POLITECNICO DI TORINO

Engineering and Management

Master Thesis

M&A Waves in the U.S. Market: An Empirical Analysis of Market Sentiment, Financing Conditions, and Sectoral Dynamics

Relatore/i

prof. Riccardo Calcagno

Candidato

Edoardo Negro

Anno Accademico 2024-2025

Abstract

This thesis examines the determinants of merger and acquisition (M&A) waves in the United States from 1999 to 2023, focusing on the role of market sentiment, financing conditions, and sectoral dynamics. While classical theories link M&A waves to industrial shocks or managerial motives, this study emphasizes the misvaluation hypothesis, which suggests that equity market conditions and the use of stock as acquisition currency are central drivers of merger activity.

The empirical analysis uses a dataset of large, completed U.S. transactions from Refinitiv LSEG, combined with external macro-financial indicators such as sectoral EV/EBITDA multiples, S&P 500 performance, Treasury yields. Data were aggregated quarterly to construct measures of deal value, deal count, financing structure, and sectoral composition.

Regression results show that higher market valuations and stock market performance are associated with increased M&A activity, while rising financing costs reduce it. The share of cash-financed deals is negatively related to deal volumes, consistent with the prevalence of stock-based acquisitions during periods of market optimism. Sectoral evidence highlights the disproportionate role of technology and healthcare in shaping merger waves.

Index

1. Introduction

Mergers and acquisitions (M&A) represent one of the most significant phenomena in corporate finance, shaping not only the evolution of individual firms but also the dynamics of entire industries and financial markets. Since the late nineteenth century, scholars and practitioners have observed that M&A activity does not unfold at a constant pace over time but instead occurs in discernible "waves." These waves are characterized by periods of intense deal-making, often spanning multiple industries simultaneously, followed by phases of relative stagnation. Understanding the drivers of these recurring patterns has long been a central question in the literature, as it touches upon the intersection of corporate strategy, financial markets, and macroeconomic conditions.

The cyclical nature of M&A activity suggests that corporate consolidation is not solely the outcome of firm-specific strategic needs but is also influenced by broader economic, financial, and behavioral forces. In particular, three main theoretical frameworks have dominated the academic debate. The first emphasizes the role of industrial shocks such as technological change, deregulation, or commodity price fluctuations, which alter competitive equilibria and trigger restructuring across industries. The second highlights agency problems and behavioral biases, arguing that managerial hubris, empire-building motives, and weak corporate governance can generate waves of value-destroying acquisitions. The third is the overvaluation hypothesis, which posits that waves of mergers are often fueled by stock market mispricing: overvalued firms exploit their inflated equity as acquisition currency to buy less overvalued targets, particularly during periods of bullish investor sentiment.

This research is situated within this broader literature, with a particular focus on the interaction between financial market conditions, sectoral dynamics, and the financing structures of deals. Building on prior work that links merger activity to stock market performance, credit conditions, and valuation multiples, the present study investigates whether macro-financial indicators such as interest rates and equity market performance can help explain the timing and intensity of M&A waves. In doing so, it also explores how financing choices—cash versus stock payments—reflect underlying market sentiment and, in turn, shape the volume and value of deals.

This thesis constructs a comprehensive dataset of U.S. M&A transactions between 1999 and 2023, integrating detailed deal-level information from Refinitiv LSEG with macro-financial

variables from external sources such as Damodaran, Yahoo Finance, and FRED. This dataset is aggregated at the quarterly level, enabling a systematic analysis of the evolution of deal activity across time and industries. Also, the study develops econometric models that relate the volume and value of transactions to market valuation conditions, financing choices, and macroeconomic variables. By testing these relationships, the analysis seeks to disentangle the respective roles of market sentiment, cost of capital, and sectoral drivers in shaping M&A waves.

The empirical results reveal important insights into the determinants of M&A activity. Consistent with the literature, stock market performance and valuation multiples emerge as key correlates of merger waves, while the proportion of cash-financed deals serves as a meaningful indicator of market sentiment. Interestingly, the findings suggest that the relationship between macroeconomic conditions and M&A activity is not contemporaneous but operates with a lag, reflecting the time-intensive nature of deal planning and execution. By incorporating variables for interest rates and stock market performance, the models capture the lag in the decision-making process of firms considering strategic acquisitions.

Beyond its academic contribution, this thesis has practical implications for policymakers, investors, and corporate decision-makers. For policymakers, understanding the determinants of merger waves is crucial for anticipating periods of heightened consolidation and their potential impact on competition, labor markets, and innovation. For investors, the results shed light on how financing choices and valuation environments influence deal outcomes, offering potential signals for portfolio allocation. For corporate executives, the analysis underscores the importance of aligning acquisition strategies with broader market conditions, avoiding the pitfalls of overvaluation-driven deals that may destroy shareholder value in the long run.

Finally, the study situates its contribution within ongoing debates in corporate finance regarding the efficiency of financial markets and the rationality of managerial decision-making. By showing that merger waves can be explained not only by structural industry shocks but also by financial mispricing and sentiment-driven financing choices, the thesis highlights the multifaceted nature of M&A activity. In this sense, the work aligns with a growing strand of literature that integrates traditional neoclassical explanations with insights from behavioral finance, thereby providing a richer understanding of one of the most dynamic and consequential phenomena in modern markets.

2. Literature Review

2.1. Introduction: Understanding M&A Waves

Mergers and acquisitions (M&A) waves are influenced by a confluence of economic, financial, and behavioral factors. Scholars have proposed several hypotheses to explain these recurring patterns.

One of the foundational explanations is the industrial shocks hypothesis, which posits that external disruptions—such as technological innovations, regulatory changes, or macroeconomic shifts—trigger waves of corporate consolidation. For instance, advancements in information technology, deregulation in industries like telecommunications and banking, and fluctuations in commodity prices have all been linked to surges in M&A activity within affected sectors. These industry-level changes create restructuring pressures that lead firms to merge, often sequentially, as competitors react to early deals in the sector [1][2]. A particularly impactful subset of industrial shocks is technological innovation. Technological advancements can render existing products or services obsolete, alter consumer behavior, and redefine industry standards. In response, firms often engage in M&A to acquire new technologies, integrate innovative capabilities, and maintain competitive advantage. These innovation-driven M&A waves are characterized by firms seeking to acquire technological assets that would be time-consuming or costly to develop internally [1].

Another significant theory focuses on agency problems and managerial behavior. This perspective argues that M&A waves are not always driven by value-maximizing decisions but can stem from overconfidence, empire-building motives, and misaligned executive incentives. The hubris hypothesis suggests that managers overestimate the synergies they can create through acquisitions, leading to excessive deal-making, particularly during periods of strong economic growth and easy access to financing. In many cases, acquisitions are pursued not to maximize shareholder value but to increase managerial control, compensation, or prestige, contributing to inefficient M&A waves that eventually collapse when financial conditions tighten [5][7].

A third, and increasingly influential, perspective is the overvaluation hypothesis. This theory asserts that M&A waves are often driven by stock market mispricing rather than industry

restructuring or managerial motives. According to this view, firms that are overvalued by the market have a strong incentive to use their inflated equity as a form of acquisition currency to purchase less overvalued or undervalued targets. This phenomenon is particularly evident during stock market booms, when investors are overly optimistic and willing to pay high prices for corporate control. Empirical evidence supports this hypothesis, showing that M&A activity is more frequent when stock prices are high and that stock-financed acquisitions tend to underperform in the long run [9][10][11].

Further studies have nuanced this understanding. For instance, research indicates that during periods of market optimism, both stock and bond market booms coincide with increased M&A activity. This suggests that market-wide sentiment plays a significant role in driving merger waves, beyond firm-specific overvaluation. The managerial discretion theory complements this view by proposing that increased optimism reduces constraints on managers, allowing them to pursue mergers that may not necessarily maximize shareholder value [12][13].

Moreover, the "wave effect" observed in M&A activity during the 1990s demonstrates that abnormal returns to bidders decline over the course of a wave. This effect is particularly strong for stock-financed deals, supporting the notion that market overvaluation plays a crucial role in fueling late-stage, low-quality acquisitions. Such patterns align with the overvaluation theory, indicating that as the wave progresses, the quality of deals deteriorates, and market inefficiencies become more pronounced [12].

The interplay between these hypotheses suggests that M&A waves are multifaceted phenomena. While industrial shocks can initiate waves by creating new opportunities or necessitating restructuring, agency problems and overvaluation can amplify and sustain these waves, often leading to suboptimal outcomes. Understanding the relative contributions and interactions of these factors is crucial for comprehending the dynamics of M&A activity. Given the strong empirical and theoretical foundations of these hypotheses, this literature review will delve deeper into each, exploring their mechanisms and implications in detail. The subsequent sections will provide an overview of the broader explanations for M&A waves, summarizing key literature on industrial shocks and agency problems, before transitioning into an in-depth analysis of how overvaluation fuels M&A activity, the role of stock-financed deals, and the long-term effects of misvaluation-driven acquisitions.

2.2. Theoretical Explanations of M&A Waves

2.2.1. Industrial Shocks and Economic Changes

The hypothesis of industry-specific or macroeconomic shocks offers one of the most enduring frameworks for understanding M&A waves. These shocks are defined as significant exogenous changes—ranging from technological breakthroughs and regulatory reforms to macroeconomic crises—that disrupt industry structures and market equilibrium. These disruptions generally trigger waves of mergers and acquisitions, as firms respond to the changed competitive landscape, either by consolidating to gain efficiencies or by acquiring capabilities that will help them thrive in the new environment.

Ahern and Harford (2014) demonstrate that technological shocks, particularly those that alter production processes or market structures, often serve as the key catalyst for industry-wide M&A waves. The study shows how technological advancements—such as the rise of digital platforms or automation —spur firms to engage in mergers to either acquire new technological capabilities or achieve economies of scale [1]. Their analysis reveals that M&A activity often clusters in sectors where new technologies promise to disrupt existing business models. For example, the advent of the internet prompted waves of consolidation in the telecommunications industry, while the digitalization of financial services led to a series of mergers between traditional banks and fintech firms. Early adopters of new technology set off a chain reaction, with competitors following suit to avoid losing competitive ground.

Deregulation plays an equally important role in triggering M&A activity. Martynova and Renneboog (2008) argue that regulatory changes, particularly the liberalization of previously protected sectors, create opportunities for firms to expand by acquiring competitors or entering new geographic markets. Their research demonstrates how the deregulation of industries such as telecommunications, energy, and banking during the 1980s and 1990s led to unprecedented waves of M&A. These waves were not simply a result of market competition but were significantly driven by the removal of legal and institutional barriers, which made it easier for firms to enter new markets and consolidate fragmented industries [2]. The removal of barriers to foreign investment intensified cross-border M&A activity, as firms sought to capitalize on newly accessible markets and regulatory environments.

Moreover, economic shocks—such as fluctuations in commodity prices, financial crises, or sudden changes in interest rates—can also initiate merger waves. Mitchell and Mulherin (1996) highlight how the 1973 oil crisis and subsequent stagflation period in the U.S. triggered waves of corporate restructuring, particularly in the energy sector, as firms scrambled to improve efficiency and scale up to survive in a volatile economic environment [3]. Shocks such as these often lead to a reshuffling of market players, as firms adjust their strategies to cope with new economic realities. The subsequent restructuring activities, including mergers and acquisitions, are aimed at realigning the firms' portfolios with changing economic conditions.

What makes industrial shocks a robust explanation for M&A waves is not just their immediate impact, but their ability to set off a domino effect that extends beyond the directly affected industries. This cascading effect is particularly evident when shocks spill over into related industries via supply chain linkages or cross-industry technological convergence. Ahern and Harford (2010) emphasize that when a major shock affects one industry, the effects are often felt across multiple sectors. For example, the rise of renewable energy technologies in the energy sector has led to increased M&A activity in both the energy and manufacturing sectors as firms seek to integrate vertically or horizontally to capitalize on the shift toward sustainable energy sources [4].

In sum, the industrial shocks theory provides a compelling explanation for M&A waves, emphasizing that these waves are not random but are instead systematic responses to transformative changes in the economic environment. Firms often pursue mergers as a strategic response to mitigate risks or seize new opportunities created by these shocks.

2.2.2. Agency Problems and Behavioral Biases

While industrial shocks offer a structural explanation for M&A waves, a significant body of literature emphasizes the role of agency problems and behavioral biases in explaining merger activity. This perspective focuses on how managerial incentives, overconfidence, and cognitive biases may lead to excessive and inefficient M&A activity, especially during periods of financial exuberance.

The hubris hypothesis proposed by Roll (1986) remains central in the behavioral finance literature. According to Roll, managers often overestimate their ability to create value through acquisitions, leading them to pay inflated prices for targets, even when there is no

fundamental basis for the expected synergies. This overconfidence stems from a psychological bias, where managers believe their judgment is superior to that of the market, thereby overpaying in the hope of achieving strategic gains that may not materialize. Roll's theory posits that these biased decisions are most common during periods of market optimism when managers are more likely to be emboldened by favorable market conditions and their perceived competence [5].

This view is further expanded by Malmendier and Tate (2008), who empirically demonstrate that overconfident CEOs are more likely to pursue acquisitions. Their study, which examines a sample of U.S. firms, shows that overconfident CEOs—who are characterized by their tendency to underestimate risks—are significantly more likely to engage in acquisitions, particularly when their firms' stock prices are high. These acquisitions, however, tend to underperform in the long run, as overconfidence leads to unrealistic expectations about post-acquisition synergies and the ability to integrate acquired firms successfully [6].

Gugler, Mueller, and Yurtoglu (2003) provide additional evidence that M&A activity during waves often fails to create value for acquiring shareholders. Their study, which looks at cross-country data, finds that while mergers may initially appear beneficial, they frequently lead to value destruction. They argue that many mergers are motivated not by economic value maximization but by managerial self-interest. For instance, executives may pursue mergers to increase their control over larger organizations, enhance their personal compensation packages, or increase their prestige, even when these mergers are not in the best interest of shareholders [7]. This phenomenon is consistent with the empire-building hypothesis, which suggests that executives are driven by motives beyond shareholder value maximization.

Moreover, weak governance structures amplify these agency problems. Masulis, Wang, and Xie (2007) find that firms with weak corporate governance mechanisms, such as low levels of board independence and shareholder protection, are more likely to engage in inefficient mergers. This is particularly true in periods when capital is cheap and external monitoring is low, allowing managers to pursue acquisitions without significant scrutiny [8]. The ease with which firms can access capital during boom periods further exacerbates the problem, enabling managers to undertake larger, riskier acquisitions that might not be feasible in a more constrained environment.

From this behavioral perspective, M&A waves are not simply rational responses to external changes in the business environment, but are also shaped by managerial biases, agency problems, and governance failures. In many cases, these biases lead firms to engage in excessive deal-making that ultimately erodes shareholder value, especially in periods of financial optimism.

2.3. Beyond the Core Hypotheses: Complementary Theories Explaining M&A Waves

In addition to the three dominant explanations—industrial shocks, agency problems, and overvaluation—scholars have increasingly highlighted a range of complementary hypotheses that enhance the understanding of M&A wave dynamics. One such explanation focuses on the role of regulatory and legal changes, such as antitrust reform, liberalization, and shifts in corporate law, which can reshape competitive environments and encourage consolidation.

Deregulation in particular has been repeatedly shown to trigger surges in M&A activity, as firms move swiftly to exploit newly liberalized markets. For instance, the liberalization of the U.S. banking and telecommunications sectors in the 1980s and 1990s is associated with large-scale merger waves that would have been unlikely in a more restrictive regulatory setting [1]. Similarly, changes in antitrust enforcement or international investment restrictions can significantly alter firms' strategic opportunities and lower barriers to entry, thereby unleashing merger activity.

Another important but often underappreciated factor is the condition of credit and liquidity markets. M&A waves have frequently coincided with periods of low interest rates, abundant credit availability, and narrow credit spreads—conditions that lower the cost of financing and facilitate deal-making. Harford (2005) argues that liquidity-driven shocks in capital markets act as an enabler of merger waves, not by initiating the economic rationale for a merger, but by making execution financially feasible [2]. Under this view, even firms with a valid strategic reason to merge may only do so when capital markets are sufficiently loose to fund such deals. This helps explain why M&A activity often intensifies during financial booms and wanes during credit contractions, even if the underlying industrial dynamics remain unchanged.

Closely related is the role of behavioral contagion and market sentiment, which posits that firms often engage in acquisitions not solely based on internal assessments of synergies or valuations, but in response to peer activity and herd behavior. In periods of optimism, firms may perceive M&A as a necessary strategic move simply because competitors are doing so. This imitation behavior—reinforced by media coverage, analyst expectations, and investor enthusiasm—can amplify M&A waves well beyond what would be justified by fundamentals alone [3]. Studies grounded in behavioral corporate finance suggest that acquisition activity may be driven by a desire to keep up with industry norms or to signal strength to capital markets, especially in sectors undergoing rapid change.

Finally, although often treated as a subset of industrial shocks, some scholars argue that technological innovation deserves distinct consideration due to its recurring and transformative impact on industry structure. Breakthroughs such as digitalization, artificial intelligence, and platform economies have repeatedly triggered sector-wide realignments, prompting firms to acquire technological capabilities they cannot build in-house quickly enough. In this sense, innovation is not merely a shock but a sustained and self-reinforcing force that can define the scope and speed of entire merger waves.

Incorporating these additional hypotheses—regulatory change, liquidity conditions, behavioral contagion, governance quality, and technological cycles—offers a more nuanced and multi-causal perspective on M&A waves. These factors often interact with each other and with the core hypotheses, creating conditions where merger waves are not only triggered, but also sustained and amplified. This broader theoretical foundation is essential for interpreting historical M&A patterns and for designing empirical tests that accurately capture the multifactorial nature of merger dynamics. Having considered the spectrum of theoretical drivers, the next chapter will focus specifically on the overvaluation hypothesis, which remains one of the most empirically supported and widely cited explanations for the timing and structure of M&A waves.

2.4. Deep Dive: The Overvaluation Hypothesis

2.4.1. Theoretical Foundations of the Misvaluation Hypothesis

The misvaluation hypothesis, also known as the overvaluation hypothesis, posits that M&A activity is significantly influenced by stock market inefficiencies, particularly the mispricing of firms' equities. In this framework, managers—assumed to be rational and informed—

exploit periods when their firm's stock is overvalued to finance acquisitions, especially of less overvalued or undervalued targets. This behavior allows them to use inflated equity as a form of "cheap currency" to acquire real assets at lower relative value [9].

Shleifer and Vishny (2003) developed the foundational model of this hypothesis [9]. They propose that although financial markets are inefficient and firms may be mispriced, managers can recognize these discrepancies and act accordingly. During periods of high stock market valuations, firms with overvalued stocks are more likely to initiate acquisitions, particularly using stock as payment. Their theory explains several empirical observations, including the increase in stock-financed mergers during market booms, clustering of deals during bull markets, and the tendency for these transactions to perform poorly in the long run due to valuation corrections.

Rhodes-Kropf and Viswanathan (2004) extended this framework by proposing a more refined model of relative misvaluation [10]. Their approach allows for both acquirers and targets to be misvalued—positively or negatively—and suggests that the relative mispricing between two firms can motivate mergers. If an overvalued firm identifies a target whose equity is less inflated, or even undervalued, the resulting arbitrage opportunity makes the acquisition financially attractive. This model supports the idea that rational managers can exploit these valuation discrepancies to engineer deals, even if such transactions are not necessarily driven by long-term strategic fit.

Moreover, Rhodes-Kropf, Robinson, and Viswanathan (2005) provide empirical evidence consistent with the misvaluation hypothesis by analyzing a large dataset of U.S. M&A deals between 1985 and 2002 [11]. Their study shows that firms with high market-to-book ratios—often a proxy for overvaluation—are more likely to be acquirers. Interestingly, they also find that the choice of acquisition method aligns with this theory: overvalued firms are more likely to finance deals with stock than with cash.

The model also provides a compelling explanation for several stylized facts about M&A markets:

- Timing of deals: Firms tend to acquire during market booms when their stocks are likely to be overvalued.
- Payment method: Stock-financed deals dominate during overvaluation periods.

- Post-deal underperformance: Deals driven by misvaluation often lead to poor long-run performance, as the inflated acquirer equity corrects downward post-transaction [9][11].

More recent empirical work has broadened the scope of the misvaluation hypothesis. Huang et al. (2023), for example, investigate the role of industry-wide mispricing and find that overvaluation at the sector level can significantly increase the likelihood of technological acquisitions [14]. This reinforces the idea that misvaluation effects are not limited to individual firm characteristics, but can propagate across industries, potentially contributing to the clustering of M&A deals within certain sectors—a key feature of merger waves.

Importantly, the misvaluation hypothesis contrasts with traditional explanations like the neoclassical model, which argues that M&A waves arise from real economic shocks (e.g., deregulation, innovation). Instead, the misvaluation framework situates financial markets—specifically investor sentiment and market irrationality—as core drivers of M&A cycles. It also connects naturally to behavioral finance, which views market mispricing as a consequence of bounded rationality and speculative enthusiasm.

Together, these theoretical models and empirical studies provide a robust foundation for understanding how market inefficiencies and investor sentiment can drive strategic corporate behavior. The overvaluation hypothesis explains not only when and why firms choose to merge, but also how broader market cycles translate into waves of M&A activity.

2.4.2. Empirical Evidence Linking Market Mispricing to M&A Waves

A substantial body of empirical research supports the misvaluation hypothesis, demonstrating how stock market mispricing influences merger and acquisition (M&A) activity. This section delves into key studies that examine the relationship between market mispricing and the timing, method, and outcomes of M&A transactions.

- Market-to-Book Ratios and Acquisition Activity

Rhodes-Kropf, Robinson, and Viswanathan (2005) [11] analyzed U.S. M&A data from 1985 to 2002, finding that firms with higher market-to-book ratios—indicative of overvaluation—are more likely to engage in acquisitions. Their study suggests that overvalued firms use their inflated stock as currency to acquire less overvalued or undervalued targets. This

behavior contributes to merger waves, as clusters of overvalued firms pursue acquisitions during periods of high market valuations.

- Payment Method and Long-Term Performance

Shleifer and Vishny (2003) [9] observed that stock-financed mergers are more prevalent during periods of market overvaluation. Managers of overvalued firms prefer to use stock rather than cash for acquisitions to capitalize on their inflated equity prices. However, these stock-based acquisitions often underperform in the long term, as the market eventually corrects the overvaluation. This pattern supports the idea that mispricing drives both the method of payment and the subsequent performance of M&A deals.

- Industry-Level Misvaluation and Technological Acquisitions

Huang, Zhang, and Li (2023) [14] explored the impact of industry-level misvaluation on technological acquisitions. Their study found that overvaluation at the industry level significantly increases the likelihood of firms engaging in technological M&As. This indicates that misvaluation effects extend beyond individual firms to broader industry trends, influencing the clustering of M&A activity within certain sectors.

- Merger Waves and Market Conditions

Rhodes-Kropf and Viswanathan (2004) [10] developed a model demonstrating that merger waves can be rationally driven by periods of over- and undervaluation in the stock market. Their analysis shows that during times of high market valuations, the relative mispricing between acquirers and targets leads to increased M&A activity. This model aligns with empirical observations of merger waves coinciding with market booms.

- Behavioral Factors and Managerial Decision-Making

The misvaluation hypothesis also intersects with behavioral finance, suggesting that managerial decisions are influenced by market sentiment and psychological biases. Managers may overestimate their ability to create value through acquisitions, especially when their firm's stock is overvalued. This overconfidence can lead to increased M&A activity during market booms, further fueling merger waves.

- Cross-Border M&A and Exchange Rate Misvaluation

Exchange rate fluctuations can lead to misvaluation in cross-border M&A transactions. When a firm's home currency is overvalued, it can acquire foreign targets at a relative discount. This dynamic has been observed in various studies, indicating that currency misvaluation can drive international merger waves.

- Regulatory Environment and Market Mispricing

Regulatory changes can influence market valuations and, consequently, M&A activity. Deregulation or changes in antitrust policies can lead to increased market optimism, resulting in overvaluation of certain sectors. Firms in these sectors may then engage in acquisitions, contributing to merger waves driven by regulatory-induced mispricing.

Collectively, these empirical findings reinforce the misvaluation hypothesis, illustrating how market mispricing influences M&A activity. Overvalued firms are more inclined to pursue acquisitions, particularly using stock as payment, during periods of high market valuations. These behaviors contribute to the cyclical nature of merger waves and have significant implications for corporate strategy and market dynamics.

2.4.3. Stock-Financed Acquisitions During Market Booms

Empirical evidence indicates that stock-financed acquisitions are more prevalent during periods of high market valuations. This trend is particularly pronounced during merger waves, where clusters of M&A activity coincide with bullish market conditions.

1. Prevalence of Stock-Financed Acquisitions in Booms

Shleifer and Vishny (2003) [9] developed a model explaining that overvalued firms are more likely to use their inflated stock as currency for acquisitions. Their theory suggests that during market booms, when stock prices are elevated, firms capitalize on their overvaluation to finance mergers, leading to an increase in stock-based deals.

This pattern was evident during the late 1990s, where a significant wave of mergers and acquisitions was predominantly financed through stock. The high market valuations during this period provided firms with the opportunity to leverage their overvalued equity for acquisitions.

2. Relative Misvaluation and Payment Method

Rhodes-Kropf and Viswanathan (2004) [10] extended this framework by introducing the concept of relative misvaluation. They posited that the decision to use stock or cash in acquisitions depends on the relative overvaluation between the acquirer and the target. When acquirers are more overvalued than their targets, they are incentivized to use stock as the medium of exchange. This behavior is more common during market booms, where disparities in firm valuations are more pronounced.

3. Target Acceptance of Stock Offers

The acceptance of stock offers by target firms during market booms can be attributed to information asymmetry. Shleifer and Vishny (2003) [9] argue that targets may not fully recognize the overvaluation of the acquirer's stock, especially in bullish markets. Additionally, the prospect of immediate premiums and the potential for future gains in a rising market make stock offers more attractive to target shareholders.

4. Long-Term Performance of Stock-Financed Acquisitions

While stock-financed acquisitions are prevalent during market booms, studies have shown that they often underperform in the long term. The eventual correction of overvalued stock prices can lead to diminished returns for acquirers. This underperformance underscores the risks associated with leveraging inflated equity for mergers (Officer, 2013 [17]).

5. Regulatory Impact on Payment Methods

Regulatory changes can influence the choice of payment methods in acquisitions. For instance, the implementation of the Sarbanes-Oxley Act led to increased transparency and reduced the prevalence of stock-financed deals. Post-SOX, there was a notable shift towards cash-based acquisitions, suggesting that regulatory environments can impact firms' financing decisions during M&A activities

In summary, stock-financed acquisitions tend to dominate during market booms due to the advantages conferred by overvalued equity. However, the long-term success of such deals is contingent upon various factors, including market corrections and regulatory landscapes.

2.4.4. Long-Term Underperformance of Overvaluation-Driven Deals

A substantial body of empirical research indicates that mergers and acquisitions (M&A) driven by stock overvaluation often lead to suboptimal long-term performance for the acquiring firms. This section delves into the factors contributing to this underperformance, supported by key studies in the field.

2.4.4.1. Empirical Evidence of Underperformance

Studies have consistently shown that overvalued acquirers tend to experience negative stock returns in the years following an acquisition. For instance, Officer (2013) [17] documents that overvalued acquirers incur significantly worse stock returns during the five years following acquisitions compared to control firms that did not engage in mergers.

Similarly, Savor and Lu (2009) [18] highlighted that overvalued stock acquirers earn negative and lower returns in the short run and substantially underperform similarly overvalued non-acquirer firms in the long run.

2.4.4.2. Managerial Overconfidence and Agency Problems

Managerial overconfidence plays a significant role in overvaluation-driven M&A decisions. Overconfident managers may overestimate their ability to generate synergies from acquisitions, leading to overpayment for target firms. This behavior is often exacerbated by agency problems, where managers pursue personal interests over shareholder value.

Renneboog and Vansteenkiste (2019) [19] show that serial acquisitions driven by CEO overconfidence negatively affect deal performance, emphasizing that overconfident CEOs are more likely to engage in value-destroying acquisitions, particularly when using overvalued stock as currency.

2.4.4.3. Overpayment and Lack of Synergies

Overvaluation can lead acquirers to overpay for target firms, often without realizing the anticipated synergies. Officer (2013) [17] found that overvalued acquirers significantly overpay for their targets, and these acquisitions do not lead to synergy gains. Moreover, such deals are frequently concentrated among acquirers with substantial governance issues.

2.4.4.4. Impact on Long-Term Firm Performance

The negative consequences of overvaluation-driven acquisitions extend beyond stock returns to affect overall firm performance. Li and Wang (2023) [20], focusing on Chinese listed companies from 2007 to 2018, revealed that stock overvaluation has a detrimental impact on long-term firm performance. The study also found that management myopia mediates the relationship between stock overvaluation and long-term performance, indicating that short-term focus driven by overvaluation can harm a firm's sustained success.

2.4.4.5. Alternative Perspectives

While the prevailing evidence points to the detrimental effects of overvaluation-driven M&A, some studies suggest that overvalued firms can create value for shareholders by using their inflated stock as acquisition currency. Savor and Lu (2009) [18] posits that overvalued firms may benefit long-term shareholders by exploiting their overvaluation to acquire less overvalued firms. However, this perspective is contingent on the acquirer's ability to identify and integrate suitable targets effectively.

3. Data construction

3.1. Positioning the Empirical Approach within the Literature

This thesis builds on the theoretical foundations established in the literature on M&A waves, particularly the overvaluation hypothesis and its interaction with financing structures and macro-financial conditions. The empirical strategy is explicitly designed to test how expectations about stock market conditions, cost of capital, and valuation cycles influence the timing and intensity of M&A activity across sectors and over time.

Several strands of research motivate this framework. First, Rhodes-Kropf and Viswanathan (2004) [10] and Shleifer and Vishny (2003) [9] argue that stock-financed acquisitions are more likely when equity markets are overvalued, with firms using their overpriced shares as currency to acquire less overvalued targets. This dynamic is expected to manifest during bull markets, where market sentiment and valuation distortions fuel waves of acquisition activity. Consistent with this logic, the present analysis includes the percentage of cash-financed deals as a key variable to proxy firms' reliance on internal capital versus equity markets, and the EV/EBITDA multiple as a measure of prevailing valuation conditions at the sector level.

Second, Harford (2005) [12] emphasizes the importance of liquidity and macro-financial enablers in allowing strategic or behavioral motives to be executed. Following this, the model incorporates 1-Year Treasury yields (lagged by four quarters) as forward-looking proxies for capital cost and economic expectations—capturing the premise that M&A decisions are planned in advance and shaped by anticipated conditions, not only contemporaneous ones.

Third, existing literature notes that M&A activity tends to cluster by sector (Ahern & Harford, 2014 [1]), either because of technological innovation, deregulation, or imitation behavior. To reflect this, the empirical dataset aggregates M&A activity at the sector-quarter level, enabling the identification of industry-specific patterns.

While prior studies have often focused either on firm-level drivers (e.g., managerial overconfidence, deal-specific premiums) or on broad macro-level determinants, this thesis offers a mid-level aggregation: the empirical panel is structured by calendar quarter and macro-industry, allowing for the examination of both aggregate M&A dynamics and sector-specific waves. Furthermore, the integration of anticipated variables (e.g., 2 quarters moving

average S&P returns and macro indicators) aligns with the behavioral finance literature, which emphasizes expectations and sentiment over purely rational, contemporaneous responses.

Overall, the empirical design aims to test whether variation in M&A activity can be systematically explained by shifts in market sentiment, capital costs, and industry dynamics, as suggested by the literature. By structuring the data at the quarterly and sectoral level, the approach provides a flexible framework to isolate the effects of these drivers and distinguish between competing theoretical explanations for M&A waves.

3.2. Data Sources

The empirical analysis relies on a combination of M&A transaction data and macro-financial variables integrated into a structured panel dataset at quarterly frequency, covering the period from January 1999 to December 2023.

The core data were extracted from the Refinitiv LSEG database and include individual observations for each announced M&A transaction. Each record contains detailed deal-level information, including:

- The rank date of the deal, which is used as the temporal reference for aggregation,
- The macro-industry classification of the target company (e.g., High Technology, Healthcare, Energy and Power),
- The enterprise value of the transaction, expressed as "Rank Value including Net Debt of Target" in USD millions,
- A binary indicator for the payment method, equal to 1 if the deal was cash-financed and 0 if stock-financed,
- Several deal-level valuation indicators (e.g., equity-to-EBITDA ratio, premiums paid relative to the target's pre-announcement market value),
- Additional information on the buyer and target firms, including their industry classification, nationality, and financial advisors.

From this granular dataset, a second-level dataset was constructed through quarterly aggregation. Each row in the aggregated panel represents a calendar quarter and includes both general and sector-specific metrics. The aggregated variables include:

- Total Enterprise Value of Deals: the sum of deal values (including net debt) announced in the quarter,
- Number of Announced Deals: the total count of transactions in the quarter,
- Number of Cash-Financed Deals: the count of deals paid at least partially in cash,
- Share of Cash-Financed Deals: calculated as the ratio between cash-financed deals and total deals per quarter,
- EV/EBITDA Market Multiple: annual sector-level valuation multiples from professor Damodaran's website, assigned to each quarter based on the calendar year and the dominant macro-industry for that period,
- Deal Value by Macro-Industry: total deal value by sector (e.g., High Technology, Consumer Staples, Energy and Power, Retail),
- 1-Year Treasury Yield (Lead 4 Quarters): used as a proxy for future cost of capital,
- S&P 500 Return (Lead 2 Quarters): used as a measure of market sentiment affecting firms' decision-making environment,

The EV/EBITDA sector multiples were obtained from Aswath Damodaran's publicly available data, which reports annual averages by detailed industry classifications. Since Damodaran's sectors are more granular than the macro-industries used in Refinitiv, a custom-built VBA macro was implemented to aggregate detailed industries into Refinitiv-consistent macro-industries and to compute median sector multiples for each calendar year. These values were then merged into the quarterly dataset by year and sector.

It is important to emphasize that these valuation multiples are exogenous to the deals under analysis: they are based on publicly listed companies across the entire market, not on the sample of M&A transactions. Moreover, they are updated annually, not quarterly, and are not constructed from the target firms' deal values. For this reason, they are not mechanically or statistically tied to the dependent variable of interest (the total enterprise value of deals). This is confirmed empirically in Section 6, where a univariate regression of deal value on the market multiple yields an R-squared of only 10%, suggesting a weak linear association.

The S&P 500 data were retrieved from Yahoo Finance, while macroeconomic indicators including the 1-Year Treasury yield were downloaded from the Federal Reserve Economic Data (FRED) platform. In all cases, these macro-financial variables were aligned to the deal

data on a quarterly basis using the deal rank date, and were anticipated (i.e., forward shifted) by the chosen number of quarters to reflect expectations that may drive M&A decision-making.

This combined data structure provides the analytical backbone for the regression models presented in the subsequent chapters.

3.3. Sample Selection and Data Cleaning

In order to ensure the relevance, comparability, and robustness of the analysis, several filters and transformations were applied to the raw dataset before aggregating it at the quarterly level.

3.3.1. Sample Selection Criteria

The dataset was restricted to completed transactions only. This choice ensures that the analysis captures deals that were fully executed, thereby reflecting real capital allocation decisions rather than strategic intentions or failed negotiations. Including only completed deals avoids the risk of modeling noise driven by market rumors, regulatory blockage, or strategic signaling.

In addition, the sample was restricted to deals with an enterprise value exceeding 1.1 billion USD. This threshold was introduced to focus on large-cap transactions, which are generally more sensitive to macroeconomic and financial market conditions, and more likely to involve listed companies with transparent reporting. Larger deals also tend to be more complex and strategic in nature, often involving higher-level decision-making processes and longer lead times—making them more relevant for a study on M&A waves and their determinants.

The analysis includes only transactions where the target is headquartered in the United States. The U.S. M&A market is the most active and liquid globally, and is widely studied in academic literature as the primary context in which M&A wave phenomena have been observed and theorized. Restricting the geographic scope also ensures homogeneity in accounting standards, monetary policy exposure, and market structures, thereby improving comparability across deals and over time.

A further important restriction relates to the sectoral scope of the study. Deals in the financial industry were systematically excluded. M&A activity in banking, insurance, and financial services tends to follow different dynamics, often driven by regulatory capital requirements, post-crisis restructuring, or systemic risk containment policies, rather than market sentiment

or valuation arbitrage. Moreover, valuation multiples such as EV/EBITDA are conceptually inappropriate for financial firms, which operate with fundamentally different balance sheet structures and income generation models. The exclusion of the financial sector avoids contamination of the analysis with structurally divergent behavior that could undermine the identification of general M&A patterns.

The sample was further refined to include only deals where the payment method was either cash or stock, excluding all transactions that involved a hybrid payment structure. The rationale for this exclusion is empirical: hybrid deals tend to show high variability in their classification, as the precise breakdown between cash and stock components is often inconsistently reported. This makes it difficult to reliably categorize them when constructing the % cash-financed variable. Additionally, hybrid deals exhibit heterogeneity in terms of valuation, structure, and market perception, which could introduce unnecessary noise in the model. By focusing exclusively on deals with a clear payment structure, the analysis ensures more robust measurement and interpretability of financing effects.

3.3.2. Data Cleaning Procedures

All deals lacking a valid rank date or enterprise value were removed. Transactions with missing or inconsistent industry classifications were also excluded. Additional checks were applied to verify that monetary values were consistently expressed in millions of U.S. dollars. Cases with conflicting entries for premium paid or payment structure were resolved by selecting the most internally coherent records, prioritizing completed deals. The resulting dataset was reviewed for duplicate entries and structural consistency before aggregation.

3.3.3. Quarter Construction and Aggregation

Time aggregation was performed using the rank date of each deal, which reflects the timing at which the transaction was publicly ranked based on size or significance. Compared to other date fields (e.g., announcement date or effective date), the rank date offers a standardized and comparable benchmark across transactions, especially in cases where regulatory approvals or strategic delays create a mismatch between announcement and execution.

Each deal was assigned to a calendar quarter, labeled in the format YYYY/QX, where Q1 includes January to March, Q2 includes April to June, and so on. The aggregation process transformed the deal-level dataset into a quarterly panel, where each row corresponds to a unique quarter. For each quarter, the following metrics were computed:

- Total enterprise value of deals (in USD millions),
- Number of deals executed,
- Number and share of cash-financed deals,
- Deal value by macro-industry (e.g., High Technology, Consumer Staples),
- Average premium paid (1-week prior) among available observations.

This aggregated structure forms the foundation of the empirical model and allows for consistent matching with macroeconomic and market-level explanatory variables, which are also aligned on a quarterly basis.

3.4. Construction of Variables

This section outlines the construction and rationale behind the variables used in the empirical analysis. All variables were defined at the quarterly level, with each observation representing a calendar quarter. The dataset was structured to allow for both aggregate and sector-level analysis of M&A activity.

3.4.1. Dependent Variables

Two different dependent variables were used across the regression models:

- Deal Sum: the total value of M&A transactions per sector and quarter, measured as the sum of enterprise values (including net debt). This variable captures the intensity and scale of M&A activity in economic terms.
- Deal Count: the number of completed M&A transactions per sector and quarter. This variable reflects the frequency or volume of deal-making activity, independent of size.

Both variables were transformed using the natural logarithm. This transformation serves two purposes: (i) it helps normalize the distribution, reducing the influence of extreme values and improving model fit; (ii) it allows the regression coefficients to be interpreted as elasticities—that is, the percentage change in M&A activity in response to a unit change in the explanatory variables.

3.4.2. Main Explanatory Variables

The models incorporate five core explanatory variables, selected based on their theoretical relevance and frequent use in the literature on M&A waves:

- Share of Cash-Financed Deals (%Cash): measured as the number of cash-financed deals over the total number of deals in a given quarter. This variable is used as a proxy for deal financing conditions and capital structure preferences. A higher share of cash deals may indicate either lower cost of internal capital or a more conservative financial environment, while a lower share (i.e., more stock-financed deals) may signal increased market confidence and higher equity valuations.
- EV/EBITDA Market Multiple (Damodaran): represents the annual median EV/EBITDA multiple for each macro-industry, sourced from Aswath Damodaran's dataset. This variable reflects valuation conditions in the market, which may influence M&A activity via perceived cost of acquisition and strategic timing. As discussed in Section 3.1, these multiples are exogenous to the deals in the sample and not mechanically tied to the dependent variable.
- S&P 500 QoQ Return (2 Quarters Moving Average): calculated as the average of the t and t-1 quarters percentage change in the S&P 500 index quarter on quarter. This variable captures equity market sentiment and momentum, under the assumption that improved stock market performance stimulates acquisition activity in subsequent periods. The Moving Average has been used to mitigate the effects of market volatility.
- 1-Year Treasury Yield (Lag 4 Quarters): included as a proxy for the cost of capital, this variable is lagged by four quarters to reflect the fact that deal planning and execution occur over extended timelines. Higher rates have a lagged effect on M&A activity.

Each of these variables serves a distinct role: the S&P return represents sentiment, the market multiple reflects valuation, the Treasury yield captures financing costs and %Cash provides insight into firm-level behavior and confidence.

3.4.3. Sectoral Variables

To capture the sector-specific dynamics of M&A waves, the model includes variables representing the number of deals per macro-industry per quarter. These variables allow the analysis to identify which sectors contribute most significantly to aggregate deal volume and whether certain sectors exhibit leading or lagging behavior in M&A cycles.

The sectoral deal counts are used both in aggregate models—to control for shifts in sectoral composition—and in focused models, such as the one built specifically for the High

Technology sector. In each case, sectoral dummies are treated as counts rather than categorical variables, with a subset of macro-industries excluded to serve as the reference category and to avoid multicollinearity.

3.4.4. Transformations

Two key transformations were applied to improve the robustness and interpretability of the regression models:

- Logarithmic Transformation: applied to the dependent variables (deal sum and deal count), this reduces skewness, limits the influence of outliers, and enables interpretation of coefficients as elasticities. In the context of M&A data, which tends to be heavily right-skewed due to a few very large transactions, the log transformation is particularly important.
- Lagged Macro-Financial Variables: macroeconomic and market-based explanatory variables (S&P return, Treasury yield) were introduced with leads—two quarters for the S&P and four quarters for the other two—based on the premise that M&A decisions are influenced by expectations and forward-looking assessments, rather than purely contemporaneous data. Firms typically begin planning acquisitions months in advance, and therefore respond to anticipated conditions rather than immediate ones.

No other standardizations or transformations (such as z-scores or normalization) were applied, as all variables were constructed to maintain intuitive interpretability and direct economic meaning.

4. Descriptive statistics

4.1. Deals per year

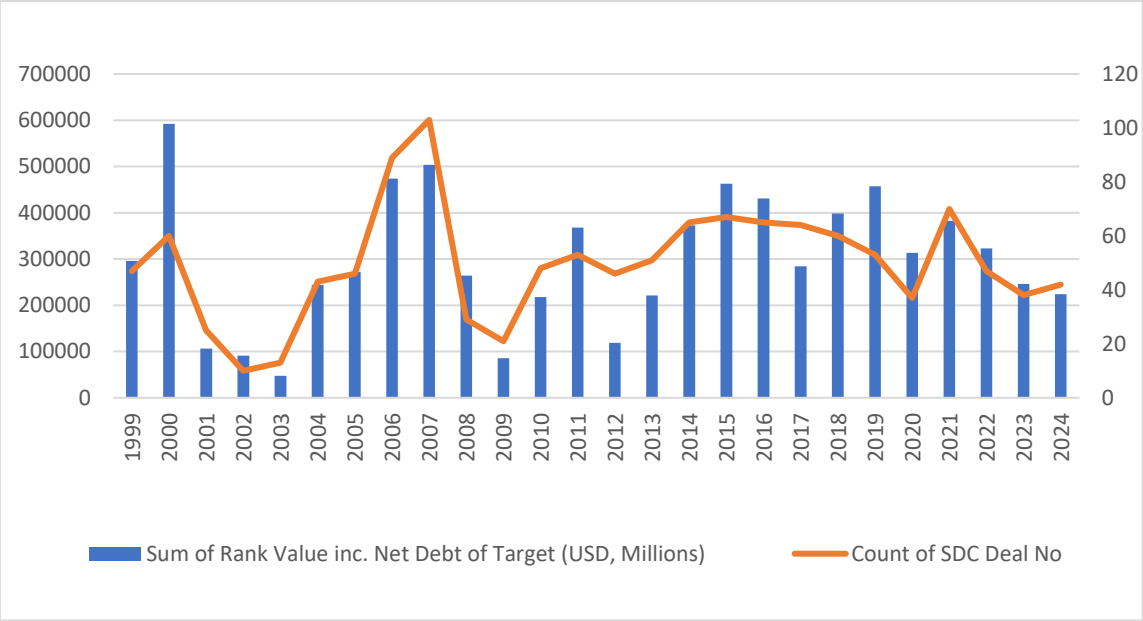

Figure 1: Sum of deal value & count of deals per year

The bar chart illustrates the annual total value of M&A transactions, including the net debt of targets, from 1999 to 2023. This visualization provides a comprehensive view of how deal activity has evolved over the past two and a half decades, highlighting key economic cycles and pivotal market events.

In 2000, the total value of deals reached its highest point in the entire period, nearing $600 billion. Interestingly, this spike in value was not accompanied by an exceptionally high number of transactions—only 60 deals were recorded that year—suggesting that the surge was driven by a concentration of large, high-profile deals. This aligns with the dot-com bubble, a time marked by speculative investments and aggressive acquisition strategies, particularly within the technology sector, where inflated equity valuations enabled firms to pursue sizeable stock-financed acquisitions.

In the aftermath of the bubble, between 2001 and 2003, both the number and value of deals declined steeply. By 2003, the annual deal value dropped to less than $100 billion, and only 13 transactions were recorded—the lowest count in the sample. This sharp contraction reflects a combination of market correction, investor caution, and weakened corporate risk appetite following the speculative excesses of the late 1990s.

Between 2004 and 2007, deal activity recovered strongly, with both value and volume rising in tandem. In 2007, total deal value peaked again above $500 billion, this time supported by a record 103 transactions. This simultaneous increase in deal count and aggregate value points to broad-based activity across multiple sectors, likely driven by favorable credit conditions, abundant liquidity, and the growing role of private equity. However, the global financial crisis that followed in 2008 and 2009 caused a sharp reversal. Deal value fell substantially, and the number of transactions contracted to 29 and 21, respectively, highlighting the impact of credit tightening, market volatility, and widespread uncertainty on corporate deal-making.

From 2010 to 2015, the M&A market entered a phase of gradual recovery. Both the number of transactions and total deal values increased steadily during this period, supported by improving macroeconomic fundamentals and accommodative monetary policy. Notably, in this phase, the average deal size remained relatively contained, suggesting a more balanced mix of medium-sized strategic acquisitions rather than a few outsized deals.

Between 2016 and 2019, annual deal values remained consistently high, and the number of transactions stayed within a narrow range of 53 to 67 deals per year. This consistency suggests a mature M&A cycle supported by sustained investor confidence and stable economic conditions. Despite the onset of the COVID-19 pandemic, deal activity did not collapse in 2020 and 2021. On the contrary, 2021 saw a significant rebound in both value (over $380 billion) and volume (70 deals), underscoring the strategic urgency of consolidation and adaptation in a post-pandemic economy. Strong liquidity, government stimulus, and high valuations in sectors like technology and healthcare played a central role in this recovery.

In more recent years the data show a visible slowdown. Both total deal value and the number of transactions declined, falling to 38 and 42 deals, respectively. This deceleration likely reflects a more challenging macro-financial environment, marked by rising interest rates, inflationary pressures, and geopolitical tensions, which have collectively weighed on M&A appetite.

Taken together, these figures highlight the cyclical nature of M&A activity. While peaks in deal value often coincide with bullish market conditions and precede downturns, the volume of transactions provides important context**,** revealing whether surges are driven by

widespread deal-making or by a small number of mega-deals. This dual perspective underscores how external factors—such as sentiment, credit conditions, and strategic sector shifts—shape not only the value but also the structure and frequency of M&A waves over time.

4.2. Cash VS Stock financed deals

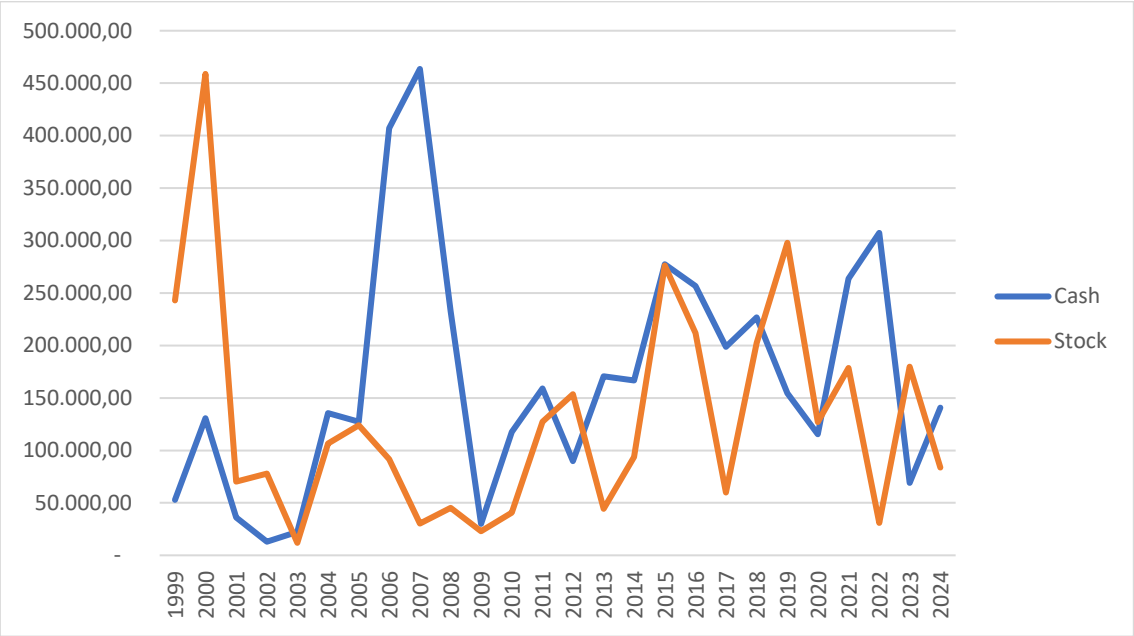

Figure 2: Deal value per year, cash VS stock

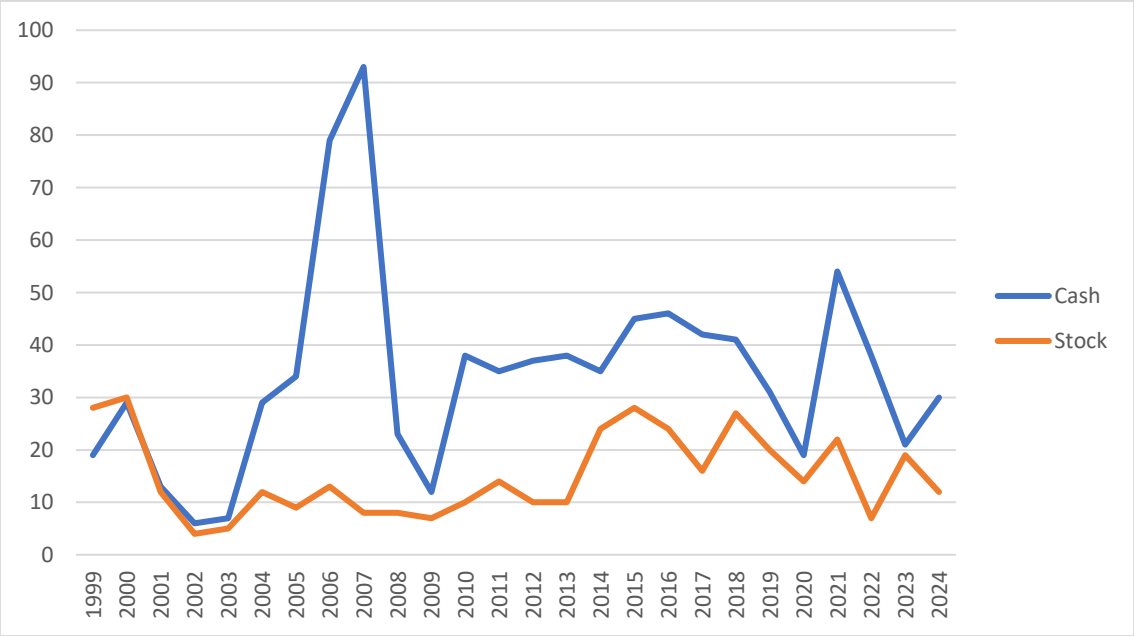

Figure 3: Deal count per year, cash VS stock

The two line charts illustrate the annual dynamics of M&A transactions by payment method—specifically, deals paid entirely in cash and those paid entirely in stock—from

1999 through 2023. Both charts exclude mixed-payment transactions to provide a cleaner comparison between the two primary financing strategies. The first chart captures total deal value, while the second displays the corresponding number of deals completed each year under each payment type.

In terms of value, stock-financed transactions dominated the early 2000s, peaking sharply in 2000 at over $450 billion. This aligns with the height of the dot-com bubble, a period marked by speculative investment and the use of overvalued equity as acquisition currency—particularly in the technology sector. However, this dominance in value was not necessarily mirrored in frequency. In 2000, the number of stock and cash deals was nearly identical (30 and 29, respectively), suggesting that while stock deals drove aggregate value, cash transactions remained common in smaller or more conservative deals. After the bubble burst, stock-based deals declined precipitously both in value and volume—falling to just 4 deals in 2002—as equity markets corrected and investor confidence weakened.

Cash-financed deals, while more stable in the early 2000s, began to rise sharply in both value and count from 2004 onward. This culminated in 2007, where cash transactions reached their historical high in both dimensions: over $450 billion in value and 93 deals, compared to just 8 stock-financed transactions. This reflects the pre-crisis environment of abundant liquidity, low interest rates, and the increased role of private equity and leveraged buyouts. The 2008 financial crisis triggered a pronounced drop across both charts, with total deal values and deal counts falling for both payment types. Notably, stock deal count dropped to 8, while cash fell to 23, showing that uncertainty and credit tightening suppressed all forms of acquisition activity.

In the years following the crisis, cash-financed deals regained momentum more quickly and robustly. Between 2010 and 2021, cash transactions consistently outnumbered stock deals—in some years by a wide margin. For instance, in 2021, 54 cash deals were recorded versus 22 in stock, reaffirming a structural shift toward cash-based financing. This trend reflects increased corporate liquidity, cautious risk appetite, and the attractiveness of transaction certainty, especially in uncertain macroeconomic environments.

Nonetheless, stock financing did not disappear. It saw localized resurgences during bullish phases of the market, notably in 2016, 2018, and 2021, with stock deal counts exceeding 20 in each of those years. These upticks likely reflect favorable equity valuations that allowed

acquirers to opportunistically use their shares as consideration without relying on internal funds or external debt.

In more recent years both value and deal count have declined across both payment types. In 2023, cash and stock deals were nearly balanced in count (21 and 19, respectively)—a convergence not seen in over two decades—while their values also contracted sharply. The data for 2025 should be interpreted cautiously, as it may be partial or provisional.

Taken together, these charts illustrate not only the cyclical nature of M&A financing preferences but also how deal size and deal frequency can diverge. Stock financing tends to dominate in value during speculative peaks, while cash becomes more prevalent in periods of financial stability and risk aversion. The exclusion of mixed-payment deals allows for a clearer distinction between the two strategies, offering a focused view on how firms choose to structure acquisitions over time.

4.3. Boxplot EV/EBITDA per sector

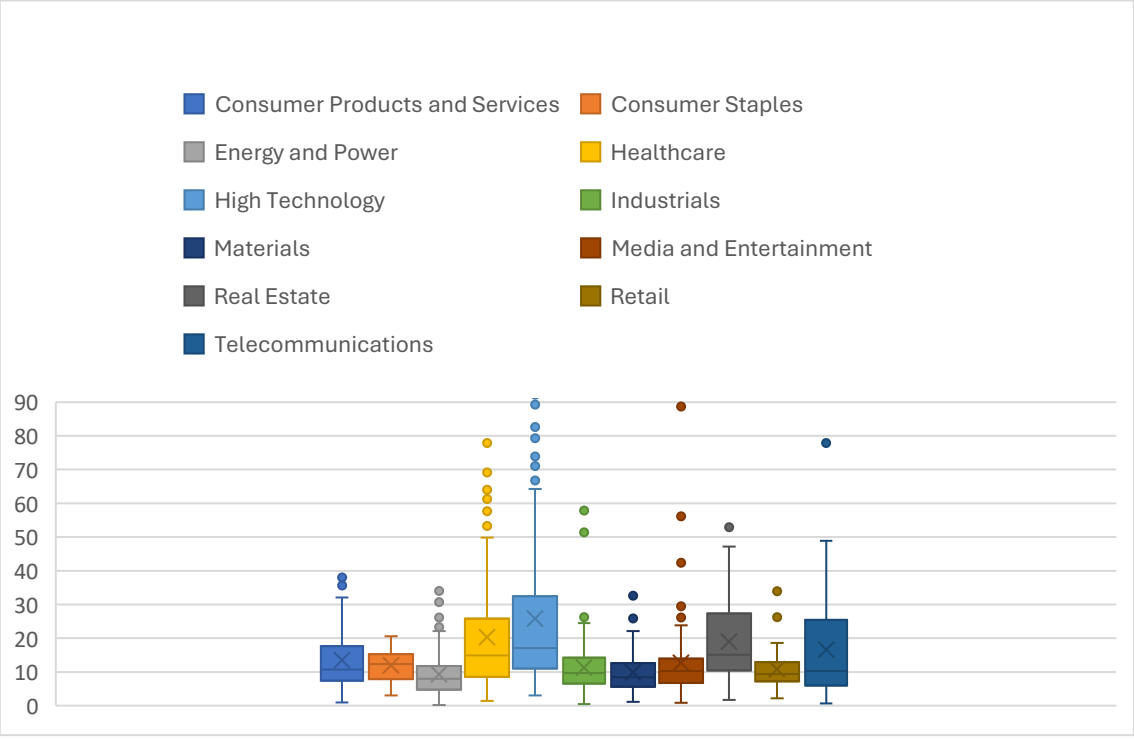

Figure 4: Box Plot EV/EBITDA

The box plot above illustrates the distribution of EV/EBITDA multiples across different macro-industries, offering a clear visual representation of how valuation levels vary by sector in M&A transactions. Each box represents the interquartile range (IQR) of

EV/EBITDA values for a given industry, with the horizontal line inside each box indicating the median, while the "whiskers" capture the range within 1.5 times the IQR. Outliers are marked as individual points beyond these whiskers, and the mean is shown as an "X" within each box.

A first observation is that valuation dispersion varies significantly across sectors. The "High Technology" industry exhibits both the highest median EV/EBITDA and the widest spread of values, with numerous outliers reaching beyond 100x. This reflects the market's willingness to pay substantial premiums for growth and innovation in tech-related acquisitions, especially during boom periods. Similarly, the "Healthcare" sector shows a relatively high median and broad distribution, with a considerable number of deals priced well above 40x. This could reflect strong investor confidence in biotech and pharmaceutical assets, where strategic synergies or future earnings potential justify high upfront valuations.

On the other end of the spectrum, industries such as "Consumer Staples," "Materials," and "Real Estate" tend to display lower median multiples and narrower distributions, suggesting more conservative valuation practices. These sectors typically consist of firms with stable, predictable cash flows and lower growth expectations, which tends to limit upward pressure on deal multiples. "Energy and Power" also displays a tight range of values, with limited outliers, possibly reflecting a mature industry with more standardized valuation benchmarks.

Interestingly, the "Media and Entertainment" and "Telecommunications" sectors reveal more skewed distributions with several extreme outliers, likely driven by a few landmark deals with high strategic value or unique asset characteristics. The presence of these extreme valuations, however, can distort the interpretation of central tendencies if not properly contextualized.

The box plot emphasizes the heterogeneity in valuation practices across sectors, which has important implications for any analysis aiming to test the impact of overvaluation on M&A activity. It supports the idea that sector-level dynamics—and not just aggregate market conditions—play a crucial role in determining deal pricing. Moreover, this variation could indicate the presence of sector-specific merger waves, where strategic narratives or innovation cycles temporarily inflate valuation norms within a given industry.

4.4. Histogram Multiples Distribution

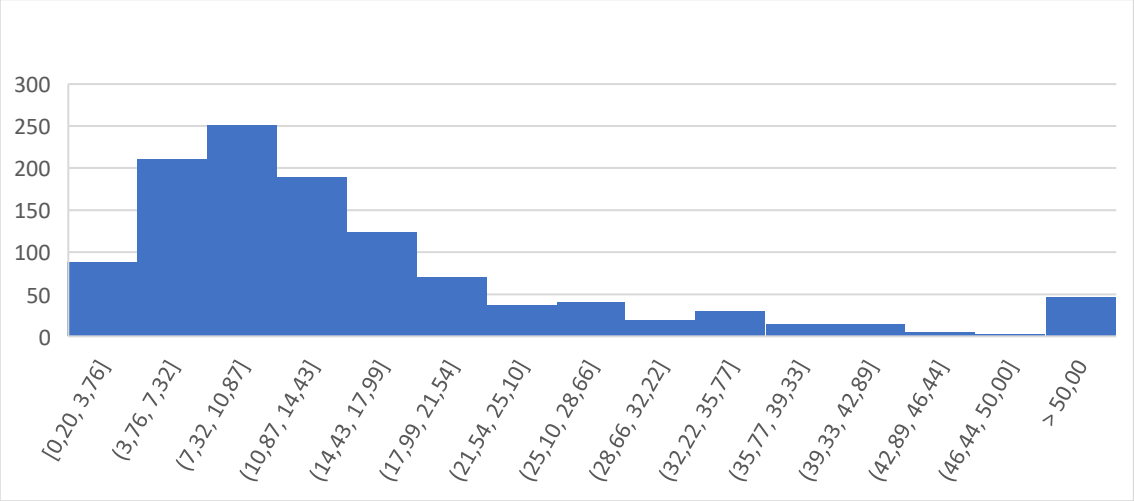

Figure 5: EV/EBITDA distribution (capped at 50x)

The histogram above shows the frequency distribution of EV/EBITDA multiples observed across the M&A deals in the dataset, with values capped at 50x to exclude extreme outliers and improve interpretability. This chart provides a useful overview of how deal valuations are generally dispersed, highlighting the typical range and shape of the data.

The distribution is clearly right-skewed, with the vast majority of deals concentrated in the lower range of multiples. The mode lies between approximately 7.3x and 10.9x, where over 250 transactions are clustered. This range likely represents the "market norm" or fair value zone for most acquisitions, consistent with long-term industry benchmarks for EV/EBITDA ratios. Just before and after this mode, the bins ranging from 3.8x to 14.4x also account for a substantial portion of the sample. These values collectively form the core of the distribution, indicating that most deals fall between 4x and 15x EV/EBITDA, which aligns with what is typically expected across mature and stable industries.

However, the histogram reveals a progressively thinner tail extending toward higher multiples, with a small number of deals reaching between 20x and 50x. These outliers could be associated with high-growth targets—particularly in sectors such as technology, healthcare, or media—where future earnings potential justifies elevated acquisition prices. The final bar labeled "> 50" confirms the presence of additional extreme valuations that were intentionally capped in this graph, but whose occurrence still deserves analytical

attention.

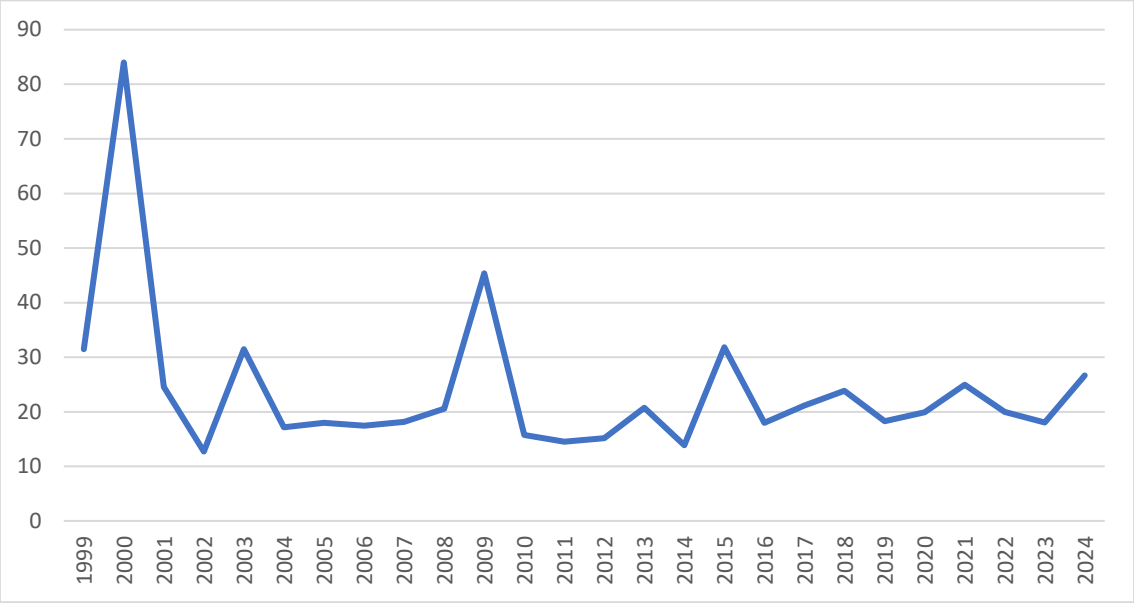

Figure 6: EV/EBITDA trend

To complement the static distribution, a time-series view of annual average EV/EBITDA multiples provides additional insight into the dynamics of deal pricing across market cycles. The yearly averages fluctuate significantly, ranging from lows around 12x–15x in years like 2002, 2010, and 2014, to peaks well above 30x in 1999, 2003, 2009, 2015, and most notably 2000, which saw an exceptional average of nearly 84x—clearly reflecting the speculative nature of that period. These peaks often coincide with market exuberance or temporary dislocations, such as the aftermath of the dot-com bubble or the early recovery following the 2008 financial crisis.

In contrast, more stable years (e.g., 2006–2007 or 2011–2013) show compressed average multiples closer to the modal range of the histogram. This alignment between the annual trend and the overall distribution confirms that while the bulk of transactions occur within a predictable valuation band, certain years are characterized by valuation spikes—either due to macroeconomic optimism or sector-specific surges. The more recent data also show relatively high average multiples, between 20x and 27x, consistent with a post-pandemic environment of strong liquidity and market optimism.

This combined view underscores the importance of considering both the distributional structure and temporal patterns of deal valuations. While the histogram captures how deals are typically priced, the yearly average provides valuable context on whether certain waves of M&A are associated with broad-based overvaluation. Together, they reinforce the idea—

central to this thesis—that periods of elevated market sentiment and financial conditions tend to translate into higher valuation levels in M&A activity.

4.5. Premiums Paid One Week Prior to Announcement: Cash vs. Stock Transactions

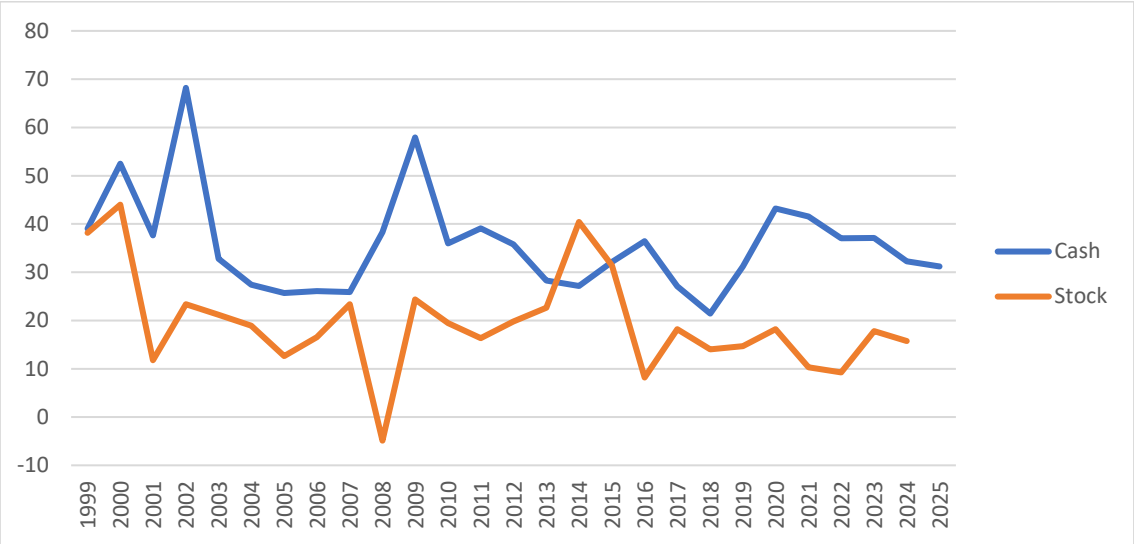

Figure 7: Premium 1 week before deal announcement

The chart illustrates the evolution of the average acquisition premium paid one week prior to deal announcements between 1999 and 2023, distinguishing between transactions financed through cash and those financed with stock. Acquisition premiums represent the percentage by which the offer price exceeds the target firm's share price prior to the deal, serving as a signal of the perceived value and competitiveness of the acquisition.

Several key trends emerge from the data. First, cash-financed deals consistently exhibit higher average premiums compared to stock-financed deals across nearly the entire observation period. In some years, such as 2002 and 2010, the difference is particularly pronounced, with average premiums in cash deals exceeding 60%, while those in stock deals hover closer to 20% or even lower. This finding is aligned with existing literature, which often suggests that cash payments are associated with higher certainty and more aggressive offers, typically used in competitive or strategic acquisitions where the bidder aims to strongly incentivize the target shareholders.

On the other hand, stock-financed deals display lower and more volatile premiums, with some notable dips including a negative average premium in 2008. This could be attributed to several factors. Stock transactions often reflect acquirers with relatively overvalued

shares, and in these cases, the incentive to offer a large premium is reduced since the acquirer's currency (its own equity) is already considered inflated. Moreover, the use of stock may signal greater uncertainty or a desire to share risk, making such deals less appealing in the eyes of the target and, consequently, accompanied by more conservative premiums.

The global financial crisis around 2008 and 2009 is particularly visible in the data, as both cash and stock deals exhibit a sharp decline in average premiums, reflecting general uncertainty and declining valuations. In more recent years, from 2019 onward, premiums in both categories appear to stabilize, although the gap between cash and stock remains consistent. Notably, even in high-valuation environments such as 2020–2021, the cash premium remains in the 40–45% range, while stock deals persist below 20%, confirming a structural difference in how markets price different financing methods.

The data support the hypothesis that cash-financed acquisitions are associated with higher upfront value transfer, while stock-based deals involve more moderate premiums, potentially reflecting signaling effects, valuation conditions, or capital structure considerations of the bidder.

5. Results Analysis

5.1. Deal Count Regression

This section presents and discusses the results of a multiple linear regression in which the natural logarithm of the number of deals per quarter is used as the dependent variable. The model includes macro-financial indicators, a market misvaluation proxy, and sector-specific deal count variables, aggregated at quarterly frequency between 1999 and 2023. As discussed in the methodological chapter, financial industry transactions are excluded due to the structural inapplicability of standard valuation multiples to this sector.

Table 1: Multiple linear regression, dependent variable: natural logarithm of deal count

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,944961638
R Square	0,892952497
Adjusted R	0,873128885
Standard E	0,235712319
Observatio	97

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regressior	15	37,54061568	2,503	45,04	6,4604E-33
Residual	81	4,500384065	0,056		
Total	96	42,04099974			

		Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
	Intercept	0,686106601	0,288856994	2,375	0,019900	0,11137179	1,26084141	0,111371789	1,260841412
% of deals paid in cash	X Variable	-0,29069174	0,129386024	-2,25	0,027381	-0,5481293	-0,0332541	-0,548129341	-0,033254137
log (EV/EBITDA)	X Variable	0,310408703	0,113766402	2,728	0,007801	0,08404925	0,53676816	0,084049249	0,536768158
Consumer Products and Services	X Variable	0,099096695	0,032055436	3,091	0,002731	0,03531643	0,16287696	0,035316433	0,162876957
Consumer Staples	X Variable	0,15633652	0,035932797	4,351	0,000039	0,08484153	0,22783152	0,084841526	0,227831515
Energy and Power	X Variable	0,110663019	0,020456815	5,41	0,000001	0,06996037	0,15136566	0,069960375	0,151365664
Healthcare	X Variable	0,086513758	0,020434876	4,234	0,000060	0,04585476	0,12717275	0,045854765	0,127172751
High Technology	X Variable	0,100726464	0,015225025	6,616	0,000000	0,07043344	0,13101949	0,07043344	0,131019488
Industrials	X Variable	0,09298066	0,02346555	3,962	0,000159	0,04629158	0,13966974	0,046291576	0,139669743
Materials	X Variable	0,115323345	0,026263032	4,391	0,000034	0,06306815	0,16757854	0,06306815	0,16757854
Retail	X Variable	0,155056568	0,032126379	4,826	0,000006	0,09113515	0,21897798	0,091135152	0,218977984
Media & Entertainment	X Variable	0,051189599	0,027096532	1,889	0,062449	-0,002724	0,1051032	-0,002724	0,105103199
Real Estate	X Variable	0,0431131	0,02424077	1,779	0,079068	-0,0051184	0,09134463	-0,005118429	0,091344628
Telecom	X Variable	0,081391916	0,039079239	2,083	0,040430	0,00363649	0,15914734	0,003636489	0,159147343
Risk Free Rate	X Variable	-6,07553279	1,62813559	-3,73	0,000352	-9,3150119	-2,8360537	-9,315011906	-2,836053672
S&P 2 quarters Moving Average	X Variable	1,281865364	0,539318439	2,377	0,019821	0,20879084	2,35493989	0,208790842	2,354939886

The estimated model is statistically robust and economically meaningful. It achieves a Multiple R of 0.945, with an R-squared of 0.893 and an adjusted R-squared of 0.873, suggesting that the model explains almost 90% of the variation in M&A frequency over time. The F-statistic of 45.04 (with a p-value < 0.00001) confirms the overall significance of the model, and the standard error of 0.236 is acceptably low, given the logarithmic nature of the dependent variable. These metrics indicate that the combination of valuation, financing,

sentiment, and sector-level controls captures a substantial portion of the systematic variation in deal volume.

5.1.1. Capital Structure: Share of Cash-Financed Deals

One of the model's key explanatory variables is the percentage of deals financed in cash, included to proxy for prevailing capital structure choices and, indirectly, market sentiment. The coefficient on this variable is negative and statistically significant ($\beta = -0.29$, $p = 0.027$), indicating that quarters with a higher share of stock-financed deals tend to exhibit a greater number of transactions.

This result is consistent with the overvaluation hypothesis proposed by Shleifer and Vishny (2003), which posits that overvalued firms are more likely to use equity as a means of payment, particularly during bullish market phases. Stock financing may thus reflect a broader context of financial optimism, loose capital markets, and elevated firm valuations. This also confirms that deal volume is not independent of the payment mechanism, and that stock-financed waves tend to coincide with aggregate surges in M&A activity.

5.1.2. Market Valuation: EV/EBITDA Multiples

The regression includes the EV/EBITDA multiple as a proxy for prevailing market valuation levels. The variable is based on Damodaran's annual multiples and matched by year to each quarter in the panel. The coefficient is positive and highly significant ($\beta = 0.31$, $p = 0.008$), suggesting a strong relationship between valuation levels and M&A frequency.

This is fully in line with the misvaluation-based theories of merger waves, which argue that firms are more likely to pursue acquisitions when valuations are elevated—not necessarily because fundamental synergies have improved, but because the relative cost of acquisition is lower in equity terms (Rhodes-Kropf & Viswanathan, 2004). The variable is constructed using exogenous, market-wide data not derived from the sample of transactions itself.

It also provides empirical support for interpreting stock-financed transactions not merely as a function of managerial preference, but as a market-timing strategy rationally driven by mispricing.

5.1.3. Macro-Financial Variables: Interest Rates and Market Returns

Two macroeconomic indicators are included in the model: the 1-Year Treasury Yield (with a lead of 1 year) and the S&P 500 two-quarter moving average return.

The risk-free rate enters with a large, negative, and statistically significant coefficient ($\beta = -6.07$, $p = 0.0004$). This variable proxies for the lagged transmission of financing conditions into corporate behavior. A rise in the risk-free rate tends to increase the cost of both equity and debt capital, reduce valuation multiples, and restrain leverage—effects that gradually materialize in reduced deal-making activity in subsequent quarters. This is consistent with a capital market channel through which monetary policy affects corporate investment and acquisition strategies, with a temporal delay in the observed response. It is also consistent with prior findings (e.g., Bernanke & Gertler, 1990; Harford, 2005) that emphasize the sensitivity of corporate investment and acquisition to real financing costs.

The two-quarter moving average of the S&P 500 return emerges as a statistically significant determinant of M&A activity intensity. With a coefficient of approximately 1.28 and a p-value of 0.02, this variable demonstrates a positive and meaningful relationship with the logarithm of deal count. In other words, when the equity market delivers consistent, sustained gains across consecutive quarters, M&A activity tends to increase accordingly.

This finding aligns with the theoretical and empirical literature that identifies stock market performance as a key driver of merger waves. Buoyant equity markets tend to reflect broader macroeconomic stability, high investor confidence, and strong corporate earnings—all of which contribute to a more favorable environment for strategic transactions. Moreover, rising markets expand firms' balance sheet flexibility and valuation multiples, making it easier to justify acquisitions both internally and to shareholders. From a behavioral perspective, prolonged positive equity performance can foster optimism and reduce perceived risk, further stimulating deal-making appetite among executives.

The decision to use a moving average—rather than isolated quarterly returns—provides a smoother signal of equity market trends and helps mitigate the noise from short-term volatility. This approach captures not just market direction, but also its persistence, which is arguably more relevant for long-term strategic decisions such as mergers and acquisitions. In this sense, the model implicitly assumes that dealmakers respond not merely to sudden market jumps, but to sustained patterns of market strength.

5.1.4. Sectoral Dynamics: Industry-Specific Deal Volume

The model controls for sectoral composition by including dummy variables for each macro-industry, measured as the number of deals in each sector per quarter. These are entered additively, with Financials excluded as previously discussed.

Virtually all sectoral coefficients are positive and statistically significant, with the only exceptions being Media & Entertainment and Real Estate, which fall marginally below conventional significance levels ($p = 0.06$ and $p = 0.08$, respectively). The High Technology sector emerges as the most significant, with a large coefficient ($\beta = 0.106$) and an extremely high t-statistic ($t = 7.11$), reinforcing the notion that tech-driven M&A is a major contributor to merger wave dynamics. This echoes the findings of Ahern and Harford (2014), who documented the central role of innovation and tech spillovers in shaping wave propagation.

Similarly, sectors such as Healthcare, Energy & Power, Consumer Staples, and Retail show strong and significant coefficients, suggesting that industry-specific investment cycles and strategic shifts play an important role in amplifying the aggregate number of deals. The significance of these coefficients also justifies the inclusion of sector-level controls in all subsequent specifications.

5.1.5. Summary and Implications

Overall, the regression confirms the multifactorial nature of M&A waves. Deal frequency is shaped simultaneously by macro-financial conditions (interest rates, equity market returns), valuation environments (EV/EBITDA multiples), and capital structure decisions (% cash-financed)—all of which interact with sector-specific strategic dynamics.

The results are broadly consistent with the theoretical framework laid out in the literature review:

The overvaluation hypothesis is supported both by the significance of the EV/EBITDA variable and the role of stock-financed deals.

The cost of capital is confirmed to be a central determinant of M&A activity.

These findings validate the structure of the model and provide a strong empirical basis for the next regression, which shifts focus to the logarithm of aggregate deal value (log deal sum) as the dependent variable.

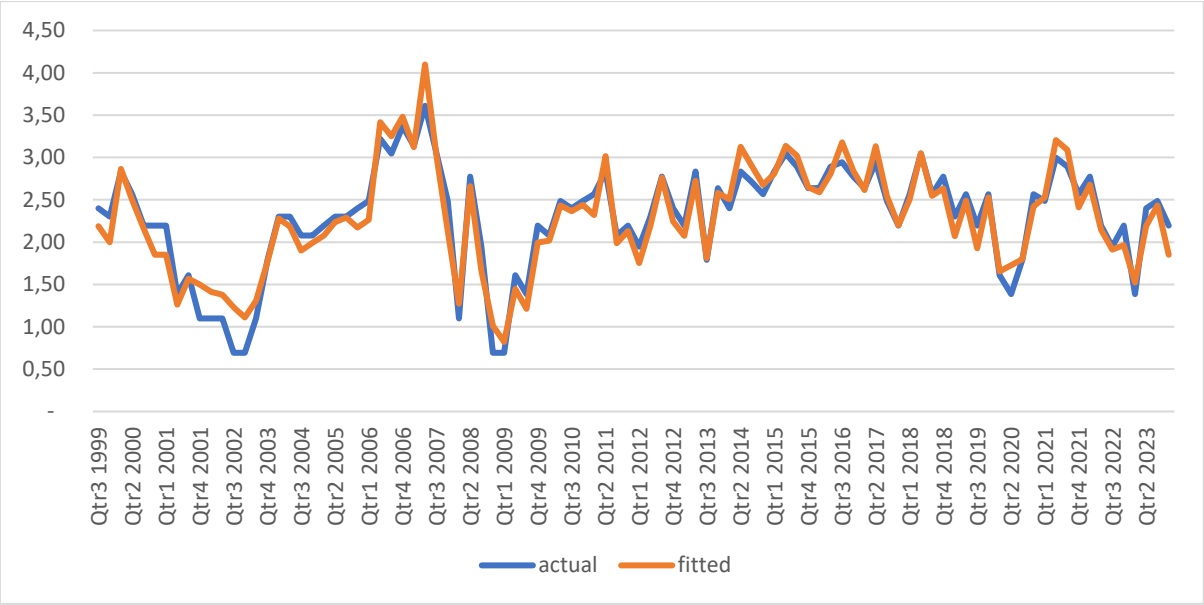

Figure 8: Actual VS Fitted

The line chart above plots the actual values of the logarithm of deal count (solid line) against the corresponding values predicted by the regression model (dashed line), over the sample period from 1999 to 2023. This visualization provides an intuitive representation of the model's performance in capturing the quarterly fluctuations in M&A activity volume.

The fitted values closely track the observed series across most of the sample, reproducing both local peaks and troughs in deal frequency with notable accuracy. The model appears particularly effective in replicating upward shifts in activity, such as those in the early 2000s and around 2021. In the more recent part of the sample, the predicted values remain tightly aligned with the actuals, suggesting the model's stability even in a more volatile macroeconomic environment.

While small deviations are present—particularly during periods of extreme M&A intensity—the overall fit is robust, consistent with the high R^2 value reported in the regression output. This dynamic visualization confirms that the combination of structural sector-level variables and macro-financial indicators offers a reliable framework for modeling the evolution of M&A volume over time.

5.2. Deal Sum Regression

Table 2: Multiple linear regression, dependent variable natural logarithm of deal sum

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,841172
R Square	0,707571
Adjusted R	0,653417
Standard E	0,546684
Observatio	97

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	15	58,57425	3,90495	13,06600418	7,08E-16
Residual	81	24,20793	0,298863		
Total	96	82,78218			

		Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95,0%*	*pper 95,0%*
	Intercept	8,358467	0,669942	12,47641	1,50028E-20	7,025494	9,691441	7,025494	9,691441
% of deals paid in cash	X Variable	-1,07196	0,300083	-3,57221	0,00059935	-1,66903	-0,47489	-1,66903	-0,47489
log (EV/EBITDA)	X Variable	0,805969	0,263857	3,054572	0,003050231	0,280977	1,330961	0,280977	1,330961
Consumer Products and Service	X Variable	0,173839	0,074346	2,33825	0,021840875	0,025914	0,321763	0,025914	0,321763
Consumer Staples	X Variable	0,293586	0,083338	3,522813	0,00070483	0,127768	0,459403	0,127768	0,459403
Energy and Power	X Variable	0,075955	0,047445	1,600891	0,113294191	-0,01845	0,170356	-0,01845	0,170356
Healthcare	X Variable	0,081878	0,047394	1,727592	0,0878726	-0,01242	0,176178	-0,01242	0,176178
High Technology	X Variable	0,152544	0,035311	4,319991	4,3946E-05	0,082286	0,222802	0,082286	0,222802
Industrials	X Variable	0,115858	0,054423	2,128836	0,036305706	0,007573	0,224144	0,007573	0,224144
Materials	X Variable	0,15061	0,060911	2,472601	0,015506681	0,029415	0,271804	0,029415	0,271804
Retail	X Variable	0,178042	0,07451	2,389494	0,019194953	0,02979	0,326294	0,02979	0,326294
Media & Entertainment	X Variable	0,042328	0,062845	0,673537	0,502523276	-0,08271	0,167369	-0,08271	0,167369
Real Estate	X Variable	0,098001	0,056221	1,743138	0,085104191	-0,01386	0,209864	-0,01386	0,209864
Telecom	X Variable	0,149492	0,090636	1,649374	0,102944279	-0,03084	0,329829	-0,03084	0,329829
Risk Free Rate	X Variable	-9,90858	3,77611	-2,62402	0,010382723	-17,4219	-2,39531	-17,4219	-2,39531
S&P 2 quarters Moving Average	X Variable	-0,5203	1,250833	-0,41596	0,678536026	-3,00907	1,968463	-3,00907	1,968463

The second model investigates the drivers of the total value of M&A activity, using the natural logarithm of deal sum per quarter as the dependent variable. Despite slightly lower explanatory power compared to the deal count model, the regression still yields robust results. The adjusted R-squared is 0.65, indicating that the model accounts for a substantial portion of the variation in aggregate deal value. The F-statistic confirms the joint significance of the regressors ($p < 0.0001$), validating the overall strength of the specification.

Among the explanatory variables, the percentage of cash-financed deals is strongly and negatively associated with deal value ($\beta = -1.07$, $p = 0.0006$). This coefficient is not only highly significant but also larger in magnitude than in the count model, suggesting that stock-financed transactions are particularly relevant in driving large-scale deals. This result is consistent with theories of market timing and overvaluation, which posit that acquirers tend to use stock—especially when overvalued—to pursue larger, transformational acquisitions.

The sharp negative coefficient supports the idea that periods with fewer stock-financed transactions tend to coincide with lower overall deal values.

Similarly, the market multiple (log of EV/EBITDA) maintains a positive and significant association with the dependent variable ($\beta = 0.81$, $p = 0.003$). This reinforces the notion that higher valuation environments are conducive to larger deals, likely due to both higher target pricing and increased financial flexibility on the part of acquirers. Compared to the deal count model, the influence of valuation appears even more pronounced when considering the scale rather than the frequency of transactions.

The regression also confirms the relevance of sectoral effects in explaining fluctuations in deal value. Several macro-industries—including Consumer Products and Services, Consumer Staples, High Technology, Industrials, Materials, and Retail—are statistically significant, with coefficients ranging between 0.10 and 0.29. This highlights the contribution of sector-specific M&A intensity to aggregate market dynamics. Notably, the High Technology sector once again stands out with a coefficient of 0.15 and a p-value below 0.0001, confirming its central role in driving both the number and value of deals over the sample period.

On the macro-financial side, the 1-Year Treasury Yield (anticipated by one year) retains a negative and significant effect ($\beta = -9.91$, $p = 0.01$). This confirms the model's sensitivity to changes in the cost of capital: as interest rates rise, firms become less inclined to engage in large-scale acquisitions, either due to more expensive financing or increased uncertainty. The strong magnitude of the coefficient suggests that deal value is particularly responsive to shifts in monetary conditions.

In contrast, the S&P 500 two-quarter moving average is not significant in this specification ($p = 0.68$), suggesting that while equity market momentum may influence deal frequency, it does not exert a strong or direct influence on the aggregate value of transactions. One plausible explanation is that market sentiment shapes the decision to engage in M&A broadly, but the scale of those deals is more tightly governed by structural factors such as sector dynamics, capital costs, and firm-specific constraints.

Taken together, the results underscore the multifactorial nature of M&A value creation. While sentiment plays a less visible role in driving deal sum than in deal count, variables related to financing conditions and valuation fundamentals emerge as key determinants of transaction scale. These findings suggest that while deal frequency may be driven by broad

market confidence, the actual size of transactions is shaped more directly by capital market constraints and valuation conditions.

6. Conclusion

This thesis set out to investigate the drivers of merger and acquisition (M&A) waves in the United States between 1999 and 2023, combining theoretical insights from the literature with original empirical evidence. The central question guiding the research was whether M&A activity—both in terms of number of deals and aggregate transaction value—is primarily explained by firm-level synergies and industry shocks, or whether broader market sentiment and financing conditions play a dominant role.

The analysis is grounded in a large dataset of completed transactions from Refinitiv LSEG, restricted to deals above 1.1 billion USD in value and classified across macro-industries. This dataset was enriched with external macro-financial variables, including Damodaran's EV/EBITDA market multiples, the performance of the S&P 500 index, the one-year Treasury yield, all aligned at a quarterly frequency. By aggregating the data and applying log-transformations to dependent variables, the study established a framework capable of disentangling structural from financial and behavioral influences on M&A activity.

6.1. Key empirical findings

The results show several robust patterns. First, the share of deals financed in cash emerges as a consistent and statistically significant driver of M&A activity. A higher percentage of cash-financed transactions is associated with lower aggregate deal volumes, while periods dominated by stock-financed deals coincide with higher M&A activity. This finding is strongly aligned with the overvaluation hypothesis: when equity markets are buoyant and valuations are inflated, firms exploit their stock as an acquisition currency, triggering waves of activity. The negative coefficient on % cash thus reflects not merely a financing choice but a broader market sentiment dynamic.

Second, the role of valuation multiples, measured through log (EV/EBITDA) from Damodaran's sectoral datasets, is also significant. Higher multiples are associated with increased M&A activity, supporting the notion that elevated valuations both reduce the apparent cost of acquisitions and signal an optimistic environment that emboldens managers to pursue deals. Importantly, these multiples are exogenous to the sample, reflecting general market conditions rather than outcomes of the transactions themselves. The empirical finding that they significantly affect deal volume confirms their validity as a market-wide sentiment proxy.

Third, macro-financial variables play an important role, though with differentiated timing effects. The one-year Treasury yield, anticipated by one year, exerts a strong negative effect on deal activity. This result is intuitive: rising yields increase the cost of capital, reduce debt financing capacity, and therefore dampen M&A activity with a lag, consistent with the idea that major transactions are planned well in advance and executed only when financing remains favorable. Conversely, the S&P 500 performance, measured as a two-quarter moving average, exerts a positive effect on deal volumes. The smoothing captures persistent market sentiment, while its influence underscores the role of equity markets in enabling large-scale consolidation. Together, these results confirm the coexistence of two forces—sentiment-driven exuberance and financing constraints—that jointly shape M&A waves.

Finally, the inclusion of sectoral variables reveals clear heterogeneity. High Technology stands out with the strongest positive association, consistent with its central role in both the dot-com bubble and the digitalization-driven wave of the 2010s and early 2020s. Other sectors, such as Healthcare, Consumer Staples, Industrials, and Materials, also show significant and persistent contributions, while Real Estate, Media & Entertainment, and Telecommunications remain more marginal. This heterogeneity highlights that waves are not uniformly distributed across the economy, but instead cluster around industries undergoing structural transformation or innovation cycles.

6.2. Theoretical implications

These findings contribute directly to long-standing debates in the academic literature. The results clearly support the overvaluation hypothesis (Shleifer & Vishny, 2003; Rhodes-Kropf & Viswanathan, 2004), as both the financing structure of deals and valuation multiples significantly explain fluctuations in M&A activity. The fact that cash-financed deals are negatively correlated with volume, while stock-financed deals dominate during booms, is consistent with the idea that overvalued equity functions as "cheap currency." Moreover, the subsequent underperformance of such deals, well documented in prior research, can be inferred from the cyclical peaks observed in this study.

At the same time, the evidence does not exclude complementary hypotheses. The strong role of High Technology and other dynamic sectors lends support to the industrial shocks perspective (Ahern & Harford, 2014), which emphasizes technological and regulatory disruptions as catalysts of consolidation. Similarly, the negative impact of the risk-free rate echoes the liquidity hypothesis (Harford, 2005), whereby cheap financing conditions act as enablers of M&A waves. Agency-based explanations also remain relevant: the clustering of

stock-financed deals during periods of optimism may be driven not only by rational exploitation of mispricing but also by managerial overconfidence (Roll, 1986; Malmendier & Tate, 2008). Thus, the findings situate this research within an integrated framework that acknowledges multiple, overlapping drivers of merger waves.

6.3. Practical and policy implications

For practitioners, the results provide actionable insights. Dealmakers should recognize that stock-financed acquisitions, while attractive in bullish markets, are often symptoms of overvaluation and carry heightened risks of long-term underperformance. The analysis suggests that reliance on equity as a currency for acquisitions may signal peak activity phases and deteriorating deal quality. Conversely, the persistence of cash-financed deals even in downturns highlights the importance of liquidity reserves and access to credit as stabilizing factors for strategic acquisitions.

For policymakers and regulators, the thesis underlines the systemic risks associated with merger waves. When waves are fueled by equity mispricing and abundant liquidity, they may amplify financial vulnerabilities, particularly if clusters of stock-financed acquisitions unwind simultaneously. The evidence thus supports closer scrutiny of market-driven M&A booms, not only from an antitrust perspective but also as a matter of financial stability. Regulatory vigilance may be warranted to ensure that exuberance does not lead to excessive consolidation or the erosion of long-term value creation.

6.4. Limitations

The analysis, while robust, is not without limitations. By restricting the sample to large transactions (above 1.1 billion USD) in the United States, the study inevitably abstracts from the dynamics of smaller deals and international markets. Smaller acquisitions may follow different logics, more closely tied to operational synergies rather than market sentiment, and could display distinct cyclical patterns. Similarly, focusing exclusively on the U.S.—though justified by its centrality in global M&A activity—limits the generalizability of results to other jurisdictions with different institutional or financial structures.

Another limitation concerns data availability. Although Damodaran's multiples provide a reliable proxy for valuation conditions, their annual frequency may not fully capture short-term fluctuations that influence deal timing. Similarly, the reliance on aggregate indices such as the S&P 500 may mask regional or sector-specific nuances that play a role in shaping activity. More granular measures of credit spreads, corporate cash holdings, or cross-border flows could further refine the explanatory power of the model.

Finally, the econometric approach, based on linear regressions, is limited in its ability to fully capture non-linearities and feedback loops inherent in merger waves. For example, feedback between equity markets and M&A activity may be self-reinforcing, and threshold effects—such as sudden collapses following peaks—are difficult to capture with linear specifications.

6.5. Avenues for future research

These limitations open several promising avenues for future research. Extending the analysis to include cross-country evidence could test the universality of the overvaluation hypothesis and identify institutional factors—such as corporate governance standards or financial regulation—that mediate the strength of merger waves. Incorporating measures of credit spreads, corporate liquidity, or monetary policy shocks could shed light on the precise transmission mechanisms of financing conditions into M&A activity. Finally, adopting non-linear econometric models, such as threshold regressions or regime-switching frameworks, could better capture the dynamics of boom-and-bust cycles inherent in merger waves.

Sectoral analysis also deserves deeper exploration. The results highlight High Technology as a leading driver of waves, but the mechanisms differ from other sectors such as Energy or Consumer Staples. Further research could investigate whether technology-driven waves systematically precede broader market waves, or whether sectoral spillovers drive the synchronization of activity across industries. Similarly, case studies of specific sub-sectors (e.g., biotechnology, renewable energy, or media streaming) could illuminate the micro-foundations of sectoral waves.

Concluding remarks

In conclusion, this thesis demonstrates that M&A waves are best understood as multifaceted phenomena, shaped by the interplay of market sentiment, financing conditions, and sectoral dynamics. By combining detailed deal-level data with macro-financial indicators, the analysis confirms the central role of equity market mispricing and financing structures in driving transaction activity, while situating these factors within a broader framework that also includes technological change and managerial behavior.

The findings not only corroborate established theories but also provide novel empirical evidence on how these forces interact over time. Peaks in M&A activity correspond to moments of market optimism, cheap financing, and elevated valuations, while downturns reflect tightening conditions and corrections in sentiment. Sectoral heterogeneity further

underscores the complexity of the phenomenon, revealing that waves are not uniform but instead cluster around industries undergoing transformation.

Ultimately, the study highlights that merger waves cannot be reduced to firm-level strategies alone. They are systemic phenomena, arising from the convergence of financial markets, macroeconomic cycles, and industry-specific dynamics. Understanding them requires an integrated approach—one that accounts for both rational responses to economic shocks and the behavioral distortions of financial markets. In doing so, this thesis contributes to the ongoing dialogue between finance, economics, and strategy, offering insights that are relevant not only for scholars but also for practitioners and policymakers seeking to navigate and regulate the ever-changing landscape of corporate consolidation.

7. Bibliography

[1] Ahern, K. R., & Harford, J. (2014). The importance of industry links in merger waves. Journal of Finance, 69(2), 527–576.

[2] Martynova, M., & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand?. Journal of Banking & Finance, 32(10), 2148–2177.

[3] Mitchell, M. L., & Mulherin, J. H. (1996). The impact of industry shocks on takeover and restructuring activity. Journal of Financial Economics, 41(2), 193–229.

[4] Ahern, K. R., & Harford, J. (2010). Industry links and the emergence of mergers. Review of Financial Studies, 23(8), 2673–2710.

[5] Roll, R. (1986). The hubris hypothesis of corporate takeovers. Journal of Business, 59(2), 197–216.

[6] Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. Journal of Financial Economics, 89(1), 20–43.

[7] Gugler, K., Mueller, D. C., & Yurtoglu, B. B. (2003). The effects of mergers: An international comparison. International Journal of Industrial Organization, 21(5), 625–653.

[8] Masulis, R. W., Wang, C., & Xie, F. (2007). Corporate governance and the cost of capital. Journal of Finance, 62(4), 1451–1489.

[9] Shleifer, A., & Vishny, R. W. (2003). Stock market driven acquisitions. Journal of Financial Economics, 70(3), 295–311.

[10] Rhodes-Kropf, M., & Viswanathan, S. (2004). Market valuation and merger waves. Journal of Finance, 59(6), 2685–2718.

[11] Rhodes-Kropf, M., Robinson, D. T., & Viswanathan, S. (2005). Valuation waves and merger activity: The empirical evidence. Journal of Financial Economics, 77(3), 561–603.

[12] Harford, J. (2005). What drives merger waves?. Journal of Financial Economics, 77(3), 529–560.

[13] Baker, M., Ruback, R. S., & Wurgler, J. (2007). Behavioral corporate finance: A survey. In Handbook of Corporate Finance (Vol. 1, pp. 145–186). Elsevier.

[14] Huang, J., Zhang, J., & Li, Y. (2023). Misvaluation and technological acquisitions: An empirical study and mechanism analysis. PLOS ONE, 18(1), e0280000.

[15] Dong, M., Hirshleifer, D., Richardson, S., & Teoh, S. H. (2006). Does investor misvaluation drive the takeover market? Journal of Finance, 61(2), 725–762.

[16] Martynova, M., & Renneboog, L. (2011). The performance of the European market for corporate control: Evidence from the fifth takeover wave. European Financial Management, 17(2), 208–259.

[17] Officer, M. S. (2013). Acquisitions driven by stock overvaluation: Are they good deals? Journal of Financial Economics, 109(1), 24–39.

[18] Savor, P. G., & Lu, Q. (2009). Do stock mergers create value for acquirers? Journal of Financial Economics, 91(1), 26–47.

[19] Renneboog, L., & Vansteenkiste, C. (2019). What goes wrong in M&As? On the long-run success factors in mergers and acquisitions. ECGI Finance Working Paper No. 566/2018.

[20] Li, K., & Wang, Y. (2023). Stock overvaluation, management myopia, and long-term firm performance: Evidence from China. Journal of Risk and Financial Management, 17(4), 161