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**Media Mosaic: A Comprehensive Case Study on the
Merger between AT&T and Time Warner**

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**Portfolio Analysis: Identifying the Ideal Acquisition
Target for AT&T**

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Media Mosaic: A Comprehensive Case Study on the Merger between AT&T and Time Warner

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Abstract

On October 22, 2016, the intention of a corporate merger between AT&T and Time Warner was announced. This acquisition represents the first media conglomerate within the telecommunications industry, which has influenced its evolution over the years. "We're building a modern media company," were the words of AT&T's CEO Randall Stephenson, but despite the initial optimism, the acquisition has been subject to controversy. The case study identifies what were the most significant aspects of this merger and which learnings could be drawn from them. Individual components are proposed as deepening, delving into specific researches as portfolio analysis, industry consequences, and risk management.

Key Words

- *SIZE*
- *MEDIA CONGLOMERATE*
- *CONTROVERSY*
- *VERTICAL INTEGRATION*
- *OVERVALUATION*

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Contextual Overview

The media and entertainment industry is an environment of continuous evolution where thinking about new business strategies may be a winning approach. Keeping up with the dynamic demands of the audience and the fierce competition can be a daunting task, and for this reason, trying to create something that no one has ever managed before is a noteworthy action. This ambition led AT&T to seek to create a market hegemony within the entertainment sector, based on a merger with another giant in the industry, which could guarantee the right counterpart to create a media conglomerate.

TIMELINE

22/10/2016 - AT&T announces its intention to acquire Time Warner for \$85.4 billion in cash and stock.

15/02/2017 - Time Warner shareholders approve the merger with AT&T.

20/11/2017 - US Department of Justice files antitrust suit blocking merger.

26/03/2018 - The trial to determine the legality of the merger begins in the U.S. District Court for the District of Columbia.

12/06/2018 - US federal court dismisses Justice Department's antitrust lawsuit.

15/06/2018 - AT&T closes the deal with Time Warner at the end of an antitrust case won against the Trump administration.

3/07/2019 - AT&T renamed Warner Media as part of its strategy to restructure and reorganize its operations.

Telecommunications Industry & its Evolution

The telecommunications sector is made up of companies and organizations that provide services and technologies for the transmission of information, data, voice, and video over long distances.

This sector encompasses a wide range of services and technologies, including wired and wireless communication, the internet, cable television, satellite communication, and more. The telecommunications sector can trace its origins back to the 1830s with the invention of the electrical telegraph, this early technology marked the sector's beginnings and its role in transforming communication. The subsequent emergence and widespread adoption of the telephone further revolutionized how individuals connected and communicated, establishing telecommunications as a dynamic and swiftly evolving field that has continuously undergone substantial changes since its inception. Before AT&T's acquisition of Time Warner the telecom and media industries were already experiencing a trend of convergence, with many telecommunications companies seeking to expand into the media and content creation space to diversify their services. The competitive landscape implied that telecom companies needed to continually invest in network infrastructure and services to maintain and grow their market share. Upon this, regulatory scrutiny was also a challenge, particularly concerning issues like net neutrality and competition in the broadband market.

Sector Outlook

The stability of the sector's growth, even during periods of recession, means that it is a solid defensive investment while maintaining its appeal to growth investors. Even during uncertain and volatile economic times, the steady demand for voice and data services, along with extensive subscription plans, assures a stable source of revenues for major telecom firms. Telecommunications have become increasingly vital, which bodes well for the sector's continued growth and prospects. The continuing advances in high-speed mobile services and internet connectivity keep spurring innovation and competition within the sector. Today, the United States telecommunication sector, which underpins the operations of all enterprises, public safety groups, and the government, is a crucial part of the country's economy. The US

telecom industry generated more than \$400 billion in revenue in the previous year, with the major companies in the market accounting for more than 70% of that total. Broadband internet access, cable and satellite television, streaming services, mobile and fixed-line telephone, and other services were all included in this income total. The sector remained stable in 2018 and continued to adjust to shifting customer preferences and technical improvements, even though revenue growth was not as high as in previous years. Looking forward, the sector's biggest challenge is to keep up with people's demand for speedier data connectivity, higher resolution, quicker video streaming, and ample multimedia applications. The need for faster and better connections as people consume and create content requires significant capital expenditures. Companies that can meet this need may thrive.

Media & Entertainment Industry

The media and entertainment industry encompasses a broad spectrum of businesses and activities with a common goal: creating, delivering, and monetizing content and experiences that captivate, educate, or engage audiences. As observable in *Exhibit 1*, this multifaceted sector includes film, television, radio, music, publishing, and various other segments, all working together to produce and disseminate content for public consumption. The industry's resilience and evolution are closely intertwined with the dynamic landscape of technology and external factors. Wireless communication, mobile devices, digitization, internet access speeds, cloud storage, and the ever-expanding realm of social media have all played pivotal roles in shaping its trajectory. Throughout each generation, the industry has adeptly embraced these advancements, adapting its strategies and platforms to meet the changing demands of consumers. This ability to stay nimble and responsive to evolving technology has been essential in maintaining its relevance and continued success. Before acquisition, the industry was characterized by a fragmented landscape, with numerous media and entertainment companies

operating independently. There was a mix of content creators, broadcasters, cable networks, and digital streaming services. The biggest challenge was how to distribute content in the digital age, traditional cable providers were losing subscribers to cord-cutting, while streaming services were on the rise. The acquisition allowed AT&T to combine content creation and distribution, potentially offering bundled packages that combine mobile, broadband, and content services. This could create innovative, all-in-one offerings.

Sector Financials

The Media and Entertainment industry is a thriving part of the US economy; the U.S. M&E market, which is 33% of the global industry, is the largest market in the world and it is expected to reach \$804 billion by 2021. In 2018, total core copyright industries added 2.2 trillion dollars to the U.S. economy (accounting for 11.6%) and employed over 11.6 million workers. These industries grew on average 5.23% a year, while the U.S. economy as a whole averaged 2.21% annually. The media and entertainment industry has long relied on advertising as a crucial source of income. This revenue stream encompasses various formats while the landscape of advertising has evolved significantly due to the rise of social media, prompting traditional industry players to make the transition to digital platforms. As social media gained prominence, it disrupted the conventional advertising model pushing companies to reallocate their advertising budgets towards digital media. The transition to digital tools and platforms has brought about a transformation in the industry, it has facilitated a more streamlined approach to content production, distribution, and consumption. This shift towards digital has not only increased the industry's reach but also revolutionized its market expansion. The ability to adapt to these technological advancements and changing consumer behaviour has become paramount for success in the media and entertainment sector.

AT&T: leader of the Communication Industry for over a Century

AT&T, an acronym for American Telephone and Telegraph Company, has a history spanning more than a century, representing one of the giants in the telecommunications industry. The firm has been founded in 1885 in Boston, Massachusetts, by Alexander Graham Bell, inventor of the telephone, and Gardiner Hubbard, with a mandate to build and develop a long-range telephone network in the United States. By operating within a fast-growing and expanding industry, AT&T was able to achieve enormous success early on, so much so that the firm obtained a substantial monopoly status at the turn of the 19th and 20th centuries. A first notable event happened in 1913, year in which AT&T was forced to separate into several smaller companies due to antitrust laws. This led to a subsequent reunification during the late 1920s, forming what would become known as the "Bell System." The same situation manifested itself again in the early 1980s, when the U.S. Department of Justice took antitrust action against the firm, leading to its division in 1984. This gave rise to seven independent Baby Bells and a new AT&T, which was mainly focused on long-distance service business. Over the following years, AT&T underwent significant transformations, aligning itself with new technologies and expanding within related industries such as Internet and cable television. A notable transaction in this regard is the acquisition of SBC Communications, one of the Baby Bells, in 2005. In more recent years, AT&T has continued to evolve, focusing increasingly on the convergence between content and distribution.

Corporate Overview

Today, AT&T is a diversified company operating in the telecommunications, media and entertainment industries. It should be emphasized that the organizational structure of the company reflects the convergence of these sectors, aiming to offer integrated solutions to both consumers and businesses. In detail, AT&T's organization is focused on the synergy of its

different divisions with the aim of generating a rich experience that integrates communications, media and advanced services. In addition, it should be emphasized that the continuous transformation of the telecommunications and media industry leads to a constant business evolution, in order to keep up with the periodic challenges (such as globalization, enlarged offerings for the consumers, ecc.) and opportunities offered by the digital world. With that being said, the main elements of its organizational structure include:

- *Communications*: AT&T maintains a strong presence in the telecommunications industry, offering mobile and landline services, high-speed Internet connections, and network services for enterprises.
- *Media and Entertainment*: Following the acquisition of Time Warner in 2018, AT&T has become a major player in the media and entertainment industry. It now controls a wide range of content, including TV channels, movie studios, and streaming platforms like HBO.
- *Enterprise Services*: This section of the firm is designed to accommodate enterprises of different sizes, and includes network services, unified communications, security solutions, and cloud services.
- *Emerging Technologies*: The company is active in the development and implementation of emerging technologies such as artificial intelligence, the Internet of Things (IoT) and 5G connectivity.

Financial statistics

In order to get a more detailed perspective of AT&T's strength and presence within the media and telecommunications industry, it is useful to go over some financial indicators. Note that the time horizon to which our analysis refers is the 4TH of June 2018, the day when the acquisition process of Time Warner Inc. actually begins. A first important financial indicator is market capitalization, which represents the total value of a company's outstanding shares in the market. With reference to the AT&T case, the figure is \$214.85B, broken down into 6.374 billion shares (*Exhibit 2 & Exhibit 3*). This data is particularly relevant because it reflects the dominant situation in which the firm finds itself within the industry. Specifically, the difference with its competitors is very high given that the average market capitalization in the industry is \$92.5B (+\$122.35B). AT&T's strength is also evidenced by other financial statistics, such as the historical trend of revenues, which began to grow starting from June 2015. Specifically, while the average value of this indicator is \$127.82 billion between 2010 and 2015, there is an exponential growth that brings this variable to an average value of \$148.74 billion between 2015 and 2018 (*Exhibit 4*). This trend is also reflected in the historical trend of net income which, as of the 31st of March 2018, is around a value of \$30.64 billion (*Exhibit 5*). In conclusion, after a thorough analysis of key financial indicators, it is clear that AT&T has a positive financial situation as of the 4th of June 2018. In detail, the market capitalization reflects the strength and confidence of investors in the company's potential, indicating a significant market valuation. Revenues, on the other hand, show a steady growth, suggesting a solid operating performance and sustained demand for the firm's products and services. At the same time, a positive and above sectoral average net income indicates an effective financial management and a sustainable profitability over time. Overall, it can be said that AT&T enjoys a solid financial position, which provides a stable foundation for future growth and value creation for investors.

Time Warner: A History of Takeovers

Time Warner was founded in 1990, following the merger between the two American giants Time Inc and Warner Communications. Its history and evolution are characterized by a succession of corporate acquisitions spanning over 30 years that involved the most important players in the American and global media industry. In fact, during 1996 the corporate group decided to expand its boundaries through the acquisition of Turner Broadcasting System, a division of which is CNN. Time Warner's rapid corporate expansion did not go unnoticed, catching the attention of another major American corporate group employed in the media sector, AOL, which subsequently decided to acquire it in 2001. However, the marriage between these two companies did not yield the benefits and advantages that both parties expected, and after countless financial losses, which in 2002 alone led to the group losing around \$99 billion, the divorce was finalized in 2009. Another major loss occurred in 2013, when Time Inc decided to leave the group and become a listed company, while Time Warner continued to operate independently. Only five years later, the group was fully acquired by the American giant AT&T for approximately \$85 billion, and the company took the name of Warner Media. The importance of this acquisition led to revitalize Time Warner's balance sheet and financial health after the disappointments and losses experienced in the early 2000s.

Company profile

Time Warner is one of the most relevant US public publishing groups and is active in the media and entertainment sector. Since the early 1990s, the firm has based its offer to the public on four main branches, including television channels, cinema, film distribution, and magazines. The importance of this corporate group is demonstrated not only by its economic size and financial figures, but above all by the popularity of the brands within it. Proving this, Time Warner is the owner of some of the most important American television broadcasters known worldwide, such

as HBO, CNN, and TNT. As far as cinema is concerned, Warner Bros is the flagship of the corporate group, since it represents one of the most renowned movie production companies in the world that every year releases dozens of successful films. Time Warner has also historically been involved in publishing. Until Time Inc was part of the corporate group, the company controlled one of the most famous newspapers in the world, Time magazine. Nowadays the firm has a controlling interest in the comic book company DC Comics, mother of iconic characters such as Batman and Superman. The above shows how the strength of this group has been its ability to integrate some of the most important American companies over the years, with the aim of creating a benchmark within the entertainment and media industry.

Financial overview

Observing Time Warner's indices and financial data is useful to realize the real economic weight and dimension of the corporate group. As of June 14, 2018, before being acquired by AT&T, Time Warner's market capitalization was around \$77.27 billion, for a total of nearly 800 million shares outstanding. This value is high compared to the industry average where only the giant Disney exceeds \$100 billion in market capitalization. During the same year, the wide range of companies and brands controlled by the corporate group enabled the parent company to generate \$33 billion in global revenues and employ more than 25,500 people. Time Warner's financial strength was also confirmed by other values. As reported in *Exhibit 6*, between 2015 and 2017 there was an important growth in net income, which went from being \$3.833 billion to \$5.247 billion in just two years, realizing a growth of 36.89%. In addition, the profit margin, depending on various factors, was in the range of 8% to 12% in those years, and the net debt value was reduced between 2016 and 2017, moving from \$22.800 to \$21.113 billion, as depicted in *Exhibit 7*. After the difficulties encountered in the early 2000s with the AOL merger, Time Warner seemed to have returned to financial stability within its industry, and the economic

strength demonstrated by firm's financial statements in the period between 2015 and 2017, has led analysts and investors to have a positive market sentiment towards the company. As a result, the confidence and optimism injected into the market not only attracted individual investors but something broader was starting to move on the horizon.

The first Deal

The details of the first agreement between the two companies in 2016 included several important features. AT&T valued the total transaction around \$108.7 billion, including Time Warner's net debt and its equity valuation of \$85.4 billion. The acquisition would have been half in cash and half in equity, guaranteeing a price of \$53.75 per share in cash plus \$53.75 per share in AT&T stock. This means that based on the amount of AT&T shares outstanding at that time, Time Warner shareholders will possess between 14.4% and 15.7% of AT&T shares on a fully diluted basis. Additionally, the cash portion of the takeover price would have been financed with new debt and cash on AT&T's balance sheet. The picture that has emerged since the announcement of the deal presents two different sides of the same coin. On one hand there is the optimism of the acquirer, as Randall Stephenson, CEO of AT&T, stated that the transaction represents "the perfect union" between two companies and that could result in an innovative approach on how the media and communications industry works for consumers, content creators, and advertisers. On the other side, Jeff Bewkes, CEO of Time Warner, thought that the 2016 deal was not aimed to a better management of Time Warner's network, but only gave to AT&T the control over target's cable channels as HBO and CNN, and the Warner Bros film and cinema studio. Since the beginning of its history, the merger of these two companies has failed to maintain unanimity, fueling confusion in the environment and among the protagonists. The size and importance of the deal are certainly guilty of this confusion, so much

that what seemed like an announced marriage turned out to be a judicial process, which was about to collapse at the first hurdle.

Wall Street doesn't like the Deal

As stated above, AT&T and Time Warner view their merger as strategically sound. However, the real challenge lies in convincing skeptical investors of the validity of this perspective. AT&T's CEO Randall Stephenson and Time Warner's chief executive Jeff Bewkes addressed analysts and investors on a conference call on the next Monday following the announcement and the call followed a media blitz in order to discuss and defend the deal. Wall Street doesn't seem to think the marriage of AT&T and Time Warner is a smart move at this price. AT&T's \$107.50 a share offer for the company is 35% higher than where Time Warner's stock was trading before the rumors started. Investors seem worried that AT&T may be spending too much for Time Warner and that the financial and strategic benefits won't be as significant as Stephenson has promised. The deal also seems to be reminding some of the massive merger between AOL and Time Warner back in 2000. That is now acknowledged as one of the least successful in history and was completely undone years later. Despite the general skepticism, the prevailing and general outlook was uncertainty.

Trump and the Department of Justice

The \$85 billion deal solicited strong words from then-presidential candidate Donald Trump, who claimed the merger would put "too much concentration of power in the hands of too few." After Donald Trump was elected U.S. President, his Justice Department filed a lawsuit against AT&T and Time Warner to block the proposed merger arguing that it would limit competition and raise costs. The companies countered that the deal would allow Time Warner and AT&T to compete more effectively against Silicon Valley companies like Google and Netflix. DOJ stated

that regulators primarily focus on safeguarding competition and consumer interests in cases like these. While this oversimplifies the assessment of complex mergers, antitrust regulators often use consumer prices as an indicator of competition's well-being. If a merger leads to price increases, it may be detrimental to consumers and could trigger further regulatory evaluation. On the other hand, from candidate to the president-elect to the president of the U.S., Donald Trump has had no problem sharing his disapproval of cable network CNN. On the campaign trail, President Trump spoke about the merger, saying that "as an example of the power structure I'm fighting, AT&T is buying Time Warner and thus CNN, a deal we will not approve in my administration." The lawsuit ended up in the jurisdiction of Judge Richard Leon, who was appointed by George W. Bush, in a U.S. District Court located in Washington, D.C. Following a six-week trial, Judge Leon ruled in favor of AT&T and Time Warner on June 12, 2018, granting the companies approval to finalize their merger. The judge said the Justice Department had not proved that the telecom company's acquisition of Time Warner would lead to fewer choices for consumers and higher prices for television and internet services. To underline his final decision, Judge Leon wrote in his opinion "If there ever were an antitrust case where the parties had a dramatically different assessment of the current state of the relevant market and a fundamentally different vision of its future development, this is the one". Just three days later, on June 15, 2018, AT&T officially announced the acquisition of Time Warner.

The After-Ruling

Shares of AT&T declined, while Time Warner's stock surged, following the judge's decision permitting the telecom giant's acquisition of the media conglomerate to move forward. AT&T's stock saw a decrease of up to 3%, while Time Warner's shares experienced an increase of as much as 5.3%, reaching over \$100 per share during after-hours trading. "The content and creative talent at Warner Bros., HBO and Turner are first-rate. Combine all that with AT&T's

strengths in direct-to-consumer distribution, and we offer customers a differentiated, high-quality, mobile-first entertainment experience,” said Randall Stephenson after the acquisition “We’re going to bring a fresh approach to how the media and entertainment industry works for consumers, content creators, distributors and advertisers.” AT&T rebranded its media business as Warner Media and subsequently restructured its workforce and streaming services, including streamlining HBO's streaming options.

TEACHING NOTE

Synopsis

In 2016, AT&T, a major telecommunications company, proposed acquiring Time Warner, a prominent player in media and entertainment. This move marked a significant development in the evolving relationship between telecommunications and media. AT&T aimed to gain a competitive advantage through the first vertical integration within the sector. The decision to pursue this acquisition was driven by various factors. Students tasked with analysing the situation should focus on the unique characteristics and financial aspects of the telecommunications and media industries. They should also delve into the distinctive features of both companies, consider the legal implications of the deal, and the market reactions. This comprehensive analysis, encompassing both quantitative and qualitative aspects, aims to provide a thorough insight into the complexities of the acquisition.

Pedagogical Objectives

The case study is structured to be taught in one standard 80-minute session, since the concepts analyzed and topics covered perfectly fit into the single lesson, without extending the teaching to two consecutive days. To best prepare MSc in Finance students for this case study, it is beneficial if they possess a good understanding of valuation concepts, as well as familiarity

with M&A processes, which include the stages of mergers and acquisitions, integration strategies, and regulatory considerations. A grasp of financial principles, such as capital structure, cost of capital, and financial decision-making, will also prove advantageous. This case study delves into the intricate acquisition of Time Warner by AT&T, a complex and multifaceted business transaction. To ensure that students develop a comprehensive understanding, the pedagogical objectives should foster critical thinking, strategic analysis, and a deeper comprehension of various business concepts that were addressed during the Merger & Acquisition course. The pedagogical objectives of this case study encompass the following:

1. *Strategic Objectives Analysis:*

- Comprehend and identify the strategic objectives motivating AT&T's consideration of the Time Warner acquisition. This analysis provides an opportunity to explore how aligning with Time Warner can help AT&T attain these objectives.

2. *Impact of Acquisition Size:*

- Evaluate the potential advantages and challenges associated with the scale of the acquisition and its potential impact on AT&T's ability to achieve its strategic objectives.

3. *Payment Structure Analysis:*

- Assess the rationale behind the payment structure chosen by AT&T's executives (50% cash and 50% equity) and consider the financial and strategic implications of this payment method on both AT&T and Time Warner.

4. *Public vs. Private Companies:*

- Analyse how the public company status of both AT&T and Time Warner may have influenced the success of the merger.

5. *Comparison between Evaluation Methods:*

- Compare and contrast various methods for evaluating a company, including discounted cash flow (DCF) analysis, market multiples, and the dividend discount model (DDM), to determine which method is the most reliable for this case.

6. *Share price Valuation:*

- Explore the methods used to assess the acquisition price and engage in a discussion about whether Time Warner' shares were undervalued or overvalued relative to a fair price per share.

Motivation for the Merger

Begin the discussion by asking students why AT&T is acquiring Time Warner. Before examining in detail the key features of the merger between AT&T and Time Warner, it is important to consider a fundamental question: 'What was the rationale for an acquisition of this magnitude in the media and telecommunications industry, which is known for its wealth and low concentration?'. The answer to this question is not immediate and requires an in-depth analysis of numerous variables both from a business point of view and related to the economic context of reference. Indeed, throughout the history of this sector, there have been numerous M&A transactions but, no operation has ever reached the scale of the case that is being analyzed.

From a general point of view, the main motivation behind this M&A transaction is the achievement of operational synergies, i.e. when the value and performance of two firms combined is greater than the sum of the separate firms apart and, as such, allows for the firms to increase their operating income and achieve higher growth. Despite the truthfulness of what has just been said, however, it must be emphasized that the framework of this financial transaction is particularly complex, and it is therefore possible to trace additional secondary strategic objectives that led AT&T to acquire Time Warner. In other words, in order to fully understand the rationale behind this merger, it is necessary to understand what are the above-mentioned strategic objectives that drove AT&T to consider the acquisition of Time Warner, and how does the size of the acquisition might have affected the acquirer's ability to achieve them.

Strategic Objectives

From a general point of view, it is worth bearing in mind that AT&T's main objective has always been to try to create greater integration between content and distribution within the media and telecommunications industry. However, as we shall see below, this has raised numerous competition and regulatory concerns, leading to legal challenges that have affected the path of the acquisition. On the other hand, by deepening the level of detail of the analysis, it is possible to trace further strategic objectives, which were decisive in the completion of an operation of this size:

- *Expanding Content Offerings:* Prior to the acquisition, AT&T was primarily a telecommunications service provider, offering services such as mobile telephony, Internet connections, and cable TV. In such an organizational context, therefore, the firm had identified the expansion within the content and entertainment sector as the way to

grow and strengthen its Market Cap. In this sense, the identification of Time Warner as a target company was a 'perfect fit' as an eventual merger would have granted access to a vast library of premium content, including prestigious brands such as HBO, Warner Bros. and CNN. Indeed, from a strategic standpoint, this transaction would have allowed AT&T to diversify its offerings and compete successfully in an evolving media landscape.

- *Value Chain Control:* Within the telecommunications sector, which is particularly complex in terms of supply and production management, having a high level of control over the value chain can lead to numerous important strategic advantages. First of all, it is possible to achieve a higher degree in independence and cost reduction: in fact, when a company is able to exert high influence over the main elements of the value chain, it becomes less dependent on external suppliers. This can result in greater decision-making independence and in the ability to negotiate more competitive prices for the acquisition of related content or services. Secondly, it is possible to obtain a greater level of flexibility and timeliness: in this sense, by having direct control over the production and distribution of content, a company can respond more quickly to market needs. This is especially important in an ever-changing industry like the media sector, where timeliness in launching new content or services can make all the difference. Finally, the third major order of advantages that can be obtained through a higher level of control over the value chain concerns a series of benefits linked to the achievement of better-quality management. In fact, given that Time Warner was very well known for producing high-quality content through prestigious brands, the acquisition would have allowed AT&T to have more control over the production of these contents, ensuring greater consistency in quality.

- *Defense against competition:* Since the early 2000s, the telecommunications and media industry has been under increasing pressure in terms of competition from streaming services and online content platforms. In an economic context where the boundaries are particularly blurred, in fact, companies such as Netflix and Amazon Prime Video were gaining popularity and attracting more and more users. This trend has led to a major shift in media consumption habits, with viewers increasingly turning to on-demand streaming services to access movies, TV series, and original content. In this sense, for a company like AT&T, which specializes in telephone and telecommunications services, the challenge was to retain and attract new customers in a changing media landscape. In light of the above, the acquisition of Time Warner would have allowed the company to face the growing competition in several ways that mainly included: offering premium content through the brands owned by Time Warner, exploiting synergies between the distribution of services and content creation, and the creation of cutting-edge streaming services.
- *Revenue diversification:* Similar to the previous discussion regarding the greater level of control over the value chain, AT&T's acquisition of Time Warner has also allowed the company to dramatically reduce its reliance on individual sources of revenue. In particular, the expansion into a new sector has allowed for the diversification of the sources of income, reducing the risk associated with the dependence on a single commercial activity. In addition, by having numerous channels through which wealth can be generated, the firm is also less vulnerable to sectoral fluctuations related to economic conditions, competition, and government regulations. In this sense, the acquisition of Time Warner brought numerous benefits, especially in the event that the media and telecommunications sector had gone through a prolonged period of severe

recession or short-lived "turbulence": AT&T, in fact, being a diversified company, could have relied on other sources of income capable of compensating for any losses.

In conclusion, it can be established that AT&T's acquisition of Time Warner was the result of a well-thought-out and targeted strategy towards expansion in the telecommunications and media industry. The strategic objectives that guided this transaction highlight AT&T's deliberate approach to diversifying its businesses and meeting the challenges of a rapidly changing market. Integration between content and distribution, control over the value chain, and diversification of revenue sources are all key elements of this thoughtful growth strategy. As a result, the acquisition of Time Warner has enabled AT&T to position itself competitively in a new industry, offering a wide range of high-quality services and content, improving its financial stability and preparing for a future of sustainable expansion.

How size impacts Strategic Objectives

The next step in studying the process of AT&T's acquisition of Time Warner is to examine the reasons why the dimension of the target company may have slowed and hindered the M&A deal, by preventing AT&T from completing, partially or totally, the aforementioned strategic objectives. However, before delving into the level of analysis, it is necessary to make a brief general premise, by pointing out that mergers and acquisitions are key strategies for expanding operations and achieving strategic goals. Hence, it is of fundamental importance to recognize that the size of the target company can play a critical role in determining the success or failure of an M&A deal. For this reason, this section will examine how the dimension of the target company affects the M&A process and the challenges that can arise when dealing with firms of considerable size. With reference to the above, AT&T's acquisition of Time Warner has been the subject of considerable attention and has raised several challenges related to the size of the

target company. In particular, the main reasons that hindered the M&A deal, preventing AT&T from achieving its strategic objectives, include:

- *Concentration of Power:* This issue arose because the companies involved were already leaders within their respective sectors, both from a purely economic perspective, given that both had high market shares, and from a reputational perspective (*Exhibit 8 & Exhibit 9*). Notably, AT&T was America's largest telecommunications provider, while Time Warner was one of the world's largest media and entertainment companies. Hence, as it was assumed, the outcome of the M&A deal led to the creation of a jumbo company and to the consequent concentration of power held by a single firm. This has raised concerns about competition and the potential abuse of dominance in the market, so much so that some of the major regulatory authorities, such as the Federal Communications Commission (FCC) and the U.S. Department of Justice, have examined the potential effects of this acquisition on competition and consumers. The fear was that AT&T, through its control over a wide range of content and distribution through telecommunications networks, could limit competitors' access to Time Warner's content or impose unfavorable terms on other media and telecommunications service providers.
- *Cultural differences:* The issue in question emerged because AT&T and Time Warner were two companies with very different histories, corporate cultures, and operating models. Specifically, it can be said that this operational complexity is the factor that caused the biggest problems for AT&T. In detail, the cultural incompatibilities occurred with reference to two important aspects: the Strategic Focus, and the Organizational structure. The first irreconcilability arises because AT&T was a company with a strong emphasis on providing network and communications services, while Time Warner's

focus was predominantly on contents. This industry diversity has led to significant differences in business strategies, product cycles, and operations. Second, the two firms had different organizational structures and decision-making hierarchies and processes. In detail, AT&T was characterized by a more telecommunications-oriented organization, while Time Warner was structured to manage the production and distribution of contents. Again, these differences led to challenges in defining roles and responsibilities in the new post-acquisition organization.

- *Operational complexity:* This is the factor that has caused the biggest problems for AT&T in evaluating, realizing and completing the M&A deal. In fact, with reference to the acquisition of a large target firm, the integration of the companies' operations is a fundamental part that requires a detailed analysis of the operational processes, supply chains and organizational structures. In particular, this is especially important to ensure that processes are streamlined and optimized in order to maximize efficiency, a variable that is often overlooked in large companies. During AT&T's acquisition of Time Warner, the challenges of operational complexity emerged in several ways, including:
- *Diversity of activities:* As pointed out above, Time Warner was a company involved in a wide range of media and entertainment-related activities; while AT&T, on the other hand, was primarily a telecommunications service provider with complex network operations. It can be seen that the integration of these activities, which are typical of complementary sectors, is a particularly intricate operation that requires a careful planning and management.

- *Operational synergies:* As noted above, the primary objective of AT&T's acquisition of Time Warner was to realize any operational synergies to reduce costs, maximize efficiency, and offer a complete product to consumers. However, the complexity of both companies' operations has made it difficult to identify and capture such synergies effectively. In addition, considering that the two companies used different infrastructures and technological systems to support their respective activities, process integration, data migration and ensuring interoperability required significant technological commitment. However, despite this technological diversity, the process of achieving operational synergies is made even more complex, as in the acquisition phase, the presence of possible duplication risks can emerge, i.e. situations in which both companies have similar or overlapping structures/resources. This can lead to wasted resources and additional costs. Hence, identifying and mitigating these risks is essential to reducing operational complexity.
- *Human Resource Management:* Another challenge related to operational complexity was personnel management. Going back to what was said above with reference to organizational diversity, the integration of workforces from two companies of different sizes and cultures required attention to human resource planning, the definition of roles and responsibilities, and employee engagement. In conclusion, changing the way a workforce accustomed to operating according to certain practices has been one of AT&T's most difficult challenges.

Deal Structure in mergers

The structure of the agreement between two companies within a corporate acquisition may be affected by several dimensions. The executives of the involved firms tend to consider various

features and aspects to be included within contracts, because the success or failure of an acquisition may be based on these. In this analysis, the focus will be on two aspects in particular, the form of payment and the nature of the companies involved.

Payment Decision and Merger Success

It is interesting to analyze which assumptions and implications led AT&T management to formulate its payment offer in a specific formula. In fact, under the leadership of Randall Stephenson, a hybrid transaction was proposed, amounting to a total valuation of \$107.50 per share, of which \$53.75 was paid in cash and \$53.75 paid in AT&T stock. How did this solution come about? The most popular forms of payment within the takeover world are shares or cash, and these are decided based on the risk and benefits that can be derived by the shareholders of the companies involved. Generally, in fact, the use of equities tends to expose the target to higher risk of information asymmetry as market volatility can potentially reduce the purchase offer. For this reason, acquiring companies tend to pay in this mode when they believe that their shares are overvalued, and thus worth less than what the market claims. Full-stock transactions are used and proposed by buyers to reduce the risk they are exposed to and to try to share it with the target company's shareholders. The motivations behind this choice are influenced not only by the concept of risk, but also by that of market return. In fact, in many cases buyers tend to pay a higher price for the target with their overvalued shares, triggering a reaction from the financial market. This action is usually recognized by the investors, who therefore decide to sell the shares, causing a reduction in price and a negative return. *Exhibit 10* depicts this process, representing how during the days following most of US companies' acquisitions, between (-1;+1) and (+2;+20), there is an important reduction in the cumulative average excess return (CAAR) from 9.18% to 0.44%. On the other hand, firms involved in a merger may adopt a cash-only solution. In this case, the risk management and consequently associated return

changes. First, cash acquisitions are characterized by certainty of value, as they are not subject to market volatility like equities, thus reducing the risk of information asymmetry. This aspect greatly reduces the post-merger performance risk, as the target's shareholders are not exposed to the possibility that the acquiring company's performance will disappoint expectations or that its shares will be overvalued. In addition, cash provides immediate liquidity by allowing the target's shareholders to use it to invest and achieve financial goals, making a cash offering preferable to an equity offering. Regarding financial return, contrary to what has been observed above, when a cash acquisition proposal is made, the market reaction tends to be more positive. In fact, if a buying company tends to pay in cash, investors will be led to think that its shares are undervalued and for this reason they will tend to buy them, driving up their price. Observing *Exhibit 10*, it is possible to visualize what has been said, as the CAAR value of American cash acquisitions during the days of the announcement (-1;+1) is considerably higher than stock acquisitions, going from 9,18 to 25,99% respectively. It is important to notice that this difference in performance is connected to the days of the announcement and not to the following ones (+2;+20), where the CAAR for cash acquisitions reaches the value of -0.60%. Therefore, is correct to realize that, on average, this form of payment may guarantee higher returns around the announcement date, but it is not certain that this trend will also occur in post-merger periods. After learning the main characteristics of these two forms of payment, it is possible to understand that there is no mode that is considered systematically better than the other. This is precisely why, in most cases, companies involved in an acquisition adopt a hybrid solution that benefits both the acquirer and the target. An offer based on 50% cash and 50% stock may result in satisfying both parties, without preferring one. The main benefits of a hybrid solution are:

- A combination of cash and shares is distributed to target company shareholders, which can help diversify their investment portfolio.

- Cash helps to mitigate the market risk associated with equities, hedging the value of the transaction if stock prices fall.
- Mixed payment helps shareholder to manage their tax liabilities, since they choose between realizing immediate capital gains (cash) or hold for future gains (stock), and vice versa.

This form of payment also has some disadvantages, related to its dual nature. The main drawbacks of this mode are:

- The evaluation process turns out to be more complicated, as giving an estimate of the target using this mode needs additional attention regarding the financial valuation.
- Target shareholders might not completely profit from the mixed structure since they have a strong preference for either cash or equity.
- The shareholders that receive stocks are highly exposed to volatility and market risk, while the part that receive cash is not exposed to the same risk.

Nowadays, most corporate acquisitions feature a hybrid form of payment since through this mode it is possible to combine the advantages of full-stock and full-cash payment, achieving a perfect trade-off between risk and potential return. Risk mitigation is certainly behind the decisions made by the CEOs of AT&T and Time Warner on June 15, 2018, given that the goal was to safeguard the interests of both companies and their shareholders from the uncertainty of

stock performance in the financial markets. The acquiring company's desire to preserve cash reserves may also be considered as one of the reasons underlying the hybrid form of payment. In this specific case, due to the structure of the transaction, AT&T expects to realize cost synergies for the first 3 years of \$1 billion, and that its dividend coverage could potentially increase, as the revenue and earnings growth. In addition, the acquiring company expects that its balance sheets will remain strong and stable after the acquisition, with growth in EPS and FCF per share.

Implications for the public status

The nature of the companies involved in an acquisition is a very important aspect to consider while valuing an overall deal. Did the public company status of both AT&T and Time Warner have an impact on the potential success of the acquisition? When reasoning about this aspect, students should be able to conclude that, as public companies, both firms were subject to a range of factors that influenced various aspects of the acquisition process. Firstly, the public nature of these companies subjected them to heightened regulatory scrutiny with regulatory bodies, such as the Securities and Exchange Commission (SEC), closely monitoring the acquisition. This additional layer of oversight added complexity and potential delays to the approval process. Another important aspect that students should be able to consider is that the ownership of public companies tends to be distributed across several shareholders, while private companies tend to be held by a much smaller group of owners (e.g. a family, partnership or private equity fund). This implicates that public companies are inherently driven by the expectations of their shareholders and these expectations revolve around maximizing the value of their investments through dividends and capital appreciation. For this, the terms and structure of the acquisition, as well as its post-acquisition performance, would have been closely watched by shareholders. Furthermore, the public status of both companies means that their stock prices

are influenced by market sentiment and investor reactions. Negative market responses, such as a significant drop in stock prices or an adverse impact on AT&T's and Time Warner's market capitalization, could directly affect the perceived success of the acquisition. This was evident when AT&T's stock price initially dropped after the acquisition announcement, while Time Warner's stock price surged. Students should conclude that the market exhibited scepticism regarding whether the acquisition would generate sufficient value to justify AT&T's investment, but also indicated that Time Warner shareholders viewed the deal favourably. Obviously, the public status of the two companies offered some advantages in the context of the acquisition, for example, the public status of Time Warner obliges the company to more stringent reporting and disclosure requirements, providing the bidder with a deeper insight into its financials, operations, and strategies. This increased transparency can aid in conducting due diligence and assessing risks. Another positive aspect is that the two companies have easier access to capital markets: AT&T and Time Warner have the ability to raise capital through the issuance of debt and equity in the public markets. For instance, when AT&T needed to finance its acquisition of Time Warner, it could issue bonds and sell shares to raise the necessary funds. This access to capital provides flexibility for financing the acquisition and other strategic initiatives. The conclusions to which the students are expected to be led, is that the public company status of both AT&T and Time Warner undeniably played a pivotal role in influencing the success of their acquisition. It introduced a multifaceted array of dynamics, ranging from heightened regulatory scrutiny and shareholder expectations to transparency and market reactions.

Time Warner Valuation

When there is interest in acquiring a listed company, the first step is to analyse the target firm by evaluating its stock. There are several methods to determine the market value of shares, and the most important are the Discounted Cash Flow, the Dividend Discount Model, and

Comparable valuation. Within our analysis, all three were used, and understanding what reasoning underlies them and what are their strengths and weaknesses, is an important step to take in learning how to conduct a proper company valuation.

Valuation Insights

Which is the most reliable method to evaluate a company? This should be the starting point of the in-class discussion. The answer should arise very soon, with the conclusion that there is not a single "most reliable" method for evaluating a company, as the choice of valuation method depends on various factors, including the company's industry, financial characteristics, and the specific purpose of the valuation. Each method has its strengths and weaknesses, and the most appropriate method can vary from one situation to another. As mentioned, during our analysis we focused on three of the most valid valuation methods, such as the Discounted Cash Flow, the Dividend Discount Model, and Comparable valuation. The Discounted Cash Flow estimates the value of an investment using its expected future cash flows, the goal here is to obtain Time Warner' share price by dividing its enterprise value by the shares outstanding. The reasons behind the use of this methodology are:

- it focuses on cash flows, which are usually considered the most critical aspect of business valuation.
- it can be tailored to incorporate a wide range of future scenarios, making it adaptable to specific cases like this acquisition.
- it calculates value apart from subjective market sentiment and is more objective than other methods.
- It assesses the earnings of a project or investment over its entire economic life and considers the time value of money.

On the other hand, during the analysis we had to bear in mind about its most debilitating weakness regarding its subjectivity, in fact DCF relies on numerous assumptions, such as growth rates, discount rates, and terminal values, which can introduce subjectivity and uncertainty. Moreover, small changes in assumptions can result in significantly different valuations. As second choice, we used the Comparable method. This strategy evaluates similar companies and compares relevant valuation metrics. The comparable approach is often one of the easiest valuations to perform as long as the company being valued has public company comparable. The decision of using this type of methodology is backed by the fact that Time Warner operates in the media and entertainment industry, which has specific valuation dynamics. Using this valuation allowed us to benchmark Time Warner against similar publicly traded media and entertainment companies providing context and insights into its relative value in the industry. Then, the fact that Time Warner was a publicly traded company made it suitable for a comparable valuation analysis considering the publicly available financial data for peer companies, which is essential for this method. Obviously, we considered its negative aspects too, like the assumption that market prices are correct, taking for granted that the market's valuation of the comparable companies is accurate or like the fact that ignores company-specific factors such as the unique qualities and potential synergies specific to the acquisition, which may not be reflected in peer valuations. As last method, we implemented the Dividend Discount Model, a quantitative method used for predicting the price of a company's stock based on the theory that its present-day price is worth the sum of all its future dividend payments when discounted back to their present value. We used it because DDM is relatively simple and intuitive, especially when a company has a history of stable dividend payments and because it emphasizes on the income-generating aspect of an investment, to which shareholders are deeply focused. Unfortunately, the fact that DDM does not account for potential capital gains or changes in the underlying asset's value led to some limitations for its use. In the end, students

should recognize that valuation is a complex and dynamic process that combines financial analysis with qualitative judgment. The AT&T-Time Warner case study provides an excellent opportunity for students to apply these principles in a real-world context. Additionally, they should appreciate that valuation is a critical aspect of strategic decision-making for businesses and investors, and it should be conducted with a clear understanding of its limitations and the broader business environment.

Overvalued or Undervalued Stock?

To determine whether a stock is priced correctly, it is necessary to compare the current market value with that obtained from your own valuation. The first price can be found on major financial platforms, which describe company's market performances on a daily basis. The second price is more complicated to obtain, as it requires a series of assumptions and calculations. In case the valuation value is higher than the market value, the analysis suggests a “long” position on the stock, as it is undervalued, and a “short” position in the opposite case. If the difference between the two prices is minimal, holding the stock would probably be the safer strategy since the shares are fairly priced. The first methodology used is the Discounted Cash Flows. Several assumptions were made within the evaluation, starting from the cost repartition analysis, which was performed in order to separate Selling General & Administrative expenses from the Total Cost of Sold Goods. Depreciation expenses, net working capital and capital expenditures growth were computed as the average between their yearly growth values between 2011 and 2016, without considering possible outliers. As observable in *Exhibit 11*, tax rates were accounted as constant at 35% and the WACC was estimated to be 6.92%, using the CAPM procedure. Finally, to compute the value of Equity, the net debt was subtracted from the Enterprise Value. Hence, by dividing this value by the total number of shares, a price target of \$92.51 was calculated. The second method used is Comparables, which analyse the multiples

of seven competitors of Time Warner, operating in the same industry and with a similar market capitalization. The use of comparable is carried out in two modes; the first includes the average of all competitors' multiples, while the second involves the average of multiples similar to the Time Warner value. For a more precise analysis, the final price target is determined through the second modality. Specifically, the multiples considered are EV/FCF, EV/EBITDA and P/B, giving back target prices of \$75.71, \$87.54 and \$89.13 respectively. The third valuation approach used is Dividend Discount Model. The cash flows derived from future dividends were discounted to the cost of equity (5.66%), which is preferred to WACC, since the DDM is a model that takes into account only the cash flows addressed to shareholders. The final price obtained using this method is \$78.76. The results gathered from our analysis in the *Exhibit 12*, represent a Football Field Chart, which is a floating bar graph that compares several valuation analyses side-by-side to provide investors with the full context of a company's value. Considering that Time Warner's share market price the day before AT&T's acquisition was \$98.77 (*Red line*), it is immediate to visualize how the results obtained from the three valuation methods (*Blue bars*) are located to the left of the market benchmark. This means that the judgment derived from each approach used to evaluate Time Warner's stock is the same, indicating that the share is overvalued by the market. It may happen that, due to the different assumptions and the different natures of corporate valuation methods, there is no clear position compared with the market benchmark within a football field chart, and thus the fact that multiple sources lead to the same conclusion further corroborates the strategic position of “shorting” the stock, due to overvaluation. In addition, if revenue synergies are estimated in the form of future cash flows, it is possible to determine their price contribution, as depicted in *Exhibit 13*. In this case, revenue synergies have a valuation of \$8.952 per share and if this value is added to the output obtained from the corporate valuation, it is possible to obtain a total price of \$101.46 per share, which turns out to be less than the \$107.5 threshold that was paid by

AT&T. This is further proof in favour of the theory relative to the overvaluation of Time Warner's stocks.

P/E as and additional evidence

The P/E multiple represents how many times a company's earnings are incorporated into its stock price, and for this reason is often used within company valuations. Another interesting usage of this comparable is derived from its ability to determine whether market prices are fair, by comparing multiples of companies operating in the same industry. Higher levels of speculation are typically built around higher P/E ratios due to optimistic predictions of future growth. This indicates that for every \$1 in earnings the company generates, investors are willing to pay more for their stocks. Hence, if a firm's P/E ratio is higher than that of its competitors, it means that its shares are potentially overvalued by the market. Observing *Exhibit 14*, it is possible to observe that as of 1/1/2018, Time Warner's P/E is higher than five out of seven direct competitors, with a value of 12.22 (*Red line*). Solely Disney and Lions Gate Entertainment have higher values than Time Warner, while all the others present lower ratios.

Conclusion

After the detailed analysis proposed by the case study on the AT&T-Time Warner merger, it is possible to conclude that this corporate acquisition will be remembered in the years to come regardless of its performance or heritage. Attempting to create such a large conglomerate within the competitive media and entertainment industry is a very difficult task to accomplish without making mistakes. The complexity of this corporate takeover was due to several factors, ranging from the public nature of the companies involved and their massive market capitalizations, to the lack of ability to achieve an effective vertical integration. In addition, as highlighted by our analysis, AT&T paid an unjustifiably high price to acquire a company as overvalued by the

market as Time Warner, considering that the estimated synergies did not match the acquisition premium offered by the acquirer. Despite this, the merger represents an excellent storyline which may be useful for students to touch on the complexities that investors inevitably face within the world of acquisitions and understand which key factor need to be considered in this form of analysis. Therefore, being able to observe the mistakes made in the past and understand the underlying reasons for them, is the first step in structuring a winning strategy and preventing the same dynamics from occurring in future corporate takeovers.

REFERENCES

1. 2016, “AT&T to acquire Time Warner”, AT&T Intellectual Property, October 22.
https://about.att.com/story/att_to_acquire_time_warner.html.
2. Belvedere, J. Matthew, 2018, “AT&T chief Randall Stephenson on Time Warner deal: We got our day in court and ‘the system worked’”, CNBC, June 15.
<https://www.cnbc.com/2018/06/15/att-chief-randall-stephenson-describes-the-relief-of-getting-time-warner-ruling-and-completing-the-deal.html#>.
3. Jessica, 2023, “Exploring the History of Telecommunications in the US: A look at How the Industry Evolved Over Time”, Open World Learning, January 13.
<https://www.openworldlearning.org/exploring-the-history-of-telecommunications-in-the-us-a-look-at-how-the-industry-evolved-over-time/>.
4. Beers, Brian, 2023, “Telecommunications Sector: What and How to invest in it”, Investopedia.com, May 8.
<https://www.investopedia.com/ask/answers/070815/what-telecommunications-sector.asp>.
5. Taylor; Petroc, 2023, “Telecommunication Services – Statistics & Facts”, Statista.com, July 14. <https://www.statista.com/topics/2665/telecommunications-services/#editorsPicks>.
6. Dr. Pradeep K. Mukherji, Saugata Sengupta, 2023, “Media & Entertainment Industry: An overview”, Avasant.
<https://avasant.com/insights/publications/technology-optimization/media-entertainment-industry-an-overveiw/>.

7. Hulsurkar, Sankalp, 2023, “Three Major Factors Transforming the Media and Entertainment Industry”, Mathco, June 2. <https://mathco.com/article/three-major-factors-transforming-the-media-entertainment-industry/>.
8. 2023, “Media & Entertainment”, International Trade Administration. <https://www.trade.gov/media-entertainment>.
9. Warner, Jim, 2023, “4 Trends Transforming Advertising, Media & Entertainment”, AdAge, April 12. <https://adage.com/article/digital-marketing-ad-tech-news/4-trends-transforming-advertising-media-and-entertainment/2485376>.
10. AT&T Official Website, <https://www.att.com/>
11. A. B. Godfrey, "Report: The history and evolution of quality in AT&T," in *AT&T Technical Journal*, vol. 65, no. 2, pp. 9-20, March-April 1986, doi: 10.1002/j.1538-7305.1986.tb00289.x.
12. Irwin Gerszberg, 2001 “Science & Technology Innovation: Honoring the past, creating the future” <http://zttechsol.com/wp-content/uploads/2018/10/Science-and-Technology-Innovation-Center-2018-Magazine-low-resolution.pdf>
13. Britannica, 2023, “History and Operations of AT&T” <https://www.britannica.com/summary/ATandT-Corporation>
14. Macrotrends, “AT&T Revenue 2010 – 2023” <https://www.macrotrends.net/stocks/charts/T/at-t/revenue#:~:text=AT%26T%20revenue%20for%20the%20twelve,a%2021.05%25%20decline%20from%202019>.

15. Macrotrends, “AT&T Net Income 2010 – 2023”
<https://www.macrotrends.net/stocks/charts/T/at-t/net-income#:~:text=AT%26T%20net%20income%20for%20the%20twelve%20months%20ending%20June%2030,a%20470.16%25%20decline%20from%202020.>
16. Macrotrends, “AT&T shares outstanding 2010 – 2023”
<https://www.macrotrends.net/stocks/charts/T/at-t/shares-outstanding#:~:text=AT%26T%20shares%20outstanding%20for%20the,a%200.5%25%20increase%20from%202020.>
17. Macrotrends, “AT&T Market Capitalization 2010 – 2023”
<https://www.macrotrends.net/stocks/charts/T/at-t/market-cap>
18. 2023, “Time Warner”, Britannica, November 16.
<https://www.britannica.com/topic/Warner-Brothers.>
19. 2017, “Subsidiaries of Time Warner Inc”, Securities & Exchange Commission, December 31.
<https://www.sec.gov/Archives/edgar/data/1105705/000119312518053619/d504160dex21.htm.>
20. 2018, “Time Warner Inc Stock”, Investing.com, June 14.
<https://it.investing.com/equities/time-warner.>
21. 2017, “Time warner Inc”, Form 10-K United States Securities & Exchange Commission.
<https://www.sec.gov/Archives/edgar/data/1105705/000119312518053619/d504160d10k.htm.>

22. La Monica, Paul R., 2016, “Why Wall Street doesn't like the AT&T - Time Warner deal”, CNN Business, October 24.
<https://money.cnn.com/2016/10/24/investing/att-time-warner-wall-street-reaction/>.
23. 2016, “What Economists Think about the AT&T/Time Warner Deal”, Chicago Booth Review, November 9. <https://www.chicagobooth.edu/review/what-economists-think-about-atttime-warner-deal>.
24. Reiff, Nathan, 2018, “AT&T and Time Warner Merger Case: What You Need to Know”, Investopedia.com, December 7.
<https://www.investopedia.com/investing/att-and-time-warner-merger-case-what-you-need-know/>.
25. Khang, Cecilia, 2018, “Why the AT&T-Time Warner Case Was So Closely Watched”, The New York Times, June 12.
<https://www.nytimes.com/2018/06/12/business/dealbook/att-time-warner-trial-antitrust-ruling.html>.
26. Khang, Cecilia, 2018, “AT&T Wins Approval for \$85.4 Billion Time Warner Deal in Defeat for Justice Debt”, The New York Times, June 12.
<https://www.nytimes.com/2018/06/12/business/dealbook/att-time-warner-ruling-antitrust-case.html>.
27. Spangler, Todd, 2018, “Time Warner Stock Jumps, AT&T Falls After Ruling Clears Path to Merger”, Variety, June 12. <https://variety.com/2018/biz/news/att-time-warner-stocks-doj-antitrust-ruling-1202843216/>.
28. 2018, “AT&T Completes Acquisition of Time Warner Inc.”, AT&T Intellectual Property, June 15.
https://about.att.com/story/att_completes_acquisition_of_time_warner_inc.html.

29. Liu, Ting, 2022, “An Empirical Study on the Effect of M&A Payment Methods of US Companies”, University of Bristol Working paper, Advances in Economics, Business and Management Research, volume 219.
- <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiuleOg-yBAxVggf0HHdFkB7AQFnoECBAQAQ&url=https%3A%2F%2Fwww.atlantis-press.com%2Farticle%2F125975390.pdf&usg=AOvVaw25xWWVVEQBk7aSxwBHy3nE&opi=89978449>.
30. 2016, “AT&T to Acquire Time Warner”, AT&T Intellectual Property, October 22.
- https://about.att.com/story/att_to_acquire_time_warner.html.
31. Kison, Patel, 2021, “Understanding Public vs Private M&A Deals”, dealroom.net.
- <https://dealroom.net/faq/private-public-mergers-and-acquisitions>
32. Fernando, Jason, 2023, “Discounted Cash Flow (DCF) Explained with Formula and Examples”, Investopedia.com, March 30.
- <https://www.investopedia.com/terms/d/DCF.asp>.
33. CFI Teams, 2023, “DCF Analysis Pros & Cons”, Corporate Finance Institute.
- <https://corporatefinanceinstitute.com/resources/valuation/DCF-pros-and-cons/>.
34. Fuhmann, Ryan, 2022, “The Comparables Approach to Equity Valuation”, Investopedia, July 28.
- <https://www.investopedia.com/articles/investing/080913/equity-valuation-comparables-approach.asp>.
35. Chen, James, 2023, “Dividend Discount Model (DDM) Formula, Variations, Examples, and Shortcomings”, Investopedia.com, September 29.
- <https://www.investopedia.com/terms/d/DDM.asp#:~:text=The%20purpose%20of%20the%20DDM,then%20the%20opposite%20is%20true>.

36. 2017, “Time Warner Inc”, Form 10-K United States Securities & Exchange Commission, Consolidated Statement of Cash Flows.
<https://www.sec.gov/Archives/edgar/data/1105705/000119312518053619/d504160d10k.htm>.
37. 2017, “Time Warner Inc”, Form 10-K United States Securities & Exchange Commission, Consolidated Statement of Comprehensive Income.
<https://www.sec.gov/Archives/edgar/data/1105705/000119312518053619/d504160d10k.htm>.
38. 2017, “Time Warner Inc”, Form 10-K United States Securities & Exchange Commission, Consolidated Balance Sheet.
<https://www.sec.gov/Archives/edgar/data/1105705/000119312518053619/d504160d10k.htm>.
39. 2023, Investopedia, “Synergies: Concepts in Finance and Examples”
[https://www.investopedia.com/terms/s/synergy.asp#:~:text=Synergy%20is%20the%20concept%20that,mergers%20and%20acquisitions%20\(M%26A\)](https://www.investopedia.com/terms/s/synergy.asp#:~:text=Synergy%20is%20the%20concept%20that,mergers%20and%20acquisitions%20(M%26A)).
40. 2022, Dennis W. Carlton, Georgi V. Giozov, Mark A. Israel & Allan L. Shampine, Journal of Law and Economics, “A Retrospective Analysis of the AT&T / Time Warner Merger”.
<https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=2753&context=jle>.
41. Investopedia, “Value Chain: Definition, Model, Analysis and Examples”
<https://www.investopedia.com/terms/v/valuechain.asp>
42. 2018, Econofact, “AT&T-Time Warner and New Thinking on Vertical Mergers”
<https://econofact.org/att-time-warner-and-new-thinking-on-vertical-mergers>

43. 2019, AT&T Official Website, “Progress Towards Goals”

<https://about.att.com/ecms/dam/csr/2019/library/corporate-responsibility/2019-2020-Progress-Toward-Goals.pdf>

44. 2018, Wired, “The Streaming Wars Began in 2018 – and They’ll Only Get Worse”

<https://www.wired.com/story/2018-streaming-wars/>

APPENDIX

Exhibit 1 – U.S Media & Entertainment industry composition.

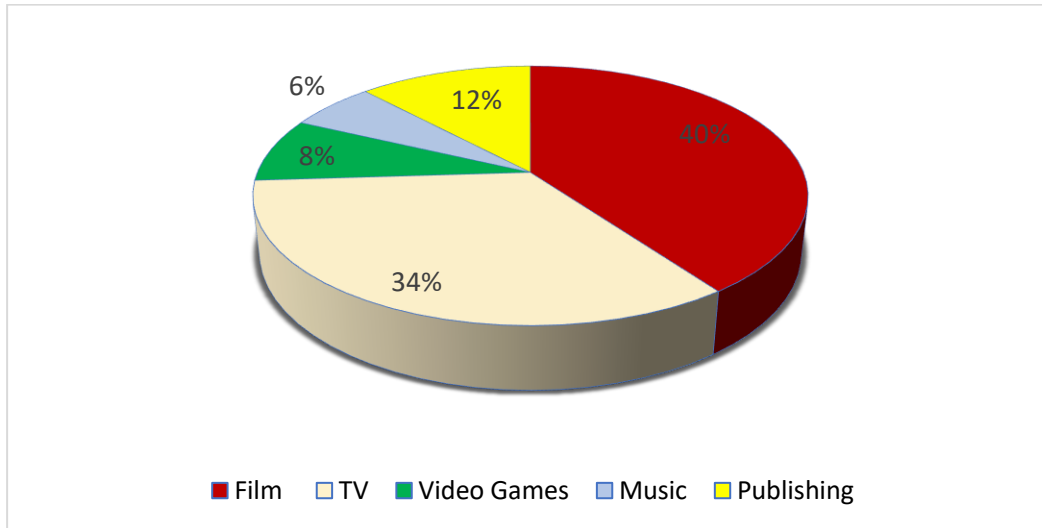


Exhibit 2 – AT&T Market capitalization between 2010 and 2022.



Exhibit 3 – AT&T Shares time series between 2010 and 2022.

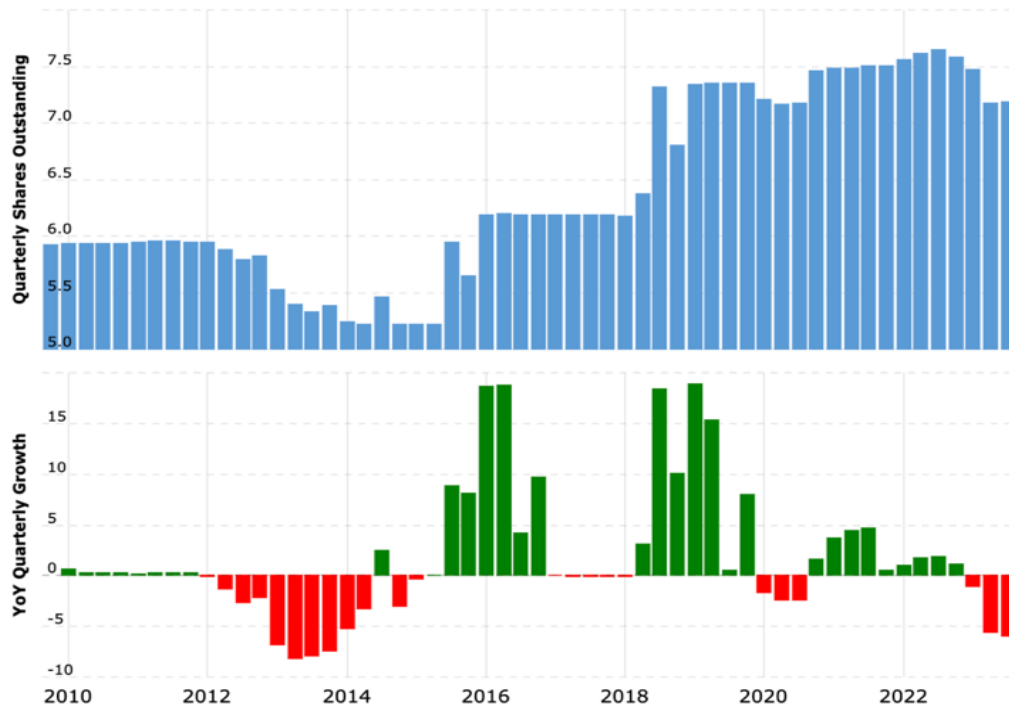


Exhibit 4 – AT&T Revenues time series between 2010 and 2022.

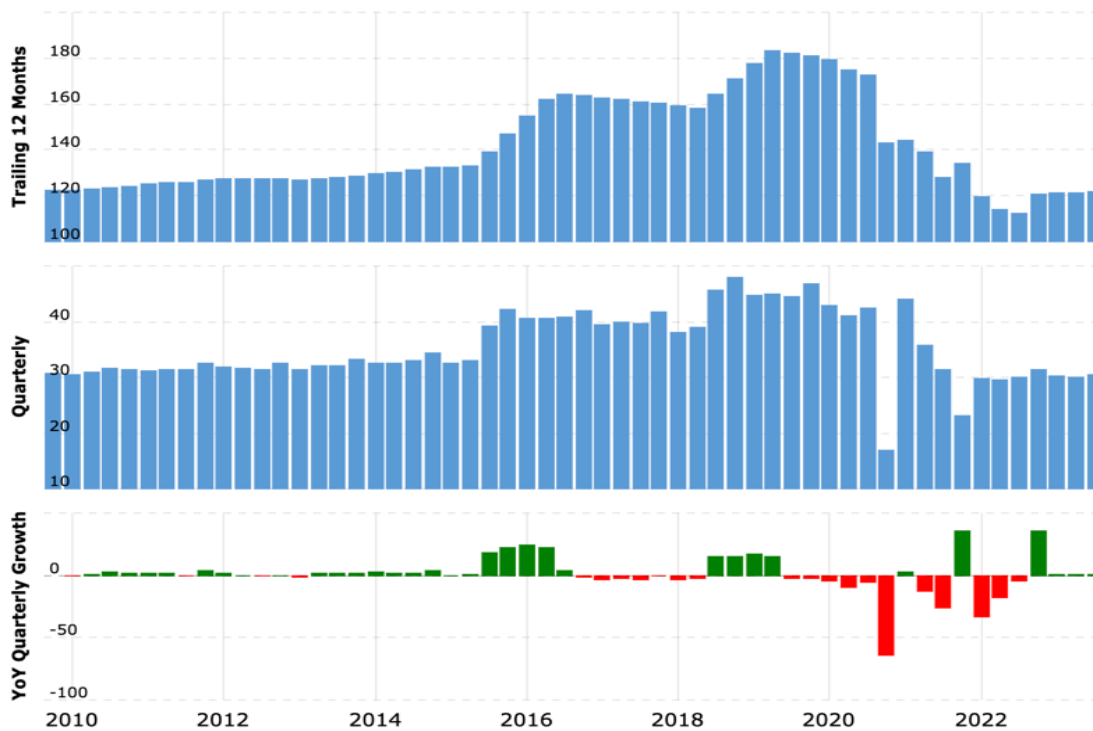


Exhibit 5 –AT&T Net income time series between 2010 and 2022.

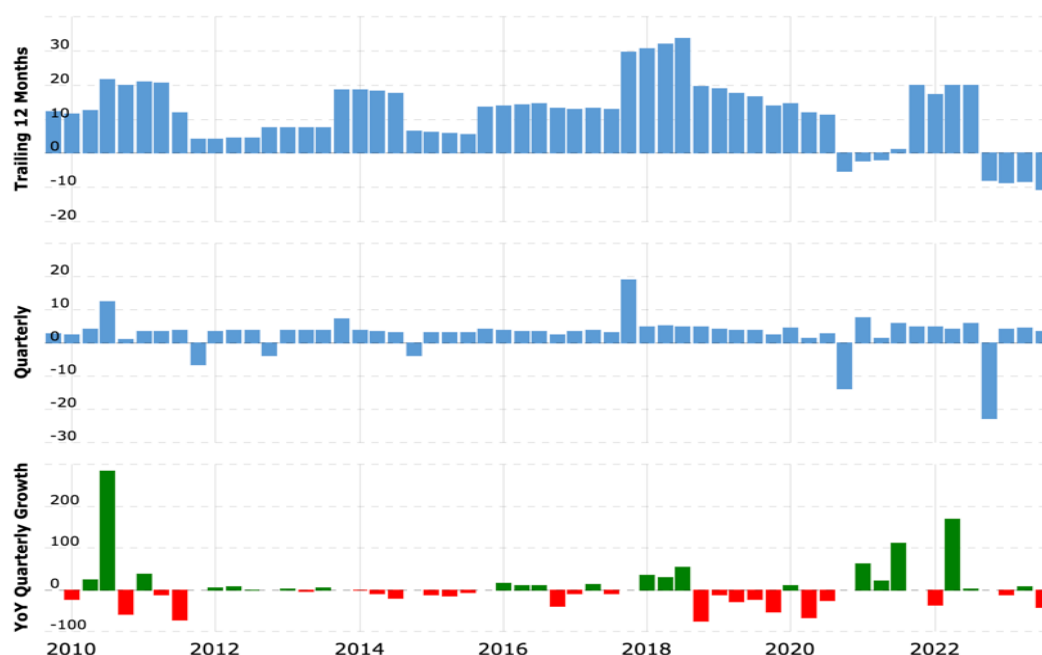


Exhibit 6 – Time Warner Total Revenues, Operating & Net Income 2013-2017.

	Year Ended December 31,				
	2017	2016	2015	2014	2013
	(millions, except per share amounts)				
Selected Operating Statement Information:					
Total revenues	\$ 31,271	\$ 29,318	\$ 28,118	\$ 27,359	\$ 26,461
Operating income	7,920	7,547	6,865	5,975	6,268
Net income	5,244	3,925	3,832	3,827	3,691
Amounts attributable to Time Warner Inc. shareholders:					
Income from continuing operations	\$ 5,247	\$ 3,915	\$ 3,796	\$ 3,894	\$ 3,354
Discontinued operations, net of tax	—	11	37	(67)	337
Net income	<u>\$ 5,247</u>	<u>\$ 3,926</u>	<u>\$ 3,833</u>	<u>\$ 3,827</u>	<u>\$ 3,691</u>

Exhibit 7 – Time Warner Net debt between 2016 and 2017.

Balance at December 31, 2016	\$ 22,800
Cash provided by operations from continuing operations	(5,094)
Capital expenditures	656
Premium paid and costs incurred on debt redemption	1,087
Dividends paid to common stockholders	1,265
Investments and acquisitions, net of cash acquired, including available-for-sale securities	707
Proceeds from the exercise of stock options	(206)
Other investment proceeds, including available-for-sale securities	(367)
All other, net	275
Balance at December 31, 2017	<u>\$ 21,123</u>

Exhibit 8 - AT&T Market Share.

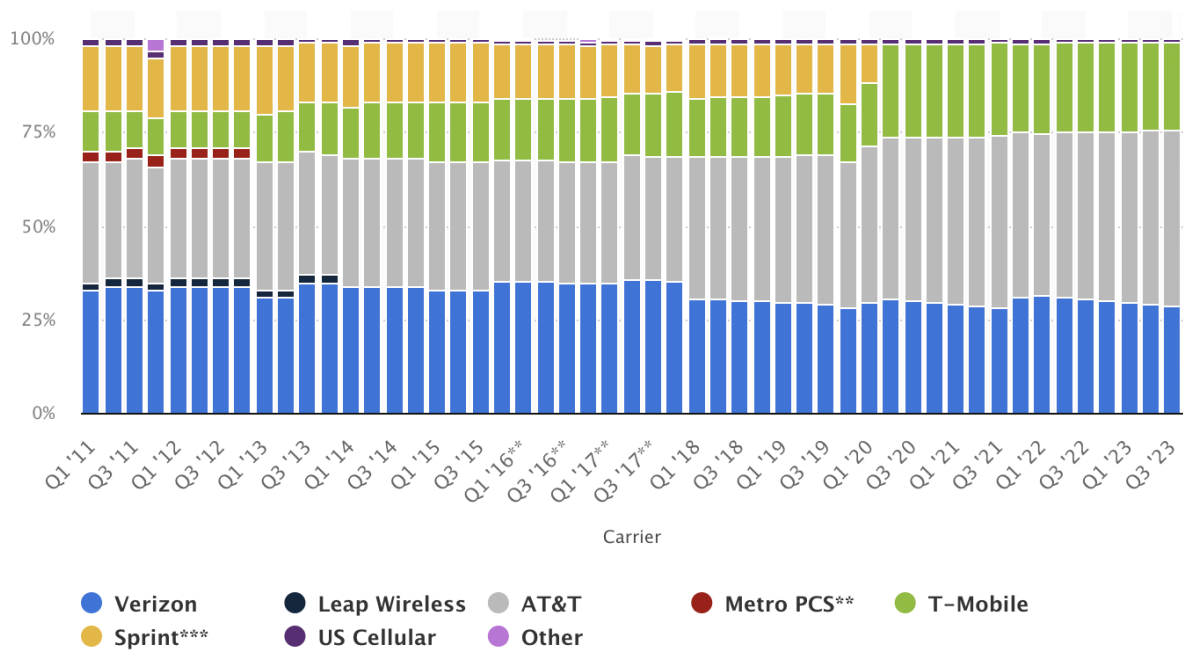


Exhibit 9 - Market Share Repartition in Media & Entertainment Industry.

Market Share Ripartition in Media & Entertainment Sector

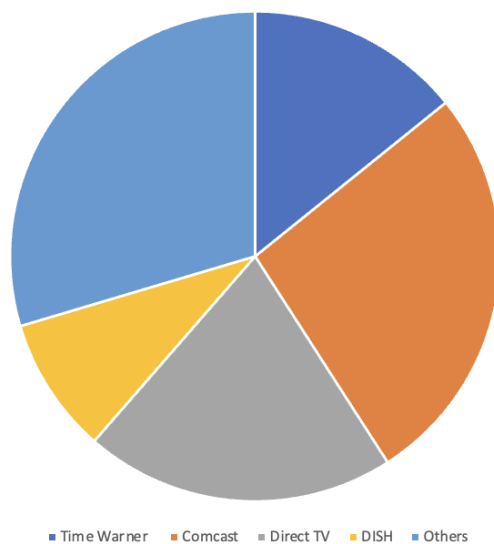


Exhibit 10 – Statistical Abnormal Return of Mergers based on Payment

Method.

payment method	Days	N	CAAR	Patell Test	CDA test	CSEctErrt
total	(-60,-2)	1383	6.43%	15.404	12.462	9.768
	(-1,+1)	1383	22.02%	237.442	189.26	28.999
	(+2,+20)	1382	-0.34%	-0.884	-1.149	-1.839
cash only	(-60,-2)	898	7.96%	15.272	11.606	8.992
	(-1,+1)	898	25.99%	217.697	168.12	24.33
	(+2,+20)	897	-0.60%	-1.434	-1.534	-3.293
stock only	(-60,-2)	168	2.88%	2.2212	2.129	1.611
	(-1,+1)	168	9.18%	38.539	30.107	6.86
	(+2,+20)	168	0.44%	0.486	0.57	0.456
alternative	(-60,-2)	78	4.08%	2.5	2.08	1.93
	(-1,+1)	78	20.96%	64.09	47.44	10.86
	(+2,+20)	78	0.49%	1.1012	0.441	0.581
combination	(-60,-2)	239	3.95%	4.173	3.693	3.445
	(-1,+1)	239	16.46%	80.272	68.212	15.925
	(+2,+20)	239	-0.17%	-0.333	-0.283	-0.488

Exhibit 11 – Necessary Data for WACC Estimation.

WACC Estimation

Beta equity/Beta levered	0,360
Risk-free Rate	3,50%
Market Risk Premium	6,00%
Beta Debt	0,05
Beta unlevered	0,302
Cost of Debt	3,80%
Cost of Equity	5,66%
Haircut	2,00%
Tax rate	35,00%
WACC Post tax	6,92%

Exhibit 12 – Football field Chart of Time Warner Valuation.

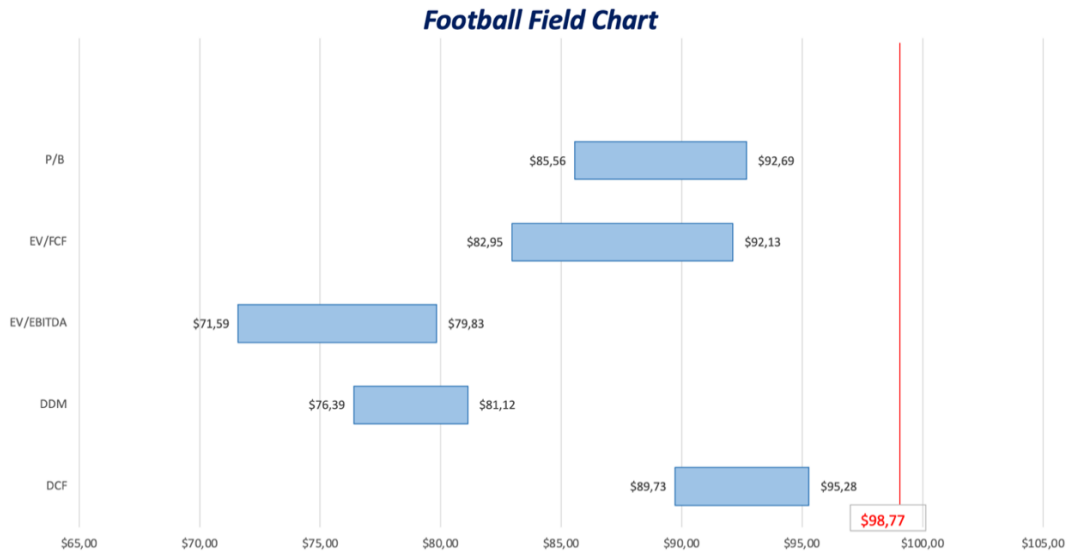
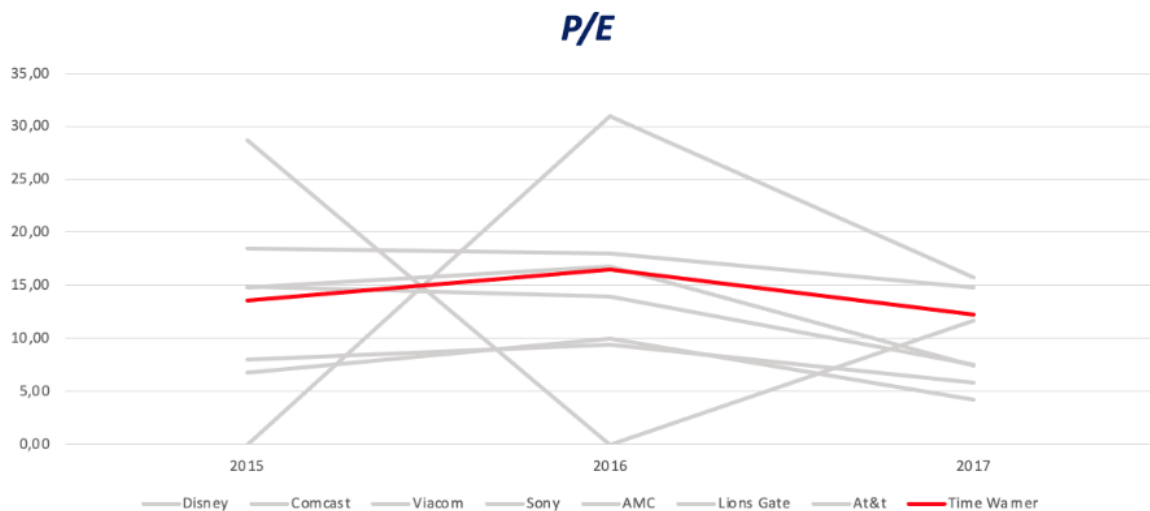


Exhibit 13 – Revenues Synergies’ NPV per Time Warner’s share.

NPV of Synergies per share

Present Value of Synergies	2.048,680 \$
Present Value of Terminal Value	4.933,759 \$
Shares outstanding	780,00
NPV of synergies per share	8,952 \$

Exhibit 14 – P/E Multiple comparison between Time Warner and its competitors.



Additional Exhibits for Students:

Time Warner Consolidated Statement of Cash Flows t in 2017.

TIME WARNER INC.
CONSOLIDATED STATEMENT OF CASH FLOWS
Year Ended December 31,
(millions)

	2017	2016	2015
OPERATIONS			
Net income	\$ 5,244	\$ 3,925	\$ 3,832
Less Discontinued operations, net of tax	—	(11)	(37)
Net income from continuing operations	5,244	3,914	3,795
Adjustments for noncash and nonoperating items:			
Depreciation and amortization	694	669	681
Amortization of film and television costs	9,162	8,324	8,030
Asset impairments	16	43	25
(Gain) loss on investments and other assets, net	(367)	(131)	31
Equity in losses of investee companies, net of cash distributions	191	324	161
Equity-based compensation	227	277	182
Deferred income taxes	(1,010)	236	328
Premiums paid and costs incurred on debt redemption	1,087	1,008	72
Changes in operating assets and liabilities, net of acquisitions:			
Receivables	(704)	(1,201)	(112)
Inventories and film costs	(9,574)	(8,774)	(8,526)
Accounts payable and other liabilities	624	631	(200)
Other changes	(496)	(637)	(616)
Cash provided by operations from continuing operations	5,094	4,683	3,851
Cash used by operations from discontinued operations	(15)	(17)	(8)
Cash provided by operations	5,079	4,666	3,843
INVESTING ACTIVITIES			
Investments in available-for-sale securities	(1)	(9)	(41)
Investments and acquisitions, net of cash acquired	(706)	(1,228)	(672)
Capital expenditures	(656)	(432)	(423)
Other investment proceeds	367	309	143
Cash used by investing activities	(996)	(1,360)	(993)
FINANCING ACTIVITIES			
Borrowings	4,270	3,830	3,768
Debt repayments	(5,001)	(3,304)	(2,344)
Proceeds from exercise of stock options	206	172	165
Excess tax benefit from equity instruments	—	88	151
Principal payments on capital leases	(39)	(14)	(11)
Repurchases of common stock	—	(2,322)	(3,632)
Dividends paid	(1,265)	(1,269)	(1,150)
Other financing activities	(1,172)	(1,103)	(260)
Cash used by financing activities	(3,001)	(3,922)	(3,313)
INCREASE (DECREASE) IN CASH AND EQUIVALENTS	1,082	(616)	(463)
CASH AND EQUIVALENTS AT BEGINNING OF PERIOD	1,539	2,155	2,618
CASH AND EQUIVALENTS AT END OF PERIOD	\$ 2,621	\$ 1,539	\$ 2,155

Time Warner Consolidated statement of Comprehensive Income in 2017.

TIME WARNER INC.
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
Year Ended December 31,
(millions)

	2017	2016	2015
Net income	\$ 5,244	\$ 3,925	\$ 3,832
Other comprehensive income, net of tax:			
Foreign currency translation:			
Unrealized gains (losses) occurring during the period	178	(121)	(289)
Reclassification adjustment for losses realized in net income	—	—	5
Change in foreign currency translation	178	(121)	(284)
Securities:			
Unrealized gains occurring during the period	1	—	1
Reclassification adjustment for losses realized in net income	1	—	—
Change in securities	2	—	1
Benefit obligations:			
Unrealized losses occurring during the period	(98)	(21)	(26)
Reclassification adjustment for losses realized in net income	29	67	22
Change in benefit obligations	(69)	46	(4)
Derivative financial instruments:			
Unrealized gains (losses) occurring during the period	(94)	58	88
Reclassification adjustment for (gains) losses realized in net income	56	(47)	(83)
Change in derivative financial instruments	(38)	11	5
Other comprehensive income (loss)	73	(64)	(282)
Comprehensive income	5,317	3,861	3,550
Less Comprehensive loss attributable to noncontrolling interests	3	1	1
Comprehensive income attributable to Time Warner Inc. shareholders	\$ 5,320	\$ 3,862	\$ 3,551

Time Warner Consolidated Balance Sheet in 2017.

TIME WARNER INC.
CONSOLIDATED BALANCE SHEET
(millions, except share amounts)

	2017	2016
ASSETS		
Current assets		
Cash and equivalents	\$ 2,621	\$ 1,539
Receivables, less allowances of \$896 and \$981	9,401	8,699
Inventories	2,401	2,062
Prepaid expenses and other current assets	796	1,185
Total current assets	15,219	13,485
Noncurrent inventories and theatrical film and television production costs	8,275	7,916
Investments, including available-for-sale securities	3,924	3,337
Property, plant and equipment, net	2,707	2,510
Intangible assets subject to amortization, net	585	783
Intangible assets not subject to amortization	7,006	7,005
Goodwill	27,776	27,752
Other assets	3,717	3,178
Total assets	\$ 69,209	\$ 65,966
LIABILITIES AND EQUITY		
Current liabilities		
Accounts payable and accrued liabilities	\$ 7,916	\$ 7,192
Deferred revenue	711	564
Debt due within one year	5,450	1,947
Total current liabilities	14,077	9,703
Long-term debt	18,294	22,392
Deferred income taxes	1,584	2,678
Deferred revenue	468	486
Other noncurrent liabilities	6,375	6,341
Redeemable noncontrolling interest	35	29
Commitments and Contingencies (Note 17)		
Equity		
Common stock, \$0.01 par value, 1.652 billion shares issued and 780 million and 772 million shares outstanding	17	17
Additional paid-in capital	145,077	146,780
Treasury stock, at cost (872 million and 880 million shares)	(47,074)	(47,497)
Accumulated other comprehensive loss, net	(1,437)	(1,510)
Accumulated deficit	(68,208)	(73,455)
Total Time Warner Inc. shareholders' equity	28,375	24,335
Noncontrolling interest	1	2
Total equity	28,376	24,337
Total liabilities and equity	\$ 69,209	\$ 65,966

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Finance from the Nova School of Business and Economics.

Portfolio Analysis: Identifying the Ideal Acquisition Target for AT&T

EDOARDO PALOSCHI

Work project carried out under the supervision of:

Pranav Desai

15/01/2024

Abstract

On October 22, 2016, it was first announced to the public that the American telephone giant AT&T intended to acquire Time Warner Inc. The news immediately caught the attention of financial markets and investors, as it represented one of the largest and most important corporate acquisitions ever realized within the media and entertainment industry. The ultimate objective of this case study is to understand through a portfolio analysis the main reasons behind the choice made by AT&T to target Time Warner and observe whether the U.S. giant could have moved its focus to another firm within the same sector.

Key Words

- *PORTFOLIO*
- *RETURN*
- *RISK*
- *STOCK*
- *PRICE*
- *TRADE-OFF*
- *EFFICIENT*

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Starting Scenario

In an era characterized by the constant evolution of the telecommunications and media industry, strategic decisions made by companies play a crucial role in determining the long-term success of an organization. Specifically, the challenging and fast-paced environment in which AT&T operates requires a careful and thorough evaluation of the growth opportunities presented by a potential public corporate acquisition. In this regard, deciding which target company to focus on and being confident about the reasons underlying strategic choices may be an advantage.

Portfolio Composition

An investment portfolio can be composed of different asset classes, which may differ in riskiness, expected return and market correlation. In this case, the portfolio will be composed exclusively of equity, which is statistically the form of investment that is affected by higher levels of volatility, and therefore the most hazardous. The companies chosen to conduct this analysis are all listed within the U.S. stock exchange and operate in the media and entertainment sector with a similar market capitalization. Specifically, they are Time Warner Inc, 21st Century Fox, Charter Communications and Sony. The reasons behind the choice of the potential targets reside in their own characteristics, which closely replicate those of the original target identified by AT&T in October 2016.

Time Warner Inc

Time Warner was founded in 1990 by the merger between Time Inc. and Warner Communications. It went public in the same year and from that point on Time Warner's offering to the public has increasingly broadened its horizons, ranging from cinema production and distribution to magazines and television. Its evolution went through several corporate acquisitions, leading it to become one of the most important conglomerates within the U.S.

media industry. As evidence to that, its assets included HBO, CNN, DC Comics and Warner Bros. In 2016 it had about 25,600 employees and a global geographic distribution, reporting on its balance sheet revenues of \$29.32 billion and net income of \$3.92 billion. Its market capitalization was \$59.47 billion and its stock performance in the same year was excellent, as reported in *Exhibit 1*. In January 2016 it was possible to acquire one Time Warner share for \$64.92, while at the end of October of the same year the shares were listed at \$89.48. The growth recorded was 37% and could be due to the substantial increase in subscribers for HBO that occurred in 2016 and the reveal of rumours regarding the possible acquisition by AT&T. This would justify the immediate growth preceding the date of the news announcement, which, as can be observed from *Exhibit 1*, appears to be virtually vertical.

21st Century Fox

21st Century Fox was one of the most important mass media corporations based in the United States. Its founder and CEO, Rupert Murdoch, decided to take over the company from News Corporation in 2013, becoming its legal successor. The company's offerings ranged from movies and television production to satellite networks; in fact, the company's assets included the Fox Entertainment Group and Sky TV. In 2018, the firm had around 22,400 employees and guaranteed worldwide geographical coverage. The nature of the company is public, as it was listed on the New York Stock Exchange and in 2016 its market capitalization was about \$54 billion. Observing *Exhibit 2*, it is possible to notice that the market performance of its stock in 2016 was characterized by a fluctuating trend. In early January it was possible to acquire a share for \$26.59 while, following the positive announcement regarding the company's performance in the first quarter, the stock price rose to \$31.06. After the peak, the valuation embarked on a downward trend, causing 21st Century fox's market value to return to \$25.83, undoing the growth that had occurred in the first part of the year and realizing an overall decrease of 0.02%.

Charter Communications

Charter Communications was founded in 1993 in St. Louis, Missouri, and is one of America's leading media and telecommunications companies. The products that distinguish the offer of this corporation range from cable television and telephony to internet and home security. Charter is currently the third-largest pay-tv seller after AT&T and Comcast, with a coverage of 30 million customers in more than 40 different states. Nowadays, Charter Communications has approximately 101,700 employees and has registered a net income of \$5.85 billion at the end of 2022. In 1990 the firm went public on the New York Stock Exchange and began a long process of mergers and acquisitions that led it to become one of the most influential corporate conglomerates in the telecommunications industry. Its market capitalization in 2016 was around \$77.39 billion, up 275% from the previous year due to the takeovers of Time Warner Cable and Bright House Networks. Observing *Exhibit 3*, it is possible to notice that the market performance registered in 2016 was outstanding, since the share prices went from \$196.34 to \$255.06 between January and October. The stock value growth of 29.9% is attributable to the synergies that resulted from the acquisitions that took place in that year. The possibility of operating economies of scale and scope, significantly reducing costs, have led Charter to become the third largest broadcasting group in the telecommunications sector.

Sony Corporation

Sony was founded in 1944 in Shinagawa, Japan, and is one of the world's leading communications and entertainment companies. Its corporate structure is based on four main divisions that operate in different segments of the same industry and are: Sony Pictures Entertainment, Sony Music, Sony Mobile Communications, and Sony Interactive Entertainment. Its products are famous all over the world and range from music and consoles to fixed-line telephony. Currently, Sony has approximately 109,700 employees and its

geographical distribution is global. In 2022 it reported on its balance sheet a net income of \$6.72 billion and revenues of \$88.3 billion. The company was first listed on the Tokyo Stock Exchange in 1958, while today Sony Group has moved on the American stock market, where it is still one of the largest Japanese companies. In 2016, Sony's market capitalization stood at \$35.55 billion, and its stock performance was positive. As depicted in *Exhibit 4*, after a difficult start where prices fell from \$24.73 to \$20.26 in just one month, the shares continued to rise till \$32.11 threshold. The 29.8% growth is attributable to the dominance that was registered by the Japanese brand in that year in the video game industry, thanks to the announcement of the first VR visor linked to the world of consoles.

Analysis Considerations

It is important to emphasize that a portfolio analysis may be a crucial instrument that allows investors to identify the different potential of one security compared to another in terms of return and risk, but if not accompanied by further studies or tests it does not guarantee certainty about the future performance of the assets. For this reason, the result that will be presented in the Teaching Note should not be interpreted as a pure investment advice, but as a correct behaviour that student should maintain when valuing equity within an investment portfolio.

TEACHING NOTE

Synopsis

On October 22, 2016, financial markets first learned of AT&T's willingness to acquire Time Warner Inc in an attempt to create an unprecedented media conglomerate within the industry. The critical objective of this case study is to analyze four potential acquisition stocks and evaluate whether the choice made by the acquirer was the correct one. To comprehend this

decision, students will need to conduct a portfolio analysis, focusing primarily on the concepts of risk and expected return, to properly compare the stocks considered in the examination.

Rationale of the Analysis

The approach used in this case study is the portfolio analysis, since it allows investors to measure the pure stock performance of companies from an investment perspective. The intent of the examination, in fact, is to compare stocks, and not firms. Therefore, this methodology has been preferred to financial statement analysis or corporate valuations. In addition, one of the advantages afforded by using this approach is the possibility to get a clearer picture of the risk-return relationship of a specific asset, something that is not likely to observe using other valuation methods. For these reasons, since mergers between public companies are considered as forms of investment, portfolio analysis may be the proper method to identify which shares could represent AT&T's ideal target for the acquisition.

Pedagogical objectives

It is useful for MSc in Finance students to have a solid knowledge and familiarity with the workings of financial markets and equity performance based on concepts as risk and return, to be better prepared for this case study. Knowledge learnable from courses such as Merger & Acquisition and Investments, regarding financial principles such as portfolio structure, efficient frontier, and financial decision making will be a considerable advantage. It is important that students use their knowledge to develop critical thinking about the case study and apply what they have learned to better address any portfolio analyses they may encounter during their academic and working careers. Hence, the ultimate goal of the Teaching Note is to share insightful takeaways that may help students in dealing with analyses of this nature. Below are reported the different pedagogical objectives that this case study is aiming to address:

1. *Structure of Portfolio Analysis:*

- Comprehend and learn how to properly structure a portfolio and how to analyse asset performances over a determinate time horizon, exploring how statistics and financial principles may help investors to choose between similar securities.

2. *Key Portfolios:*

- An important step within this type of evaluation lies in understanding the characteristics of the portfolios it is necessary to construct to gain important takeaways about the securities analysed.

3. *Efficient frontier Working:*

- Evaluate the efficient frontier and its potential as a key instrument in investments decisions. Students will be able to observe and comprehend how to integrate the use of this tool to a proper portfolio analysis framework.

How to set up a Portfolio Analysis

The first step in properly creating a portfolio analysis is to identify an investment objective, based on a risk tolerance threshold and a defined time horizon. In this case, the target is to identify the best stock within four alternatives, to test the quality of the choice made by AT&T's management in 2016. First, it is necessary to collect the market values of shares along the same time frame. Depending on the specificity of the analysis, it is possible to choose different time frequencies of the series of data, ranging from daily, weekly or monthly prices. In this case the period of reference was identified as the three years going from October 22, 2013, to October 22, 2016, and the time frame chosen is the daily prices. Once the time series has been collected, daily stock returns need to be calculated, and to compute them, the formula given in *Equation 1* needs to be used. At this point it is necessary to extrapolate all the key information contained in the time series, which reflect the most important characteristics of each stock. Expected

return is defined as the most realistic estimate of a stock's future performance in the market and is usually based on historical information that does not guarantee future certainty. Therefore, one of the most reliable methodologies for estimating its value is to average past returns. This assumes that the future performance of each stock is affected by its past conduct, avoiding unrealistic and exaggerated estimates. Another important statistic that is necessary to compute within a portfolio analysis is the riskiness of a security. This is measured in variability of returns, and the more the price of a stock tends to vary in speed and quantity, the riskier the asset is. The statistical indicators that allow investors to calculate the variability of a security's returns are variance and standard deviation. The first is defined as the measurement of spread between numbers in a data set and is calculated following the formula expressed in *Equation 2*, while the second is the square root of the former. Specifically, X_i is represented by the value of the individual rate of return, \bar{X} marked represent the average rate of return, and N the number of variables considered in the summation. The importance of securities' expected return and standard deviation lies in the fact that they allow investors to calculate a financial ratio necessary to analyse a portfolio, the Sharpe ratio. This index represents the mathematical relationship between the risk and return of a stock and is usually computed following the formula shown in *Equation 3*. In this case R_p is represented by the expected return on the single stock, R_f represents the risk-free rate equal to the U.S. 10-year bond yield, and σ_p is the standard deviation of security's excess return. The daily time frame used in this analysis reduces the returns to lower values than those that could be obtained with weekly or monthly time frames, which is why the risk-free has not been taken into account in the calculations, so as not to have exclusively negative Sharpe ratios. In fact, the annual risk-free rate usually has values around 3%, and if its daily value is calculated, a value close to zero is obtained, which allows it to be disregarded. Once these values have been determinate for all four stocks, the same procedure must be operated for the portfolio itself. As for the expected return, it is necessary to calculate

the weighted average of the returns of the assets according to the weight they hold within the portfolio. The procedure for determining the overall riskiness is more complicated, since it is necessary to calculate the variance-covariance matrix. This represents the set of covariances between securities, and its diagonal is defined by the variances of individual stocks. This tool is critical because it considers not only the volatilities of individual assets but also the correlations among them. Finally, the Sharpe ratio can be computed by following the formula depicted in *Equation 3*, entering the values of the portfolio and not those of individual stocks.

What are the Key Portfolios to analyse?

Once the theory behind the process of creating a portfolio has been described, students could construct different investment strategies in order to determine which stocks have the higher potential and which are to be excluded in a speculative scheme. To perform this type of analysis, it is necessary to use the Solver function in Excel, which allows students to determine the weights of the shares based on specific requests. In this case, the constraints that have been inserted within the function allow the portfolio to have only positive weights and whose sum is equal to one, thus avoiding speculative strategies that involve short-selling practices. The key portfolios that students should build are listed below.

Equidistributed Portfolio

This type of portfolio represents an investment strategy where all securities are allocated with the same weight inside of an equity basket. Therefore, this approach considers all stocks equal, ignoring any differences regarding the industry, the size of the company or their riskiness. Usually, this methodology is used to identify a balanced estimate of the return that could be obtained from the assets included in the portfolio, since unlike other strategies it does not consider any variable other than the equality of weights. One of the advantages of this approach

is the risk diversification that investors may achieve. In fact, investing in fewer stocks could be more hazardous than placing capital in a larger number of assets, spreading the associated risk. Additionally, equal-weighted portfolios may benefit from higher returns derived by smaller companies' stocks, which could be ignored by other speculative approaches. This may lead to higher overall portfolio returns since corporations with lower market capitalization have higher growth margins. On the other side of the coin, this type of strategy might result in a greater exposure to volatility, precisely because larger amounts are invested in the shares of smaller, and therefore riskier, companies. In addition, this investment strategy requires a greater frequency of rebalancing, which can result in higher maintenance costs due to trading fees. After analysing the pros and cons of this type of portfolio, the next step is to look at its performance. In this case, the equidistributed portfolio is characterized by an expected daily return of 0.05%, a riskiness of 0.012 and a Sharpe ratio of 0.044, as depicted in *Exhibit 5*.

Minimum-Variance Portfolio

This strategy aims to invest across different assets within a portfolio in order to minimize its volatility and riskiness. It is an approach that is mainly used by risk-averse investors or retirees, as it is characterized by not being an aggressive investment strategy that is potentially subject to downside surprises. Among the advantages of this type of portfolio there is the possibility of obtaining higher returns than could be obtained by following other methods during periods of high volatility in financial markets. In addition, this approach is characterized by providing higher risk-adjusted returns than those of a traditional portfolio. These are measures that compare the returns of an investment in relation to its level of risk, such as the Sharpe Ratio. On the other hand, the disadvantages of minimum variance portfolios may be represented by the lack of performance in comparison to a traditional investment over the long-term horizon in a bullish market, or the continuous rebalancing needed due to changes in interest rates or

inflation, which may alter the risk balance associated with an asset. Students can observe from the *Exhibit 6*, how the weights of this portfolio have changed, especially those of 21st Century Fox and Sony. In this case, the minimum variance portfolio is characterized by an expected return of 0.04%, a riskiness of 0.011 and a Sharpe ratio of 0.033.

Maximum-Sharpe Ratio Portfolio

This portfolio is the result of the optimization process of an investment, as it represents the most efficient combination of assets with the highest possible Sharpe Ratio. The term efficient defines a portfolio as the best investment choice to make for a given risk threshold among all the different possibilities. This investment strategy is the ideal position to maintain in the market for any type of investor and for this reason it is usually named as the optimal portfolio. It is important for students to remember that identifying this portfolio is not a guarantee of success within financial markets, as considerations of riskiness and expected returns are made on historical data that do not predict the future with absolute certainty. As depicted in *Exhibit 7*, to obtain the highest expected return while keeping the risk of the portfolio to a minimum level, it is necessary to invest 57% of your capital in the shares of Charter Communications, 29% in those of Sony and the remaining 14% in those of Time Warner. In this case, the shares of 21st Century Fox are either excluded from the investment strategy because they have a negative expected daily return equal to -0.029%. As predicted, the portfolio's performance has improved significantly compared to those seen above, as the estimated return is around 0.09%, the riskiness is 0.013 and the Sharpe ratio has risen to 0.065.

Short-selling Portfolio

Up to this point, all possible investment strategies had the constraint of maintaining positive asset weights, avoiding the practice of short selling. But what does this term mean? This

approach refers to an investor's ability to bet against the market performance of a security, allowing him or her to get positive returns if prices go down instead of rising. In this case, the seller borrows shares he does not have in order to sell them in the market, betting that he will then have to buy them back at a lower price by paying off his debt and making a profit. This practice is often used by investors to hedge against downside risk or due to lack of confidence in an asset category in a certain market phase. By trying to identify the optimal portfolio while also considering the possibility of short selling, a clear change in the weights of the portfolio can be observed. As depicted in *Exhibit 8*, short selling occurs with the shares of 21st Century Fox, which are sold for 67% of the investor's capital. According to the Solver, this strategy can yield an expected return of 0.25% and a Sharpe ratio of 0.85, guaranteeing higher values than the previous approaches, but also a higher riskiness, reflected in a covariance of 0.029.

Portfolio Takeaways

Based on what has been observed up to this point, it is possible to draw several conclusions about the performance of the four shares under analysis. As depicted in *Exhibit 9*, only three stocks are characterized by positive returns, and these are those of Time Warner, Charter Communications, and Sony. Of these, only the first two can be compared, since they have a similar level of riskiness, while Sony has a higher valuation equal to 0.021. The first consideration can be drawn from individual stock data and shows how Charter Communications shares offer higher daily returns than those of Time Warner, as for the risk level of 0.016 they offer 0.098% and 0.051% respectively, delineating a daily difference of 0.047%. Secondly, other key insights may be derived from the portfolios created in our analysis. In fact, observing the minimum-variance portfolio, it is possible to further notice how the shares of Time Warner and Charter are comparable as they have practically identical weights of 25% and 24% respectively. Finally, the optimal portfolio contains additional information, since in order to

maximize the Sharpe ratio, investors need to place a greater share of their capital in Charter Communications' stocks rather than in Time Warner's, which is 57% and 29% respectively. The result of this analysis states that of the four shares considered, these two stocks are the preferable ones, and those of Charter Communications are characterized by the greatest potential. With these conditions, students can draw their own conclusions about AT&T's choice in identifying the proper target for a potential business acquisition.

How Efficient Frontier might help investors?

The concept of the efficient frontier was first devised by Markowitz in 1952 and is still used today to conduct investment analysis in the financial markets. The efficient frontier, in fact, represents a set of portfolios that possess the same characteristic, namely, being the most profitable for each level of risk that can be considered. Its graphical representation is a hyperbola, placed within a Cartesian graph. On the x-axis is measured the risk of the portfolio, with the standard deviation, while on the y-axis is measured the expected return. As depicted in *Exhibit 10*, the two branches of the hyperbola are divided by minimum-variance portfolio (*Yellow dot*), and the efficient section of the frontier is represented only by the upper branch. The advantages of this tool include the ability to diversify the investment among different securities by obtaining a wider range of risk-return levels than those that could be achieved by investing only in individual assets. In addition, its graphical representation assists investors to easily understand their placement in the market, as those who are more risk-averse will stand on the left side of the frontier, while those who are more risk-tolerant will stand on the right side. Using this tool, students have the opportunity to compare their existing portfolios to the efficient frontier and see how well they are placed, thus making it easier to make investment decisions by having a visual confirmation of the efficiency of the optimal allocation. As can be observed from *Exhibit 10*, the set of stocks that maximizes the Sharpe ratio achieved from our

analysis is positioned exactly on the upper branch of the frontier (*Green dot*), representing the combination with the highest potential obtainable with the four shares. Once the theory behind the working of the efficient frontier has been explained, students have the opportunity to draw their own conclusions regarding the positioning of the four stocks relative to the border, by observing the *Exhibit 10*. The first thing that students may notice is the fact that the shares of Time Warner and Sony are not positioned on the frontier. This means that in their case it will be possible to find a single asset or portfolio that is able to guarantee a higher expected return for the same level of risk. In this case, allocations that lays on the efficient frontier can be observed for the risk threshold of 0.014 and 0.016. On the other hand, it is possible to notice that the two remaining stocks are positioned on the border, but only those of Charter Communications are efficient, since 21stCentury Fox shares are on the lower branch of the frontier, resulting in a non-profitable investment. The situation is different for Charter Communications, as its shares are on the correct branch and therefore efficient. In fact, for the risk level of 0.017 it is not possible to find a portfolio or single asset with higher expected return than 0.098%. Combining these considerations with those obtained from the previous portfolio analysis, it is possible to ascertain again that the shares of Charter Communications are characterized by better performance than those of Time Warner. It is necessary to mention how the use of the efficient frontier is not usually done by those seeking synergies within a corporate acquisition. Since the intent of this analysis is an exclusive evaluation of stock performance and does not aim to determine the potential synergies that may arise from the merger, the efficient frontier turns out to be the tool that students may use.

Conclusion

Before concluding, it is necessary to remember what the drawbacks of such a methodology are to evaluating a target. Undoubtedly, portfolio analysis focuses mainly on financial metrics and

does not capture qualitative aspects such as the integration of corporate cultures or strategic shifts. In addition, this valuation approach considers the diversification achieved through the acquisition of listed companies as a positive factor, when it does not necessarily create value for the acquirer. In fact, this process may lead to harmful consequences such as the dilution of targets' core competencies, resources allocation problems, and increased organizational complexity. Despite this, the results obtained from the portfolio analysis outline how within the four stocks chosen, only two could be considered by AT&T as potential targets, since solely Time Warner and Charter Communications shares can be compared in terms of performance. Both stocks are characterized by excellent qualities, and thus betting on Time Warner is certainly not a managerial mistake, since the objective of this examination is not to substitute the role of the acquiring company. Generally, analyses carried out in retrospect, turn out to be simpler and more obvious than those carried out in the contemporaneity, as they may rely on a wider range of data and have the opportunity to look at the broader picture. For this reason, the portfolio analysis made in this case study does not presume to condemn the mistake made by AT&T for not choosing the best out of two performing stocks, but rather validate its choice and emphasize an appropriate alternative, which does not have to be considered as the only ideal target. The reason why the acquiring company decided to focus on Time Warner may be the attempt to fill a gap, namely the direct relationship with customers, achievable only through the vertical integration dictated by the merger. In this regard, the AT&T's executive was aiming to create a B2C bond that few media companies could boast of having, keeping up with the pace of other players such as Netflix or Amazon. As a conclusion, the results of this analysis should not be considered by students as pure investment advice, but as an educational lesson on how to approach a securities analysis and understand how, when it comes to investments, our choices may not always be the best ones, and broadening the visual horizon may be a winning strategy.

REFERENCES

1. 2018. “Time Warner Corporate actions”. *AT&T Intellectual property*. <https://investors.att.com/stockholder-services/time-warner-stockholders/at-and-t-merger#:~:text=On%20October%202022%2C%202016%2C%20AT%26T,completed%20on%20June%202014%2C%202018>.
2. Lee, Edmund. Kang, Cecilia. 2018. “AT&T Closes acquisition with Time Warner”. New York Times. June 14. <https://www.nytimes.com/2018/06/14/business/media/att-time-warner-injunction.html>.
3. 2023. “Warner Media”. Wikipedia. <https://en.wikipedia.org/wiki/WarnerMedia>.
4. 2016. “Time Warner Inc”. Form 10-K. United States Securities & Exchange Commission. <https://www.sec.gov/Archives/edgar/data/1105705/000119312517053483/d300508d10k.htm>.
5. 2023.” Time Warner Market Cap 2010-2016”. Macrotrends. <https://www.macrotrends.net/stocks/delisted/TWC/time-warner/market-cap>.
6. 2018. “Time Warner Stock Price”. Investing.com. June 14. <https://it.investing.com/equities/time-warner>.
7. The Motley Fool. 2016. “3 Reasons Time Warner Stock Could Rise”. Nasdaq. January 16. <https://www.nasdaq.com/articles/3-reasons-time-warner-inc-stock-could-rise-2016-01-16>.
8. 2023. “21st Century Fox – Wiki”. Golden. https://golden.com/wiki/21st_Century_Fox-X56MBW.
9. 2019. “21st Century Fox Stock A”. Investing.com. March 19. <https://it.investing.com/equities/fox-a-inc>.

10. 2023. "Charter Communications". Wikipedia.
https://en.wikipedia.org/wiki/Charter_Communications.
11. 2023. "Charter Communications Market Cap". Companies Market Cap.
<https://companiesmarketcap.com/charter-communications/marketcap/#:~:text=Market%20cap%3A%20%2461.09%20Billion>.
12. 2023. "Charter Communications Stock". Investing.com. November 21.
<https://www.investing.com/equities/charter-communications>.
13. 2023. "Sony". Wikipedia. <https://it.wikipedia.org/wiki/Sony>.
14. 2023. "Sony Revenue 2010-2023". Macrotrends.
<https://www.macrotrends.net/stocks/charts/SONY/sony/revenue#:~:text=Sony%20revenue%20for%20the%20twelve,a%204.38%25%20increase%20from%202021>.
15. 2023. "Market Capitalization of Sony". Companies Market Cap.
<https://companiesmarketcap.com/sony/marketcap/>.
16. 2023. "Sony Stock". Investing.com. <https://it.investing.com/equities/sony>.
17. Thakur, Madhuri. 2023. "Rate of Return". EDUCBA. June 28.
<https://www.educba.com/rate-of-return-formula/>.
18. Chen, James. 2023. "Expected Return. Formula, How it works, Limitations, Example". Investopedia.com. September 26.
<https://www.investopedia.com/terms/e/expectedreturn.asp#:~:text=Understanding%20Expected%20Return,-Expected%20return%20calculations&text=The%20expected%20return%20is%20usually,weighted%20average%20of%20historical%20returns>.
19. Hayes, Adam. 2023. "What is Variance in Statistic? Definition, Formula, and Example". Investopedia.com. March 14.
<https://www.investopedia.com/terms/v/variance.asp>.

20. Fernando, Jason. 2023. "Sharpe Ratio: Definition, Formula, and Example". Investopedia.com. May 11. <https://www.investopedia.com/terms/s/sharperatio.asp>.
21. Chen, James. 2022. "Equal Weight Investing: Performance and Examples". Investopedia.com. June 2. <https://www.investopedia.com/terms/e/equalweight.asp>.
22. Tamplin, True. 2023 "Equal-Weighted Portfolio". Finance Strategist. May 23. <https://www.financestrategists.com/wealth-management/risk-profile/diversification/equal-weighted-portfolio/>.
23. Tamplin, True. 2023. "Minimum Variance Portfolio". Finance Strategist. July 11. <https://www.financestrategists.com/wealth-management/investment-management/minimum-variance-portfolio/>.
24. Chen, James. 2023. "Understanding Risk-Adjusted Return and Measurement Methods". Investopedia.com. September 13. <https://www.investopedia.com/terms/r/riskadjustedreturn.asp#:~:text=The%20risk%2Dadjusted%20return%20measures,a%20better%20risk%2Dadjusted%20return.>
25. Samuel, Nomadic. 2023. "How To Build a Maximum Sharpe Ratio Portfolio: A Complete Guide". Picture Perfect Portfolios. November 7. <https://pictureperfectportfolios.com/how-to-build-a-maximum-sharpe-ratio-portfolio/#:~:text=The%20Sharpe%20ratio%20is%20a,maximize%20returns%20while%20minimizing%20risk.>
26. Hayes, Adam. 2023. "Short Selling: Definition, Pros, Cons, and Examples". Investopedia.com. November 20. <https://www.investopedia.com/terms/s/shortselling.asp>.
27. 2023. "Efficient Frontier". Wikipedia. https://en.wikipedia.org/wiki/Efficient_frontier.
28. Ganti, Akhilesh. 2023. "What It Is and How Investors Use It". Investopedia.com. June 28. <https://www.investopedia.com/terms/e/efficientfrontier.asp>.

APPENDIX

Exhibit 1 – Time Warner stock price volatility in 2016.

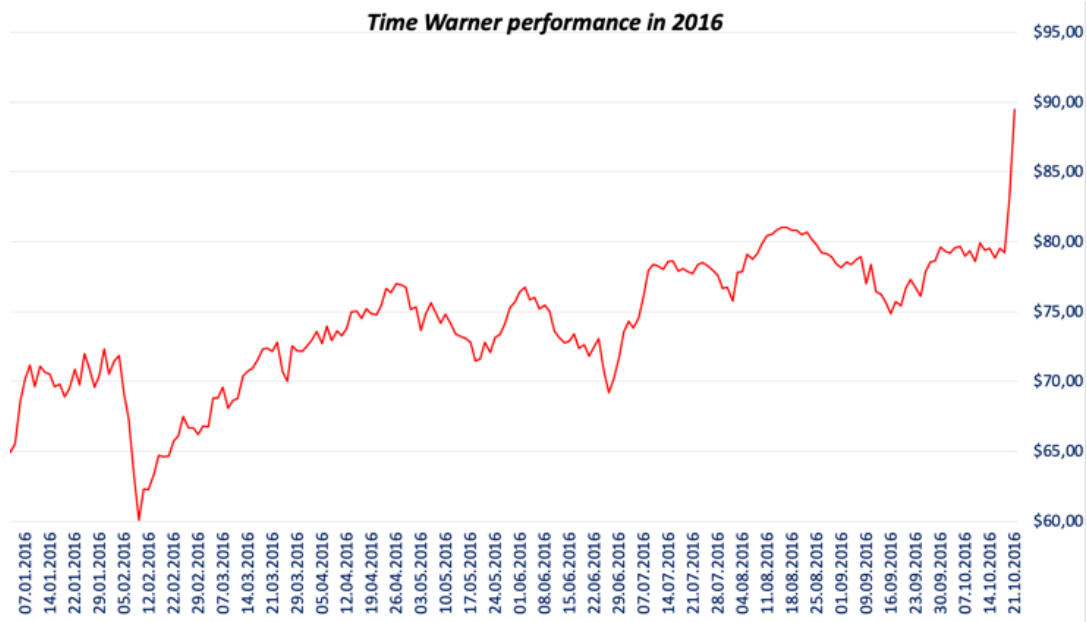


Exhibit 2 – 21st Century Fox stock price volatility in 2016.

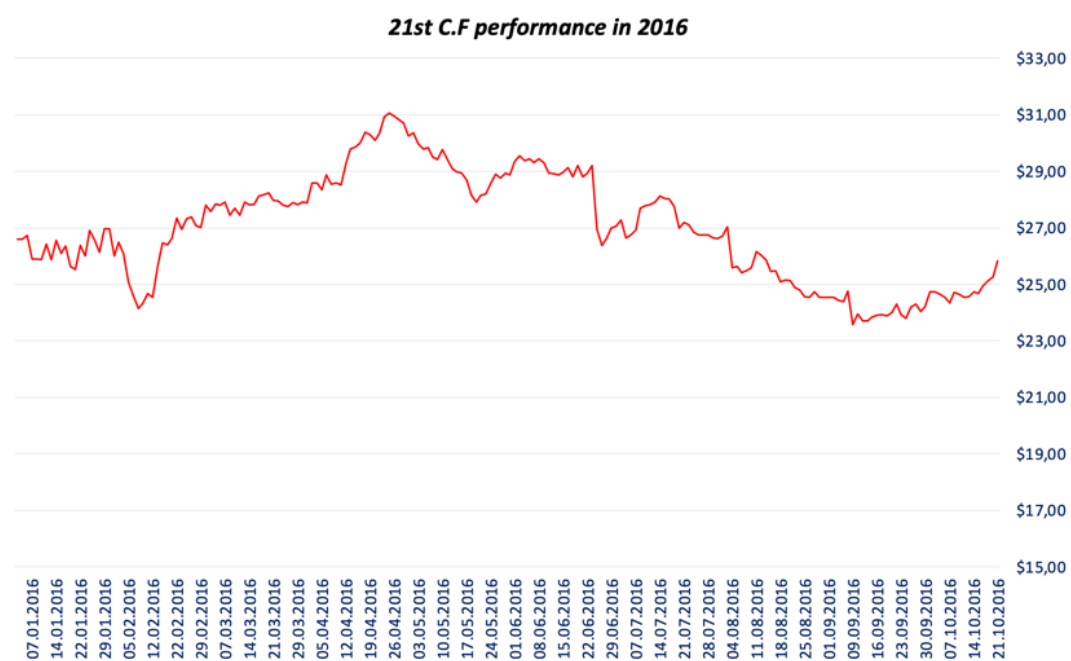


Exhibit 3 – Charter Communications stock price volatility in 2016.

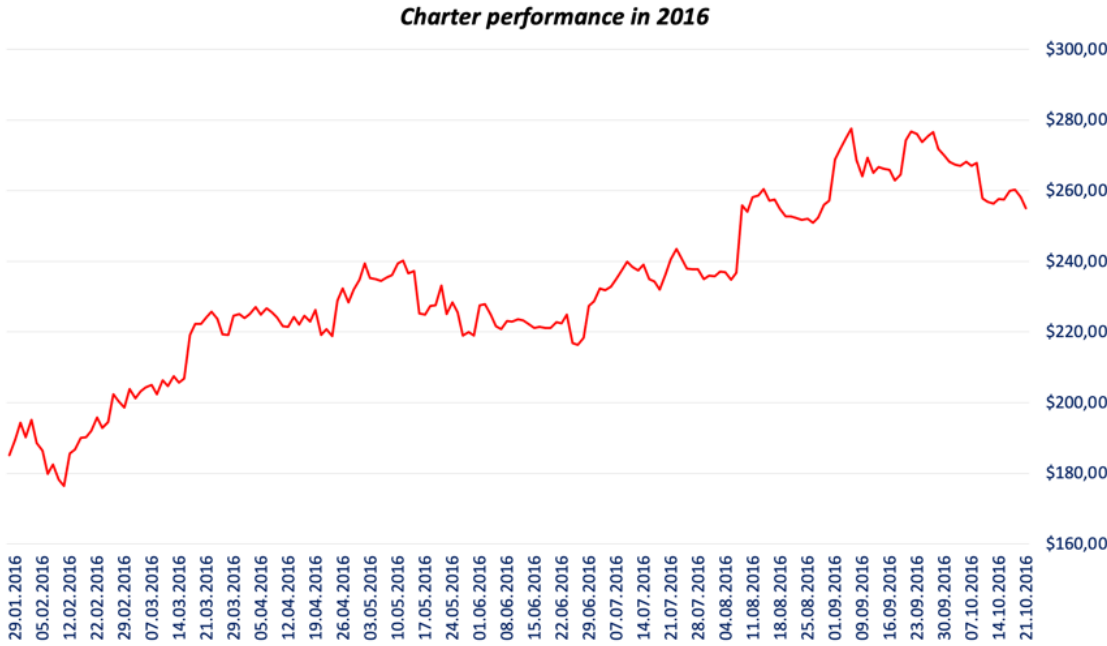


Exhibit 4 – Sony stock price volatility in 2016.

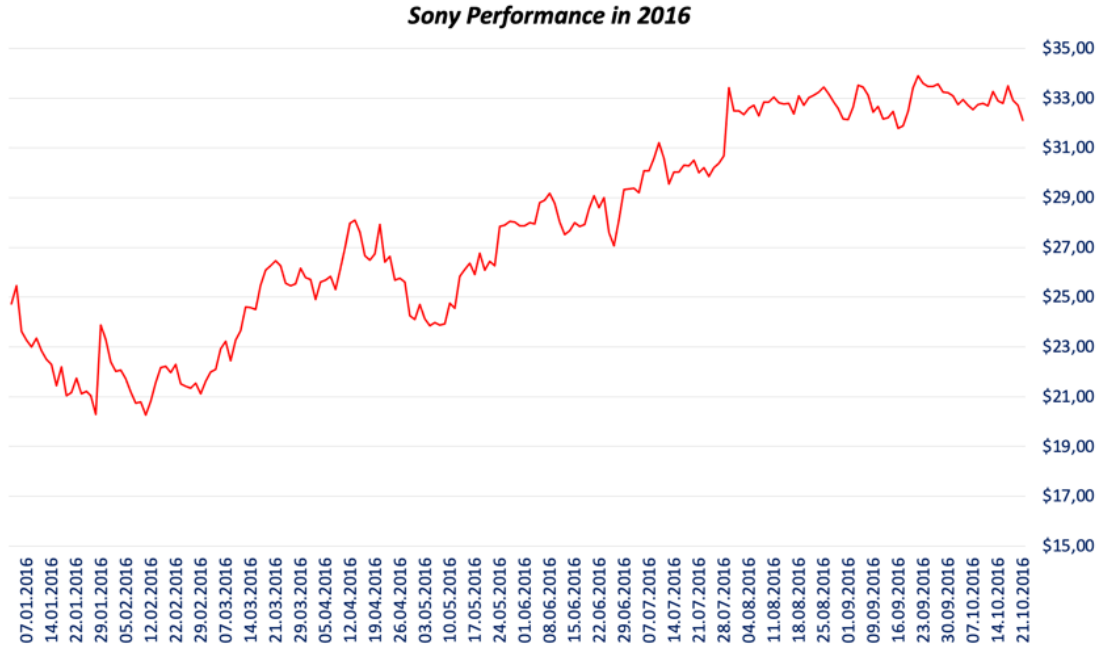


Exhibit 5 – Equally-Weighted portfolio performance.

Expected Return Portfolio	0,05%
Variance Portofolio	0,00014
Portfolio Riskiness	0,01178
Sharpe Ratio	0,044

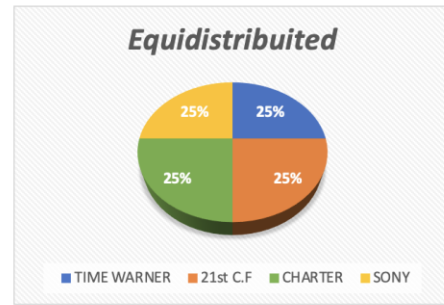


Exhibit 6 – Minimum-Variance portfolio performance.

Expected Return Portfolio	0,04%
Variance Portofolio	0,00013
Portfolio Riskiness	0,01154
Sharpe Ratio	0,033

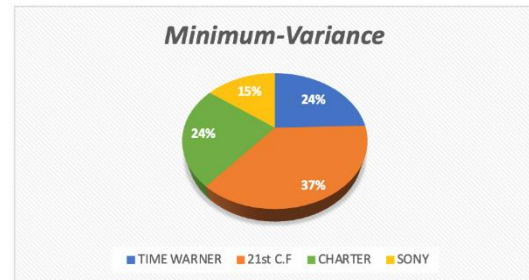


Exhibit 7 – Maximum-Sharpe Ratio portfolio performance.

Expected Return Portfolio	0,09%
Variance Portofolio	0,00018
Portfolio Riskiness	0,01357
Sharpe Ratio	0,065

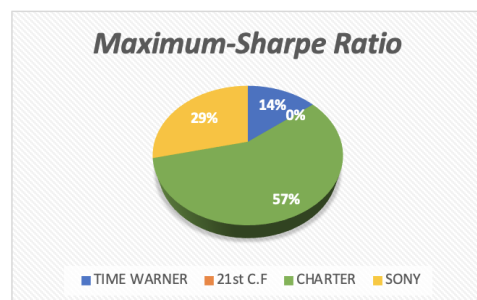


Exhibit 8 – Short-selling portfolio performance.

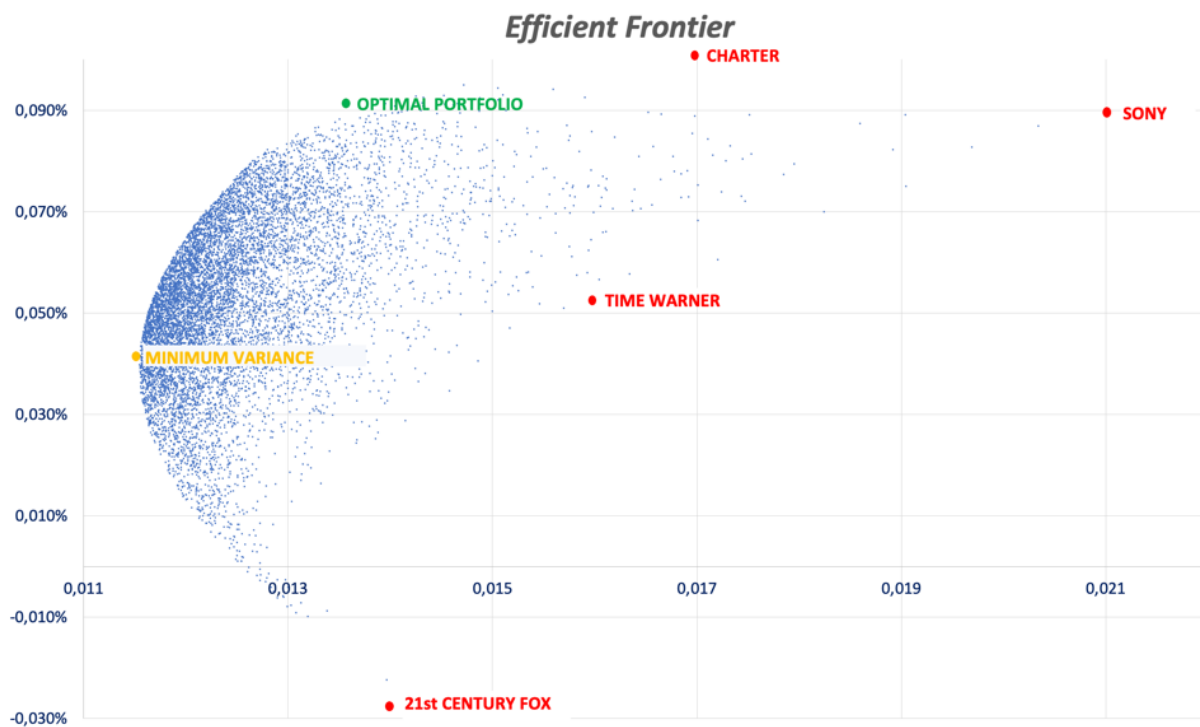
	TIME WARNER	21st C.F	CHARTER	SONY	TOTAL
WEIGHTS	76%	-157%	119%	63%	100%

Expected Return Portfolio	0,25%
Variance Portfolio	0,00089
Portfolio Riskiness	0,02984
Sharpe Ratio	0,085

Exhibit 9 – Main Performances for each share analysed.

	TIME WARNER	21st C.F	CHARTER	SONY
Average Return	0,051%	-0,029%	0,098%	0,087%
Stock Riskiness	0,016	0,014	0,017	0,021
Sharpe Ratio	0,032	-0,020	0,056	0,041

Exhibit 10 – Efficient frontier.



Equation 1 – Rate of Return formula.

$$\text{Rate of Return} = (\text{Current Share Price} - \text{Past Share Price}) / (\text{Past Share Price})$$

Equation 2 – Variance formula.

$$\sigma^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{N}$$

Equation 3 – Sharpe Ratio formula.

$$\text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p}$$