelity equipment which helped to enhance sound quality.

From 1970 through 2003 the number of radio stations broadcasting in the United States approximately doubled to over 13,000 stations. Almost all of this growth came from new FM stations. AM and FM stations spanned a wide variety of music and entertainment content, including country music, jazz, classical, and oldies.

Despite the proliferation of stations, traditional radio had seen a downward trend in listening habits (see **Exhibit 1**).⁴ The percentage of people listening to radio in the United States had declined from approximately 96 percent in 1993 to 94 percent by the end of 2004. Perhaps more ominously, the average amount of time spent listening to radio by those persons had declined significantly over the same time frame, from over 23 hours per week in early 1993 to only 19.5 hours by the end of 2004. Despite these disturbing trends, radio listening had not declined as much as television viewing and newspaper circulation had over the same period.

The industry had also seen a downturn in revenue growth (see **Exhibit 2**).⁵ The industry realized robust growth throughout the late 1990s, achieving a peak growth rate of 13.5 percent in 1999. However, mirroring macroeconomic trends, the revenue growth rate turned downward in 2000 and declined more steeply in 2001. Since that time, the industry revenue growth rate had somewhat recovered, but it had not returned to the rates seen throughout the late 1990s. Radio actually recovered more quickly than other forms of media following the terrorist attacks of 2001.

Many industry observers attributed this recovery to increasing industry consolidation resulting in part from loosening ownership regulations in 1996. The Telecommunications Act of 1996 was intended to breathe new life into the radio industry with provisions that allowed individual firm ownership of an unlimited number of stations, replacing the earlier forty-station limit. More than 4,400 stations valued at \$32.4 billion were sold in 1996 and 1997, facilitating the growth of much larger industry players. As this trend continued, some began to worry that this consolidation would lead to a “loss of localism” as stations with deep local roots were taken over by larger media corporations. By 2001 the number of radio station owners had dropped approximately 25 percent, from 5,100 in 1996 to 3,800. By 2005 a single firm, Clear Channel Communications, controlled more than 1,200 radio stations.

⁴ *Radio's Leading Indicator: Audience Ratings and Their Impact on Revenue*, 2005 Arbitron Inc., www.arbitron.com.

⁵ *Ibid.*

For 2005, industry revenues remained relatively flat at \$21.5 billion, reflecting a 1 percent increase in local advertising and a 2 percent decrease in national advertising.⁶ Local advertising accounted for approximately 80 percent of total industry revenue in 2005.

Television had risen to prominence as a means of entertainment largely in parallel with radio. In 1928 Charles Francis Jenkins broadcast the first regularly scheduled television service from an experimental station near Washington, D.C. As the technology matured, television entered a so-called “Golden Age” of its own during the post-World War II years from approximately 1949 through 1960. This period featured a proliferation of dramas—as television producers found them effective for attracting the expanding suburban family audience. Television continued to explore new types of entertainment including westerns, game shows, and variety acts, and by 1960 approximately 80 percent of American households had a television set.

Terrestrial broadcasting was initially the only means for distributing television programming. However, the emergence of cable and satellite technologies led entrepreneurs and industry players to investigate the possibility of targeting channels to particular audiences with specific tastes. The results of this trend included subscription-based channels such as HBO, Showtime, and others that appealed to particular segments of the television market. The fraction of American households with television sets grew to 98 percent by the late 1980s, and the average viewer watched for four hours per day.

Satellite Radio

Satellite radio was considered a welcome technological breakthrough in the otherwise stale radio industry when it was introduced in 2001 because it offered several important advantages over traditional AM/FM radio broadcasts. Satellite signals experienced significantly less distortion and static than AM/FM signals and were not confined to narrow geographic areas—a single satellite feed could be received from coast to coast and even on boats and airplanes. Furthermore, satellite radio offered a more diverse array of programming and the commercial-free nature of most channels appealed to virtually all consumers.

A satellite radio service provider was required to obtain a spectrum license from the FCC in order to broadcast over a specified bandwidth portion. After almost seven years of petitioning, Washington, D.C.-based XM (formerly American Mobile Radio Corporation) and New York-based Sirius (formerly Satellite CD Radio) purchased the only two digital audio radio satellite (DARS) broadcast licenses granted within the S-band spectrum at a 1997 FCC auction.⁷ The FCC did not have any plans to grant additional DARS licenses to commercial entities in the foreseeable future.⁸ In order to transmit its radio programming, Sirius launched three satellites in 2000; it also held a backup at a storage facility in Palo Alto, California. XM’s service required two satellites, “Rock” and “Roll,” which were both launched in the first half of 2001.

While setting up their satellite radio infrastructures, the firms began to develop devices that could receive satellite signals. Each player partnered with well-known consumer electronics

⁶ Radio Advertising Bureau, <http://todmaffin.com/blogs/radio/2006/02/18/us-commercial-radio-to-take-downturn/>

⁷ “Satellite Radio: Business Is Booming,” Space.com, November 12, 2003, http://www.space.com/business/technology/satcom_radio_industry_031112.html

⁸ “Satellite Radio Initiation,” Citigroup Equity Research Report, January 19, 2006.

companies such as Kenwood, Panasonic, and JVC to produce the receivers and radios that would allow consumers to use the service in a variety of settings. Receivers were produced for use in airplanes, trucks, cars, recreational vehicles, homes, and portable applications.

XM and Sirius aggressively pursued a range of public relations and marketing strategies to communicate the advantages of satellite radio listening. They believed that their success hinged on communicating these benefits to consumers and ensuring that the radios and receivers were reasonably priced and widely available. To achieve these goals, the providers quickly entered into exclusive distribution agreements with automobile original equipment manufacturers (OEMs) and retailers such as Best Buy and Circuit City.

Satellite Radio Fundamentals

TECHNOLOGY AND INFRASTRUCTURE

Launching a satellite radio offering required the service providers to build a costly and complex infrastructure. At the core was a state-of-the-art broadcast center that was used to create and send signals to satellites. The broadcast center consisted of acoustically isolated broadcast rooms from which on-air personalities produced radio content. Technical personnel used broadcast equipment, fiber-optic cables, and robust information technology systems to relay high-quality signals to satellites positioned in geostationary orbit. Because microwave transmission signals needed an unimpeded line-of-sight to receivers, thousands of ground-based repeaters were strategically placed throughout the continental United States to receive these signals and retransmit them to satellite radio receivers in cars and homes.⁹

The capital outlay for licenses and satellite radio infrastructure was enormous. XM and Sirius paid \$89.9 million and \$83.3 million, respectively, for their 1997 DARS licenses.¹⁰ Furthermore, the costs of building and launching a satellite were estimated to be upwards of \$250 million.¹¹ Each player required at least two satellites to serve the continental United States and would have to launch additional satellites to cover international markets. When added to broadcast center construction costs, fiber-optic cable and repeater procurement, and information technology implementation, the total infrastructure costs for providing domestic satellite radio service easily topped \$1 billion.

Because XM and Sirius each employed proprietary satellite radio technology, the systems developed by the two firms were not interoperable. A satellite radio receiver could decode signals received from either XM satellites or Sirius satellites, but not both. While the original satellite radio licenses granted by the FCC mandated that, under the terms of a regulated duopoly, each firm had to work towards receiver technologies that would be fully interoperable, the FCC granted an extension on these interoperability requirements because of the large research and development expenditures that each firm had initially made in developing single-mode radio

⁹ "Satellite Radio: How It Works," Space.com, November 12, 2003, http://www.space.com/business/technology/technology/satcom_radio_operations_031112.html

¹⁰ Ibid.

¹¹ "Satellite Radio Initiation," Citigroup Equity Research Report, January 19, 2006.

hardware. As a result, receivers with interoperable technology were not expected to be market available for at least several years.¹²

THE CONSUMER

Early adopters of satellite radio services proclaimed that the technology offered better programming than the relatively stale programming available on terrestrial radio. Consumers valued the commercial-free nature of most satellite radio channels at a time when the commercial load on terrestrial radio had climbed significantly. Additionally, they cited the diversity of niche music channels available on satellite as a key benefit, since more than 70 percent of all AM and FM stations played only five formats—news, oldies, hits, country, and urban.¹³ Other benefits included nationally covered sports programming, celebrity personalities, and premium content.

Both XM and Sirius attempted to capitalize on consumers' highly diffuse tastes by offering a broad programming menu. Strong listener communities existed for Latin, jazz, opera, and reggae. Martha Stewart brought a fan base to Sirius, as did Howard Stern and Eminem. Many consumers were quite devoted to particular types of content. A dedicated bluegrass fan would not consider folk music to be an acceptable substitute; for a devoted Howard Stern listener, there could be no other.

Commuters constituted almost half of the subscriber base and were, therefore, a particularly important satellite radio market segment. A 2001 Arbitron study showed that 87 percent of drivers cited listening to the radio as their most frequent in-car activity, and more than 17 percent claimed that "local radio options do not serve their musical tastes."¹⁴ The U.S. Department of Transportation reported that there were more than 115 million commuters in the United States in 2003, of whom 34 million traveled more than 45 minutes each way. Furthermore, there were strong indications that the average commute times of these captive listeners would increase over the years ahead.¹⁵

Once hooked on the satellite radio experience, consumers appeared disinclined to let go. In the auto segment where consumers were typically given a ninety-day free trial, conversion rates (percent of free trials converted to paying customers) ranged from 55 to 60 percent. Also, paying subscribers rarely cancelled or switched their service; both companies experienced churn rates (percent of subscribers that cancel or switch service per month) of only 1.5–2 percent through 2004 and 2005, which were among the lowest of all consumer electronic subscription products. Finally, both XM and Sirius claimed to have customer satisfaction ratings typically in the 90 to 95 percent range over the same timeframe.¹⁶ Perhaps Howard Stern best summed up the satellite radio experience: "Once you start listening, it's like crack. You will be addicted."¹⁷

¹² "XM Satellite Radio," PiperJaffray Analyst Report, January 31, 2006.

¹³ "Digital Audio Radio," BlitzSafe.com, May 2003, http://www.blitzsafe.com/blitz_news/news052003a/body_news052003a.html

¹⁴ "Behind the Music," *American Demographics*, April 1, 2001, http://findarticles.com/p/articles/mi_m4021/is_2001_April_1/ai_74302853

¹⁵ "Digital Audio Radio," BlitzSafe.com, May 2003, http://www.blitzsafe.com/blitz_news/news052003a/body_news052003a.html

¹⁶ XM Radio and Sirius company Web sites, self-reported.

¹⁷ "King of All Media?" *Economist.com*, November 25, 2004, http://www.economist.com/business/displayStory.cfm?story_id=3432554

GROWTH AND MARKET SHARE

The satellite radio industry remained a relatively new consumer category, with service launched by XM in 2001. By the end of 2005 there were already 9 million subscribers to satellite radio services, and XM, with its one-year lead on Sirius, boasted a two-thirds share of the market. Distribution occurred primarily through two channels: OEMs, such as GM and Honda; and retailers, such as Best Buy and Circuit City. XM had forged exclusivity deals with OEMs that represented 55 percent of annual U.S. car sales. Sirius had quickly closed the gap by signing exclusivity deals with OEMs representing close to 40 percent of annual car sales. The remaining 5 percent of the market was still up for grabs, with some OEMs working with both parties. In the much smaller but rapidly¹⁸ growing retail channel, the market was estimated to be split evenly between the two players.

Given satellite radio's strong value proposition to consumers, its growth prospects were impressive. Most analysts predicted that the total subscriber base would reach 35 to 40 million subscribers by the end of 2010, representing a compounded annual growth rate of 31 to 35 percent over this period. Penetration estimates of the total addressable market were more difficult to determine because of the industry's nascent nature. However, an early 2006 PiperJaffray analyst report estimated that peak penetration of 45 percent of the 220 million terrestrial radio listener market was foreseeable in the long term.¹⁹ Contributing to these growth estimates were factors such as increased brand awareness among consumers, improved technology at lower costs, and new distribution partnerships in untapped demographic and geographic markets.

Current Strategies of Satellite Radio Players

PARTNERSHIPS WITH OEMS

With OEM agreements covering approximately 40 percent of the auto market, Sirius's most significant "exclusive" partners were Ford Motor Company and Daimler Chrysler, including Mercedes-Benz (see **Exhibit 3**). As exclusive partners, these OEMs were limited to factory installations of Sirius-based satellite radios only. Sirius also maintained non-exclusive OEM relationships with Porsche, Nissan, and Volkswagen. Because of Sirius's reliance on its retail channels and long lead times associated with OEM installation, OEM subscribers constituted only 18 percent of Sirius subscribers by the end of 2004. Sirius planned to work aggressively to increase the number of its partners' models that included Sirius technology.

OEM subscribers represented 41 percent of XM's total base at the end of 2004. General Motors and Honda were early investors in XM, and they remained significant shareholders as of late 2005. They also accounted for more than 90 percent of XM's OEM subscriber base at the end of 2005. Notably, XM had a large number of agreements with Japanese auto manufacturers, which were gaining market share within the United States.

Automobile OEM alliances were critical to the satellite radio market's ability to establish a base of subscribers; these OEMs acted as a gateway to the primary radio listening environment. Combined with ninety-day free trials, the satellite radio firms viewed this distribution channel as a golden opportunity to expose consumers to their product. They reasoned that most consumers would have to experience the service before agreeing to a long-term subscription. Car

¹⁸ "Satellite Radio Initiation," Citigroup Equity Research Report, January 19, 2006.

¹⁹ "XM Satellite Radio," PiperJaffray Analyst Report, January 31, 2006.

manufacturers, which initially had viewed the product as a means to upgrade and differentiate their vehicles, started installing satellite radio receivers in some 2001 and 2002 models shortly after the broadcast services were launched. Given the overall size of the market, XM and Sirius hoped that satellite radio would ultimately become standard in all vehicles. As of 2005, 17 million vehicles were sold annually within the United States, with approximately 230 million currently in use. Based on total 2004 U.S. auto shares, 95 percent of the U.S. market had entered into an agreement with either Sirius or XM. XM products were available as a factory or dealer-installed option in more than 120 vehicle models, while Sirius was available in more than eighty.

While both firms expected OEM subscribers to constitute an increasing share of their subscriber base, executives at both firms feared that more OEMs would decide to abstain from signing exclusive contracts when such contracts were up for renegotiation in a few years. Subaru, for example, announced in 2005 that it was considering allowing customers to choose factory installation of either system. The satellite radio firms began to consider the consequences should other OEMs decide to undertake similar strategies. While consumer choice between XM and Sirius in the OEM market was a long-run inevitability, given the federal government's mandate for receiver interoperability, it was unclear how XM and Sirius intended to manage the issue in the short term.

THE BATTLE FOR CONTENT

As the two firms confirmed key OEM relationships, by early 2006 the competition for subscribers was increasingly conducted on the basis of content. The content provided by the two firms could generally be divided into the four categories summarized below. **Exhibit 4** provides a more detailed listing of the channel offerings of each firm.

News

The two systems included several of the same news channels. Both featured CNBC, CNN, Fox News, C-SPAN, Bloomberg, the Weather Channel, and BBC World Service. On the other hand, Sirius provided NPR exclusively, and XM offered MSNBC.

Music, Weather, and Traffic

Each company offered upwards of sixty-five music channels, many of them highly specialized, including country and western, hard rock, gospel, movie soundtracks, Latin jazz, opera, and reggae. Some of these channels had small but very loyal listener communities, while others appealed to much larger audiences. Both services also provided traffic and weather information for approximately twenty metropolitan areas, with both systems providing coverage for the largest metropolitan areas such as New York, Chicago, and Los Angeles.

Sports

Sirius held an exclusive agreement with the National Football League, giving it broadcast rights through the end of the 2011 season. NASCAR agreed to a five-year deal with Sirius starting in 2007. Barclays English Soccer broadcast exclusively on Sirius, with the initial agreement lasting through 2007. Sirius also offered the National Hockey League, the NBA, and select NCAA basketball and football games covering twenty-five schools. XM broadcast NASCAR in a deal that was to expire at the end of 2006, and was to take over the broadcast rights to the NHL in 2007, extending in a ten-year deal through 2017. XM offered listeners Fox Sports Radio, Sporting News Radio, and selected NCAA basketball and football games.

Entertainment

The entertainment category featured programming from a range of media personalities, drawing loyal listener communities that varied significantly in size. Sirius contracted with the self-titled “King of All Media,” Howard Stern, for five years starting in 2006. It also featured Martha Stewart, Maxim Radio, Court TV, and several talk/music programs featuring personalities such as Eminem and cyclist Lance Armstrong. XM offered the Ellen Degeneres Show, Laugh USA, and Opie and Anthony, along with talk radio personalities Bill O’Reilly, Sean Hannity, and Al Franken, among others. XM had also recently finalized an agreement to broadcast a program featuring Oprah Winfrey.

ADVERTISING, PRICING, AND PROMOTIONS

One area of investor concern was XM’s and Sirius’s fierce competition for new subscribers. XM’s CPGA had skyrocketed from \$90 in Q1 2005 to \$141 in Q4 2005. Meanwhile Sirius had a lofty CPGA of \$157 in Q4 2005, although that was a big improvement from \$281 in the first quarter of the year²⁰ (see **Exhibit 5**). In addition to marketing and advertising costs, CPGA consisted of subscriber acquisition costs such as radio manufacturer subsidies, promotions to support hardware sales, installation commissions, negative margins on equipment sales, revenue sharing with retail and OEM partners, and music royalties. The most visible aspect of this battle consisted of the large promotions and rebates that both companies provided on satellite radio hardware at the time of initial purchase in retail stores. Consumers were known to be relatively sensitive to hardware pricing.

On the other hand, a pricing battle had not extended to the subscription fees charged by each player. Subscription fees had not only been more stable than hardware promotions and rebates, but with Sirius acting as the price leader, both firms had actually been able to raise fees between 2002 and 2005 from \$9.95 to \$12.95.²¹

Looking Towards the Future

Despite public statements that XM was on a sound trajectory towards profitability, Donner believed Roberts’s departure from the board would have major reverberations throughout the executive ranks. It was only a matter of time before Donner would be asked to revisit the company’s near-term strategic options and recommend changes. Of critical importance would be answering how two fierce competitors could coexist without killing the enormous profit potential of the satellite radio market.

On the face of it, Donner reasoned that the satellite radio market did not appear to be a winner-takes-all market. The potential market seemed big enough to allow both players to succeed. Donner considered how XM could instill pricing discipline in the market. She had heard that Sirius planned to raise its subscription fees yet again in the ensuing months, and wondered if XM should follow suit. She also considered whether to end XM’s current promotional program, which offered steep discounts on satellite radio receivers and tuners early, and thereby bring costs under control. Finally, Donner wanted her team to analyze an option that they had previously

²⁰ “World Markets Equity Research Earnings Update: XM Satellite Radio Holdings, Inc.,” CIBC, February 17, 2006.

²¹ “XM Raises Satellite Radio Prices,” USA Today.com, February 28, 2005, http://www.usatoday.com/money/media/2005-02-28-xm_x.htm.

given little thought to: should XM attempt to compete vigorously for distinct segments of the market, rather than going for mass appeal, thereby mitigating the likelihood of expensive bidding wars with Sirius over the same content providers? It was Thursday, but Donner felt as if the week had just begun.



Exhibit 1: Trends in Radio Listening (Terrestrial Radio)

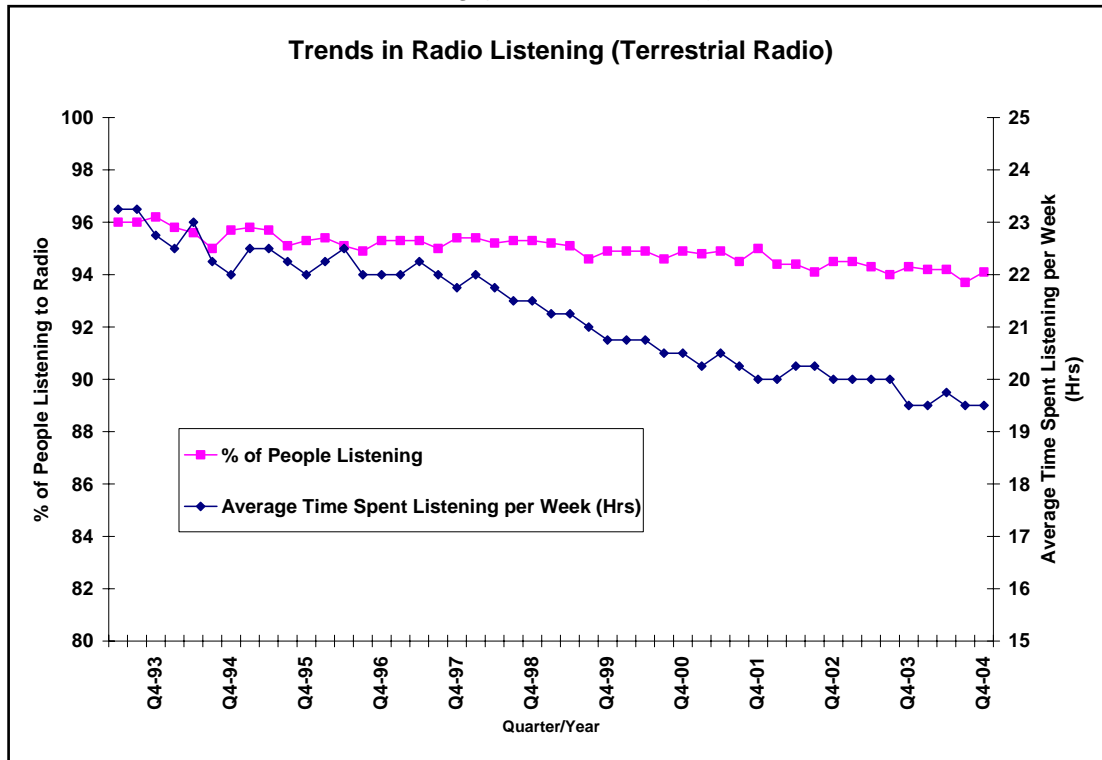


Exhibit 2: Radio Industry Annual Revenue Growth (Terrestrial Radio)

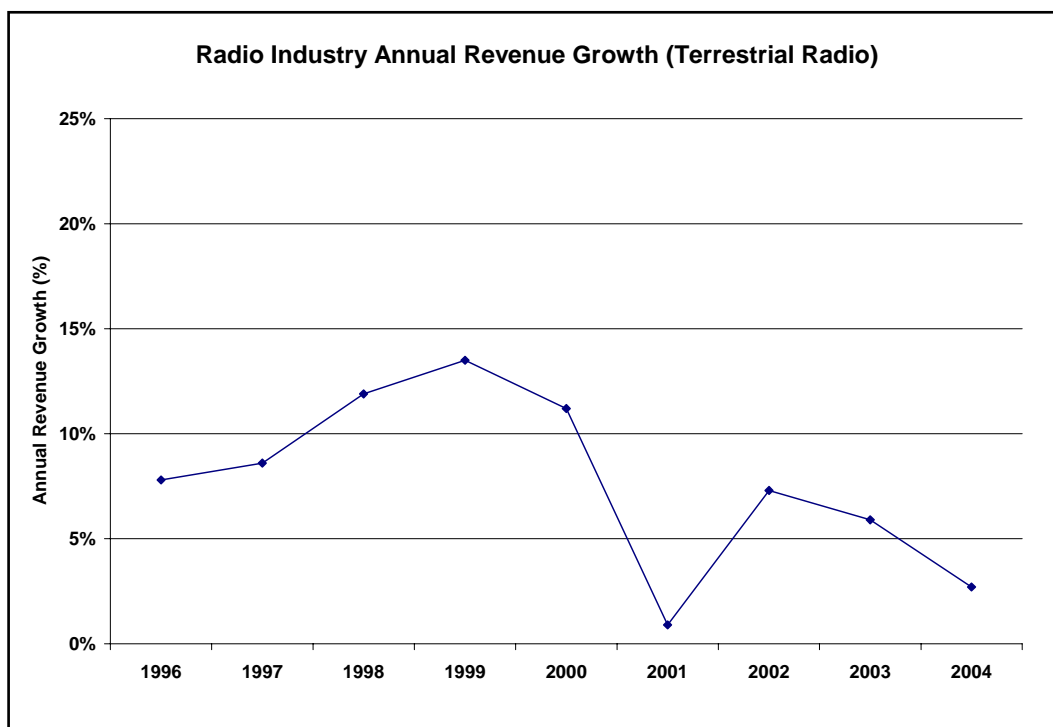
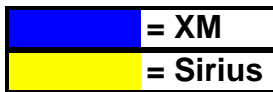
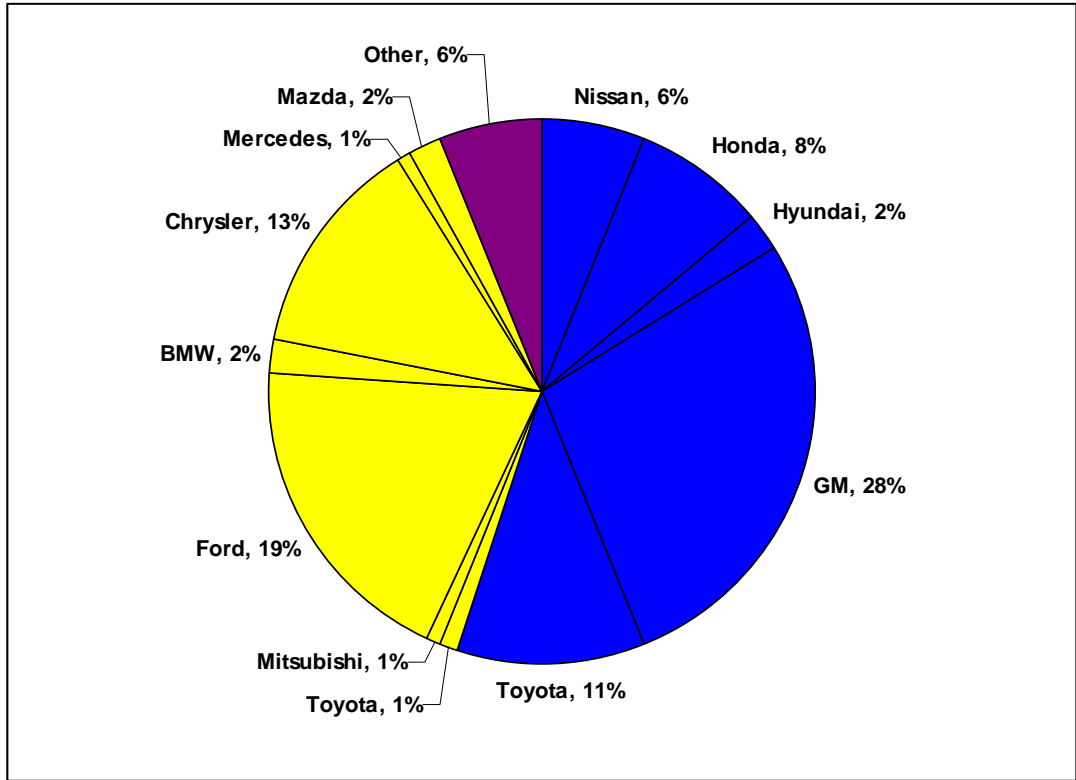


Exhibit 3: Satellite Radio Automobile Share Based on Total 2004 U.S. Auto Sales



Source: "Satellite Radio Initiation," Citigroup Equity Research Report, January 19, 2006.

Exhibit 4: Content Comparison

Content Category	XM	Sirius
Sports	MLB, exclusive through 2012, option through 2015 NASCAR, exclusive through 2006 NHL, exclusive from 2007 through 2017 ESPN Radio, including NBA games College football/basketball	NFL, exclusive through 2011 NASCAR, exclusive for 5 years, starting 2007 Barclays English Soccer, exclusive through 2007 ESPN Radio College football/basketball, 25 schools, NCAA tournament games through 2007 NBA, select games NHL, 40 games per week plus Stanley Cup
	Fox Sports Radio Sporting News Radio	
News	CNBC CNN Fox News C-SPAN Bloomberg MSNBC Weather Channel BBC World Service	CNBC CNN Fox News C-SPAN Bloomberg NPR Weather Channel BBC World Service
	Opie and Anthony, exclusive Ellen Degeneres Show XM Comedy Discovery Channel Radio ABC News & Talk Laugh USA E! Entertainment Radio Radio Disney	Howard Stern, exclusive for 5 years beginning 2006 Martha, exclusive for 4 years Maxim Radio, exclusive Discovery Channel Radio ABC News & Talk Raw Dog Comedy E! Entertainment Radio Radio Disney Court TV Cracked Up Comedy Cosmopolitan Radio Talk/music programs. Personalities including Eminem, Lance Armstrong, Tony Hawk, Steven van Zandt, Jay Thomas
Music, Traffic, and Weather	21 major markets for traffic and weather Over 65 music channels	20 major markets for traffic and weather 65 music channels

Source: "Satellite Radio Initiation," Citigroup Equity Research Report, January 19, 2006.

Note: The above was current as of early 2006. Oprah Winfrey was to be added to XM's programming lineup in September 2006.

Exhibit 5: Cost per Gross Add (CPGA)

XM Radio – 2005	1Q	2Q	3Q	4Q	FY
Cost per gross add	\$90	\$98	\$89	\$141	\$107
Subscriber acquisition costs	\$52	\$50	\$53	\$89	\$69
Sirius – 2005	1Q	2Q	3Q	4Q	FY
Cost per gross add	\$281	\$226	\$216	\$157	\$198
Subscriber acquisition costs	\$190	\$160	\$149	\$113	\$139

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