

LUISS



Department of Business and Management

Master's Degree Thesis in Corporate Finance

The Tracking Stock Structure: The Liberty Media Corporation Case Study

COORDINATOR:

Prof. Pierluigi Murro

CO-EXAMINER:

Prof. Michela Altieri

CANDIDATE:

Danilo Drocco – 787311

Academic Year 2024/2025

Page intentionally left blank

Table of Contents

INTRODUCTION	5
CHAPTER 1: HISTORY OF THE COMPANY	7
<i>1.1 Overview</i>	7
<i>1.2 Company Structure</i>	10
CHAPTER 2: BUSINESS MODEL	13
<i>2.1 SiriusXM</i>	13
<i>2.2 Formula One</i>	19
<i>2.3 Live Nation</i>	23
CHAPTER 3: SECTOR	26
<i>3.1 SiriusXM – Media & Entertainment</i>	27
<i>3.1.1 Competitors</i>	32
<i>3.2 Formula One - Sports and Entertainment</i>	32
<i>3.2.1 Competitors</i>	34
<i>3.3. Live Nation - Concerts and Ticketing</i>	35
<i>3.3.1 Competitors</i>	36
CHAPTER 4: FINANCIAL STATEMENTS	39
<i>4.1 Income Statement</i>	39
<i>4.2 Balance Sheet</i>	43
<i>4.3 Cash Flow Statement</i>	47
<i>4.4 Auditor's opinion</i>	48
CHAPTER 5: MANAGEMENT AND OWNERSHIP	49
<i>5.1 Management</i>	49
<i>5.2 Ownership</i>	50

CHAPTER 6: MARKET CONDITION	52
<i>6.1 Market Outlook</i>	52
<i>6.2 Equity Risk Premium</i>	56
CHAPTER 7: VALUATIONS	59
<i>7.1 Formula One Group</i>	59
<i>7.1.1 Discounted Cash Flow Model</i>	59
<i>7.1.2 Multiple Analysis and Precedent Transactions</i>	60
<i>7.2 Liberty Live Group</i>	62
<i>7.3 Investment Strategy</i>	63
<i>7.3.1 Option Strategy</i>	65
CHAPTER 8: UNLOCKING VALUE FOR SHAREHOLDERS	66
<i>8.1 Liberty Braves</i>	68
<i>8.2 Liberty SiriusXM</i>	69
<i>8.3 Liberty Formula One and Live Group</i>	74
CHAPTER 9: CONVINIENCE OF TRACKING STOCK	77
<i>9.1 Overview</i>	77
<i>9.2 Benefits and Disadvantages</i>	78
CONCLUSIONS	81
REFERENCES	83
Books and Papers	83
WebSites	83
Other Sources	84
ACKNOWLEDGMENTS	85

INTRODUCTION

When it comes to evaluating a business, there are many aspects to take into consideration, which makes it a very challenging task. It is not only about numbers or formulas, as the world of finance sometimes wants us to believe; there is much more to it than that. The amount of due diligence required is enormous. Before investing, one should understand the sector and the specific business in which the company operates and review annual reports over several years in order to assess management's reliability and trustworthiness, ensuring that it aligns with shareholders' interests and not the other way around. Finally, one should carefully analyze the financials to gain an in-depth understanding of the company and evaluate its overall financial health, in order to arrive at a proper estimation of its intrinsic value. This type of analysis also allows for appropriate risk assessment, providing a margin of safety and a hedge when investing in the equity market. This is precisely the study undertaken in this thesis, with the aim of analyzing in depth the corporate structure (Tracking Stock Structure) implemented by Liberty Media Corporation, along with the advantages and disadvantages that this structure entails.

The first part of the thesis focuses on the history of the company, providing an overview of the main events and changes that have occurred since its inception. Furthermore, it delves into the structure of the corporation, describing the different classes of shares and how the three divisions of the company function and operate within it. The business model of each division is explored by examining their operations and understanding how they generate revenue. Moreover, the sector in which these divisions operate, the entertainment industry, is analyzed through a study of industry benchmarks and the competitors that operate within the same market.

The second part analyzes the financial statements of the corporation for the 2024 fiscal year, along with those of previous years. The financial analysis focuses on the consolidated results of the company, with particular emphasis on the performance of Formula One and Liberty Live Group, as well as the impact of impairments resulting from the split-off of Liberty SiriusXM. It also examines the management's focus on key figures and the main shareholders of each individual class of shares. Furthermore, the thesis evaluates the condition of the stock market, highlighting the current high valuation multiples at which it trades, and the risks associated with this environment. Lastly, the Equity Risk Premium is applied to illustrate the fragility of the

equity market and to determine the appropriate discount rate to be used in calculating the present value of the company.

The final part of the thesis concentrates on the evaluation of Liberty Media as if it were a stand-alone company. The intrinsic value of one part of the company is calculated using a discounted cash flow model. The cash flows are discounted at a desired rate of return, and the terminal value is estimated using a multiple-based valuation method. The second part of the business is instead valued using the Net Asset Value (NAV) based on its market value. Moreover, the analysis examines the strategic changes in the corporate structure, specifically the split-offs and mergers carried out in recent years to unlock value for shareholders. In conclusion, the thesis investigates the advantages and disadvantages of the tracking stock structure, and whether Liberty Media's strategic changes have created additional value for stockholders.

CHAPTER 1

HISTORY OF THE COMPANY



1.1 Overview

Liberty Media Corporation, founded in 1991 by John C. Malone, emerged as a spin-off from Tele-Communications Inc. (TCI), a major U.S. cable television company. Initially led by President Peter Barton until 1997, the company took over undervalued TCI assets and quickly grew through aggressive deal-making. In 1994, Liberty was reacquired by TCI, but its trajectory shifted again in 1999 when AT&T acquired TCI for \$55 billion, integrating Liberty Media Group under Malone's leadership. This expanded its scope into technology, wireless, and international cable businesses

In 2001, Liberty Media became an independent publicly traded company following a spin-off from AT&T, raising significant capital and gaining flexibility for acquisitions. Over the years, it evolved into a diversified media and entertainment conglomerate, with notable moves including the 2013 spin-off of Starz and the 2016 acquisition of Formula 1 for \$4.4 billion, a deal completed in 2017 that capitalized on global motorsport growth. Liberty also acquired stakes in SiriusXM, Live Nation Entertainment, and the Atlanta Braves, reflecting its broad portfolio.

The graph below summarizes the acquisitions made by Liberty over the last year 20 years:

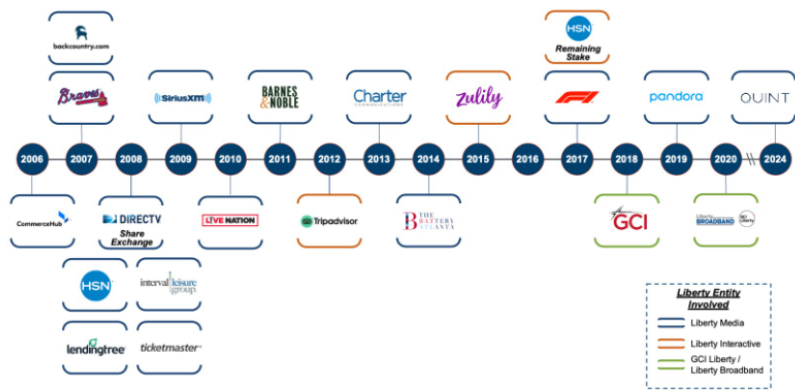


Figure 1: Acquisition History, Source: Liberty Media News

Over the past few years, Liberty Media has shaken up its corporate setup with some notable restructurings.

On July 18, 2023, they finalized a split-off, separating their fully owned subsidiary, Atlanta Braves Holdings, Inc., from the company. This move swapped every share of Liberty Braves common stock for a matching share of Atlanta Braves Holdings stock. Atlanta Braves Holdings took over the operations, properties, and obligations tied to the Liberty Braves Group right before the split, though any overlapping stakes held by the Liberty SiriusXM Group and Formula One Group were sorted out and canceled during the process.

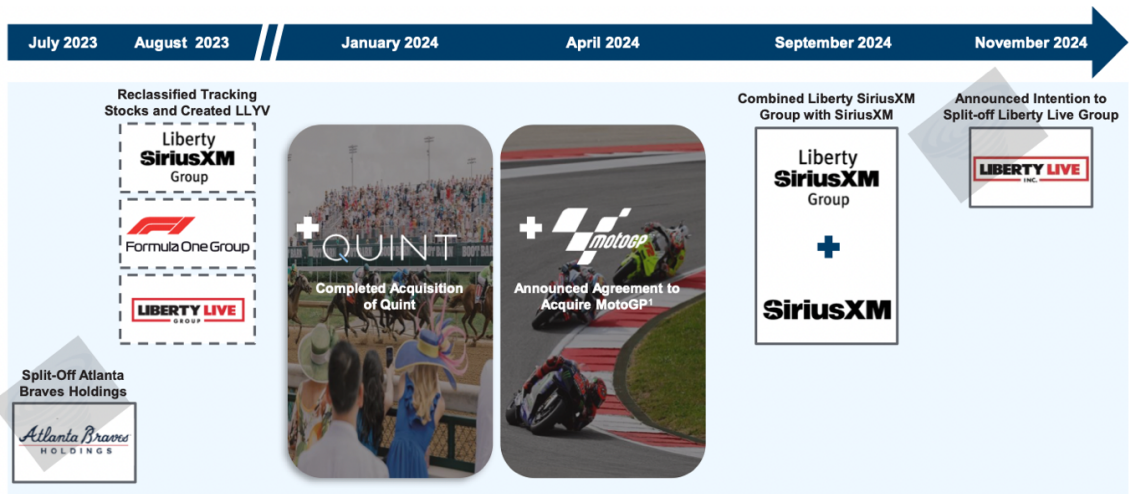


Figure 2: Structural Simplification, Source: 2024 Liberty Investor Presentation

Then, on August 3, 2023, Liberty reshuffled its existing common stock into three new tracking stocks: Liberty SiriusXM, Liberty Formula One, and Liberty Live. As part of this overhaul, they redistributed the businesses, assets, and liabilities from their prior tracking stock groups into these new categories: the Liberty SiriusXM Group, Formula One Group, and Liberty Live Group. In the swap, each existing Liberty SiriusXM share turned into one new Liberty SiriusXM share plus a quarter of a Liberty Live share, while each Liberty Formula One share became one new Liberty Formula One share plus about 0.0428 of a Liberty Live share.

Both the Atlanta Braves split-off and the stock reclassification were designed to avoid tax hits for shareholders, aside from any cash paid out for fractional shares. The IRS finished reviewing the reclassification in July 2024 and gave its blessing to the tax-free status. A couple of months later, in September 2024, they wrapped up their look at the Atlanta Braves split-off and confirmed it was non-taxable too. Liberty's financial statements reflect both changes moving forward from their completion dates. Separately, on January 2, 2024, Liberty picked up Quint Events for around \$277 million, shelling out \$205 million in cash after accounting for \$66 million in cash Quint Events already had, plus settling a \$6 million pre-existing issue.

On September 9, 2024, Liberty Media wrapped up the split-off of its fully owned subsidiary, Liberty Sirius XM Holdings Inc. They pulled this off by swapping each share of Liberty SiriusXM common stock for 0.8375 shares of Liberty Sirius XM Holdings stock (which I will explain in detail later in the analysis), tossing in cash for any fractional shares. Liberty Sirius XM Holdings took over everything tied to the Liberty SiriusXM Group right before the split. The goal was to keep this move tax-free for Liberty SiriusXM shareholders, except for those cash payouts for fractions. Right after that, on the same day, a subsidiary wholly owned by Liberty Sirius XM Holdings merged into Sirius XM Holdings, with Sirius XM Holdings coming out as the surviving piece, now fully owned by Liberty Sirius XM Holdings. Together, this split-off and merger reshaped things so Liberty Sirius XM Holdings emerged as its own standalone public company, no longer tied to Liberty Media.

1.2 Company Structure

For the purpose of understanding the business model of the company, it is essential to figure out the company structure and how it operates. Liberty Media Corporation owns interests in a portfolio of assets across the media, entertainment and sports industries. The company had three divisions, reflecting its ownership stakes through interests attributed to three tracking stocks: Sirius XM, Formula One Group, and Live Nation Entertainment.



At the same time the tracking stocks have three different classes of shares. Divided in Serie A, Serie B and Serie C. Series of shares is the following:

Title of each class	Trading Symbol	Name of each exchange on which registered
Series A Liberty SiriusXM Common Stock	LSXMA	The Nasdaq Stock Market LLC
Series B Liberty SiriusXM Common Stock	LSXMB	The Nasdaq Stock Market LLC
Series C Liberty SiriusXM Common Stock	LSXMK	The Nasdaq Stock Market LLC
Series A Liberty Live Common Stock	LLYVA	The Nasdaq Stock Market LLC
Series C Liberty Live Common Stock	LLYVK	The Nasdaq Stock Market LLC
Series A Liberty Formula One Common Stock	FWONA	The Nasdaq Stock Market LLC
Series C Liberty Formula One Common Stock	FWONK	The Nasdaq Stock Market LLC

Figure 3: Class of shares, Source: Liberty Media 2023 10K

The Series A and Series C of Liberty Formula One common stock, and Liberty Live trade on the Nasdaq Global Select Market. Whereas for the Series A, B And C for Liberty SiriusXM common stock trade on the Nasdaq Global Select Market. There are also other two trading symbols: LLYVB and FWONB, which are tradable OTC “Over the Counter” Markets. For a total of nine stocks.

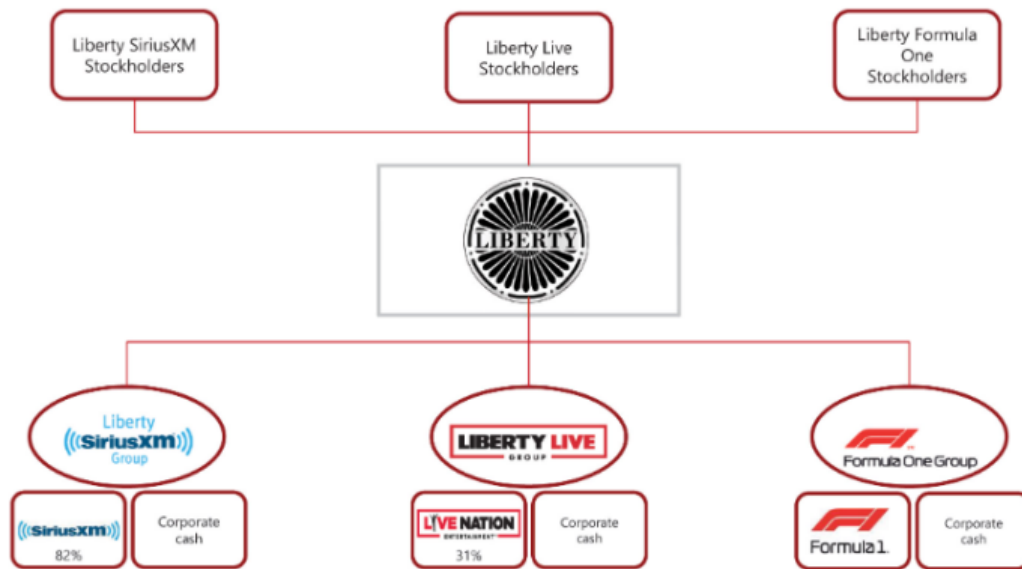


Figure 4: Structure Of The Business, Source: <https://lexchart.com/liberty-media-business-segments-2024/>

While the Formula One Group and Liberty Live Group have separate collections of businesses, assets and liabilities attributed to them, no group is a separate legal entity and therefore cannot own assets, issue securities or enter into legally binding agreements. Our two tracking stocks represent the businesses, assets and liabilities attributed to each respective group.

The company had three tracking stocks: Liberty SiriusXM Group, Formula One Group, and Liberty Live Group. These stocks represent different parts of the business. They trade on the Nasdaq and OTC Markets. The SiriusXM Group focuses on SiriusXM and Pandora. The Formula One Group includes F1. The Liberty Live Group involves Live Nation and related investments

What is a tracking stock?

A tracking stock is a type of common stock that the issuing company intends to reflect or “track” the economic performance of a particular business or “group,” rather than the economic performance of the company as a whole. – Liberty Media 2025 10-K

Companies issue tracking shares in order to raise capital and to give investors the opportunity to gain exposure to one specific division.

It is exactly what Liberty media did in 2016 when it went into a recapitalization, creating three tracking stocks:

<u>Nasdaq Global Select Market</u>	
<u>Tracking Stock</u>	<u>Symbol</u>
Series A Liberty SiriusXM common stock	LSXMA
Series B Liberty SiriusXM common stock	LSXMB
Series C Liberty SiriusXM common stock	LSXMK
Series A Liberty Media common stock	LMCA
Series C Liberty Media common stock	LMCK
Series A Liberty Braves common stock	BATRA
Series C Liberty Braves common stock	BATRK
<u>OTC Markets</u>	
<u>Tracking Stock</u>	<u>Symbol</u>
Series B Liberty Media common stock	LMCB
Series B Liberty Braves common stock	BATRB

Figure 5: Tracking Stocks, Source: Liberty Media Completes Recapitalization into Three Tracking Stocks

When a parent company issues a tracking stock, the financial performance of the relevant division, including its revenue and expenses, is reported separately from the parent company's main financials. The tracking stock trades on public markets independently of the parent company's shares, and its value is primarily influenced by the performance of the specific division it tracks rather than by the entire organization. This structure gives investors the opportunity to target their investments toward a specific part of a larger company, often focusing on segments with high growth potential.

However, issuing a tracking stock does not mean the parent company loses control over the operations of the tracked division. Investors who hold tracking shares usually have little to no voting power, and if the parent company enters bankruptcy, creditors may still have claims on the assets of the tracked segment.

As previously mentioned, companies often use tracking stocks to raise capital. The money raised can be directed toward paying off debt, funding expansion efforts, or reinvesting in the specific business unit being tracked. One of the key benefits of using tracking stocks is that it allows the parent company to showcase the performance of a division without creating an entirely new legal entity. In contrast, a spin-off would involve forming a separate company with its own management and board of directors. This distinction is particularly relevant in the case of Liberty Media, which has a history of engaging in multiple spin-offs as part of its broader corporate strategy.

CHAPTER 2

BUSINESS MODEL

Description of Business

The following table identifies Liberty more significant subsidiaries and minority investments:

Consolidated Subsidiaries

- Sirius XM Holdings Inc. (Nasdaq: SIRI)
- Formula 1

Equity Method Investments

- Live Nation Entertainment, Inc. (NYSE: LYV)



2.1 SiriusXM

Sirius XM Holdings Inc. was a subsidiary of the Company until the Liberty Sirius XM Holdings Split Off on September 9, 2024. Liberty Media owned approximately 83% of the outstanding equity interest in Sirius XM Holdings.

LIBERTY SIRIUSXM GROUP			
ENTITY	DESCRIPTION OF OPERATING BUSINESS	ATTRIBUTED SHARE COUNT ⁽¹⁾ (in millions)	ATTRIBUTED OWNERSHIP ⁽²⁾
Sirius XM Holdings Inc. (NASDAQ: SIRI)	A satellite radio company delivering commercial-free music plus sports, entertainment, comedy, talk, news, traffic and weather.	3,205.8	83%

Figure 6: Entity Ownership, Source: Liberty Media 2023 Annual Report

Sirius XM operates two complementary audio entertainment businesses – SiriusXM business and Pandora and Off-platform business. Sirius XM is the leading audio entertainment company in North America with a portfolio of audio businesses and a flagship subscription entertainment service, SiriusXM; the ad-supported and premium music streaming services of Pandora; a podcast network; an advertising sales group, SiriusXM Media; and a suite of advertising technology solutions. They reach a combined monthly audience of approximately 160 million listeners. In North America there are approximately 167 million vehicles in operation with SiriusXM radios, and the proliferation of smart speakers and other connected devices.

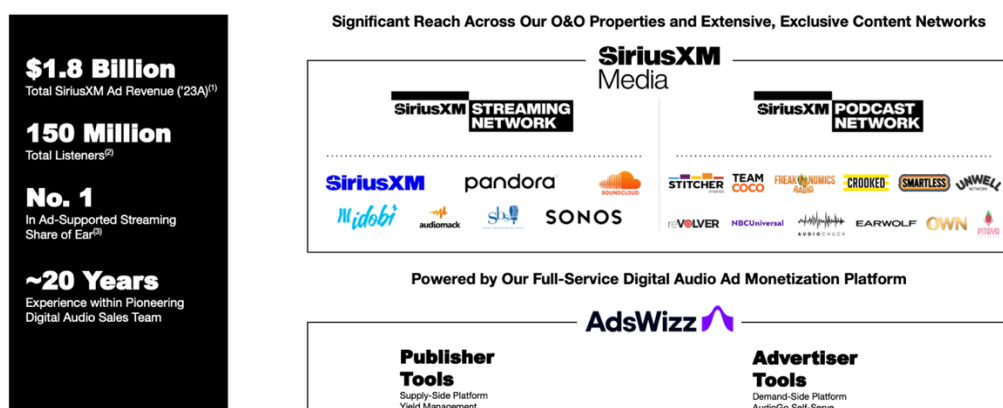


Figure 7: SiriusXM Network, Source: SiriusXM 2023 Investor Presentation

SiriusXM’s operations encompass a diverse array of offerings, such as music, sports, entertainment, comedy, talk shows, news, podcasts, and infotainment, all provided across the United States through a subscription-based model. Its programming packages deliver a mix of live broadcasts, carefully selected content, and exclusive on-demand options. The service is transmitted via two specialized satellite radio networks and is also accessible through streaming apps on smartphones, home devices, and various consumer electronics. Distribution of SiriusXM radios occurs mainly through partnerships with car manufacturers, retail outlets, and the company’s online platform. Furthermore, the “360L” interface combines satellite and online streaming into a cohesive entertainment solution tailored for in-car use.

The bulk of SiriusXM’s income is derived from subscription charges, with most of its users opting for either monthly or yearly payment plans. Supplementary income is generated from advertisements on certain non-music stations, direct sales of radio equipment and accessories,

and other related services. As of December 31, 2024, the company reported a subscriber base of roughly 33.2 million individuals.

Beyond its audio entertainment ventures, SiriusXM supplies connected vehicle services to various car manufacturers, aimed at improving safety, security, and the overall driving experience for users. The company also provides a range of data offerings, such as graphical weather updates, fuel price information, traffic reports, and real-time weather tracking for boats and aircraft.

Additionally, SiriusXM owns a 70% ownership stake and a 33% voting share in Sirius XM Canada Holdings Inc.

Pandora and Off-platform

Pandora runs a streaming platform focused on music, comedy, and podcasts, delivering a tailored listening experience that users can enjoy anytime and anywhere—whether on their phones, through car audio systems, or via connected devices. The service comes in three flavors:

- a free, ad-supported radio option
- a subscription-based radio tier called Pandora Plus
- an on-demand subscription level known as Pandora Premium.

As of December 31, 2024, Pandora had approximately 5.8 million subscribers.

Most of the revenue of Pandora's revenue comes from ads played on its free radio service. It also pulls in subscription fees from those signed up for Pandora Plus and Pandora Premium. On top of that, Pandora's off-platform efforts bring in additional ad revenue through other audio channels and popular podcasts.

SiriusXM Media

SiriusXM Media is the ad sales team powering both SiriusXM and Pandora's audio entertainment offerings. Beyond that, it handles ad sales for external audio platforms and

podcasts not connected to the company, while also acting as the sole ad rep for various third-party platforms and podcasters.

With a monthly audience topping 160 million listeners, SiriusXM Media connects brands, content creators, and publishers to North America’s biggest digital audio ad network. It equips advertisers with the tools to launch campaigns across multiple U.S. platforms, including Pandora and SoundCloud.

SiriusXM Businesses

Let’s now look at some services and branches of the business that Sirius XM owns. The following charts offers a breakdown of the ownership structure of Sirius XM:

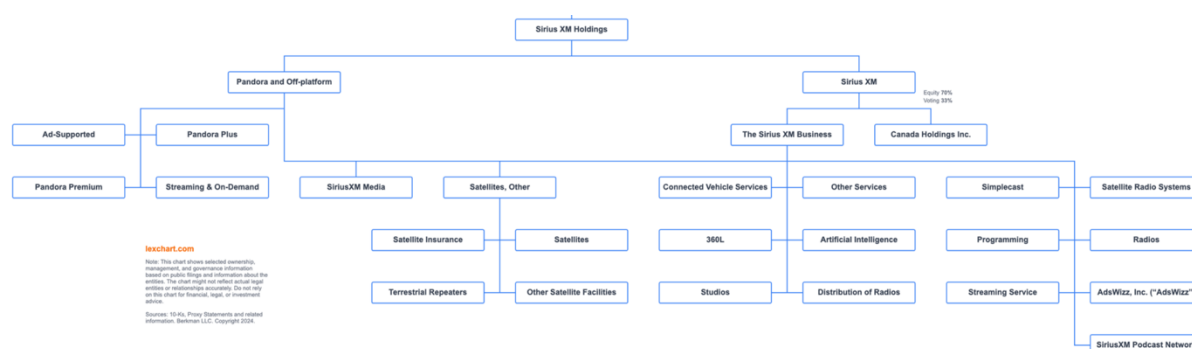


Figure 8: SiriusXM Business Structure, Source: <https://lexchart.com/who-owns-sirius-xm>

Podcasting

SiriusXM acts as the ad sales agent and distributor for numerous podcasts, including major networks like Unwell Network, Audiochuck, SmartLess, and NBC News, all part of the SiriusXM Podcast Network. That same year, the company rolled out SiriusXM Podcast+, a subscription option providing ad-free listening to exclusive content and fresh episodes from a range of premium podcasts. Subscriptions to SiriusXM Podcast+ are available for purchase via Apple Podcasts.

Programming

SiriusXM boasts hundreds of carefully crafted, ad-free music channels spanning every genre, era, and vibe, alongside essential live coverage and leading voices in sports, news, entertainment, comedy, podcasts, and beyond.

SiriusXM Streaming Service

The streaming service delivers a diverse lineup of both music and non-music channels, including options and content not found on the satellite radio platform, along with podcasts. Right now, it includes the full spectrum of music, sports, talk, news, and entertainment channels from satellite radio; more than 200 extra music channels; on-demand access to new and past episodes of SiriusXM programs and specials; and video offerings, such as clips from The Howard Stern Show, showcasing in-studio performances, interviews, and candid moments with artists, personalities, and notable figures.

360L

The 360L platform blends satellite and streaming options into a smooth in-car entertainment setup. Sirius XM has deals with numerous carmakers to roll out the 360L interface across different vehicle types. In 2024, it was featured in about 154 vehicle models built for the U.S. market. The company anticipates that 360L will eventually be standard in most vehicles equipped with SiriusXM, phasing out other existing services. This shift, though, could result in a higher cancellation rate.

Satellite Radio Systems

Satellite radio networks are built to provide crisp reception throughout much of the continental U.S., overcoming challenges posed by diverse landscapes, structures, and other barriers.

The satellite radio systems have three principal components:

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

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.

Pandora and Off-platform Business

Pandora Media, LLC, which owns and operates Pandora and Off-Platform business, is a wholly owned subsidiary of Sirius XM. The following are some of the services offered:

- Streaming Radio and On-Demand Music Services

Pandora offers a deeply personalized audio entertainment experience, letting users build their own stations and playlists while also offering the ability to search for and play songs and albums on demand.

- Ad-Supported Radio Service

Pandora provides a free, ad-supported radio service that gives listeners access to a wide range of music, comedy, live streams, and podcasts through custom stations. Available on all platforms at no cost, it creates unique stations for each user. Listeners can tweak their experience by picking specific artists and songs to shape their stations.

- Pandora Plus

Pandora offers Pandora Plus – a subscription-based, ad-free take on its radio service, offering features like replaying tracks, skipping songs, listening offline, and better sound quality on compatible devices. The content delivered to Pandora Plus users becomes more personalized as they engage with the platform.

- Pandora Premium

Pandora offers Pandora Premium – a subscription service that blends the radio-style features of Pandora Plus with on-demand listening. It includes social networking elements, like a main feed where users can see what music their friends are enjoying, as well as share and get suggestions for songs, albums, and playlists.

AdsWizz

Via its AdsWizz subsidiary, Pandora's Off-platform business stands at the forefront of digital audio advertising tech. AdsWizz runs a marketplace for digital audio ads, powered by a comprehensive tech platform that features a suite of tools linking audio content creators with advertisers. Its offerings span dynamic ad placement, cutting-edge programmatic systems, and fresh audio ad styles.



2.2 Formula 1

Formula 1 possesses sole commercial rights to the Fédération Internationale de l'Automobile (FIA) Formula One World Championship, a prestigious motor racing contest spanning roughly nine months each year. In this competition, teams vie for the Constructors' Championship while drivers chase the Drivers' Championship. Since its inception in 1950, this globally recognized series has unfolded annually on renowned circuits, hosting a shifting number of races across various nations. In 2024, it featured 24 events across 21 countries in Europe, Asia-Pacific, the Middle East, and the Americas. That year, the championship drew hundreds of millions of TV viewers across about 200 regions, with its biggest races attracting live crowds exceeding 450,000 over event weekends. (Liberty Media 2024 10K)

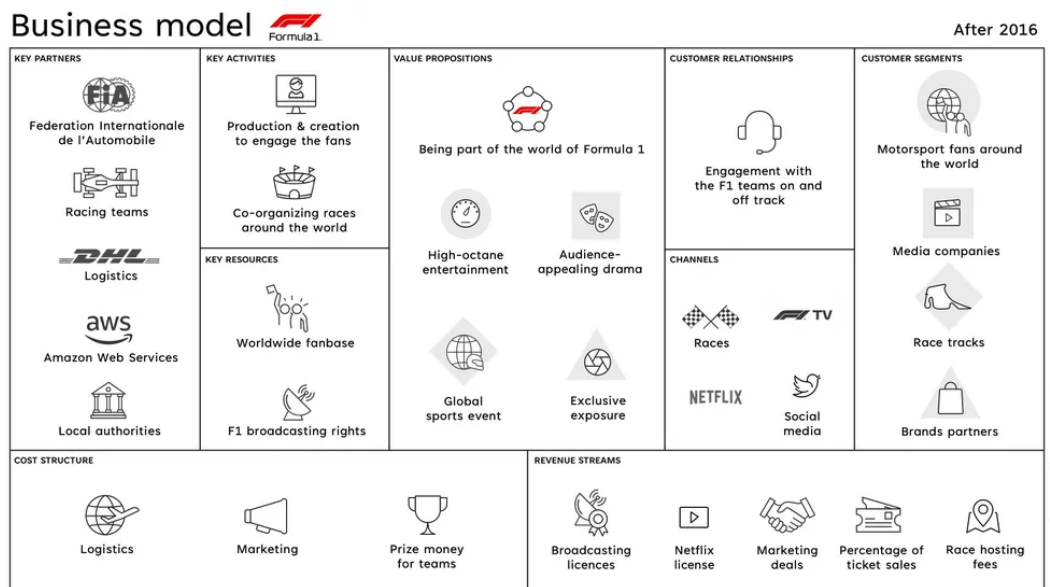


Figure 9: Formula One Business Model, Source: <https://www.businessmodelsinc.com>

Formula 1 oversees the commercial growth and management of the championship, working closely with the FIA—the sport’s regulatory authority—as well as the competing teams, race promoters who organize the events, global media outlets, advertisers, and sponsors. It also handles key operational tasks, like filming and technical assistance at races, producing the international TV broadcast, and managing logistics to transport its own gear and that of the teams, ensuring top-notch execution and minimizing risks throughout the season. Beyond this, through separate FIA agreements, Formula 1 holds exclusive promotional and commercial rights to the F2 and F3 series until 2041. In 2023, it also introduced F1 Academy, a program to nurture and train young female drivers for advancement in motorsport.

Formula 1 pulls in income from multiple streams, including running the Formula 1 Paddock Club hospitality experience, providing freight, logistics, and travel services for teams and other parties, operating the F2 and F3 series (which typically serve as support races during event weekends), managing F1 Academy, and handling TV production and post-production work. It also earns from digital and social media efforts and licensing deals tied to the Formula 1 brand. Most of Formula 1’s revenue and costs stem from events held worldwide between March and December, meaning its financial performance tends to dip in the first quarter compared to the busier months that follow.

FORMULA ONE GROUP			
ENTITY	DESCRIPTION OF OPERATING BUSINESS	ATTRIBUTED SHARE COUNT ⁽¹⁾ (in millions)	ATTRIBUTED OWNERSHIP ⁽²⁾
Formula 1	Formula 1, which began in 1950, is an iconic global motorsports business.	N/A	100%
F1 Arcade ⁽³⁾	Experiential entertainment concept licensed by F1 featuring full-motion racing simulators.	N/A	21%
LV Diamond Property I, Inc.	Owner of approximately 40 acres in the Las Vegas, Nevada area on which the paddock building for the Formula 1 Las Vegas Grand Prix sits.	N/A	100%
Meyer Shank Racing	An American racing team, currently competing in the NTT IndyCar Series and WeatherTech SportsCar Championship.	N/A	30%
QuintEvents, LLC	Provider of ticket and hospitality packages to sports and entertainment events.	N/A	100%

Figure 10: Entity Ownership, Source: Liberty Media 2024 Annual Report

Let’s break down how Formula 1 really brings in its cash and explore the key streams that fuel its revenue engine. Formula 1 generates its main income by capitalizing on the World

Championship through a mix of race promotion, media rights, and sponsorship deals. The bulk of these agreements—covering race hosting, broadcasting, and sponsor partnerships—require upfront payments and include yearly fee hikes built into the contracts.

Race Promotion

In both 2024 and 2023, revenue from race promotion accounted for 29.3% of Formula 1's overall income, slightly down from 28.6% in 2022. Formula 1 grants rights to host, organize, and promote its events to race promoters through contracts that typically span three to seven years. For longstanding events, renewal terms can vary depending on changes in local market conditions. While some agreements maintain a consistent fee over the contract period, most include annual increases, either linked to a consumer price index or a predetermined rate—typically up to 5%.

Promoters are usually circuit operators, automotive clubs, event management firms, or government bodies. Their earnings primarily stem from ticket sales, but can also include food and merchandise concessions, local sponsorships, and exclusive hospitality services (excluding those offered through the Paddock Club). Tickets are often sold for the entire race weekend or specific days. The Las Vegas Grand Prix was unique in 2023 and 2024, as it was the only event directly managed by Formula 1 itself. In this case, Formula 1 oversaw the construction and operations of the circuit and related facilities, retaining all income from ticketing and associated commercial ventures. Revenue from general admission and grandstand tickets is included under the race promotion income segment.

Media Rights

Formula 1 licenses the rights to broadcast races and related content across television and digital platforms, with contracts customized based on geographic and linguistic considerations. These rights packages often include not only live races but also qualifying sessions, practice rounds, highlight reels, and on-demand content. Commonly referred to as television rights agreements, they generally last three to five years. Some broadcasters pay a fixed annual fee, while others are subject to escalating payments over time. The bulk of Formula 1's media income comes from three categories: free-to-air broadcasting, which is available to viewers at no additional cost; pay television via cable or satellite providers; and F1 TV, Formula 1's proprietary streaming service. As of 2024, Formula 1 had inked 11 free-to-air contracts, 13 pay TV deals, and 27 hybrid agreements covering both formats. Notable partners include Sky (UK, Germany, Italy), DAZN (Spain), ESPN (Pan Latin America and the US), Canal+ (France, Vietnam, Myanmar), Banderites (Brazil), and Viaplay (Nordic countries, the Netherlands, Iceland, and Poland), along with beIN Sports (Pan Asia, MENA, and Turkey).

Sponsorship

Formula 1 markets event-specific sponsorships, such as trackside ads and race title packages. Beyond that, companies can sign on as Global Partners of Formula 1 or Official Suppliers. These sponsorship and advertising deals usually run for three to five years, though some stretch longer. Payments typically climb annually, either by a set dollar amount, a fixed percentage, or in line with the U.S. or European consumer price index—or another agreed-upon measure.

Other Revenue

The rest of Formula 1's income comes from a mix of smaller sources, like arranging the transport of cars and gear to and from races outside Europe, selling Paddock Club tickets at most events, managing support races during race weekends, handling various TV production tasks, and other side operations. This category also covers hospitality ticket sales for the Las Vegas Grand Prix.



2.3 Live Nation

Liberty Media held a beneficial interest in approximately 69.6 million shares of Live Nation common stock, equating to nearly 30% of the total outstanding shares at that date. Additionally, Liberty Media is subject to a restriction preventing it from acquiring further equity securities in Live Nation that would elevate its voting power beyond 35% of the company's total voting strength. This limitation may be lowered if specific portions of Liberty's stake in Live Nation are transferred.

Live Nation is widely recognized as a global leader in the live entertainment industry, operating through three core business divisions:

Concerts

The Concerts segment oversees the organization and promotion of live music events on a worldwide scale. These events are staged in venues either owned or operated by Live Nation, or leased from third-party providers. This division also includes services related to venue operations, festival production, content development, and artist representation and support. Although activities occur year-round, revenues tend to peak during the second and third quarters due to the seasonal surge in outdoor performances and festivals, especially between May and October. As the company continues to expand internationally, these seasonal patterns may become more balanced. The performance of this segment is largely influenced by the number of events, ticket sales volume, and pricing strategies. Major operating expenses include artist compensation and production-related costs. (Live Nation's 10-K filings).

Ticketing

The Ticketing segment acts as an intermediary, overseeing ticket distribution for numerous partners and generating revenue by retaining a share of associated service fees. These operations are primarily carried out via Ticketmaster, a platform fully integrated into Live Nation's

ticketing infrastructure since their 2009 merger. This segment sells tickets for both Live Nation events and those of third-party clients, including arenas, stadiums, amphitheaters, music clubs, concert promoters, sports leagues and teams, college athletic programs, theaters, museums, and performing arts centers. Ticket sales are facilitated through mobile applications, websites, and physical retail locations. The segment also manages the company's digital platforms, focusing on website functionality and product innovation. Sales performance varies based on the volume and timing of available events, which are determined by client scheduling. (Live Nation's 10-K filings).

Sponsorships

The Sponsorship and Advertising segment is driven by a dedicated sales team that develops and manages relationships with brand sponsors. It offers a range of marketing opportunities at the global, national, and local levels, allowing brands to connect with audiences through concerts, festivals, venues, and ticketing platforms, including digital advertising on company websites. The segment collaborates with corporate clients to create marketing programs aligned with their branding goals, often integrating fan and artist engagement. Customized events or campaigns are frequently produced for individual clients, which may include exclusive live performances and promotional support via digital and traditional media. Revenue generation in this segment typically peaks during the second and third quarters, coinciding with the high volume of outdoor events and festivals between May and October. (Live Nation's 10-K filings).

LIBERTY LIVE GROUP			
ENTITY	DESCRIPTION OF OPERATING BUSINESS	ATTRIBUTED SHARE COUNT ⁽¹⁾ (in millions)	ATTRIBUTED OWNERSHIP ⁽²⁾
Associated Partners, L.P.	Investment and operating partnership that targets long-term, risk-balanced and tax-efficient returns.	N/A	33%
Drone Racing League, Inc.	DRL is the premier drone racing league. A sports and media company, DRL combines world-class pilots, iconic locations, and proprietary technology to create engaging drone racing content with mass appeal.	N/A	3%
Green energy investments	Investments in clean energy technologies.	N/A	Various ⁽³⁾
Griffin Gaming Fund	Gaming focused venture capital fund.	N/A	3%
INRIX, Inc.	Provider of traffic data and analytics to auto OEM's, governments, businesses and consumers.	N/A	4%
Kroenke Arena Company, LLC	Owner of Ball Arena, a sports and entertainment facility in Denver, Colorado. Liberty Media Corporation's interest in Kroenke Arena Company, LLC includes an ~7% profits interest based on the value of the Denver Nuggets and Colorado Avalanche professional sports teams. The profits interest becomes payable upon a sale of such teams, or upon Liberty Media Corporation's exercise of a put right on its interest.	N/A	7%
Liberty Technology Venture Capital, LLC	Investment fund focused on Israeli technology companies.	N/A	80%
Live Nation Entertainment, Inc. (NYSE: LYV)	Largest live entertainment company in the world, consisting of three segments: concerts, sponsorship and advertising and ticketing.	69.6	30%
Overtime Sports, Inc.	A sports media company geared toward next generation sports fans and athletes. Overtime distributes original content and runs Overtime Elite, a professional basketball league for 16-19 year olds.	N/A	5%
Tastemade, Inc.	Tastemade brings the world's leading tastemakers in food together to create high-quality shows in the food and lifestyle category for digital platforms.	N/A	6%

Figure 11: Entity Ownership, Source: Liberty Media 2024 Annual Report

Other Minority Investments

Liberty Media also holds a collection of minority stakes in both publicly traded and privately held companies. These secondary assets could be cashed in down the line, possibly through methods like derivative deals, structured financial arrangements, or sales in public and private markets.

CHAPTER 3

SECTOR

When examining the industry sector, one might consider comparing Liberty Media to other conglomerates active in the market, such as Berkshire Hathaway, which spans a wide array of businesses and sectors. However, such a comparison would be ill-suited and fail to align with the intended focus of this analysis. Liberty Media predominantly holds investments concentrated in the entertainment industry, making it more fitting to evaluate the specific sectors tied to its portfolio companies for a more targeted and relevant assessment.

Accordingly, this chapter will explore the distinct niche sectors and competitors represented by the three primary entities within Liberty Media's portfolio:

- Sirius XM – Media & Entertainment
- Formula One - Sports and Entertainment
- Live Nation - Concerts and Ticketing

Industry Overview

The Media and Entertainment (M&E) sector encompasses a wide range of businesses engaged in the creation, distribution, and provision of supplementary digital services and products. This includes motion pictures, television programming, commercials, streaming platforms, music, video and audio recordings, broadcasting, radio, text and book publishing, eSports, and video gaming industries.

The United States represents the largest media and entertainment (M&E) market globally, with an estimated valuation of \$649 billion out of a total global market of \$2.8 trillion. Projections indicate steady growth, with the U.S. market expected to reach approximately \$808 billion by 2028, corresponding to a compound annual growth rate of around 4.3% (Intellias, 2024). This upward trend is also expected to continue on a global scale, as illustrated in the accompanying chart:



Figure 12: Media And Entertainment Revenue, Source: <https://intellias.com/media-entertainment-industry-trends>

Following the disruptions of the COVID-19 pandemic, the M&E sector has shown consistent recovery. In 2023, global revenue from live events—such as music concerts and theatrical box office returns—surged, climbing 26% and 30.4% year-over-year, respectively. According to PwC’s 2024 report, live events accounted for 38.6% of the total increase in M&E spending that year.

3.1 Sirius XM – Media & Entertainment

SiriusXM, as already mentioned, operates in the media and entertainment sector, specifically within the audio entertainment and broadcasting industry. It provides satellite radio and online radio services, offering a wide range of content including music, sports, news, talk shows, and podcasts. Sirius XM operates and specialize in a very small niche of the industry, and it is the only one in that area. Not surprisingly, the company is a leader in subscription-based and ad-supported audio entertainment in North America.

However, the industry is currently experiencing a continuing streaming dominance. The shift from traditional media (e.g., cable TV, terrestrial radio) to streaming platforms remains strong. Services like Spotify, Netflix, and YouTube dominate music, video, and on-demand content consumption.

For SiriusXM, this means competition from streaming audio platforms, though its satellite radio niche and exclusive content (e.g., Howard Stern) provide a unique edge. Subscription fatigue

is a growing concern, pushing companies to diversify offerings or bundle services (e.g., SiriusXM's integration with Pandora).

SiriusXM maintains a solid position within the audio entertainment sector, primarily due to its widespread satellite infrastructure and its long-standing integration in the automotive market. However, it faces challenges from free or cheaper alternatives like Spotify and Apple Music, which offer broader catalogs. Its strategy of exclusive content and Pandora's ad-supported model keeps it competitive, but growth may hinge on adapting to younger, digital-native audiences who prefer flexibility over satellite subscriptions.

3.1.1 Competitors

Companies like SiriusXM, compete with traditional broadcasters, streaming giants, and new digital players. Sirius XM Holdings faces also intense competition for listener attention and advertising income across its Sirius XM, Pandora, and Off-platform divisions, engaging with a broad spectrum of audio service providers. Traditional AM/FM radio stands as a significant adversary, leveraging deep-rooted listener allegiance and offering free content funded through commercials rather than subscriptions. This approach often features locally tailored programming, such as community news and sports updates, potentially reducing the attractiveness of Sirius XM Holdings' fee-based services. Large radio groups, with their vast networks of stations and expansions into areas like podcasting, heighten this competitive pressure.

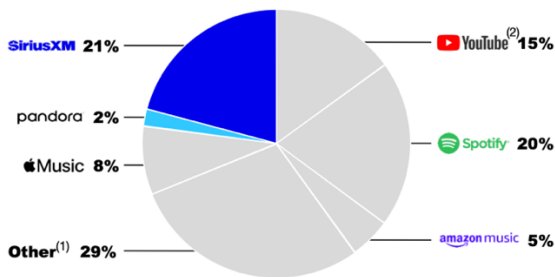
The company also contends with streaming and on-demand services like Amazon Prime, Apple Music, Spotify, TikTok, and YouTube, which deliver superior digital sound—frequently at little to no cost compared to satellite radio rates—along with features like personalization and extensive music catalogs. These platforms often sync effortlessly with devices from tech leaders like Apple, Google, and Amazon, challenging Sirius XM Holdings in homes, cars, and on-the-go settings.

Despite that, the company leads the share of time spent listening in the U.S., with a 23% share if Pandora is included in the calculation. Moreover, Sirius XM shows a high overall satisfaction rate by its subscribers for the service provided, same for price for value.

STRONG CUSTOMER ENGAGEMENT & SATISFACTION

Leading Share of Time Spent Listening

% ad-free share of ear for paid services



Sources: Edison Q2 2024 share of ear data, Morgan Stanley Research 10th Annual Audio Entertainment Survey (January 11, 2024)

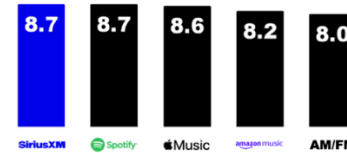
Notes:
⁽¹⁾ Includes owned music, music channels on TV, audiobooks and other
⁽²⁾ Includes music videos on YouTube and YouTube Music
⁽³⁾ Total score calculated using this: Avg. based on number of responses to each question. Every "strongly agree" or "very satisfied" response assigned a score of 10, "Somewhat agree" or "Somewhat satisfied" assigned a score of 7.5, "Neutral" assigned a score of 5, "Somewhat disagree" or "Somewhat dissatisfied" assigned a score of 2.5, and "Strongly disagree" or "very dissatisfied" assigned a score of 0. Responses limited to users of each service.

Highly Satisfied Subscribers⁽³⁾

Weighted Average User Score (0-10)

Overall Satisfaction

"HOW SATISFIED WITH EACH OF THE FOLLOWING SERVICES?"



Price/Value

"THE PRICE/VALUE IS GOOD."

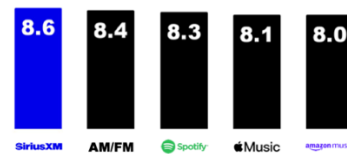


Figure 13: SiriusXM analytics, Source: SiriusXM Investor Presentation

The widespread integration of dashboard multimedia systems, such as Apple CarPlay and Android Auto, escalates this contest by merging AM/FM, satellite, streaming, and phone-based audio into user-friendly interfaces, often controlled via touchscreens or voice commands. This setup boosts the prominence and convenience of internet-based competitors, especially in vehicles. Beyond that, Sirius XM Holdings vies with niche audio services delivered through direct broadcast satellite or cable, mostly aimed at home listeners but occasionally mobile, often bundled with video packages at no extra charge for the audio component.

One way the company has been trying to provide more value for its subscribers and simplify its subscription plans was merging Pandora and Sirius XM into one subscription plan. SiriusXM has been exploring ways to integrate its services with Pandora since acquiring the streaming music platform in 2019 for \$3.5 billion.

In 2020, SiriusXM began testing cross-promotions, offering discounts to Pandora subscribers who signed up for SiriusXM and vice versa. These were not full mergers but rather promotional bundles to gauge consumer interest. The company was exploring what price point would make sense for a combined offering, as Pandora's tiers (free, \$4.99/month for Plus, \$9.99/month for Premium) and SiriusXM's plans (ranging from \$5/month to \$13/month for Premier) cater to different audiences.

Despite these integrations, a complete merger of subscription plans where a single plan includes full access to both SiriusXM and Pandora Plus/Premium has not been done. Should the company pursue this strategy, it could serve as a powerful driver to draw in younger audiences as well.

The satellite radio subscriptions that SiriusXM provides, has historically appealed to older demographics, like Gen X and Boomers, who value its, sports, and talk content. Younger generations instead have different listening habits and use different platform, which SiriusXM has struggled to meet. Younger audiences overwhelmingly prefer on-demand streaming services like Spotify, Apple Music, and YouTube, which offer personalized playlists, algorithm-driven recommendations, and free ad-supported tiers.

LEADING SUBSCRIPTION METRICS AT SIRIUSXM

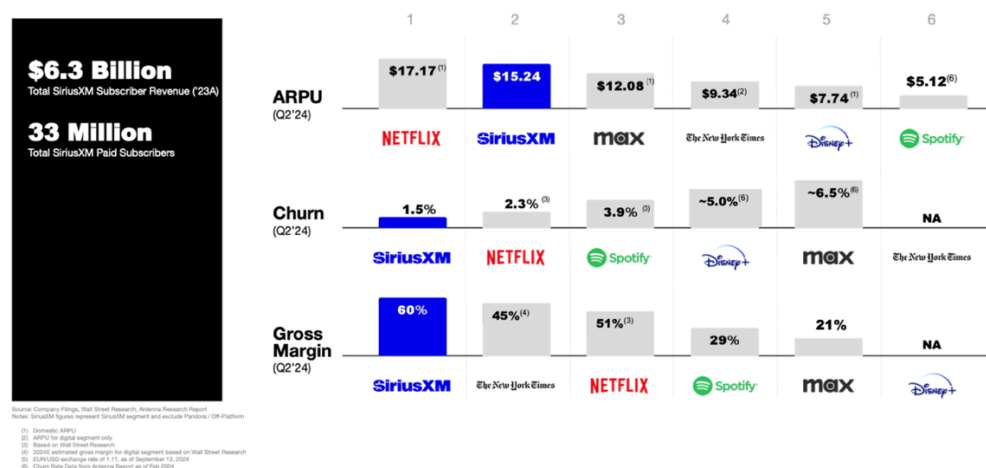


Figure 14: SiriusXM analytics, Source: SiriusXM Investor Presentation

The high satisfaction mentioned earlier reflects also on Sirius XM low churn rate, of 1.5%, also known as the attrition rate. It is a metric that measures the percentage of customers, subscribers, or users who stop using a product or service over a specific period of time. A high churn rate can signal issues with customer satisfaction, pricing, competition, or product relevance, while a low churn rate indicates strong loyalty and engagement. Sirius XM shows better rates than Netflix and Spotify, as shown in the chart above.

SiriusXM is competing directly also in music steaming since it owns Pandora.

Pandora Music Streaming

The U.S. music streaming market was valued at approximately \$12.28 billion in 2023 and is projected to expand at a compound annual growth rate of 12.8% from 2024 through 2030, as reported by Grand View Research. This growth is anticipated to stem from the increasing embrace of digital platforms and the widespread use of smart devices, which enable users to access music videos, podcasts, and audio content seamlessly.

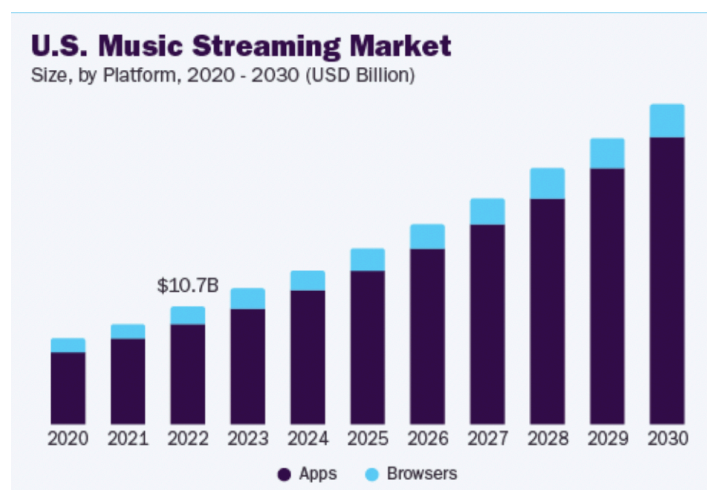


Figure 15: Music Streaming Market Size,

Source: <https://www.grandviewresearch.com/industry-analysis/us-music-streaming-market-report>

Even as the broader market continues to expand, Pandora is lagging behind its competitors, struggling to maintain its foothold. The company’s active user base has been steadily shrinking. In 2024, Pandora recorded 43.3 million monthly active users, a drop from the 46 million reported in the prior fiscal year.

Despite its slipping user numbers, Pandora still holds a significant position among the leading services in terms of total listeners. Yet, the picture shifts sharply when looking at paid subscribers. According to the Recording Industry Association of America, the U.S. tally of paid music streaming subscribers crossed the 100 million marks for the first time in 2024, reaching 100.4 million a solid uptick from 96.8 million in 2023. Revenue from these subscriptions climbed 5% year-over-year to \$11.7 billion, a rise fueled by both growing subscriber counts and recent price increases across streaming platforms.

Per Digital Music News, the “big three” Spotify, Apple Music, and Amazon Music dominate over 90% of the U.S. paid streaming market in 2024. Spotify leads the pack, capturing 36% of paying listeners, with Apple Music close on its heels at 30.7%, and Amazon Music scooping up most of the rest at 23.8%. YouTube Music carves out a 6.8% slice, leaving a mere 2.7% of the market for others like Pandora, TIDAL, and SoundCloud combined.

(in millions)	For the Years Ended December 31,	
	2024	2023
Revenue		
Sirius XM:		
Subscriber revenue	\$ 6,076	\$ 6,342
Advertising revenue	167	169
Equipment revenue	182	193
Other revenue	128	136
Total Sirius XM revenue	6,553	6,840
Pandora and Off-platform:		
Subscriber revenue	540	524
Advertising revenue	1,606	1,589
Total Pandora and Off-platform revenue	2,146	2,113

Figure 16: Income Statement, Source: SiriusXM 2024 10K

Indeed, when examining the company’s revenue breakdown, just a minor fraction originates from paid subscribers, while the majority is driven by advertising income.

3.2 Formula One - Sports and Entertainment

Formula 1 functions within the sports and entertainment realm, carving out a distinct niche in the motorsport’s subsector. This field merges high stakes racing with worldwide entertainment, media output, and business ventures, creating a unique fusion of athletic prowess, cutting-edge technology, and audience connection. Within motorsports, Formula 1 shares space with series like NASCAR, IndyCar, MotoGP, and Formula E, all defined by their dependence on automotive advancements, fast-paced contests, and sponsorship-heavy financial structures. Formula 1 distinguishes itself through its global reach, elite status, and rich history, spotlighted by legendary teams like Ferrari and storied tracks like Monaco.

The broader sports industry has seen robust expansion in recent years. Its market size is projected to rise from \$477.8 billion in 2024 to \$507.69 billion in 2025, reflecting a compound annual growth rate (CAGR) of 6.3%. This upswing builds on factors from the recent past, including thriving economies in emerging regions, the boom in online commerce, rapid urban growth, the rise of diverse sports broadcasting, and hefty sponsorship investments.

Sports Global Market Report 2025

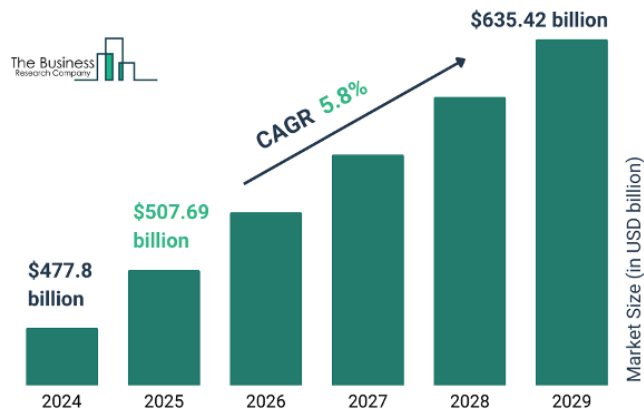


Figure 17: Sports Global Market Size; Source: www.thebusinessresearchcompany.com

Looking ahead, the sports market is poised for continued strength, expected to hit \$635.42 billion by 2029 at a CAGR of 5.8%. Within this landscape, motorsports occupy a narrower yet impactful segment. Valued globally at \$5.2 billion in 2023, the motorsports market is forecasted to climb to \$7.8 billion by 2030, advancing at a CAGR of 6.1%, according to a 2024 Grand View Research report.



Figure 18: Formula One Statistics, Source: Liberty Media Investor Presentation

The company noted that attendance at live events is on the rise as fans lean into spending on experiences. This sparks steady interest from a wide range of media platforms in sports content, which in turn ramps up demand for sponsorships from brands.

3.2.1 Competitors

Formula 1's World Championship operates in a fiercely contested entertainment landscape, jostling with various leisure alternatives for TV viewership, on-site crowds, and advertising dollars. It goes toe-to-toe with globally celebrated sports entities like the Olympic Games, FIFA World Cup, Champions League, and Premier League for broadcasting deals and sponsor support. On a regional level, it also contends with local motorsport staples, such as the Indianapolis 500 and NASCAR in the U.S., heightening competition in specific territories

Formula One has some favorable market dynamics benefitting their financials:



Figure 19: Formula One Statistics, Source: Liberty Media Investor Presentation

Formula 1 boasts a worldwide fanbase of 750 million, according to Nielsen Sports, a whopping 50% higher since Liberty Media took the reins in 2017. A lot of this growth comes from die-hard fans who stay hooked across all kinds of platforms. The 2024 Formula 1 Global Fan Survey, run by Motorsport Network, found that 85% of fans catch every single race, and 60% have been following the sport for over a decade, showing just how sticky its audience is.

To figure out why Formula 1 has an edge over its rivals, looking at fan loyalty tells us a lot. F1's churn rate is sitting at about 5% a year, way lower than NASCAR's 10% or Formula E's 15%. There could be a bunch of reasons for this difference, but the big draw of Formula 1 itself probably has a lot to do with it, pulling in brands that want a piece of its shine. For instance, LVMH's recent deal with the series it's a perfect example of that pull in action.

Formula One has a knack for reaching a super-wealthy global crowd, drawing in both big spenders and folks who aspire to that lifestyle. F1’s own numbers show over 40% of its fans worldwide are high earners, and its VIP hospitality is built for ultra-rich individuals and corporate bigwigs. That setup lets brands boost their own sense of exclusivity and prestige by tying in with the sport.

F1 isn’t just about fast cars—it’s a mix of exclusivity, tech wizardry, and top-tier status. High-end brands like Rolex, IWC Schaffhausen, and Ferrari have tapped into that vibe for years to sharpen their own image. And as the chart below shows, more and more partners have been signing up with Formula 1 over the last few years.

As shown in the figure below, the number of partners teaming up with Formula 1 has steadily climbed in recent years:

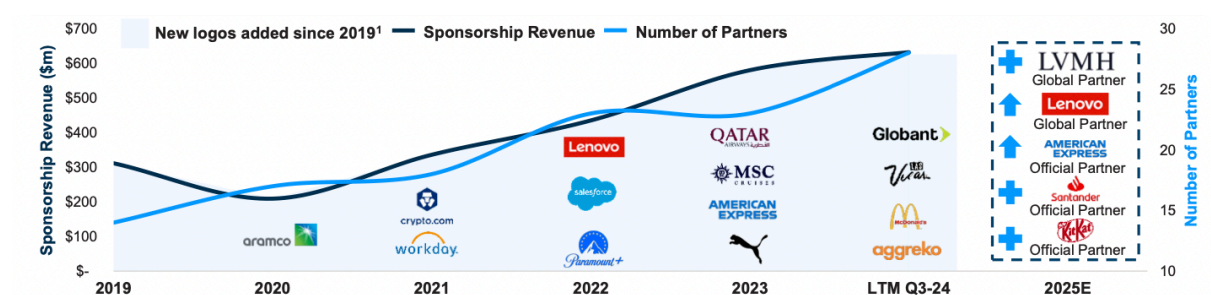


Figure 20: Formula One Statistics, Source: Liberty Media Investor Presentation

3.3 Live Nation - Concerts and Ticketing

This section will unpack the first industry where Live Nation plays a major role: concert and event promotion in the U.S. This sector has seen some impressive changes lately, fueled by tech advancements and shifting audience preferences. Labor shortages have thrown a curveball, forcing promoters to lean on less experienced staff, which has sparked some safety worries at events. Still, the industry’s been holding strong. Tools like digital ticketing and social media have opened fresh ways to connect with fans and broaden reach, while the post-pandemic appetite for live experiences has sent ticket sales soaring and venues packing. Revenue in this space climbed at a steady clip, hitting a compound annual growth rate of 4.2% through 2024, with a 2.6% bump that year alone, landing at \$56.0 billion total.

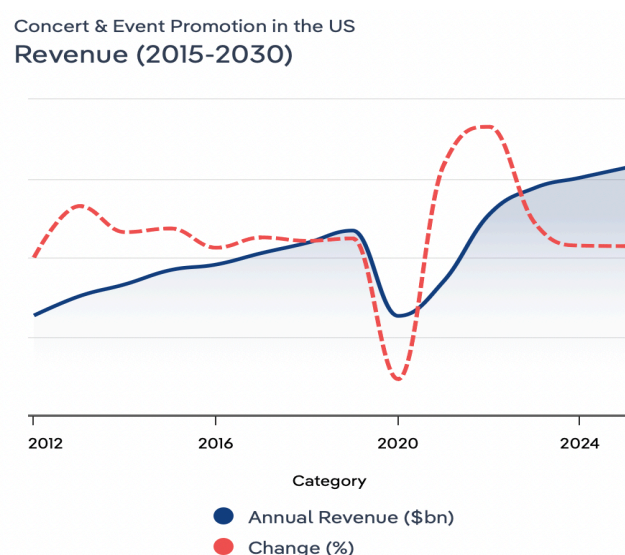


Figure 21: Concert and Event Revenue in the US, Source: www.ibisworld.com

Looking ahead, the industry’s revenue has been on a tear, growing at a CAGR of 20.0% over the past five years, projected to hit \$62.7 billion in 2025. Based on company filings, Live Nation’s concert segment in the U.S. pulls in roughly \$12 billion, giving it about a 20% slice of the total Concert & Event Promotion industry revenue pie.

Turning to the second major pillar of Live Nation’s operations, the event ticketing market reached a value of \$62.24 billion in 2024 and is projected to climb to \$99.2 billion by 2032, reflecting a compound annual growth rate of 6%. This steady rise points to a wave of cutting-edge ticketing technologies and solutions, paired with intensifying competition within the sector.

3.3.1 Competitors

Live Nation faces stiff competition in the live music scene, hustling to bring touring artists to its venues while slugging it out in ticket sales across online platforms, mobile apps, phone lines, and physical box offices. The live entertainment world is a tough arena, no question. Live Nation sets itself apart by delivering top-shelf music events, smooth ticketing, and better vibes for both fans and artists.

The company’s up against other promoters and venue operators trying to carve out their slice of the pie. Live Nation sees the promotion business as pretty open to newcomers, with some local players starting to stretch their reach into new territories. Rivals in live music promotion include big names like Anschutz Entertainment Group (AEG), Another Planet Entertainment,

CTS Eventim, Jam Productions, I.M.P., Outback Presents, and TEG Dainty. Some of these competitors have deeper roots or bigger budgets in certain areas, plus access to sports and entertainment spots we don't, which can give them an edge over us in those markets.



Figure 22: Sales Live Music Promoters, Source: www.statista.com

The ticketing game revolves around selling seats, mostly through digital and mobile channels, though old-school phone and in-person outlets still play a role. The shift to online and app-based buying has made it easier for tech-driven firms to jump in with their own ticketing services or automated setups that let venues handle their own sales or go fully self-ticketing. Online, Live Nation's battling other sites, event hubs, and ticketing outfits to dish out event details, move tickets, and offer extras like fan clubs or artist pages.

Live Nation also deals with competition from national, regional, and local ticketing providers all vying for new venue deals and fan attention. Secondary ticketing-resellers has gotten aggressive, with some brokers using sneaky internet "bot" tricks to snatch up the best seats the second they're available, even though that's often against state and federal rules.

On top of that, Live Nation's facing competition from companies pushing self-ticketing systems and venues that either weave those systems into their operations or buy up primary ticketing providers outright. Competitors in this space include Tickets.com, AXS, Paciolan, CTS Eventim AG, Eventbrite, eTix, SeatGeek, and Ticketek, among others.

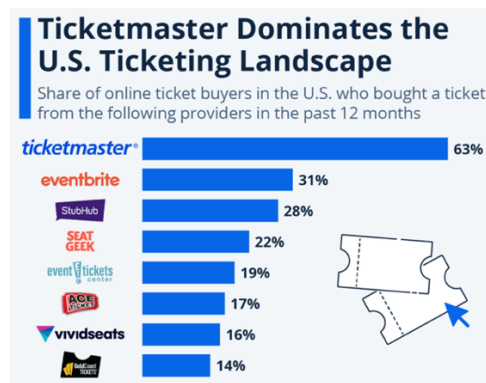


Figure 23: Ticketing Market Share, Source: www.statista.com

Despite the stiff competition, Live Nation dominates in the U.S. market with Ticketmaster, compared to its peers, as we can see in the chart above.

CHAPTER 4

FINANCIAL STATEMENTS

This chapter examines the financial statements of Liberty Media Corporation for the fiscal year ending December 31, 2024. The focus is placed on the consolidated financial statements of the parent company, which maintains interests in tracking stocks associated with Formula One and Liberty Live Group. The analysis also considers the financial impact of Sirius XM and other former tracking stocks that continue to influence the corporation's overall financial position. These entities are not directly reflected in the top-line figures of the consolidated financial statements. In September 2024, Sirius XM merged with Liberty Sirius XM Holdings following a corporate split-off, while Liberty Media Corporation retains an approximate 30% ownership stake in Live Nation, which is therefore only partially consolidated.

Liberty Media Corporation – Formula One & Liberty Live Group

4.1 Income Statement

Examining the top line of the consolidated financial statement, it's clear that only Formula One's revenue is reported. Liberty Live Group does not appear, as it generates no direct revenue, functioning solely as a holding entity with an equity stake in Live Nation.

	2024	2023	2022
	amounts in millions		
Revenue:			
Formula 1 revenue	\$ 3,318	3,222	2,573
Other revenue	335	350	588
Total revenue	3,653	3,572	3,161
Operating costs and expenses (note 4):			
Cost of Formula 1 revenue (exclusive of depreciation shown separately below)	2,294	2,240	1,750
Other cost of sales	194	—	—
Other operating expenses	13	274	434
Selling, general and administrative, including stock-based compensation	419	396	393
Depreciation and amortization	352	406	433
Impairment and acquisition costs	105	1	6
	3,377	3,317	3,016
Operating income (loss)	276	255	145

Figure 24: Income Statement, Source: Liberty Media Corporation 2024 10K

Consolidated revenue for Liberty Media Corporation rose by \$81 million compared to the previous year, propelled by stronger Formula 1 revenue and contributions from QuintEvents.

This uptick was partially offset by a decline in Braves Holdings revenue following the Atlanta Braves Holdings Split Off in 2023, alongside increased intergroup eliminations.

Operating income grew by \$21 million year-over-year, driven primarily by improved operating performance at Formula 1. However, this gain was tempered by an operating loss at QuintEvents, largely due to a significant goodwill impairment.

Turning to selling, general, and administrative (SG&A) expenses, stock-based compensation encompasses awards such as options, stock appreciation rights, restricted stock, restricted stock units, and performance-based units granted to officers, employees, nonemployee directors, and subsidiary staff. Liberty Media recorded \$34 million in stock compensation expense for 2024, up from \$29 million in 2023, with the increase mainly tied to higher corporate and other stock-related costs.

On the impairment and acquisition front, QuintEvents booked a \$73 million goodwill impairment loss in 2024. Additionally, Liberty Media incurred \$32 million in acquisition costs, primarily linked to the Dorna transaction, during the same year.

Consolidated interest expense dropped by \$11 million. However, interest expense for the Liberty Live Group climbed due to a higher average debt balance, following the reattribution of certain debt from the Liberty SiriusXM Group to the Liberty Live Group as of August 3, 2023. Prior to this reclassification, interest on this debt was recorded under the Liberty SiriusXM Group, and afterward, it shifted to the Liberty Live Group.

Other income (expense):			
Interest expense	(237)	(248)	(186)
Share of earnings (losses) of affiliates, net (note 7)	228	157	104
Realized and unrealized gains (losses) on financial instruments, net (note 6)	(383)	(167)	524
Unrealized gains (losses) on intergroup interests	—	(68)	19
Other, net	92	46	101
	<u>(300)</u>	<u>(280)</u>	<u>562</u>
Earnings (loss) from continuing operations before income taxes	(24)	(25)	707
Income tax (expense) benefit (note 11)	(39)	1	202
Net earnings (loss) from continuing operations	(63)	(24)	909
Net earnings (loss) from discontinued operations (note 2)	(2,412)	986	1,120
Net earnings (loss)	<u>(2,475)</u>	<u>962</u>	<u>2,029</u>
Less net earnings (loss) attributable to the noncontrolling interests	(412)	201	227
Less net earnings (loss) attributable to redeemable noncontrolling interest (note 11)	—	—	(13)
Net earnings (loss) attributable to Liberty stockholders	<u>\$ (2,063)</u>	<u>761</u>	<u>1,815</u>
Net earnings (loss) from continuing operations attributable to Liberty stockholders (note 3):			
Liberty Formula One common stock	\$ (30)	185	558
Liberty Live common stock	(31)	(142)	NA
Liberty SiriusXM common stock	—	45	382
Liberty Braves common stock	NA	(111)	(35)
Net earnings (loss) from discontinued operations attributable to Liberty stockholders:			
Liberty SiriusXM common stock	(2,002)	784	910
	<u>\$ (2,063)</u>	<u>761</u>	<u>1,815</u>

Figure 25: Income Statement, Source: Liberty Media Corporation 2024 10K

Other net income saw an uptick in 2024 compared to the previous year, largely fueled by higher interest and dividend income, reduced losses from early debt extinguishment, and lower tax-related expenses under a tax-sharing agreement with QVC Group. These gains were partly offset by increased foreign exchange losses.

On income taxes, Liberty Media recorded an income tax expense of \$39 million in 2024. Unlike an expected tax benefit at the standard federal rate of 21%, the expense arose due to certain non-deductible losses and non-deductible executive compensation. This was partially mitigated by tax benefits from stock-based compensation and earnings in foreign jurisdictions taxed at rates below the 21% U.S. federal rate.

Coming to the bottom-line Liberty Media posted a net loss from continuing operations of \$63 million in 2024, compared to a smaller loss of \$24 million in 2023.

However, the net earnings attributable to Liberty Media stockholders were significantly worse, reflecting a net loss exceeding \$2 billion. This substantial loss was primarily driven by a \$3.36 billion write-down of certain assets triggered by the September 2024 merger between Sirius XM and its parent entity, Liberty SiriusXM.

The \$3.3 billion impairment charge reported by Sirius XM Holdings Inc. constitutes a significant non-cash accounting adjustment. An impairment charge is recognized when a company concludes that the carrying value of an asset exceeds its recoverable amount, often

due to adverse changes in market conditions, operational performance, or other factors that reduce the asset's expected future economic benefit. Although such charges negatively affect reported earnings, they do not involve any actual cash outflows. Instead, they function as an accounting correction to align the asset's book value with its estimated recoverable value.

In the third quarter of 2024, Sirius XM recognized a \$3.3 billion impairment, primarily tied to goodwill and intangible assets, with \$2.8 billion linked to its 2019 acquisition of Pandora for \$3.5 billion. At the time of the acquisition, a large portion of the purchase price was allocated to goodwill (the excess paid over the fair value of Pandora's identifiable assets) and other intangible assets, such as brand value and customer relationships. Following the merger's completion at the end of the quarter, Sirius XM assessed that the anticipated future cash flows from Pandora were lower than previously expected, leading to a \$2.8 billion goodwill write-down. This adjustment reflected a reassessment of Pandora's value amid operational or market challenges. The remaining portion of the impairment pertains to other intangible assets or business units.

Three main factors contributed to the Impairment:

- **Market Dynamics:** The decline in Sirius XM's stock market valuation may have signaled that Pandora's value was no longer aligned with earlier projections.
- **Liberty Media Spinoff:** The impairment was tied to a corporate restructuring involving Liberty Media, Sirius XM's majority shareholder. The spinoff necessitated a revaluation of assets, triggering the goodwill adjustment.
- **Pandora's Underperformance:** Facing intense competition from streaming giants like Spotify and Apple Music, Pandora fell short of growth target, justifying the reduction in its recorded value.

Despite the significant negative impact on Liberty Media's financials, the \$3.3 billion impairment charge had no direct effect on the company's cash flow or liquidity, as it was a non-cash adjustment.

4.2 Balance Sheet

John Malone's enterprises, including Liberty Media Corporation, have long been recognized for their adept use of leverage to fuel expansion and enhance shareholder returns. At the same time, these companies are often described as reliable cash generators, producing consistent and sustainable cash flows. Liberty Media maintains a relatively balanced balance sheet, which we will now analyze by first assessing its liquidity position and then calculating key leverage ratios to evaluate the sustainability of its debt.

As of December 31, 2024, nearly all of Liberty Media Corporation's cash and cash equivalents were allocated to U.S. Treasury securities, other government-backed securities or funds, AAA-rated money market funds, and other top-rated financial and corporate debt instruments.

Formula One Group		
Formula 1	\$	1,310
Corporate and other		1,321
Total Formula One Group	\$	2,631
Liberty Live Group		
Corporate and other	\$	325
Total Liberty Live Group	\$	325

Figure 26: Balance Sheet, Source: Liberty Media Corporation 2024 10K

With nearly \$3 billion in liquidity, Liberty Media Corporation holds sufficient cash to cover all short-term obligations, which total approximately \$1.1 billion. The quick ratio, which measures a company's capacity to address short-term liabilities using its most liquid assets, stands at roughly 2.7. A ratio exceeding 1 is highly favorable, signaling robust liquidity, and Liberty's figure of nearly 3 reflects a particularly strong position.

	2024	2023
	amounts in millions	
<i>Assets</i>		
Current assets:		
Cash and cash equivalents	\$ 2,956	1,713
Trade and other receivables, net	114	123
Other current assets	277	180
Current assets of discontinued operations (note 2)	—	1,361
Total current assets	3,347	3,377
Investments in affiliates, accounted for using the equity method (note 7)	491	374
Property and equipment, at cost	1,007	973
Accumulated depreciation	(197)	(135)
	810	838
Goodwill (note 8)	4,134	3,956
Intangible assets subject to amortization, net (note 8)	2,689	2,858
Deferred income tax assets (note 10)	760	772
Other assets	717	612
Noncurrent assets of discontinued operations (note 2)	—	28,540
Total assets	\$ 12,948	41,327

Figure 27: Balance Sheet, Source: Liberty Media Corporation 2024 10K

The total asset value for Liberty Media Corporation stands at approximately \$13 billion, with over half attributed to intangible assets and goodwill. At first glance, this might seem substantial, especially when compared to the total liabilities of about \$5.9 billion. However, intangible assets and goodwill are largely accounting constructs used to balance the financial statements. If these are excluded from the asset tally, the resulting equity value is significantly lower than reported. Consequently, using unadjusted asset or equity figures to assess leverage would distort ratios like debt-to-assets or debt-to-equity. By removing intangible assets and goodwill, the adjusted total asset value comes to roughly \$6.125 billion. This yields a debt-to-assets ratio of 0.96, which is notably high, indicating that debt nearly matches the adjusted asset base. The situation appears even less favorable when debt is compared to the diminished equity value.

That said, it's crucial to consider that Liberty Media shareholders hold a 30% stake in Live Nation, which carries a market value of around \$30 billion. If this equity interest were fully consolidated into Liberty's financials, the balance sheet would appear far more robust. This aspect will be explored further in the valuation phase. For context, in fiscal year 2024, Live Nation produced \$1.7 billion in operating cash flows. Should Live Nation opt to distribute this as dividends, Liberty could receive approximately \$500 million in additional income, complementing the already strong cash flows generated by Formula 1, which will be covered in the next subchapter.

Liabilities and Equity		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 648	474
Current portion of debt, including zero and \$69 million measured at fair value, respectively (note 9)	26	106
Deferred revenue	267	247
Financial instrument liabilities (note 6)	138	8
Other current liabilities	54	32
Current liabilities of discontinued operations (note 2)	—	3,876
Total current liabilities	1,133	4,743
Long-term debt, including \$2,144 million and \$1,728 million measured at fair value, respectively (note 9)	4,522	4,117
Other liabilities	242	188
Noncurrent liabilities of discontinued operations (note 2)	—	12,834
Total liabilities	\$ 5,897	21,882

Figure 28: Source: Liberty Media Corporation 2024 10K

Let's break down Liberty Media Corporation's long-term debt, split between the Formula One Group and Liberty Live Group, as outlined in their financials:

	Outstanding Principal December 31, 2024	Carrying value December 31, 2024		December 31, 2023
amounts in millions				
Formula One Group				
Corporate level notes and loans:				
2.25% Convertible Senior Notes due 2027 (1)	\$	475	588	480
Other		53	53	58
Subsidiary notes and loans:				
Formula 1 Senior Loan Facilities		2,380	2,357	2,377
Deferred financing costs			(6)	(9)
Total Formula One Group		2,908	2,992	2,906

Figure 29: Debt Obligations, Source: Liberty Media Corporation 2024 10K

Convertible note

At the close of Q4 2024, the Formula One Group held approximately \$3 billion in debt at carrying value, including about \$600 million in 2.25% Convertible Senior Notes due 2027. On August 12, 2022, Liberty Media issued \$475 million in convertible notes bearing a 2.25% annual interest rate. These notes, at Liberty's discretion, can be converted into cash, shares of Series C Liberty Formula One common stock, or a mix of both, and are set to mature on August 15, 2027. As of December 31, 2024, the conversion rate stands at roughly 12.0505 shares of Series C Liberty Formula One common stock per \$1,000 principal amount, translating to a conversion price of about \$82.98 per share.

Senior Loans

The remaining \$2.3 billion in long-term debt for the Formula One Group consists of loans. On September 19, 2024, Formula 1 refinanced its Term Loan B with a new \$1.7 billion Term Loan

B and extended the maturities of the roughly \$689 million Term Loan A and the \$500 million revolving credit facility. The Term Loan A and revolving credit facility are now due on September 30, 2029, while the Term Loan B matures on September 30, 2031. As of December 31, 2024, the weighted average interest rate on these Senior Loan Facilities was approximately 6.19%. These facilities remain non-recourse to Liberty Media Corporation.

Liberty Live Group			
Corporate level notes and loans:			
0.5% Exchangeable Senior Debentures due 2050 (1)	—	—	69
2.375% Exchangeable Senior Debentures due 2053 (1)	1,150	1,556	1,248
Live Nation Margin Loan	—	—	—
Total Liberty Live Group	1,150	1,556	1,317
Total debt	<u>\$ 4,058</u>	<u>4,548</u>	<u>4,223</u>
Debt classified as current		(26)	(106)
Total long-term debt		<u>\$ 4,522</u>	<u>4,117</u>

Figure 30: Debt Obligations, Source: Liberty Media Corporation 2024 10K

Regarding the Liberty Live Group, its long-term debt has a carrying value exceeding \$1.5 billion. In September 2023, Liberty Media completed a private offering of roughly \$1.15 billion in 2.375% exchangeable senior debentures due 2053. Each debenture is exchangeable for a portion of Live Nation common stock shares, reflecting an initial exchange price of about \$104.91 per share, with approximately 11 million Live Nation shares attributable to the debentures. Liberty Media may redeem these debentures, in whole or in part, on or after September 30, 2028.

4.3 Cash Flow Statement

Liberty Media Corporation generated positive cash flows of \$553 million in 2024, a decrease from the \$619 million recorded in 2023, primarily driven by increased losses before consolidated earnings.

	Years ended December 31,	
	2024	2023
	amounts in millions	
Formula One Group cash provided (used) by operating activities	\$ 567	619
Liberty Live Group cash provided (used) by operating activities	(14)	(13)
Liberty SiriusXM Group cash provided (used) by operating activities	—	(4)
Braves Group cash provided (used) by operating activities	NA	32
Net cash provided (used) by operating activities	\$ 553	634
Formula One Group cash provided (used) by investing activities	\$ (292)	(510)
Liberty Live Group cash provided (used) by investing activities	105	1
Braves Group cash provided (used) by investing activities	NA	(35)
Net cash provided (used) by investing activities	\$ (187)	(544)
Formula One Group cash provided (used) by financing activities	\$ 965	(435)
Liberty Live Group cash provided (used) by financing activities	(71)	317
Liberty SiriusXM Group cash provided (used) by financing activities	—	3
Braves Group cash provided (used) by financing activities	NA	(170)
Net cash provided (used) by financing activities	\$ 894	(285)

Figure 31: Cash Flow Statement, Source: Liberty Media Corporation 2024 10K

Regarding cash used in investing activities, Liberty Media deployed \$187 million in 2024. The main outflows included \$205 million for acquisitions and \$75 million in capital expenditures, primarily for Formula 1, funded largely by cash reserves and operating cash flows. These outflows were partly offset by proceeds from investment disposals.

In financing activities, Liberty Media generated \$894 million. This positive cash flow was driven by \$939 million in net proceeds from issuing approximately 12.2 million shares of Series C Liberty Formula One common stock in 2024, partially offset by debt repayments.

Looking ahead, Liberty Media's projected cash uses include capital expenditures, investments in new or existing ventures such as the Dorna acquisition and a related €126 million extension payment debt servicing, and potential repurchasing of common stock under the authorized share buyback program.

4.4 Auditor's opinion

Per Liberty Media Corporation's annual report, KPMG LLP¹ issued an unqualified opinion on the consolidated financial statements, signifying that the auditors deemed the financial statements fairly presented in all significant aspects, in accordance with the relevant financial reporting framework.

The table below summarizes the fees charged by KPMG LLP for professional audit services related to Liberty Media Corporation's consolidated financial statements for the fiscal years 2024 and 2023, along with fees for other services provided by KPMG LLP during those periods:

	2024 ⁽¹⁾	2023 ⁽¹⁾
Audit fees	\$4,538,000	3,588,000
Audit related fees ⁽²⁾	—	1,138,000
Audit and audit related fees	4,538,000	4,726,000
Tax fees ⁽³⁾	3,053,000	2,895,000
All other fees	—	—
Total fees	<u>\$7,591,000</u>	<u>7,621,000</u>

Figure 32: Auditor's Fees, Source: Liberty Media Corporation Annual Report 2024

¹ KPMG is a multinational professional services network, based in London, United Kingdom. KPMG is a network of firms in 145 countries with 275,288 employees, affiliated with KPMG International Limited, a private English company limited by guarantee. Source: it.wikipedia.org

CHAPTER 5

MANAGEMENT & OWNERSHIP

Earlier, we explored the historical background of Liberty Media, shedding light on its evolution and operations. Now, we turn our attention to the key individuals who lead and govern the organization. Until the close of 2024, Gregory Maffei served as the company's Chief Executive Officer, a role he held since 2013. On December 31, 2024, Maffei relinquished his position as President and CEO. From January 1, 2025, to January 31, 2025, John C. Malone stepped in as the interim President and CEO. Subsequently, on February 1, 2025, Derek Chang assumed the role of President and Chief Executive Officer. The company's Board of Directors comprises nine members, organized into three classes. The Class III directors, whose terms are set to conclude at the 2025 annual meeting, include John C. Malone, Robert R. Bennett, and M. Ian G. Gilchrist, who represent the most prominent figures in the company's leadership.

5.1 Management

- John Malone Chairman of the Board since August 2011

As a co-founder of the predecessor to Liberty Media during his tenure as President of TCI, John Malone is widely regarded as a leading authority in the media and telecommunications industry. Renowned for his astute problem-solving abilities and keen risk evaluation skills, he brings unparalleled expertise to the company's leadership.

- Robert R. Bennett Vice Chairman of the Board, Independent Director

Robert Bennett contributes extensive knowledge of the media and telecommunications sector to the Board. His deep understanding of financial management, developed through various high-level financial roles throughout his career, further strengthens his contributions to the company's strategic oversight.

- M. Ian G. Gilchrist Independent Director

With 36 years of experience as an investment banker and financial analyst, M. Ian Gilchrist possesses specialized expertise in the media and telecommunications industry. His profound financial acumen and distinctive insights into the sector enhance the Board's decision-making.

Additionally, Gilchrist serves as a valuable advisor regarding the financial services firms periodically engaged by the company.

5.2 Ownership

To understand the ownership structure and its impact on corporate governance, we first examine the different classes of shares issued by Liberty Media, which clarify who holds control and how this influences managerial decisions. As of January 31, 2025, Liberty Live Group tracking stock consists of 25,568,345 LLYVA shares, 2,536,291 LLYVB shares, and 63,729,143 LLYVK shares, resulting in a total of 91,833,779 shares outstanding. For the Formula One Group tracking stock, there are 23,987,941 FWONA shares, 2,431,602 FWONB shares, and 222,842,367 FWONK shares, totaling 249,261,910 shares outstanding.

The Liberty Formula One common stock and Liberty Live common stock are designed to mirror the economic performance of the businesses, assets, and liabilities associated with the Formula One Group and the Liberty Live Group, respectively. The share classes differ in voting rights: Series A common stock carries one vote per share, Series B common stock holds ten votes per share, and Series C common stock has no voting rights. Holders of Series B common stock may exchange their shares at any time on a one-for-one basis for Series A common stock, whereas Series A and Series C common stock are non-exchangeable. The Series B shares were primarily established for founder John C. Malone, granting him significant voting power, as illustrated in the table below:

Name and Address of Beneficial Owner	Title of Series	Amount and Nature of Beneficial Ownership	Percent of Series (%)	Voting Power (%)
John C. Malone c/o Liberty Media Corporation 12300 Liberty Boulevard Englewood, CO 80112	LLYVA	251,492 ⁽¹⁾	*	49.2
	LLYVB	2,465,003 ⁽¹⁾	97.2	
	LLYVK	4,314,442 ⁽¹⁾	6.8	
	FWONA	241,170 ⁽¹⁾	1.0	
	FWONB	2,363,834 ⁽¹⁾	97.2	
	FWONK	2,515,350 ⁽¹⁾	1.1	
Berkshire Hathaway, Inc. 3555 Farnam Street Omaha, NE 68131	LLYVA	4,986,588 ⁽²⁾	19.5	5.0
	LLYVB	—	—	
	LLYVK	10,917,661 ⁽²⁾	17.1	
	FWONA	—	—	
	FWONB	—	—	
	FWONK	6,801,360 ⁽²⁾	3.1	
Vanguard Group Inc. 100 Vanguard Blvd. Malvern, PA 19355	LLYVA	2,002,784 ⁽³⁾	7.8	4.3
	LLYVB	—	—	
	LLYVK	4,759,475 ⁽³⁾	7.5	
	FWONA	2,294,628 ⁽³⁾	9.6	
	FWONB	—	—	
	FWONK	20,292,550 ⁽³⁾	9.1	
Corvex Management LP 667 Madison Avenue New York, NY 10065	LLYVA	1,534,222 ⁽⁴⁾	6.0	1.5
	LLYVB	—	—	
	LLYVK	579,378 ⁽⁴⁾	*	
	FWONA	—	—	
	FWONB	—	—	
	FWONK	—	—	

Figure 33: Main Shareholders, Source: Liberty Media Corporation Annual Report 2024

The percentage voting power is presented on an aggregate basis for all LLYVA, LLYVB, FWONA and FWONB shares. LLYVK and FWONK shares are, however, non-voting and, therefore, in the case of percentage voting power, are not included.

The same rationale applied to Liberty Sirius XM series of shares, but as we already discussed, On September 9, 2024, Liberty Media completed the transaction with Sirius XM whereby the Liberty SiriusXM tracking stock group was separated by means of a redemptive split-off into a separate company. This company was subsequently combined with Sirius XM Holdings Inc. to create a new public company that continues to operate under the Sirius XM name and brand (NASDAQ: SIRI). As a result, Liberty SiriusXM is no longer a tracking stock group of Liberty Media.

Amongst the major shareholders, we can also see Warren Buffett's holding company Berkshire Hathaway with a big stake in the companies. The presence of the esteemed value investor gives confidence in the reliability of the company and in its financials. Berkshire has also a huge stake in Sirius XM, which the company has built over the years before the merge and split off. The logic of the investments was not only because of the stable dividends and hard assets, but also because, by investing in the tracking shares, Berkshire would basically buy an ownership right of the actual company at discount, betting that when the merge was completed, the gap would close. However, I will discuss this topic in the next chapter.

MARKET CONDITION AND EQUITY RISK PREMIUM

Prior to addressing the valuation, an assessment of the implied risk in current market conditions is essential to determine an appropriate discount rate. An analysis of the market reveals that the S&P 500 index is near its historical peak, which might suggest robust economic conditions. However, the market appears significantly overvalued. The Shiller PE ratio, named after Yale University professor Robert Shiller, provides insight into this dynamic. This metric evaluates real earnings per share (EPS) by comparing a stock's price to its average earnings over a 10-year period, adjusted for inflation, to account for economic influences.



52

monetary policy effectively, maintain low interest rates, and keep inflation under control, alongside broader optimism about economic stability.

These high valuations, however, imply that future returns in the stock market may be modest or even negative. Historical data demonstrates that the stock market has experienced extended periods of stagnation, as illustrated in the chart below:



Figure 35: Stock Market Chart, Source: Lost decades are more common than you think - GMO

Extended periods of market stagnation, often referred to as "lost decades," fail to account for the psychological impact on investors. During periods of market optimism, when valuations appear robust and widespread confidence prevails, sentiment can shift dramatically during downturns. Such shifts often lead to panic selling, with few investors maintaining their positions. Historically, each market bubble has been succeeded by significant economic challenges and severe market declines, requiring considerable time for recovery to pre-downturn levels.

Let's now look at the fundamentals of the U.S. budget:

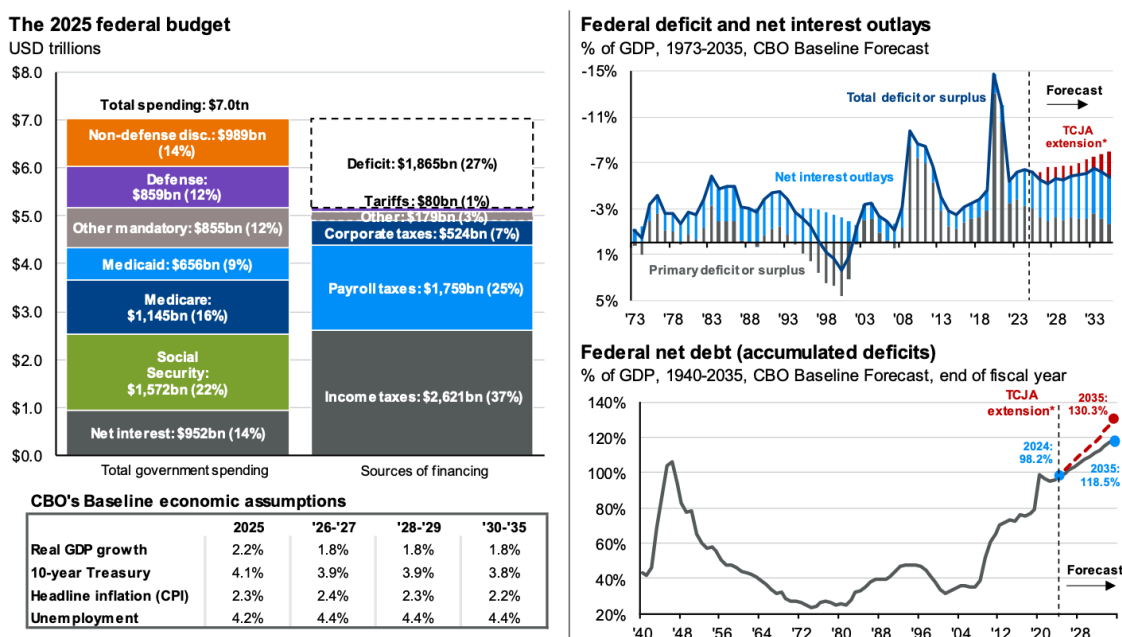


Figure 36: US Budget, Source: JPM Guide to markets

According to projections from the Congressional Budget Office (CBO), the U.S. federal government is expected to maintain annual budget deficits at or exceeding 7% of gross domestic product (GDP) through 2034, even under conditions of a robust economy. The Federal Reserve has indicated plans to reduce interest rates, citing the unsustainability of current deficits and federal debt levels at elevated interest rates. Following a decade of historically low interest rates, federal spending on interest payments now accounts for over 18% of government revenue. Projections estimate that net interest payments will reach approximately \$952 billion in fiscal year 2025, rising to \$1 trillion by fiscal year 2026, driven by a combination of high debt levels and rising interest rates.

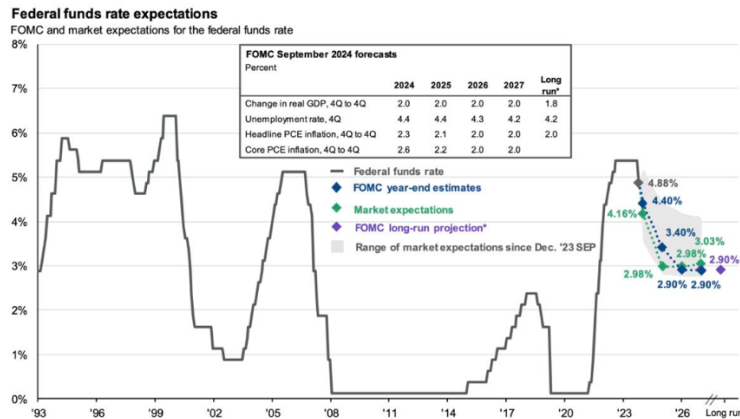


Figure 37: Interest Rates Chart, Source: JPM Guide to markets

In an unprecedented development, the bond market exhibited a counterintuitive response to the Federal Reserve's initiation of interest rate cuts in September 2024. Specifically, the 10-year Treasury yield increased, rising by approximately 79 basis points over the subsequent eight weeks, from a low of around 3.71% to approximately 4.50%. This rise suggests market perceptions of weakening economic fundamentals and concerns that the Federal Reserve may struggle to maintain control over monetary policy. A similar reaction occurred in April 2025, following the implementation of significant tariff policies, often referred to as “Liberation Day.” The Treasury market responded with a sharp increase in yields, with the 10-year Treasury yield surging from less than 4% on April 4 to approximately 4.5% by April 8, reflecting diminished confidence in the stability of the U.S. economy, as illustrated in the chart below



Figure 38: US 10 Years Treasury Yield, Source: <https://www.cnbc.com/quotes/US10Y>

6.2 Equity Risk Premium

The Equity Risk Premium (ERP) serves as a critical indicator of the fragility of market conditions. The ERP represents the additional return that investors require from equity markets relative to a risk-free investment, effectively quantifying the price of risk in the stock market. This premium increases when investors perceive heightened risk and decreases when perceived risk diminishes. Consequently, the ERP provides valuable insight into the current state of the market and holds significant importance for investors' decision-making processes. The calculation is straightforward: $ERP = \text{market return rate} - \text{risk-free rate}$.

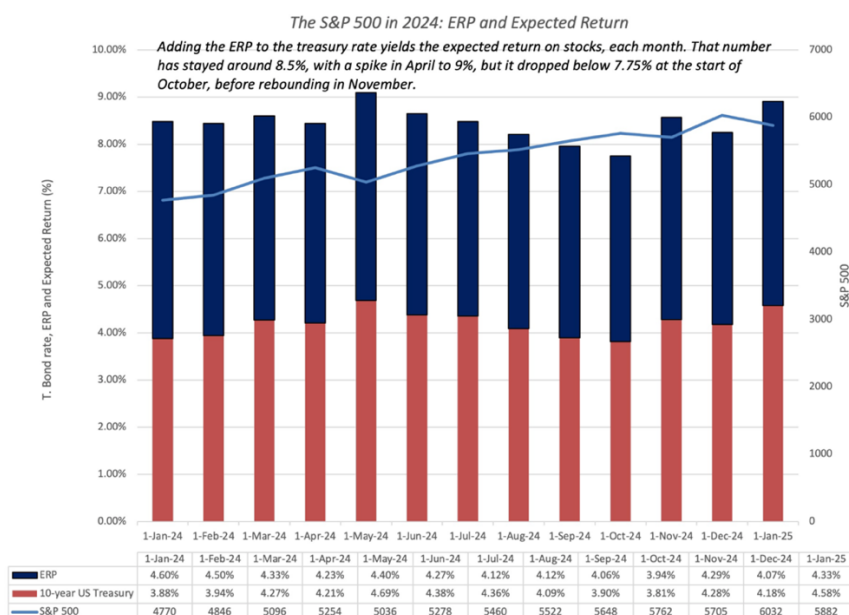


Figure 39: ERP, Source: https://people.stern.nyu.edu/adamodar/New_Home_Page/home.htm

Now, shown in the chart below, the equity risk premium increased in response to a market decline and heightened perceived risk:

Date	T. Bond Rate	Implied ERP	Expected Return on Stocks	S&P 500	VIX	Default Spread (BBB)	Default Spread (High Yield)
12-31-24	4.58%	4.33%	8.91%	5881.63	17.35	1.02%	2.88%
1-31-25	4.54%	4.27%	8.81%	6040.53	16.43	1.03%	2.73%
2-28-25	4.22%	4.35%	8.57%	5954.50	19.63	1.10%	2.94%
3-28-25	4.24%	4.61%	8.85%	5580.94	21.65	1.17%	3.47%
3-31-25	4.23%	4.59%	8.82%	5611.95	22.28	1.20%	3.55%
4-1-25	4.17%	4.57%	8.74%	5633.07	21.77	1.21%	3.50%
4-2-25	4.20%	4.54%	8.74%	5670.97	21.51	1.19%	3.42%
4-3-25	4.06%	4.78%	8.84%	5396.52	30.02	1.30%	4.01%
4-4-25	4.01%	5.08%	9.09%	5074.08	45.31	1.41%	4.45%
2025-04-07	4.24%	5.07%	9.31%	5062.25	46.98	1.48%	4.61%
2025-04-08	4.36%	5.14%	9.50%	4982.77	52.33	1.46%	4.57%
2025-04-09	4.29%	4.70%	8.99%	5456.90	33.62	1.49%	4.37%
2025-04-10	4.40%	4.86%	9.26%	5268.05	40.72	1.46%	4.32%
2025-04-11	4.49%	4.77%	9.26%	5363.36	37.56	1.46%	4.26%
2025-04-14	4.38%	4.73%	9.11%	5405.97	30.89	1.43%	4.14%
2025-04-15	4.35%	4.74%	9.09%	5396.63	30.12	1.42%	4.09%
2025-04-16	4.29%	4.85%	9.14%	5275.70	32.64	1.41%	4.16%
2025-04-17	4.34%	4.84%	9.18%	5282.70	29.65	1.39%	4.02%
2025-04-18	US markets closed						
2025-04-21	4.42%	4.94%	9.36%	5158.20	33.82	1.40%	4.16%
2025-04-22	4.41%	4.83%	9.24%	5287.76	30.57	1.39%	3.95%
2025-04-23	4.40%	4.75%	9.15%	5375.86	28.45	1.35%	3.75%
2025-04-24	4.32%	4.66%	8.98%	5484.77	26.47	1.33%	3.73%
2025-04-25	4.29%	4.63%	8.92%	5525.21	24.84	1.31%	3.67%
2025-04-28	4.23%	4.61%	8.84%	5528.75	25.15	1.31%	3.73%

Figure 40: ERP, Source: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Therefore, The Equity Risk Premium (ERP) is a critical metric for determining an appropriate discount rate, as it accounts not only for the risk-free rate but also encompasses additional risks associated with investment, including default risk, currency fluctuations, political uncertainties, and the inherent risks of the equity market.

Coming to the case, Liberty Media is an American company with global operations, therefore presents complexities in determining an appropriate Equity Risk Premium (ERP) due to its international scope. To streamline the analysis, the U.S. equity risk premium, currently estimated at approximately 4.5%, is more than reasonable. To calculate a suitable discount rate, models such as the Capital Asset Pricing Model (CAPM) or the Weighted Average Cost of Capital (WACC), which take into accounts the cost of debt, may be utilized. Nevertheless, the objective of this evaluation extends beyond conventional academic frameworks or typical investment banking methodologies.

The discount rate should be conceptualized as the desired rate of return, benchmarked against market offerings and the inherent risk, defined by Warren Buffett as “the possibility of harm or injury” during the 1999 Berkshire Hathaway shareholders’ meeting, (*Pecaut & Wrenn, 2017*), *University of Berkshire Hathaway*. Furthermore, the discount rate should remain consistent

across evaluations of companies in different industries, as the cost of capital remains invariant regardless of sectoral differences

Given that the 10-year Treasury bond yield stands at 4.5% and the equity risk premium for the U.S. market is also approximately 4.5%, the appropriate discount rate is calculated as their sum, resulting in 9%. However, a target rate of return of 10% is preferable, justifying a slight upward adjustment to this figure. If the inflation rates were factored in, this 10% rate of return is considered reasonable.

Regarding the cost of debt, although numerous factors could be analyzed, the company's average cost of debt remains below the "cost of equity". Given its manageable repayment structure and the minimal risk it poses, as outlined earlier, the cost of debt is not factored into this analysis.

Within the banking industry, a common assumption prevails that a universal, standardized formula enables accurate evaluation of any company. However, practical realities often diverge from this perspective. Modern Portfolio Theory (MPT), frequently adhered to rigidly, provides a framework for selecting investments to maximize returns while maintaining an acceptable level of risk (Investopedia). Within the Capital Asset Pricing Model (CAPM), commonly employed to estimate expected returns in an MPT context, beta serves as a measure of volatility and, consequently, investment risk. This approach, however, is subject to critique. As noted in University of Berkshire Hathaway, Warren Buffett dismisses the use of beta as a measure of risk, asserting that "volatility is no measure of risk" (*Pecaut & Wrenn, 2017, p. 45*). For instance, Buffett argues that super-catastrophe insurance, which may incur losses in a single year, is expected to yield profits over a decade, surpassing the returns of more predictable investments. He contends that labeling an investment with variable returns of 20% to 80% as "riskier" than one with consistent 5% annual returns reflect a flawed Wall Street logic. Buffett, while risk-averse, emphasizes a willingness to invest heavily when probabilities are favorable, such as in a "seven-to-five flip." Charlie Munger reinforces this view, stating that their approach disregards modern finance theory, which he describes as "disgusting" (*Pecaut & Wrenn, 2017, p. 45*)

CHAPTER 7

VALUATIONS AND INVESTMENTS STRATEGY

The objective of the analysis is to evaluate Liberty Media as a whole, as if it were a publicly traded entity. The Formula One Group's value is evaluated using a discounted cash flow model. Regarding the Liberty Live Group, in which a 30% stake is held, the Net Asset Value of this entity is utilized for the assessment.

7.1 Formula One Group

7.1.1 Discounted Cash Flow Model

The Formula One Group has demonstrated consistent and progressively increasing cash flows in recent years. Although growth has decelerated compared to prior periods, management projects continued expansion, forecasting approximately \$14.5 billion in revenue over the next four years. In 2024, Formula One generated \$567 million in operating cash flows, with \$75 million allocated to capital expenditures, resulting in a free cash flow of slightly below \$500 million. However, the majority of capital expenditures were directed toward investments rather than maintenance costs. Consequently, a figure close to the operating cash flow, approximately \$550 million, is deemed appropriate for valuation purposes.

		BEAR CASE											
Key Assumption		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		
Yrs 1-3 Growth	7.00%	\$2.36	\$2.53	\$2.71	\$2.84	\$2.98	\$3.13	\$3.29	\$3.45	\$3.63	\$3.81	\$76.15	
Yrs 4-6 Growth	5.00%	\$2.15	\$2.09	\$2.03	\$1.94	\$1.85	\$1.77	\$1.69	\$1.61	\$1.54	\$1.47	\$29.36	
Yrs 7-10 Growth	5.00%							Net Present Value of Future Cash Flow				\$47.55	
Exit P/FCF Multiple	20							Intrinsic value				\$11,491.64	
BASE CASE													
Key Assumption		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		
Yrs 1-3 Growth	10.00%	\$2.43	\$2.67	\$2.94	\$3.15	\$3.37	\$3.60	\$3.85	\$4.12	\$4.41	\$4.72	\$141.63	
Yrs 4-6 Growth	7.00%	\$2.21	\$2.21	\$2.21	\$2.15	\$2.09	\$2.03	\$1.98	\$1.92	\$1.87	\$1.82	\$54.66	
Yrs 7-10 Growth	7.00%							Net Present Value of Future Cash Flow				\$75.00	
Exit P/FCF Multiple	30							Intrinsic value				\$18,363.47	
BULL CASE													
Key Assumption		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		
Yrs 1-3 Growth	15.00%	\$2.54	\$2.92	\$3.36	\$3.70	\$4.06	\$4.47	\$4.78	\$5.12	\$5.48	\$5.86	\$234.44	
Yrs 4-6 Growth	10.00%	\$2.31	\$2.41	\$2.52	\$2.52	\$2.52	\$2.52	\$2.46	\$2.39	\$2.32	\$2.26	\$90.39	
Yrs 7-10 Growth	7.00%							Net Present Value of Future Cash Flow				\$114.63	
Exit P/FCF Multiple	40							Intrinsic value				\$28,208.23	

Valuation		
Current Share Price	\$96.00	
Intrinsic Value	\$18,958.06	
Intrinsic Value per share	\$76.14	
Discount to Intrinsic Value	-26.09%	
Upside %	-20.69%	

Figure10: Discounted cash flow Model (Source: Model made by the author of the thesis)

For the purpose of this analysis, three distinct scenarios, bear, base, and bull, were modeled. The bear and bull scenarios were each assigned a 20% weight, while the base scenario, considered the most likely to occur, received a 60% weight. Each scenario incorporates different growth rates over the next decade, based on management projections and historical performance. To calculate the terminal value, given the assumption that the company will continue operations indefinitely, a distinct multiple was applied to the final year's cash flow. To determine the present value of the company, a 10% discount rate was applied, the rationale for which was discussed in the preceding chapter.

7.1.2 Multiples Analysis and Precedent Transactions

Selecting an appropriate multiple to determine a company's terminal value represents a critical and challenging aspect of valuation, primarily due to the uncertainty surrounding future conditions and the company's longevity. Several methods exist for identifying a suitable multiple during valuation. One approach involves using the average price-to-earnings (P/E) ratio of the company over time or that of its industry. However, the niche nature of the business in which Formula One operates complicates the identification of reliable comparative data. An examination of the stock's average P/E ratio reveals that, in recent years, it has traded at a high multiple, exceeding 30 times earnings. This figure, however, is somewhat distorted due to company restructuring and unadjusted earnings data.

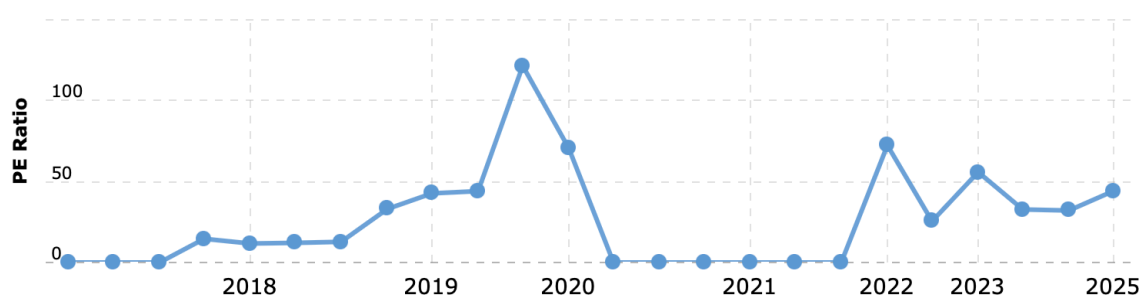


Figure 41: Formula One P/E ratio,

Source: <https://www.macrotrends.net/stocks/charts/FWONB/liberty-media---liberty-formula-one-series-b/pe-ratio>

In the base case scenario, a multiple of 30 was applied. Although this multiple may appear elevated relative to the projected growth rates, several factors justify its selection. The current stock market multiple, previously noted as notably high, provides a relevant benchmark.

Additionally, the company's anticipated cost efficiencies, expected growth from acquisitions, and the substantial competitive advantage created by Formula One's strong business moat, which establishes significant barriers to market entry, support the adoption of this multiple as reasonable.

Considering the valuation practices applied to these types of companies in private equity markets, the multiple applied to free cash flow may be regarded as conservative. A fair value assumption based on a revenue multiple, ranging from 6 to 8, is derived from multiples observed in private equity transactions involving major sports leagues, notably Spain's La Liga, with an appropriate discount applied. For instance, Liberty Media's acquisition of MotoGP reflects a revenue multiple of 8. Applying this same multiple to Formula One, which possesses a significantly stronger intellectual property, results in a valuation of \$27 billion.

The valuation model yields an intrinsic value for Formula One of \$19 billion, or \$76 per share, reflecting a difference of more than 20% when compared with the current market valuation of approximately \$24 billion, or \$96 per share. Consequently, the company appears overvalued relative to this analysis. Several factors, however, may account for the elevated market valuation. The Formula One Group, under Liberty Media, holds stakes in various businesses, which makes valuation challenging due to limited disclosure of relevant details. Additionally, Liberty Media's announced acquisition of an 86% stake in MotoGP, with an enterprise value of €4.2 billion for Dorna/MotoGP and an equity value of €3.5 billion, may contribute to the higher valuation. Market analysts may anticipate significant synergies and growth from this acquisition, or they may expect Liberty Media's management, given its strong track record since acquiring Formula One in 2016, to replicate similar success with MotoGP, thereby justifying the elevated market price.

Nevertheless, the MotoGP acquisition introduces certain risks. The deal necessitates additional debt, elevating the debt-to-EBITDA ratio above 5x, which could result in a higher interest burden amid rising interest rates. Despite this, the acquisition is expected to generate increased cash flows for Liberty Media, and the long-term contracts in place for both Formula One and MotoGP mitigate some of the perceived risks.

7.2 Liberty Live Group

Evaluating the stake held by Liberty Media in Live Nation through its tracking stock proves straightforward, as the stock is publicly traded. Consequently, the value of this position, if liquidated, would be equivalent to its net asset value or, more precisely, its market value.

As noted in preceding chapters, Liberty Media, through its Liberty Live Group tracking stock (Ticker: LLYVK), holds approximately 69.6 million shares of Live Nation's common stock, representing roughly 30% of the total shares outstanding. With Live Nation's current market capitalization at approximately \$34 billion and a share price of \$145, multiplying the 69.6 million shares by \$145 yields an asset value of about \$10 billion. After subtracting the liabilities attributed to the Liberty Live Group, totaling \$1.15 billion, the net asset value is calculated to be \$8.85 billion. Consequently, the market capitalization of the Liberty Live Group tracking stock is expected to approximate this net asset value. However, the current market capitalization of the tracking stock stands at \$7 billion, approximately 20% below its calculated value. This discount may be attributed to potential tax implications in the event of liquidation, a topic to be explored in greater detail in the subsequent chapter.

The overall valuation of Liberty Media Corporation, treated as a single entity, combines the intrinsic value of \$19 billion from the Formula One Group and \$8.85 billion from the Liberty Live Group, yielding a total of approximately \$28 billion. However, in private equity transactions, the valuation of the entire corporation would likely exceed this figure. This discrepancy arises because such deals typically involve a simplified business structure and account for the value of undisclosed or "hidden" assets not fully reflected in public disclosures. Moreover, in acquisitions of entire businesses, a premium is often applied to the equity value to reflect majority control, potentially elevating the valuation significantly, though such considerations remain speculative.

7.3 Investment Strategy

Based on the analysis and valuation, an investor might consider allocating capital to Liberty Media’s stock to establish a portfolio position. However, the existence of multiple share classes, each with distinct pricing, may present challenges in determining the most suitable class for investment.



Figure 42: Formula One Stock Prices, Source: <https://www.google.com/finance/quote/FWONK:NASDAQ?window=1Y&comparison=NASDAQ%3AFWONA%2COTCMKTS%3AFWONB>

As previously discussed, the Formula One Group comprises three share classes: Series A (FWONA), Series B (FWONB), and Series C (FWONK). These classes differ in voting rights and trading markets, which influence their respective prices. As illustrated in the chart below, the current prices are as follows:

- FWONK (Series C, non-voting): \$97.29
- FWONA (Series A, one vote per share): \$89.22
- FWONB (Series B, ten votes per share): \$80.50

Analysis of the Formula One Group's share classes reveals that FWONK trades at a premium, while FWONA and FWONB trade at a discount, as indicated by the chart provided. Although shares with voting rights are theoretically more valuable, the tracking stock structure complicates valuation. Series A shares, carrying one vote per share, allow participation in Liberty Media's corporate governance decisions, but their relevance may be diminished for investors focused on Formula One, a subsidiary, as voting rights pertain to the parent company. Series B shares, with ten votes per share, are "super-voting" shares typically held by insiders or strategic investors prioritizing control; however, their limited liquidity and over-the-counter trading status may offset any potential premium. In contrast, Series C non-voting shares appeal to investors seeking economic exposure without governance responsibilities, and Formula One's strong performance and global appeal likely contribute to their premium pricing despite the lack of voting rights.

Therefore, the pricing disparity among the Formula One Group's share classes stems primarily from three factors: liquidity, market dynamics, and economic exposure. Series C (FWONK) shares, with a daily trading volume of approximately 1.4 million shares, reflect strong market interest and tight bid-ask spreads, enhancing their attractiveness and contributing to their premium pricing. In contrast, Series A (FWONA) shares, with a lower trading volume of about 118,000 shares, and Series B (FWONB) shares, with a minimal volume of 62 shares, exhibit reduced liquidity, leading to wider bid-ask spreads and lower prices that account for their discounted valuations. The over-the-counter trading status of Series B (FWONB) shares further restricts accessibility, diminishing their appeal to retail investors. Investor behavior significantly influences pricing, with many retail and institutional investors favoring Series C (FWONK) shares for their direct economic linkage to Formula One's performance. These pricing dynamics also reflect broader market trends in tracking stocks, where non-voting shares may command premiums when the underlying business exhibits strong performance, as investors prioritize financial returns over governance participation.

Regarding the Live Nation tracking stock, the differences among the three share classes are relatively minor, except for the Class B shares (traded OTC), and thus do not warrant detailed discussion.

7.3.1 Option Strategy

An alternative strategy for indirectly investing in the stock while generating consistent cash flows for a portfolio involves selling put options² near their calculated intrinsic value. This approach allows the purchase of the stock at a preferred price if the option is exercised. Conversely, if the stock price remains above the strike price on the expiration date, the premium collected can be retained.

PUT/CALLs (Side by Side)

97.15

-0.14 (-0.14%)

JUN 20 '25

24 DAYS

JUL 18 '25

52 DAYS

AUG 15 '25

80 DAYS

NOV 21 '25

178 DAYS

MORE

TABBED VIEW

PUT/CALL

All STRIKES

SMART

FWONK

100

ATM IV: 33.3%

CALLS

PUTS

ATM IV: 33.3%

OPTN OP...	VOLUME	BID	SIZE	BID	ASK	ASK SIZE	STRIKE	OPTN OP...	VOLUME	BID	SIZE	BID	ASK	ASK SIZE
		33		27.70	30.10	32	70	8					2.05	66
		39		22.90	25.80	21	75	30					1.85	94
2		57		18.20	21.50	51	80	61	88	0.85		1.75		27
23		32		14.10	17.00	56	85	22	52	0.15		3.70		72
41		37		10.30	13.00	88	90	5	56	1.15		4.00		45
38		69		6.60	10.00	98	95	458	46	3.00		6.40		95
59		97		3.70	6.30	98	100	10	50	4.90		8.20		45
196		169		1.25	4.50	137	105		39	8.60		11.30		46

Figure 43: Option Chain, Source: Interactive Brokers

For instance, selling put options at \$75 per share could yield approximately \$0.70 per share, resulting in an annualized return of 4.3%, without requiring any upfront capital to purchase the stock.

Another approach to potentially enhance returns while keeping risk relatively manageable involves using the premiums obtained from selling the puts to purchase call options³ rather than retaining the premiums. Although this strategy forgoes the premiums in a downside scenario where the stock price declines the call options would expire worthless and the obligation to buy the stock at the agreed price (due to the sold puts) would arise a price that aligns with the calculated intrinsic value originally targeted. On the upside if the stock price increases the value of the call options would rise accordingly generating profit without any initial capital investment.

² Put Option is a contract giving the option buyer the right, but not the obligation, to sell-or sell short-a specified amount of an underlying security at a predetermined price within a specified time frame. (Source: Investopedia)

³ A financial derivative that gives its owner the right to buy a specified security at a set price within a certain time period. (Source: Investopedia)

CHAPETR 8

UNLOCKING VALUE FOR SHAREHOLDERS

Over the past two decades, Liberty Media Corporation has undergone numerous restructurings. However, the focus of the analysis centers on developments since 2016, when the former Series A, Series B, and Series C common stock of Liberty Media was recapitalized into three tracking stock groups: the Liberty SiriusXM Group (Nasdaq: LSXMA, LSXMB, LSXMK), the Formula One Group (Nasdaq: FWONA, FWONK), and the Braves Group (Nasdaq: BATRA, BATRK). This can be observed in the chart presented below.

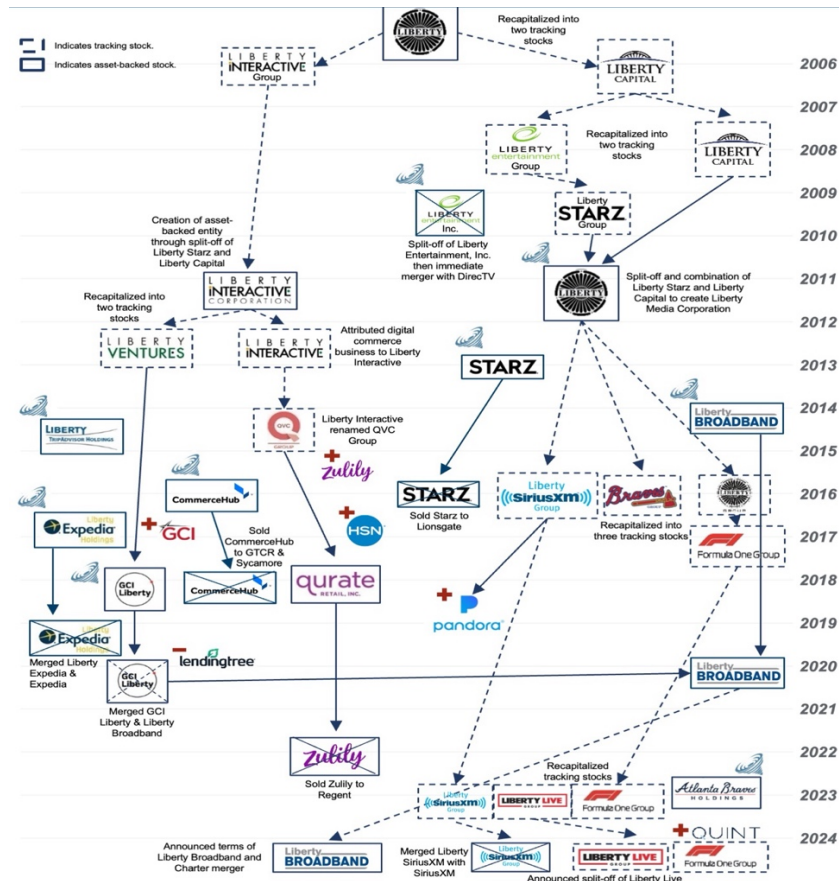


Figure 44: Changes of structure, Source: Source: Liberty Media News

In 2022, Liberty Media announced plans to split off the Atlanta Braves and its associated real estate development project, a transaction finalized in late 2023, alongside the creation of a new Liberty Live Group tracking stock derived from its 2012 acquisition of a stake in Live Nation.

In August 2023, Liberty Media reclassified its former Liberty SiriusXM common stock and Liberty Formula One common stock into three new tracking stocks: new Liberty SiriusXM common stock, new Liberty Formula One common stock, and Liberty Live common stock. On September 9, 2024, the split-off of an entity encompassing the businesses, assets, and liabilities previously attributed to the Liberty SiriusXM Group was completed, followed by a merger with SiriusXM Holdings Inc., forming a new publicly traded company operating under the SiriusXM name and brand (NASDAQ: SIRI). In November 2024, Liberty Media disclosed plans to split off the Liberty Live Group through a redemption of its Liberty Live common stock in exchange for common stock in a newly formed entity named Liberty Live. Following this split-off, Liberty Media will operate as an independent, asset-backed company focused on motorsport businesses and related sports investments.

These split-offs⁴ aim to establish distinct public entities, thereby simplifying Liberty Media's capital structure, reducing the discount to net asset value, as discussed in the previous chapter, and improving trading liquidity associated with tracking stocks.

The chart below illustrates the returns generated by Liberty Media over the past 20 years from the assets held:

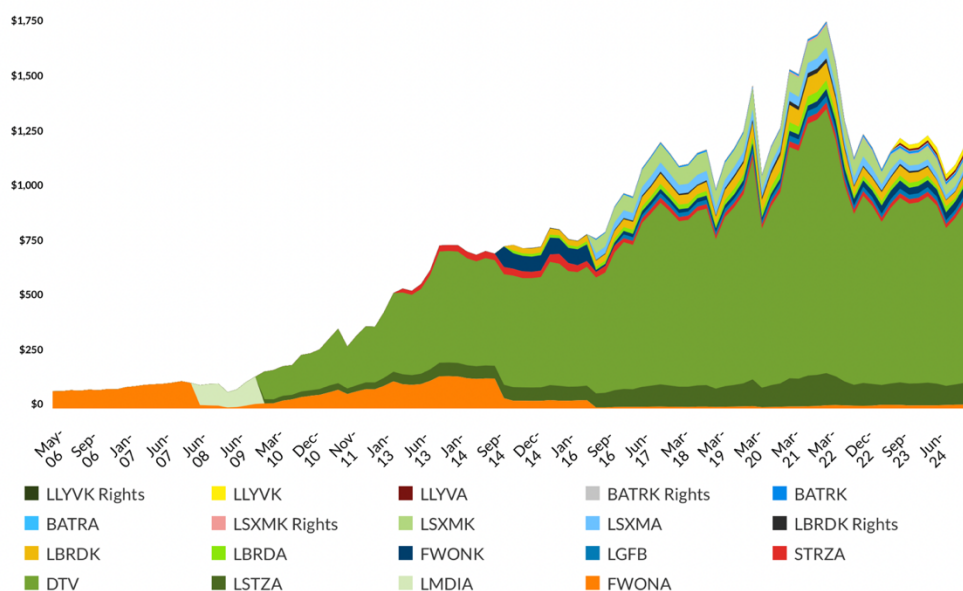


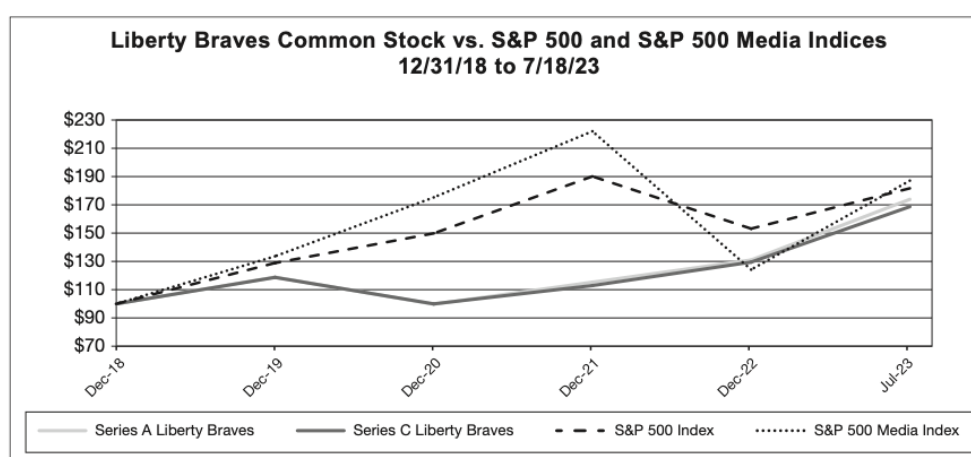
Figure 45: History of returns, Source: <https://www.libertymedia.com/investors>

⁴ A split-off is a corporate reorganization method in which a parent company divests a business unit using specific structured terms (Source: Investopedia)

Let's now analyze the performances of Liberty Media's tracking stocks how over the last years, alongside an analysis of the aftermath of the split offs/merges, to determine whether these actions generated value or benefits for shareholders

8.1 Liberty Braves

The graph presented illustrates the percentage change in the cumulative total stockholder return on investments in Series A and Series C Liberty Braves common stock, spanning from December 31, 2018, to July 18, 2023, the date of the split-off of Atlanta Braves Holdings, Inc., in comparison to the S&P 500 Index and the S&P 500 Media Index.



	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22	7/18/23
SERIES A LIBERTY BRAVES	\$100.00	\$118.89	\$ 99.72	\$115.28	\$130.99	\$173.90
SERIES C LIBERTY BRAVES	\$100.00	\$118.68	\$ 99.96	\$112.90	\$129.49	\$168.70
S&P 500 INDEX	\$100.00	\$128.88	\$149.83	\$190.13	\$153.16	\$181.70
S&P 500 MEDIA INDEX	\$100.00	\$133.63	\$175.28	\$222.03	\$124.20	\$187.11

Figure 46: Entity Performance, Source: Liberty Media 2024 Annual Report

The Split-Off was executed through the redemption of Liberty Media's existing Liberty Braves common stock in exchange for common stock of a newly established entity, Atlanta Braves Holdings, Inc. Atlanta Braves Holdings retained ownership of all businesses, assets, and liabilities previously attributed to the Braves Group, including Braves Holdings, LLC. As part of the Split-Off, each outstanding share of Liberty Media's Series A, Series B, and Series C Liberty Braves common stock was redeemed for one share of the corresponding series of common stock in Atlanta Braves Holdings. As evidenced in the chart above, following the announcement of the Split-Off in late 2022, the stock exhibited a positive trajectory, which

continued post-reorganization, bolstered by exceptional financial performance, culminating in a market capitalization of \$2.6 billion. For shareholders, this restructuring enhanced value and transparency. The transition to a conventional asset-backed stock eliminated the tracking stock structure, resulting in a more straightforward and less complex investment profile for investors.

8.2 Liberty SiriusXM

In December 2023, Liberty entered into definitive agreements to redeem each outstanding share of its Liberty SiriusXM common stock in exchange for a number of shares of common stock in a newly formed entity, Liberty Sirius XM Holdings Inc., at an exchange ratio of 0.8375 shares of Liberty Sirius XM Holdings common stock. Following the split-off, the newly created stock could have been merged with the former SiriusXM, effectively consolidating what were previously four stocks into a single entity. The purpose of this merger, as previously noted, was to simplify the corporate structure, consolidate the business operations, reduce the gap in the Net Asset Value (NAV), and enhance the liquidity of the new stock, given that the floating shares represented only approximately 16%, while the parent company, Liberty (through its tracking stocks), held 84% of the subsidiary, SiriusXM. Post-merger, minority shareholders received a 3% increase in equity ownership due to the obligation to assume the parent company’s responsibilities. The structure and consequences of this merger are illustrated more clearly in the accompanying figure.

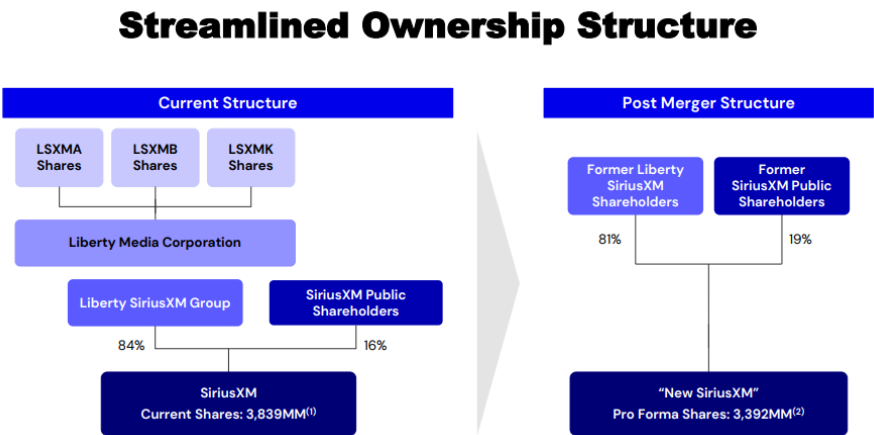


Figure 47: Ownership Structure, Source: Liberty Media Investor Presentation

The exchange ratio was determined by taking the number of shares that Liberty (tracking stocks) held in SiriusXM (Ticker: SIRI), subtracting the quotient of Liberty's net liabilities divided by SIRI's share price at the time of calculation, and then dividing the result by the total shares outstanding of the tracking shares. The outcome is depicted in the chart below.

Transaction Structure

- Liberty separates Liberty SiriusXM Group through redemptive split-off to form "SplitCo" holding all LSXM assets and liabilities

$$\begin{array}{c}
 \text{Exchange Ratio} = \frac{\text{Adjusted LSXM-Owned SIRI Shares}}{\text{Adjusted Fully-Diluted LSXM Shares}} = \frac{\begin{array}{c} 3,205.8\text{MM shares} \\ - \\ \text{LSXM Net Liabilities}^{(1)} / \text{SIRI Share Price of } \$4.23 \end{array}}{\begin{array}{c} \text{Basic shares of LSXMA+LSXMB+LSXMK} \\ + \\ \text{Dilutive Impact of LSXMA convertible notes and equity awards} \end{array}} = 8.4^{(2)}
 \end{array}$$

- SplitCo acquires SiriusXM in stock-for-stock transaction to create New SiriusXM
 - Each share of SplitCo becomes 1 share of New SiriusXM
 - Each share of SiriusXM held by minority shareholders receives 1 share of New SiriusXM

Figure 48: Transaction Structure, Source: Liberty Media Investor Presentation

At the time of the announcement, the stock prices indicated an arbitrage opportunity, involving shorting the subsidiary, SiriusXM (NYSE: SIRI), and taking a long position on the parent company, as the market capitalizations of the two entities were expected to converge to the same value.

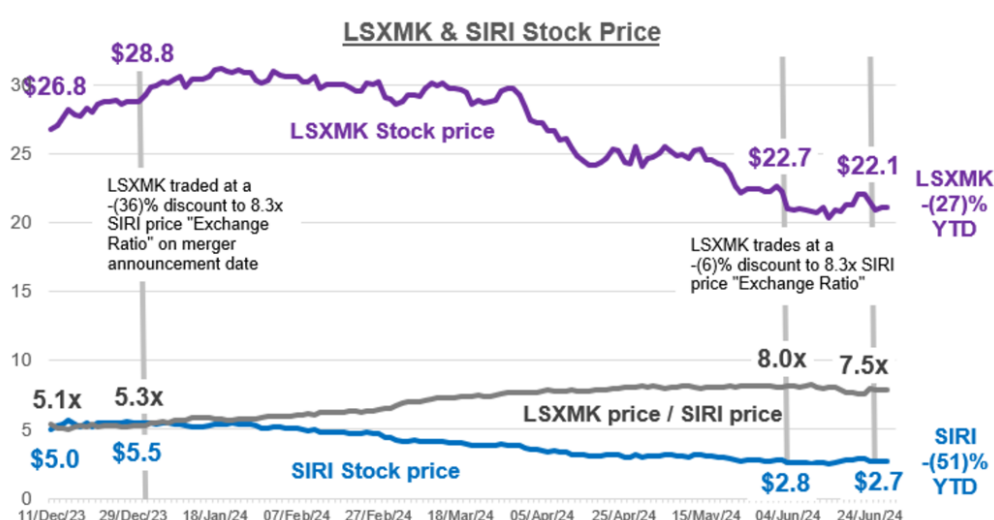


Figure 49: Liberty Media and Siri stock prices, Source: <https://x.com/andrewcoye/status/1806312233451900932>

An alternative strategy could have involved solely taking a long position on the parent company, given the significant mispricing in its equity value relative to the market trading value of the subsidiary. As illustrated in the chart above, Liberty was trading at a 36% discount to SIRI (\$5.5 multiplied by 8.375 equaled \$46, compared to approximately \$29).

However, the value gap did not close; instead, SiriusXM experienced a greater decline in market value, aligning more closely with Liberty Media's valuation. By the transaction date in September 2024, the value disparity between the two entities had essentially vanished. Sirius XM stockholders were allocated one-tenth (0.1) of a share of New Sirius common stock, with cash provided for any fractional shares, while Liberty Media shareholders received one-tenth of the previously stated exchange rate (0.875).



Figure 50: Sirius XM stock price, Source: <https://g.co/kgs/9F9OznN>

Following the transaction, the stock price continued to decline, failing to generate value for shareholders. However, the underperformance cannot be solely attributed to the split-off and merger transaction itself, as it delivered certain advantages for shareholders, including enhanced liquidity, a more streamlined and transparent corporate structure, and a tax-free transaction—benefits that might not have been available under different conditions. Several factors, as highlighted in a thread by Andrew Coye, may explain why the value gap persisted:

1. Arbitrage

The arbitrage opportunity may have led to an imbalance, attracting more sellers than buyers for the stock. "Event-driven" or "merger arbitrage" funds might have been drawn to the significant (~36%) NAV gap between Liberty's price and the price of the substantial SIRI stock it held. The arbitrage strategy likely involved taking a long position in LSX and a short position in SIRI to capitalize on this spread. Purchasing one Liberty share (LSXMK, due to its higher liquidity compared to other series) at \$29, selling 8.3x SIRI shares for \$46, and waiting for the merger to close for the values to converge appeared to be a straightforward approach.

However, a challenge arose due to SIRI being ~84% owned by Liberty, resulting in a very low float available for buying or selling. The 8.4x exchange ratio further complicated the situation. With ~3.85 billion SIRI shares outstanding, 3.2 billion were held by Liberty, leaving only ~0.65 billion SIRI shares as free float for trading. Prior to the transaction, the combined shares of Liberty Series A and C totaled approximately 317 million. Of these, Berkshire Hathaway held ~105 million shares, while John Malone (the largest single shareholder) and Greg Maffei (CEO) together owned ~27 million shares, reducing the available free float to ~185 million shares of Liberty Series A and C. Multiplying this free float by the exchange ratio suggests an equivalent of ~1.5 billion SIRI shares. Given that there were 1.5 billion equivalent SIRI shares to go long through Liberty but only 0.65 billion actual SIRI shares available to short, the demand to short SiriusXM likely exceeded the demand to go long on Liberty. This imbalance meant there were ~2.3 times more equivalent SIRI shares to go long through LSXM than actual SIRI shares available to short for arbitrageurs. Consequently, with greater demand to sell SIRI than to buy Liberty, SIRI's price was more likely to decline than Liberty's to rise, which is what occurred. As SIRI's price fell, potentially due to short-selling activity aimed at locking in the deal spread (after accounting for the cost of borrowing SIRI shares), Liberty's value also decreased, since its NAV was tied to a multiple of SIRI's share price, creating a negative feedback loop. Nevertheless, the NAV discount in Liberty provided a buffer, mitigating its decline to some extent.

2. Index Deletions

An additional factor potentially contributing to the price decline was the announcement by MSCI in May that both SiriusXM and Liberty would be removed from its MSCI midcap

indexes, likely generating selling pressure from institutional investors compelled to offload the stock. Furthermore, SIRI's stock price had dropped to a level where its market capitalization fell below 0.1% of the Nasdaq100 total market cap, prompting the removal of SIRI from the Nasdaq100 Index. Between June 13 and June 20, SIRI averaged approximately 56 million shares traded per day. On the deletion date of June 21, trading volume surged to 331 million shares, representing 52% of the float.

3. Buyback Paused

Over the past twelve years, SIRI and LSXM had consistently repurchased their own shares. Since December 2012, SIRI had repurchased 3.7 billion shares for approximately \$16.8 billion. However, due to the pending merger and the subsequent increase in leverage, SIRI was unable to repurchase any shares following the announcement. Liberty had also been a consistent repurchaser of its shares, acquiring \$358 million worth in 2022, though none in 2023.

The absence of this steady demand for SIRI stock may have amplified the previously mentioned factors, hindering both companies from capitalizing on their share price declines. When combining the significant adverse effects of arbitrage trading, index deletions, and the lack of buybacks, these elements likely contributed to the stock decline and the subsequent erosion of shareholder value.

The elimination of super-voting shares, the establishment of a single share class, and the removal of the tracking stock structure were expected to prompt a positive re-evaluation or attract purchases from traditional long-only investors. However, an examination of the stock's performance post-transaction indicates that these benefits did not lead to any revaluation, suggesting that the underlying cause may lie in the company's fundamentals. Despite being a stable, profitable, and cash-generating entity, SiriusXM has been facing a growing rate of subscriber losses, which poses a primary risk for the company. Additionally, lower expectations for free cash flow, driven by transaction costs of approximately \$200 million, combined with elevated debt levels, are likely contributing to the subdued stock price.

8.3 Liberty Formula One and Live Groups

The graph below illustrates the percentage change in the cumulative total stockholder return for an investment in Series A and Series C Liberty Live common stock (Nasdaq: LLYVA, LLYVK) from the initial trading day on August 4, 2023, to December 31, 2024, in comparison to the S&P 500 Index, the S&P 500 Media Index, and Live Nation's peers.

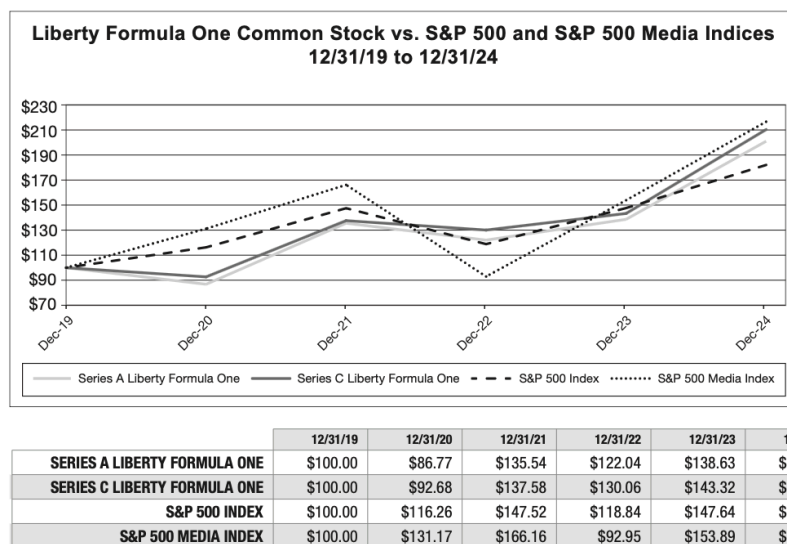


Figure 51: Entity Performance, Source: Liberty Media 2024 Annual Report

The graph below illustrates the percentage change in the cumulative total stockholder return for an investment in Series A and Series C Liberty Formula One common stock (Nasdaq: FWONA, FWONK), accounting for the effects of the distribution of Atlanta Braves Holdings, Inc. Series C common stock to Liberty Formula One stockholders and the distribution of Liberty Live Group common stock to Liberty Formula One stockholders during the 2023 Liberty Media reclassification, spanning from December 31, 2019, to December 31, 2024, in comparison to the S&P 500 Index and the S&P 500 Media Index.

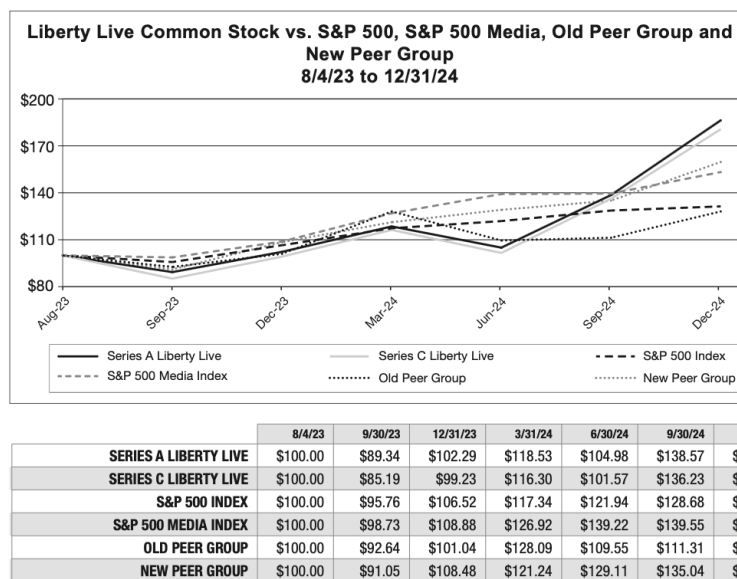


Figure 52: Entity Performance, Source: Liberty Media 2024 Annual Report

Despite the impressive returns of the two stocks relative to the benchmarks, driven by exceptional financial performance and strong fundamentals, a notable observation is the additional value unlocked for shareholders following the announcement of the corporate reorganization. In November 2024, Liberty Media disclosed plans to streamline its focus on motorsports businesses by spinning off most of its other assets. Post-spin-off, Liberty Media will primarily retain its motorsports subsidiaries, Formula One and MotoGP, along with other related sports investments. The Liberty Live Group unit will be separated into a distinct public entity, holding approximately 70 million shares in U.S. concert promoter Live Nation Entertainment, among other assets.

This new entity, named Liberty Live, will also encompass Liberty Media's ticketing and events unit, Quint, as well as private assets, cash, and debt obligations attributed to the Liberty Live Group. The split-off will be executed through the redemption of Liberty Media's Liberty Live common stock in exchange for common stock of the newly formed company. Specifically, each outstanding share of Liberty Media's Series A, Series B, and Series C Liberty Live common stock will be redeemed for one share of the corresponding series of common stock in Liberty Live, Inc. After the split, Liberty Media will no longer maintain a tracking stock structure.

The purpose of separating the Liberty Live Group into an independent public entity is to streamline Liberty Media's capital structure, potentially reduce the discount to the net asset value of Liberty Live stock and improve trading liquidity for both entities.

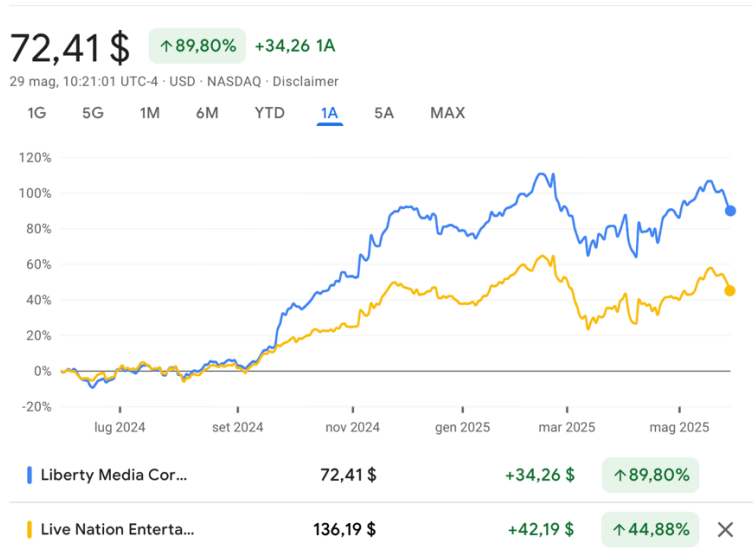


Figure 53: Liberty Live Group stock prices, Source: <https://www.google.com/finance/quote/LLYVK:NASDAQ?comparison=NASDAQ%3ALLYVA>

As explored in earlier chapters, Liberty Live Group trades at a discount relative to the value of the assets it holds. This operation is designed to be tax-free, thereby providing additional benefits to shareholders. These advantages are already reflected in the stock price, as since the rumors of the announcement emerged, the tracking stock (Liberty) has outperformed Live Nation (the stock it tracks), indicating value creation for shareholders and a narrowing of the NAV gap between the two entities. Concerns may arise regarding the operation, given that the Liberty SiriusXM split off did not benefit shareholders. However, the circumstances differ significantly. Despite stronger economic performance, which substantially influences stock performance, the “subsidiary” company in this case does not face liquidity constraints; the share float is considerably larger, with Liberty owning only 30% of it. Additionally, there are no negative catalysts, such as delisting or arbitrage, that could provoke selling pressure.

CHAPTER 9

CONVINCE OF TRACKING STOCK

9.1 Overview

At the beginning of the analysis, a brief overview of tracking stocks and their mechanics was provided; however, this chapter will examine the structure in greater depth, exploring its advantages and disadvantages, analyzing Liberty Media's strategic shift, and assessing whether this change in strategy creates value for shareholders, thereby highlighting the potential frictions of the tracking stock structure or its absence.

Tracking stocks were first introduced by General Motors in the mid 1980s during its acquisitions of Electronic Data Systems and Hughes Electronics entities that were distinctly separate from GM's traditional operations. Throughout the 1990s and early 2000s companies leveraged tracking stocks to unlock value from undervalued divisions with around 40 different classes of tracking stocks issued across various industries during this peak period. Telecom companies such as AT&T and Sprint employed tracking stocks for their emerging capital-intensive wireless businesses chemical and pharmaceutical firms like DuPont and Genzyme issued tracking stocks for their distinct operating units and companies like Disney and DLJ created tracking stocks for their online ventures. However, the popularity of this financial instrument waned in the early 2000s as several tracking stocks especially those tied to early internet businesses incurred substantial losses following the dot com bubble burst. (Cleary M&A and Corporate Governance Watch, by Benet J. O'Reilly & Jonah C. Abramowitz)

Tracking stock represents a distinct, separately traded class of common stock, with returns tied to the financial performance of a specific "tracked" business or group of businesses. It can be structured in multiple forms, such as a distinct class of tracking stock to monitor all or part of the issuer's stake in the tracked business alongside ordinary common stock, a separate class of tracking stock for each of the issuer's various businesses, or a hybrid of these approaches.

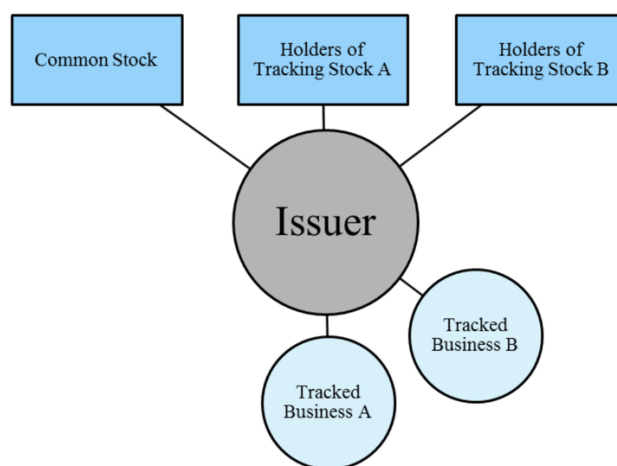


Figure 54: Type of tracking stock structure, Source: <https://www.clearmawatch.com/2016/04/return-tracking-stock/>

Regardless of the structure utilized, the “tracking” mechanism typically operates by linking dividends payable to tracking stockholders to the performance of the tracked business, or by granting rights related to the value of the tracked business in scenarios such as a sale or similar exit event. Tracking stock is generally listed and traded publicly, distinct from the issuer’s other stock, and is assigned its own ticker symbol. Notably, a class of tracking stock may attract a different set of analysts compared to the rest of the issuer company, thus enabling specialized market analysis and valuation. The value assigned to a tracking stock partly depends on the performance of the tracked business, meaning that fluctuations in the tracking stock’s price may not correspond with movements in the price of the issuer company’s other stock.

9.2 Benefits and Disadvantages

Separately traded classes of tracking stock can enhance the market’s ability to assess and assign value to a company’s distinct businesses, potentially unlocking value and boosting the issuer’s overall market capitalization. Specifically, tracking stock can reduce the impact of earnings dilution that occurs when combining a company’s capital-intensive, often not-yet-profitable “growth” businesses with its more established, profitable operations.

Certain advocates of tracking stock view it as fulfilling an incubating role, offering a mechanism to highlight, draw focus to, and potentially secure capital for a business not yet prepared to operate independently. This approach aligns with the strategy adopted by Liberty’s

management over the years. The company's strategy involved acquiring assets that were still maturing or undervalued, revitalizing them, and then raising capital by issuing tracking stocks in the market, thereby channeling the funds raised into new investments.

Additionally, by postponing or avoiding a spin-off of the "growth" businesses, investors gain access to a security that appreciates in value based on the specific industry of the tracked business while benefiting from the operational and financial synergies and scale advantages of a large, established company. The "tracked business" remains wholly owned and controlled by the issuer company, with tracking shareholders possessing only a financial interest. If structured appropriately, the implementation of tracking stock can be tax-free for both the issuer and existing shareholders.

However, introducing tracking stock presents several challenges, including the initial administrative burden of amending the issuer's organizational documents, which typically requires stockholder approval, addressing U.S. tax considerations, and fulfilling an ongoing obligation to provide additional financial and narrative disclosures about the tracked business. Depending on the structure, tracking stock may also introduce unique governance and conflict-of-interest issues, challenges in managing liabilities of an insolvent business line, and complexities in structuring equity-based compensation. Critics argue that the resulting complex structure can confuse investors, making it harder to assess the financial health and valuation of the tracked division relative to the parent company. Additionally, investors often have limited voting rights in the parent company, diminishing their influence over corporate governance or strategic decisions. For example, Liberty Live Group shareholders may have little input in significant decisions such as acquisitions like MotoGP or restructurings, despite their exposure to these assets.

Another drawback is that tracking stock shareholders lack direct ownership of the underlying assets, holding only an economic interest. In the event of the parent company's bankruptcy or legal troubles, tracking stock shareholders have no claim to the division's assets. As observed with Liberty's tracking stocks, this structure often results in lower liquidity compared to common stock, as it attracts a narrower investor base.

These risks can undermine investor confidence and suppress stock value, leading to misevaluations and stocks trading at a "conglomerate discount." This phenomenon has been

evident in the case of Liberty Media, where stocks exhibited significant gaps compared to their Net Asset Value.

The tracking stock structure appears to primarily serve as a mechanism for the parent company and its management to maintain control over subsidiaries and determine capital allocation for investments, rather than directly benefiting shareholders. Nevertheless, irrespective of the structure, strong performance by the underlying asset typically translates to positive outcomes for the tracking stock, despite its increased complexity and risk.

However, there is little doubt that investors benefit more from a transparent and less intricate business structure than from a tracking stock. This aligns with Liberty Media's efforts in recent years to unlock shareholder value through split-offs and mergers. Although short-term stock performance has yielded mixed results, the simplified structure and enhanced liquidity have likely provided advantages to shareholders by reducing complexity and NAV discounts, with long-term value creation hinging on the company's strategic execution.

CONCLUSIONS

This thesis aims to provide a comprehensive evaluation of Liberty Media Corporation by analyzing its corporate structure, financial performance, and strategic initiatives, with a specific focus on its tracking stock structure and ultimately calculating the company's intrinsic value as if it were a single conglomerate. The study also includes a discussion on the conditions of the equity markets and the associated investment risks.

The first part of the analysis provides an overview of the company's history and the various reorganizations that have taken place over the years. It then focuses on the company's corporate structure and business model, examining the operations of its owned assets to understand how they generate revenue. Additionally, the thesis explores the industries in which these companies operate, analyzing benchmarks, growth projections, and market sizes.

In the second part, the analysis delves into the financials by breaking down the income statement, balance sheet, and cash flow statement. The corporation shows strong and growing revenues year after year, attributed to management's ability to revitalize the Formula One brand and the company's wide economic moat. From a financial perspective, Liberty Media demonstrates a strong liquidity profile, prudent use of leverage, and consistent cash generation from key assets such as Formula One. John Malone's companies are known for being somewhat highly leveraged, but they benefit from strong and steady cash flows. Finally, the thesis examines the management and the ownership structure of each tracking stock, highlighting the differences between the various share classes and what impact that has in the voting rights. The analysis then includes a discussion on the current conditions of the financial markets, examining the associated risks, particularly those arising from the high market valuations. These are considered from multiple perspectives, such as the fact that the Shiller price-to-earnings ratio is at an all-time high and that expectations for future growth appear overly optimistic. This situation could potentially result in a "lost decade," during which markets may deliver zero or even negative real returns for an extended period. The section also analyzes the equity risk premium in order to highlight the current fragility of the markets and to determine an appropriate discount rate for calculating the intrinsic value of the company.

The third part of the analysis focuses on valuing the corporation's various assets as if it were a single conglomerate. The intrinsic value of Formula One is first calculated using a discounted cash flow model, with a detailed explanation of the assumptions employed in the valuation. The

analysis then proceeds to estimate the net asset value of Liberty Media's stake in Live Nation. This section also considers several potential investment strategies aimed at maximizing returns while maintaining a low level of risk. The final part of the thesis examines the company's efforts to unlock shareholder value for each of its tracking stocks. It evaluates whether the various corporate reorganizations, such as split-offs and mergers, have produced measurable benefits. The last chapter explores the rationale behind the tracking stock structure, discussing its advantages and disadvantages, and concludes with an assessment based on the results of the analysis.

REFERENCES

Books and Papers

- Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2025 Edition
- University of Berkshire Hathaway: 30 Years of Lessons Learned from Warren Buffett & Charlie Munger at the Annual Shareholders Meeting (Daniel Pecaut, Corey Wrenn, 2017)

WebSites

- <https://routenote.com/blog/just-3-music-services-dominate-90-of-the-u-s-market/>
- <https://www.vinylmeplease.com/blogs/music-industry-news/u-s-music-streaming-reaches-milestone-of-100-million-paid-subscribers-a-new-era-for-the-industry>
- <https://www.thebusinessresearchcompany.com/report/sports-global-market-report>
- <https://www.temasekpost.com/posts/lvmhs-entry-into-formula-1-a-strategic-business-analysis>
- <https://www.klaviyo.com/blog/events-and-ticketing-industry-trends>
- <https://www.ibisworld.com/united-states/industry/concert-event-promotion/1960/>
- <https://www.libertymedia.com/investors/stock-data/faq>
- https://d1io3yog0oux5.cloudfront.net/_a6dc95004a133201129d3d667672ac02/libertymedia/db/1987/23670/pdf/LMC+Investor+Day+2024.pdf
- <https://x.com/andrewcoye/status/1806312233451900932>
- <https://www.reuters.com/business/media-telecom/liberty-media-sharpens-fl-focus-with-spinoff-malone-set-take-drivers-seat-2024-11-13/>
- <https://www.libertymedia.com/news/detail/549/greg-maffei-to-step-down-as-liberty-media-ceo-at-year-end>
- <https://www.libertymedia.com/investors>
- https://d1io3yog0oux5.cloudfront.net/_3801d9cb1fc0de47e519d437e88c71f9/siriusxm/db/2221/21469/pdf/Investor_Presentation_September.17.2024.pdf
- <https://lexchart.com/who-owns-sirius-xm/>

- <https://www.businessmodelsinc.com/en/inspiration/blogs/the-business-model-of-formula-1>
- <https://intellias.com/media-entertainment-industry-trends/>
- <https://www.clearymawatch.com/2016/04/return-tracking-stock/>
- www.statista.com
- <https://www.grandviewresearch.com/industry-analysis/us-music-streaming-market-report>
- www.thebusinessresearchcompany.com
- <https://www.multip.com/shiller-pe>
- https://www.gmo.com/europe/research-library/a-second-opinion-is-just-what-the-doctor-ordered_9-24_insights/
- <https://am.jpmorgan.com/us/en/asset-management/adv/insights/market-insights/guide-to-the-markets/>
- <https://www.cnbc.com/quotes/US10Y>
- https://people.stern.nyu.edu/adamodar/New_Home_Page/home.htm
- https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html
- <https://www.macrotrends.net/stocks/charts/FWONB/liberty-media---liberty-formula-one-series-b/pe-ratio>
- <https://g.co/kgs/9F9QznN>
- <https://www.google.com/finance/quote/LLYVK:NASDAQ?comparison=NASDAQ%3ALLYVA>
- <https://www.google.com/finance/quote/FWONK:NASDAQ?window=1Y&comparison=NASDAQ%3AFWONA%2COTCMKTS%3AFWONB>

Other Sources

- Liberty Media Annual Report 2024 and 10K filing
- Liberty Media Annual Report 2023 and 10K filing
- SiriusXM Annual Report 2024 and 10K filing
- Option Chain Interactive Brokers

ACKNOWLEDGMENTS

Firstly, I want to thank professor Pierluigi Murro for giving me free reins in the idea and in the development of the thesis. I want also to thank all my friends I met during this wonderful journey both in Rome and during exchange in Ottawa, especially:

- Giulio Roberto Tepedino, the first person I met at Luiss, and with whom I immediately formed a strong friendship. I will never forget the early nights spent together and all the quality moments sipping gin.
- Tommaso Costa, my gym bro, with whom I spent countless hours working out and taking saunas at the gym, on top of the time spent together hanging out.
- Vincenzo Di Fiore and Alessandro Calzavara, my two classmates with whom I shared many great moments, especially the days and nights spent at Pola, not only to study, but also to just spend time together.
- Juan and Nico, my Spanish buddies that I met in Canada. We had such a great time together and with the other people of the group. I will never forget the night spent at Cri's before going to "The Show", the time at the Caf and the classes took together.

At last, I want to thank my parents. They are the only people who supported and believed in me since the beginning and that are always close to me in any difficult moment of my life.