



**Vaasan yliopisto**  
UNIVERSITY OF VAASA

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**Mergers and Acquisitions performance review on  
Logistics and Supply chain companies**

Evidence from the United States market

School of Accounting and Finance  
Master's Thesis in Finance  
Master's Degree Programme in Finance

Vaasa 2025

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**UNIVERSITY OF VAASA****School of Accounting and Finance**

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<b>Title of the thesis:</b>	Mergers and Acquisitions performance review on Logistics and Supply chain companies : Evidence from the United States market		
<b>Degree:</b>	Master of Science in Economics and Business Administration		
<b>Discipline:</b>	Master's Degree Programme in Finance		
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<b>Year:</b>	2025	<b>Sivumäärä:</b>	<b>85</b>

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**TIIVISTELMÄ:**

Mergers and Acquisitions (M&A) are a very important part of corporate strategies worldwide, especially within logistics and supply chain companies where efficiency and business economies of scale are key success factors. This master's thesis examines both the short-term immediate market reactions and the long-term performance impacts of M&A in the logistics and supply chain industries, using a combination of event study and a regression analysis to assess the impacts. The target market was selected from publicly listed companies in the United States, with a dataset of 126 transactions covering the years 2013-2024. The company specific variables used include debt ratio, ESG ratings, company size, specified industries and asset turnover.

The short-term analysis found positive cumulative abnormal returns (CARs) on average on the announcement days of these M&A transactions, indicating positive market reactions for M&A in the logistics and supply chain industries. The narrowest event window [-1, +1] was the most significant of the time intervals used in the study. However, the long-term analysis revealed a dispersion in the financial performance development for companies' post-transaction. Company size and low debt are associated with better performance on average, if the performance is measured by return on assets (ROA). In addition, a company's ESG rating is found to have a significant impact on post-transaction performance, which is explained by sustainable investments and good integration. The regression results highlight the importance of strategic fit and successful integration, especially within industries where supply chain efficiency is a key competitive factor.

In conclusion, it is found that corporate acquisitions can achieve positive results in both the short and the long term. The study brings new perspective to the M&A literature in the logistics and supply chain industry, which has not been studied so extensively. The results highlight the importance of strategic fit and successful integration. The study also provides recommendations for both the further academic research and strategic decision-making in companies regarding acquisition processes.

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**AVAINSANAT:** Mergers and acquisitions, M&A, Merger, Acquisition, Abnormal returns, ESG, Logistics, Supply Chains

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**VAASAN YLIOPISTO****School of Accounting and Finance**

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<b>Tutkielman nimi:</b>	Mergers and Acquisitions performance review on Logistics and Supply chain companies : Evidence from the United States market		
<b>Tutkinto:</b>	Kauppätieteiden maisteri		
<b>Oppiaine:</b>	Rahoitus		
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<b>Valmistumisvuosi:</b>	2025	<b>Sivumäärä:</b>	85

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**TIIVISTELMÄ:**

Yrityssostot ja -fuusiot (M&A) ovat erittäin olennainen osa yritysstrategioita, erityisesti logistiikka ja toimitusketju yrityksissä, joissa tehokkuus ja liiketoiminnan skaalaedut ovat keskeisiä menestystekijöitä. Tämä ro-gradu tutkii sekä lyhyen että pitkän aikavälin vaikutuksia yritysjärjestelyiden jälkeen logistiikka ja toimitusketju sektorilla, hyödyntäen tapahtumatutkimuksen (event study) ja regressioanalyysin yhdistelmää vaikutuksien arviointiin. Kohdemarkkinaksi valittiin Yhdysvaltojen pörssissä noteeratut yritykset, joiden toteuttamista 126 transaktiosta koostuva aineisto kattaa vuodet 2013-2024. Yritystason muuttujina yrityksistä käytettiin muun muassa velkaisuusasetetta, ESG-luokituksia, yrityksen kokoa, tarkkaa toimialaa sekä omaisuuden kiertonopeutta.

Lyhyen aikavälin analyysissä havaittiin keskimäärin positiivisia epänormaaleja tuottoja M&A transaktioiden julkistuspäivien yhteydessä, mikä viittaa markkinoiden myönteisiin odotuksiin logistiikka-alana yritysjärjestelyihin. Pienin tapahtumatutkimus ikkuna [-1, +1] oli tutkimuksessa käytetyistä aikaväleistä merkittävin. Pitkän aikavälin tarkastelu paljastaa kuitenkin hajontaa yritysten taloudellisessa kehityksessä ja suorituskyvyssä transaktion jälkeen. Yrityksien koko sekä matala velkaisuusaste liittyvät keskimäärin parempaan performanssiin, jos suorituskykyä mitataan koko pääoma tuottoasteella (ROA). Lisäksi yrityksen ESG-luokituksen havaitaan vaikuttavan merkittävästi transaktion jälkeiseen suorituskykyyn, mikä selittyy kestäville investoinneilla ja hyvällä integraatiolla. Regressiotulokset korostavat strategisen yhteensopivuuden ja integraation onnistumisen merkitystä, erityisesti toimialoilla, joissa toimitusketjujen tehokkuus on keskeinen kilpailutekijä.

Johtopäätöksenä todetaan, että yrityskaupat voivat saavuttaa positiivisia tuloksia niin lyhyellä, kuin pitkälläkin aikavälillä. Tutkielma tuo uutta näkökulmaa M&A-kirjallisuuteen logistiikka ja toimitusketjutoimialalla, jota ei ole tutkittu niin merkittävästi. Tulokset korostavat strategista yhteensopivuutta ja integraation onnistumisen merkitystä erityisesti toimialoilla, joissa toimitusketjujen tehokkuus on kriittinen kilpailutekijä. Tutkimus antaa myös suosituksia, sekä akateemiseen jatkotutkimukseen, että yritysten strategiseen päätöksentekoon yritysostoprosessien osalta.

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## List of Abbreviations

<b>AR</b>	Abnormal Returns
<b>M&amp;A</b>	Mergers and Acquisitions
<b>CARs</b>	Cumulative Abnormal Returns
<b>ESG</b>	Environmental, Social and Governance

# 1 Introduction

Mergers and acquisitions (M&A) play a crucial role in the global corporate landscape, offering companies a strategic means to drive growth and enhance their performance and efficiency (Johnson et al., 2017, p. 341). Growth, efficiency and other key strategic objectives can be pursued regardless of industry through M&A, which is why Gaughan (2015, pp. 12-14) considers M&A to be an important strategic tool. Through carefully executed acquisitions, companies can access new markets, technologies, customers and supply chain synergies to generate sustainable long-term value creation. This thesis focuses on assessing such impacts within the logistics and supply chain industry, a sector where integration of assets and gained efficiencies are particularly crucial.

## 1.1 Background and Motivation

In the current corporate landscape, M&A continues to serve their strategic role in companies aiming to achieve growth, improve efficiency and enhance their competitiveness across industries. In particular, the logistics and supply chain sectors have experienced a need to consolidate and streamline operations, gain access to new infrastructure and respond to the ever-evolving global market dynamics (Gupta, 2012; Alexandrou et al., 2014). However, despite the strategic importance of logistics within M&A strategies, academic research has given limited attention to the combination of logistics and supply chains and M&A outcomes (Häkkinen et al., 2004).

This thesis seeks to address the gap by examining the performance implications of M&A in logistics and supply chain companies, with attention to basic financial metrics as well as ESG factors. By employing both short-term event study methods and a long-term regression analysis, this study aims to assess whether M&A transactions generate tangible improvements in financial performance, measured through multiple variables. The research is motivated by the increasing complexity of post-transaction integration in logistics-driven M&A deals and the small lack of prior literature which was also noted in authors bachelor's thesis. As highlighted by Gupta (2012) and Häkkinen et al. (2004),

achieving lasting operation synergies in areas such as distribution networks, inventory management systems and transportation mechanics often requires extensive coordination and strategic alignment. The realization of these synergies is particularly challenging in cross-border or vertically integrated transactions, where the differences in supply chain practices, regulatory environments or reporting standards may decrease the probability of performance realization (De Villiers et al., 2019).

Ultimately this thesis contributes to both academic literature and managerial practices by offering empirical insights into the drivers of post-M&A performance in an industry, where operational efficiency and strategic alignment are increasingly important. It also aims to contribute to future research by highlighting the need for more holistic performance metrics that go beyond the traditional financial returns that corner the sustainability impact of corporate acquisitions.

## **1.2 Research Hypothesis and research questions**

The goal of this master's thesis is to find whether M&A's affect the performance of public companies within the logistics and supply chain sector. This study evaluates both the short-term market reaction and the long-term operational outcomes that are associated with these transactions. In particular, the study seeks to find whether M&A announcements yield abnormal stock returns for acquiring companies and whether post transactions characteristics, such as company size or ESG scores, are associated with the long-term performance following the acquisitions.

First, partly based on the Efficient Market Hypothesis (EMH), this thesis investigates whether stock markets reacts to M&A announcements in a way that creates way for abnormal returns to form. According to the semi-strong form of EMG, all publicly available information should already be reflected in the stock prices (Fama, 1970, p. 383) and thus these M&A announcements should not yield any statistically significant abnormal returns. However, earlier empirical research has shown that some acquiring companies generate abnormal returns under certain conditions, such as favorable deal structures

or market mispricing (Travlos, 1987; Alexandridis, Markovits & Travlos, 2012). These findings implicate that short-term stock reactions to M&A announcements may still provide us with new and valuable information, especially when integrations and efficiencies can be complex. If abnormal returns are to be observed, it could imply that the market may not have fully anticipated the value of transaction implications. Accordingly, we propose the following hypothesis for short-term stock performance:

*H<sub>1</sub>*: M&A announcements generate positive short-term abnormal returns for acquiring companies' shareholders

Secondly, in addition to the market reactions, this thesis expands its empirical focus onto the long-term performance, where it uses regression models to identify factors which influence the post-acquisition company performance and value creation. The literature offers mixed results, while some M&A result in improved efficiency and market competitiveness (Gupta, 2012, p. 144; Faulkner et al., 2012, p. 179), yet many transactions fail to meet the expectations due to different challenges (Renneboog & Vastenkiste, 2019, pp. 650-651). The regression tests how chosen variables such as leverage, size, asset turnover and ESG scores that relate to the acquiring company's profitability in the years following the transactions. The logistics sector, characterized by high asset intensity and coordination complexity, may be particularly sensitive to factors in question. This enables the assessment of whether companies embarking on M&A's transactions achieve significantly long-term outcomes. Accordingly, we propose the following hypothesis for long-term performance:

*H<sub>2</sub>*: M&A activity has a positive association with acquiring company's long-term financial and operational performance

These hypotheses are empirically tested using an event study methodology for short-term effects and a linear regression analysis for long-term performance, covering a sample of publicly listed logistics and supply chain companies between the years 2013-2024.

### **1.3 Structure of the thesis**

This thesis is structured to evaluate the impact of mergers and acquisitions (M&A) on the performance of companies operating in logistics and supply chain industries. It is divided into X chapters, which cover all from the basic theoretical backgrounds all the way to the empirical discussion regarding the results found.

First, the theoretical framework linked to the topic of mergers and acquisitions in general is introduced. This includes the overview of the topic, insights to key parts of M&A and how they have developed in the past. The thesis goes through different motivations behind the transactions, covering strategic, financial, managerial and ESG motivations. This is followed by the description of the actual process and then the historical activity. We also uncover the basics of M&A value creation and performance needed to offer necessary information for the reader.

After establishing the M&A theoretical framework, the thesis introduces the core industries in question, logistics and supply chains. This chapter defines the key essentials of logistics and supply chains, highlighting their strategic importance of ensuring operational efficiency, cost effectiveness and end-customer satisfaction. It discusses core components and functions such as transportation, warehousing and procurement, which form the backbone of the industries. In addition, the chapter also briefly explores the key structural and technical developments that have shaped the industries including globalization trends. This chapter also distinguishes key differences between horizontal and vertical M&A strategies within the industry, examining how companies seek growth. Finally, some industry specific dynamics regarding M&A are discussed, illustrating why logistics and supply chain companies can gain performance through corporate acquisitions.

Literature reviews are followed by the data and methodology sections, which describe in detail the dual methods used in the empirical study. This section introduces the dual

method approach, which combines the event study to capture the market reactions and a regression analysis to assess the longer-term operational performance. The event study employs Cumulative Abnormal Returns (CARs) across multiple event windows to capture the immediate impact of M&A announcements. The regression analysis on the other hand evaluates the post-merger financial performance using Return on Assets (ROA) as the dependent variable while controlling for deal characteristics, size, ESG scores and other financial ratios. The chapter also discusses the data collection process, sample construction and data sources. Overall, the section provides a methodological foundation for answering the research question and testing hypotheses.

Lastly, the thesis presents the findings derived from both the event study and the regression analysis. The results section highlights the short-term market reactions to M&A announcements as well as the long-term effects on company performance. Findings are discussed in relation to key variables, such as ESG scores, deal characteristics and company specific financial metrics. The results are interpreted through the lens of prior academic literature. In the final part, the thesis discusses some key limitations and outlines possible avenues for future research to build upon the findings presented.

## **2 Mergers and Acquisitions: Overview**

This chapter provides a general overview of mergers and acquisitions (M&A) as a tool for achieving growth beyond the organic limitations. We will go through what motivates companies to embark on the M&A journey, such as acquiring compatible businesses and products, securing valuable assets (both tangible and intangible), and expanding their customer base. Additionally, we will examine the process of mergers and acquisitions to understand their structured phases, both pre-merger and post-merger. The overall purpose of this chapter is to present the most common and essential concepts and principles related to M&A's, forming a foundation for the empirical discussion in the following chapters.

### **2.1 Definitions and Objectives of M&A Transactions**

Mergers and acquisitions (M&A) refer to corporate acquisitions and mergers and it is important to be precise with the terminology, as these terms can be easily confused. Through these transactions, companies of various sizes can pursue growth, cost efficiency, or stabilize their competitive positioning in the market. It's no surprise that M&A has been a popular strategic tool for achieving multiple objectives.

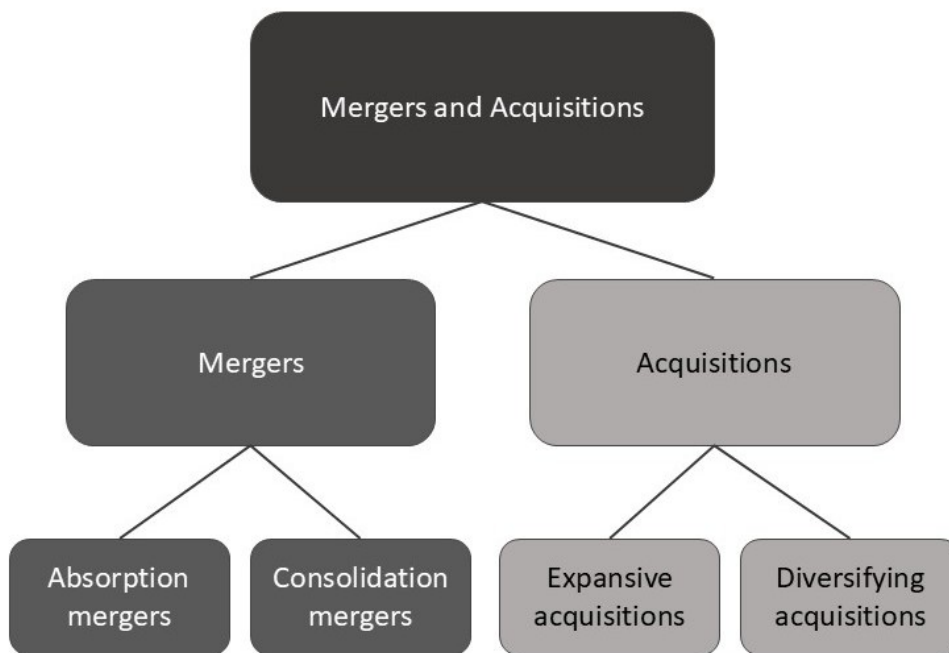
A merger represents a fundamental aspect of the M&A tool, where two previously independent companies integrate to form a single, larger entity (Faulkner et al., 2012, p.687). Unlike acquisitions which we will go in detail shortly, mergers usually involve companies of comparable size and market presence, aiming to create strategic advantages through integration (Johnson et al., 2017, p. 341). Mergers can generally be categorized into two types: absorption mergers and consolidation mergers which are illustrated in Figure 1 (Gaughan, 2015, pp. 12-15). In an absorption merger, all assets, liabilities and operations of one company are fully incorporated into the acquiring firm, effectively dissolving the absorbed entity. Contrary to absorption merger, a consolidation merger results in the creation of an entirely new company, with both merging companies ceasing to exist as separate legal entities. This latter consolidation form is often employed when two

merging companies seek to establish a unified corporation while leveraging their existing complementary strengths. A notable example of a merger in Finland is the 2020 consolidation of Metso Minerals on Outotec Oyj, which resulted in the formation of Metso Outotec, a company that can be held as a global leader in sustainable minerals processing (Kiviranta, 2020).

In contrast to mergers, an acquisition occurs when a company acquires a controlling stake in a target firm by purchasing a majority of its shares using capital (Johnson et al., 2017, p. 341). The capital for acquisitions can be sourced from the acquiring company's own funds or by using external financing, such as debt, in what is commonly called as a leveraged buyout (LBO) (Faulkner et al., 2012, pp. 303-304). In an LBO, the acquiring firm finances a significant portion of the purchase with borrowed funds, often secured against the target company's assets and future cash flows. Debt financing in such transactions is frequently provided by private equity (PE) investors, who seek to enhance the targets value through strategic restructuring and operational improvements. Leveraged buyouts typically focus small and medium-sized enterprises (SMEs), as these companies often present attractive opportunities for value creation and efficiency gains (Gaughan, 2015, p. 21).

Furthermore, mergers and acquisitions (M&A) can have different objectives, which in literature are generally categorized into growth-oriented (expansive) and diversification strategies. Growth-oriented M&A's, such as horizontal and vertical transactions, aim to increase market share within a related industry (Brealey et al., 2020, pp. 831-832). Horizontal acquisitions take place in the same line of business, often reducing competition and enhancing market dominance. Vertical acquisitions on the other hand involve companies from different stages of the supply chain, where the acquirer expands toward the raw materials or forward to the end-consumer (Faulkner et al., 2012, p. 688). The primary goal of vertical integration is to enhance supply chain reliability, cost efficiency, and product quality.

Lastly a conglomerate M&A transaction occurs when two companies from unrelated industries merge, typically to achieve market diversification and to manage risks (Gaughan, 2015, pp. 15-16). These transactions are beyond the scope of established supply chains and allow companies to penetrate new markets and business areas, reducing their dependence on singular markets or industries. Risk, both financial and operational, is also spread across multiple industries. However, these conglomerate transactions often face significant challenges related to differences in business models, corporate cultures, and operational strategies (Tortoriello et al., 2016, pp. 3–5). The difficulty of integrating different operations can lead to underperformance after the transactions have been completed.



**Figure 1. M&A Transaction types (Gaughan, 2015; Faulkner et al., 2012)**

Acquisitions most often occur with the agreement of the target company's management, in which case the management recommends that shareholders approve the transaction (Johnson et al., 2017, p. 341). However, an acquisition can also occur without the support of the target company's management. In this case, it is classified as a hostile takeover, where the acquiring company directly approaches shareholders, often through a

tender offer or a proxy fight (Loyala & Portilla, 2016, pp. 292–293; Berk et al., 2017, p. 712). A common method used in takeovers by the “corporate raider” is a tender offer, in which the acquiring company offers to purchase shares directly from the target company’s shareholders, typically with a premium included (Brealey et al., 2020, p. 848). Through the tender offer is successful, the acquiring company can restructure the company and make changes to the existing management.

Friendly acquisitions are quite clearly preferred in M&A transactions, as they house a higher probability of success compared to hostile takeovers, since these can involve legal problems, resistance of the management and integration difficulties. In academic literature, Berk et al. (2017, p. 713-715) have identified multiple effective defensive strategies for defending against takeovers, such as poison pills (share value dilution), staggered boards (majority board control) or white knights (more suitable acquirer to counter the hostile bid).

## **2.2 Motivations of M&A Transactions**

Understanding the key motivations behind M&A transactions is crucial for gaining a clear perspective on their impact on corporate performance. These motivations often shed light on why some transactions succeed while others fail. M&A transactions are driven by a variety of motivations, which have been widely examined in academic literature. Gaughan (2015, pp. 125–136) categorizes them into two fundamental factors: the pursuit of growth and the realization of synergies. Faulkner et al. (2012, p. 686) and Johnson et al. (2017, p. 342) on the other hand, identify financial, strategic, economies of scale, and management-related motivations as key drivers behind M&A.

It is evident that M&A transactions do not always have a singular motivation behind them but rather are driven by a combination of strategic objectives, including competitive advantage and synergy creation. The concept of synergy refers to a phenomenon where the combined value of two merging companies exceeds the sum of their individual values after accounting for the premium paid and the expenses of the acquisition

process. (Gaughan, 2015, p. 136). This also aligns with the general principle that M&A's should create value, making the newly formed entity more profitable and competitive than its standalone companies. Faulkner et al. (2012, p. 686) emphasize that only a few mergers or acquisitions occur based on a single motivation alone.

Broadly, these motivations can be divided into three main groups: strategic, financial, and managerial. The following sections will explore these categories in more detail, analyzing their role in driving M&A activities and their corporate performance.

### **2.2.1 Strategic M&A Motivations**

Among these categories, strategic motivations play a particularly significant role, with growth being one of the most fundamental drivers of M&A transactions. Gaughan (2015, p. 125) highlights the growth motive as a key driver for M&A transactions, as such deals enable companies to achieve rapid business expansion within a short period. Pursuing rapid growth can be tempting, but the uncertainties associated with M&A must also be considered. Growth can be pursued within the same industry (horizontal growth), within supply chains (vertical growth), or outside the company's core industry (conglomerate growth). When a company aims to grow organically in its own industry without M&A, the process can be slow and uncertain. Thus, it may be more reasonable and efficient to seek growth through M&A, ensuring a stronger market position in an ever-changing business environment. As an example, Gaughan (2015, p. 127) highlights that in otherwise slow-growing industries, M&A can provide a quick path to growth and synergies.

Beyond growth, synergies, particularly operational synergies, represent another strategic key driver of M&A activity. Operational synergies can arise from revenue enhancements or cost reductions (Brealey et al., 2020, pp. 832-833), both of which contribute to the overall efficiency and financial performance of the newly merged entity. Strategic motives listed in the literature often fall under operational synergies, including motives such as horizontal expansion, geographic diversification and business stabilization. These strategies are primarily aimed at strengthening a company's competitive advantages

(Johnson et al., 2017, p. 342) and are also frequently associated with business diversification.

For instance, cost reductions can be achieved through horizontal expansion, as the acquiring company can lower production, distribution and labor costs by leveraging economies of scale (Brealey et al., 2020, pp. 833-834). And beyond these reductions, operational synergies can also arise from different cross-selling opportunities and shared distribution channels, which is a typical motivation for logistics and supply chain M&A's. However, while the potential for these elusive synergies is often a major justification for M&A's, realizing these benefits in practice remains highly challenging. From earlier academic literature we can find out that nearly 70% of M&A transactions fail to generate expected profitability and revenue through synergies (Gaughan, 2015, p. 138). This highlights the importance of thorough due diligence, effective integration strategies and overall realistic synergy assessments in ensuring the success of M&A.

### **2.2.2 Financial M&A Motivations**

Financial motivations play an important role in M&A transactions, as companies seek to optimize capital allocations and improve financial efficiency. In the literature, financial synergies commonly refer to the reduction of capital costs in the acquiring or merging companies (Gaughan, 2015, pp. 144-145). Gaughan provides an example, how the combination of cash flows of separate companies can reduce the acquiring firm's overall risk, making it more financially stable. Furthermore, post-M&A entities can be perceived as less risky by financial institutions in terms of market and competitive changes. The increase achieved in company size, diversified revenue streams and enhanced market positions can result in more favorable loan conditions and improved access of capital. Johnson et al. (2017, p.345) and Berk et al. (2015, p. 702-703) highlight financial and economic motivations behind M&A to include tax efficiency, economies of scale and divestment of inefficient assets, for all which contribute towards optimized capital structure of the company.

Beyond these financial motivations Brealey et al. (2020, pp. 837-838) introduce a more trivial perspective with the concept of the “bootstrap game”. This refers to M&A transactions that don’t offer any evident economic gains, yet still result in artificially rising earnings per share (EPS). Companies engaging in the bootstrap game aim to create an illusion around the transaction of improved financial performance, often leading to short-term price increases despite the actual value creation. Similarly, Berk, et al. (2015, p. 507) note that M&A can sometimes lead to higher post-M&A EPS compared to pre-M&A levels, even when the transaction itself doesn’t generate any true economic value. This phenomenon can mislead investors thinking the company has strengthened its financial position.

These factors ultimately contribute to the optimization of financial resource allocation by reducing costs, improving balance sheet, or even eliminating whole unprofitable business units. Synergies play a key role in achieving these benefits, as an acquiring company with stronger liquidity and cash flows can enhance the financial stability, operational flexibility and long-term performance of the acquired company.

### **2.2.3 Managerial M&A Motivations**

While most M&A transactions are often justified by previously discussed strategic and financial benefits, managerial motivations can also influence the decision to pursue such deals. These motivations are from executive decision-making behaviors, which can either contribute to shareholder value or harm it. Managerial motivations in M&A can be categorized into two groups: self-serving and value-creating motives.

Sometimes managers, executives or founders may prioritize personal gains instead of maximizing the long-term shareholder value of the company (Faifman et al., 2024, p.60), thus giving additional reasons to merge. Berk et al. (2015, p. 707) provide more in-depth reasons for managerial motives, highlighting conflicts of interest and overconfidence as key factors. A conflict of interest arises when an M&A transaction is influenced by the short-term benefits it yields to the managers and executives in the form of increased

compensation packages and prestige. Meanwhile managerial overconfidence refers to a psychological effect, in which the managers overestimate their ability to succeed in the merger, often leading to overpayment, inefficient integration and ultimately the destruction of shareholder value. Gaughan (2015, p. 507) also introduces empire building as a managerial motive, in which executives pursue M&A to expand their own control and influence, often prioritizing prestige and power over shareholder value.

Even though we pictured the managerial motives to sound more self-serving, they can also yield positive outcomes in certain cases. Gaughan (2015, pp. 177-178) has identified improved management and improve research and development (R&D) as additional management drivers for M&A. Though it can be hard to determine if these are the actual factors that drive the transactions, there are cases in which they contribute to value creation. For instance, a smaller start-up can benefit from experienced company leadership and operational expertise of a larger acquiring company, which can enhance the growth potential. Contrast to self-serving motivations, which tend to be short-term, these aforementioned value-creating motivations drive long-term growth and can enhance the acquiring company's market position.

Another managerial factor that can influence acquisitions and their outcomes is the size of the company, which can affect how the incentives and value creation actually plan out. According to Moeller et al. (2004, p. 226), larger acquiring companies achieve lower announcement period returns compared to the smaller acquiring companies. Though smaller companies pay higher premiums, this phenomenon is mainly in contact with the agency problems, where managers pursue personal motives against the maximization of shareholder value.

While these transactions are often pursued with the expectation of generating strategic, financial and managerial benefits, their success in the end is dependent on the realization of anticipated synergies and the effective management of potential dissynergies. These dissynergies according to Gaughan (2015, p. 139) can erupt from integration

challenges, cultural mismatches and overestimation of synergies. Revenue related dis-synergies can impact the projected earnings, while operational inefficiencies can disrupt the long-term financial gains (Renneboog & Vansteenkiste, 2019, p. 671; Brealey et al., 2020, pp. 833–835). Thus it's important to balance the potential benefits with the appropriate levels of risk, while making informed acquisition decisions.

#### **2.2.4 Environmental, Social and Governance (ESG) M&A Motivations**

In the recent decade or so, Environmental Social and Governance (ESG) considerations have merged as increasingly important drivers in M&A activity. While more traditional motivations have focused on strategic, financial and managerial objectives, more literature and corporate practices have shifted towards highlighting ESG and corporate social responsibility (CSR) as an important motivation and a value creation tool within the M&A strategies (Barros et al. 2022, pp. 1-2).

One key ESG related motivation behind M&A's is the integration of environmental capabilities (Barros et al. 2022, pp. 1-2). Acquiring companies may seek targets which offer access to advanced green technologies, green R&D, energy efficient operations or cleaner logistics and distribution channels. According to Imran et al. (2024, pp. 5-6), organizations are increasingly driven towards integrating environmental imperatives into their supply chain strategies in order to reduce waste, improve resilience and meet rising ESG standards across various industries. These aforementioned environmental drivers are not just about regulatory compliance or reputational gain, they also represent a true avenue for strengthening the core business practices and continuous long-term growth of the business. This is why acquiring companies may pursue M&A transactions as a way to access such sustainable infrastructure and capabilities compared to developing them organically.

In addition to sustainability are also social and governance pillars of the ESG. Improvement of social impact and human capital management has become an increasing ESG motivation for M&A, since companies face growing pressure from investors, regulators and

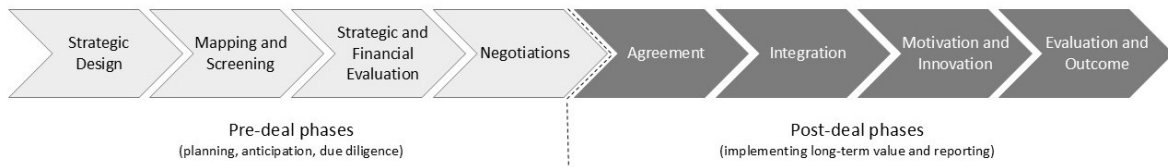
the general public. Acquiring a company with robust and strong ESG frameworks can mitigate reputational risk and forge stakeholder trust. This is particularly relevant within industries such as logistics, manufacturing and wholesale, where workforce conditions and suppliers' responsibility are closely monitored (Imran et al. 2024, p. 14).

From a governance perspective, M&A transactions are motivated by unified compliance systems, internal controls or risk management practices (Faulkner et al., 2012, p. 91 ). A target company, with weak governance, may represent additional risk, especially in highly regulated industries or international markets. In contrast, a company with transparent and robust governance structures such as independent boards and oversight, this may offer significant benefits for integration and for long-term value for investors. According to Gaughan (2015, pp. 195-201), strong governance is also linked to lower cost of capital and improved post-M&A integration, making it a good motivation for screening target companies.

As ESG continues to gain fame in corporate strategy, it is all the more likely to play a more increasing role in shaping the target selection, valuation and post-M&A integration in M&A's. Companies' ability to align their core business strategies to ESG priorities will be a determining factor in the outcomes of M&A, which is why this category of motivation has gained a strong footing.

### **2.3 The M&A Process**

Every merger and acquisition (M&A) follows a structured process, with each transaction containing similar phases. The literature presents various models and theoretical frameworks, from which I have compiled the key similarities into Figure 1 to illustrate the M&A process, providing a structured overview of the different phases. In the following section we examine the theoretical aspects of the M&A process to gain a deeper understanding of the essential steps companies must navigate when embarking on the path M&A.



**Figure 2.** The M&A process (adapted from Faulkner et al., 2012. p. 172 and Galpin, 2014, p. 28)

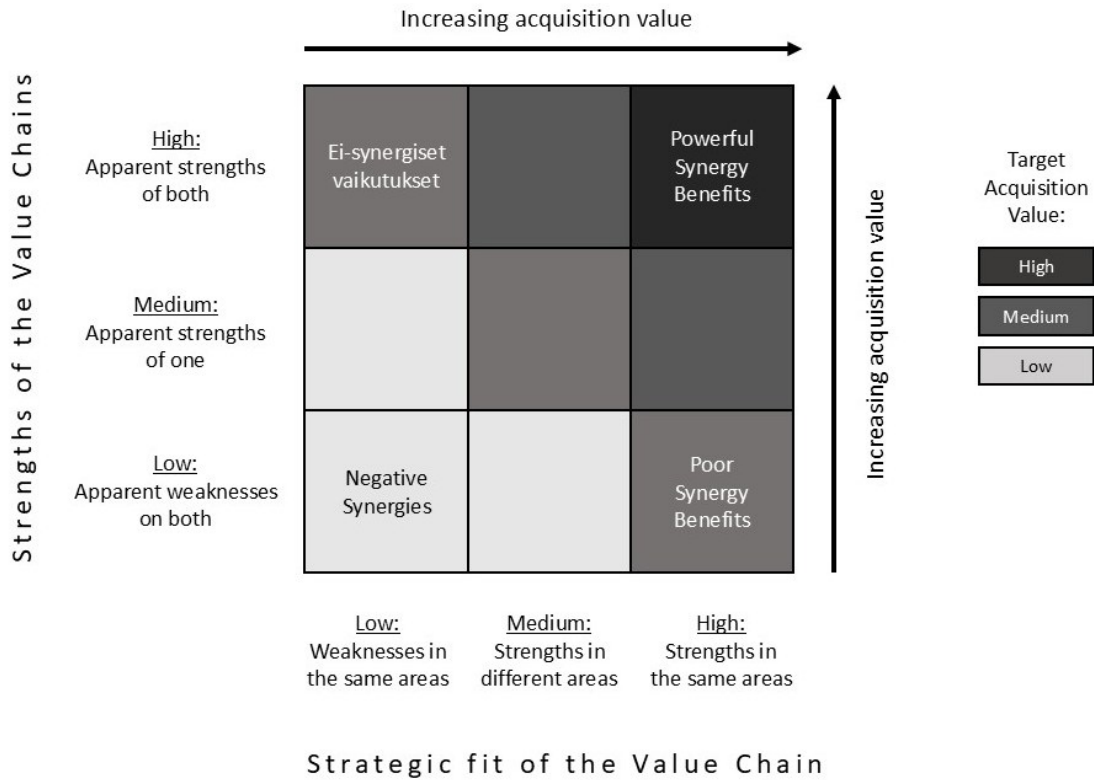
It is important to note that M&A transactions and the process itself demands a substantial amount of time and resources, particularly in the pre-deal phases, where effective planning, anticipation and due diligence influence the transaction outcomes and synergy realization (Faulkner et al. 2012, p. 173). A well-structured approach is critical in mitigating risks and ensuring smooth sailing through the phases, which affects the overall success of an M&A transaction.

### 2.3.1 Pre-deal M&A phases

In the strategic design phase, the acquiring company carefully defines its core objectives for the transaction, ensuring that the M&A strategy aligns with the current business model (Galpin 2014, p.29). These objectives often include business expansion, market consolidation and diversification, along with clearly established acquisition criteria. A well-structured acquisitions plan can serve as a value-creating tool up to the negotiation stage. This plan, according to Faulkner et al. (2012, pp. 176-177), should at least answer the following fundamental questions: (1) Why pursue an M&A transaction? (2) Is this the correct method for achieving growth? (3) Will the M&A transaction improve the competitive position? (4) Will this action increase shareholder value, and what are the value-creating factors? Formulating a strategy to address these questions requires a variety of broad analytical skills to examine the industry, the economic state of the markets and the company's business model. If the strategic goals are unclear or mistakenly calculated before initiating the M&A process, the overall financial efficiency and the success of the transaction may be at risk (Johnson et al., 2017, p. 346).

The mapping and screening phase aims to identify and evaluate potential target markets and companies that align with the strategic plan formulated in the previous phase (Galpin, 2014, p. 30). Johnson et al. (2017, p. 346) states that target companies and markets can be either strategically or organizationally compatible during this phase. Strategic compatibility refers to the ability of the target company to strengthen or complement the acquiring company's business strategy in a meaningful way. Organizational compatibility on the other hand considers management practices, cultural element, employee characteristics and skills necessary for achieving positive synergies. According to Galpin (2014, p. 34), while the target company does not need to be perfectly compatible match with the acquiring company, maximizing strategic and organizational alignment increases shareholder value and the likelihood of transaction success.

Faulkner et al. (2012, p. 179) present a compatibility matrix for M&A transactions, which illustrates how strategic strengths can develop in a matrix format. From Figure 2, we can interpret that the more similarities and strengths the acquiring and the target companies share, the stronger the synergies they are capable of forming together. Significant similarities facilitate synergy realization and may increase the ultimate value of the acquirer at hand. The matrix can also be used to assess future value and growth potential between companies.



**Figure 3.** M&A-fit matrix (adapted from Faulkner et al. 2012, p. 179)

Once a suitable target company has been identified, the next step for the acquirer is the strategic and financial evaluation phase, which involves a comprehensive due diligence. This process assesses the target company's legal, financial and strategic aspects, including its data, contractual relationships, operational history and organizational structure (Faulkner et al., 2012, p. 184). Galpin (2014, p. 34) argues that due diligence should also incorporate non-traditional areas such as the organizational culture and human resource management, because these play a critical role in the post-transaction integration phase.

Moreover, Grundy (1996, pp. 184-186) emphasizes the necessity of integrating strategic, financial and implementation analysis approaches to determine the real value of the acquisitions. A frequent pitfall in M&A transactions during this phase is the tendency to underestimate the total acquisitions costs, focusing primarily on the purchase price and transaction expenses while overlooking hidden costs, such as post-merger integration, operational restructuring, and cultural alignment. Failure to account for these aspects

can lead to value erosion rather than creation, reinforcing the critical role of this evaluation phase (Hardning et al., 2022, p. 33)

To maximize the success of the transaction, due diligence must be thorough and well structured. This phase is often time-consuming and requires the involvement of personnel with deep industry knowledge and operational expertise to navigate this phase. Due diligence should prevent surprises for the acquiring company and is extensively covered in the literature. According to Hardning et al. (2022, p. 33), the most common inaccuracies in due diligence arise from flawed integration planning, miscalculated synergy estimations, and overlooked personnel-related issues. Galpin (2014, p. 38) further highlights that active involvement of the target company in the due diligence process enhances the likelihood of success by providing a more realistic view of potential synergies and minimizing inaccuracies in planning.

The final stage before the actual transaction is the negotiation phase. The goal of these negotiations is to reach a mutually agreeable outcome on the M&A deal, covering aspects such as valuation and pricing, governance and leadership structure, legal protection and post-deal operations (Galpin, 2014, p. 38). These negotiations can either be friendly or hostile as discussed in chapter 2.1, depending on how the target company has been approached and how its management has responded to the offer.

Successful M&A negotiations depend on accurate due diligence findings, objectivity and careful preparation for the actual negotiations (Johnson et al., 2017, p. 348; Faulker et al., 2012, pp. 189-190). When negotiations conclude successfully, the acquiring company pays the agreed purchase price, which Johnson et al. (2017, p.347) states consists of the company's market derived value and a premium. If the acquisition is conducted friendly and the acquiring company has had access to exclusive private information during the due diligence phase, it increase the likelihood of fair purchase price (Galpin, 2014, p. 40).

The M&A process transitions into the integration phase after negotiations and contract signing, which marks the end of pre-deal phases (see figure 1.). During the transition from pre-deal to post-deal, the companies are merged according to the nature of the transaction. Galpin (2014, p. 40) states that the level of integration required depends on the nature of the deal (merger vs. acquisition), the transaction type (horizontal, vertical, or conglomerate) and its strategic objectives. These aspects are carefully examined during due diligence, since poor integration can lead to failure of the transaction, making integration capability a crucial determinant of value creation in M&A deals (Johnson et al., 2017, p. 347).

### **2.3.2 Post-deal M&A phases**

Faulkner et al. (2012, p. 173) argue that integration and motivation phases should begin as early as possible, potentially even before the formal agreement. The extent of integration varies by transaction, since some require deeper integration than others, like conglomerate integrations usually need. For instance, if the value is created purely by owning the acquired assets, the integration needs may be minimal (Johnson et al., 2017, p. 347). However, the integration phase is critical, as it determines whether the expected synergies materialize as expected (Gaughan 2015, pp. 24-26; Faulkner et al., 2012, p. 181). While integration takes time, Galpin (2014, p. 44) notes that completing this phase swiftly but cautiously increases the likelihood of M&A success.

Following the integration, the motivation and innovation phase focuses on fostering employee engagement and driving overall organizational performance. Galpin (2014, p. 44) highlights that strong employee commitment directly influences productivity, profitability, and customer satisfaction. This is supported by Larsson's and Finkelstein's (1999, p. 16) findings, as they emphasize organizational integration as the most important determinant in M&A synergy realization. Johnson et al. (2017, p. 348) and Galpin (2014, pp. 44-45) both emphasize the importance of motivating key personnel post-integration, as their contribution plays a key role in the success of the post-M&A organization. Key personnel can typically be employees who bring valuable expertise, are hard to replace, or

generate significant value for the organization as a whole. These individuals are often identified in the earlier phases of the M&A process, even well before the transaction is complete!

Closely linked to motivation is innovation, which seeks to foster organizational creativity and continuous improvement. Galpin (2014, p. 49) refers to innovation as something that shouldn't be limited just to research and development (R&D) departments but rather encourage across the whole organization. Innovation belongs to a group of drivers, which drive long-term growth and organizational sustainability, making it essential to allocate resources for innovation efforts after the completion of the transaction (Federico et al., 2017). However, Federico et al. (2017) caution that M&A transactions often reduce incentives for innovation, despite its importance for long-term growth. This highlights the need for well-designed incentives and refined organizational culture within the newly formed company to ensure continuous innovation and adaptability.

The final phase of the M&A process assesses the transaction using various metrics, statistics and performance indicators. Measuring the performance of an M&A is inherently uncertain, and there is no universally accepted analytical framework for evaluating M&A outcomes (Faulkner et al., 2012, p. 191). Typically, M&A success is associated with thorough financial and accounting metrics, as well as the achievement on strategic objectives, such as those illusive synergies (Brealey et al., 2020, p. 852; Galpin, 2014, p. 49).

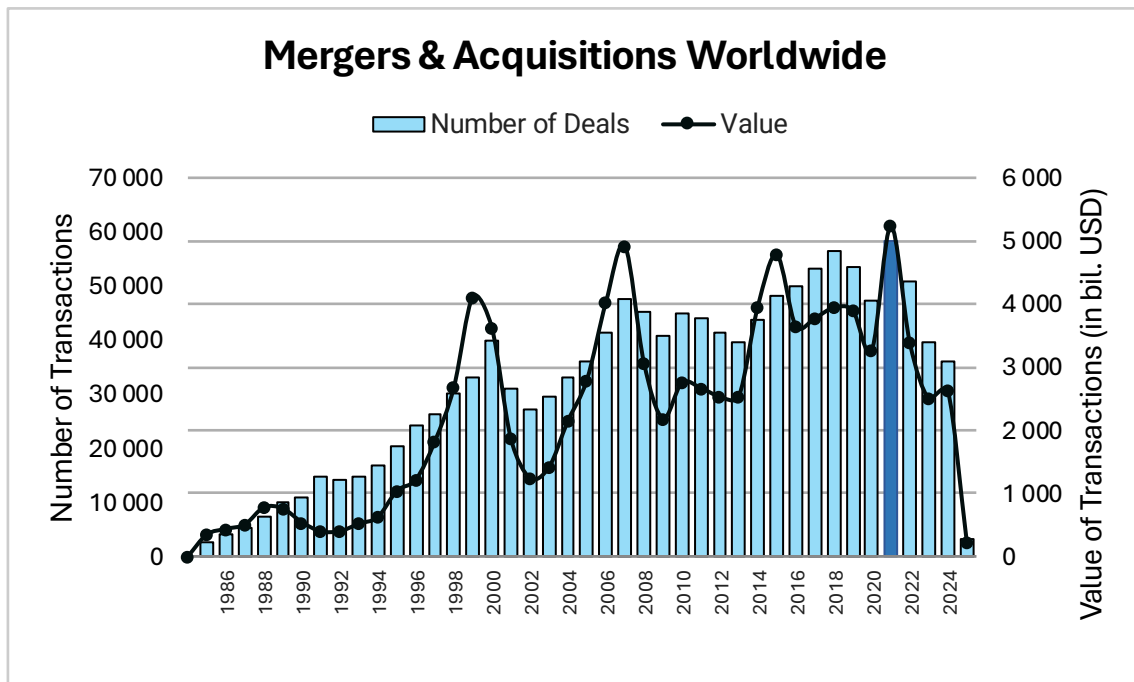
Galpin argues that the forming of a comprehensive analysis of M&A success requires deep expertise and multiple analytical perspectives. Evaluation should be seen as a continuous process, reviewed at specific time intervals, such as quarterly and yearly, to provide both subjective and objective insights. For example, Kaplan and Norton's (1996) Balanced Scorecard framework is a known performance assessment which is used in the field of M&A. Additionally, external service providers, such as consulting firms and investment banks can be utilized to assess and measure the post-merger performance (Faulkner et al., 2012, p. 191; Galpin, 2014, p. 51)

## 2.4 Historical Activity and Trends in M&A Transactions

Understanding the historical patterns and activity of mergers and acquisitions (M&A) is essential, as Gaughan (2015, p. 41) points out, the market has a short memory, and we often forget the cyclical nature of these M&A transactions. The concept of merger waves, which is widely known in academic literature, originates from the observation that periods of increased deal activity and transactions volumes have historically occurred in recognizable cycles (Faulkner et al., 2012, p. 373). These waves are closely related to the broader economic conditions, such as GDP growth, interest rates and market sentiment (Alexandridis et al., 2012). During economic upturns, companies have greater access to capital, and managerial confidence tends to be high, encouraging corporate expansion through M&A. Contrarily, economic downturns dampen deal-making activity as financial constraints tighten and risk aversion increases (Gugger et al., 2012).

A total of six merger waves have been identified in the literature, with the first occurring as early as the 1890's in the United States (Gaughan, 2015, p. 43). The cyclicity of M&A's quickly spread across the world as part of an increasingly globalized economy, reaching a record high market valuation of over 5,2 trillion dollars in the M&A market during 2021 (Hardning et al., 2022, p. 4; IMAA 2025). However, despite strong cross-border M&A activity and the impact of globalization, the deal volumes declined significantly after this year (see figure 3).

Despite the high popularity and strategic importance of M&A transactions, many have historically failed to create shareholder value or other strategic objectives during these periods. Even after decades of studying M&A waves, it still remains largely unexplained why companies engage in these transactions from financial performance standpoint (King et al., 2004, p. 198). These cycles should serve as a warning to executives, investors and bankers that M&A can have a strong trend-driven element, illustrated for example by the nature of conglomerate M&A's during the third wave.



**Figure 4.** Number and Value of M&A Transactions Worldwide (IMAA 2025)

## 2.5 Value Creation, Funding and Performance of M&A Transactions

This next chapter takes a look in to the value creation in mergers and acquisitions (M&A), how different funding decisions impact the transactions success and short- and long-term performance of M&A deals. Given the complexity and intricate nature of M&A transactions, extensive academic research has been conducted and written across various industries and markets alike. As a result, this chapter aims to combine the most significant academic findings, identifying the primary drivers of M&A performance and value creation.

### 2.5.1 Value Creation

This rather illusive term, value creation, is a process that occurs in different phases, from deal initiation to post-merger integration. Gruby (1996, p. 183) categorizes this process

into three phases: V1 (competitive strategy value), which refers to the intrinsic value of the targets competitive position, V2 (deal-making value) which represents the value added or lost during the negotiations and finally V3 (post-acquisition value), which captures the synergies (realized or lost) through integration process. While companies pursue to use M&A's as a tool to access many benefits as discussed in the motivation chapter, many transactions still fail to deliver the expected benefits due to overestimated synergies, poor integration or financial constraints. The effectiveness of post-merger integration plays a crucial role in determining whether value is ultimately created or destroyed. Without a well-structured implementation plan, even a strategically sound acquisition can lead to financial underperformance, cultural conflicts and operational inefficiencies, denying the anticipated benefits of the transaction.

Value creation extends beyond financial gains and is comprised of various factors. Grundy (1996, p. 184) emphasized that acquisitions generate different types of strategic value, including protective value where companies defend their market position; enhancement value which aids in competitive advantages; synergistic value where complementary resources able cost and revenue synergies for e.g., and finally future opportunity value, which enables entry to new markets and technologies. Studies have also shown that successful acquirers not only focus on short-term financial performance, but also invest in innovation, talent retention and supply chain to achieve growth during the longer time period (Damodaran, 2005, p. 10). Additionally, synergy realization is often dependent on different industry dynamics, with companies in highly competitive or highly evolving industries facing greater and more precise integration challenges. These challenges on the flip side offer higher potential and innovation driven value creation in the long run (Renneboog & Vastenkiste, 2019, p. 673), and therefore companies must carefully assess their strategic positioning and integration capabilities to ensure these sustainable yields of M&A transactions.

### **2.5.2 Financing Decision and Their M&A Success**

The financing method used in M&A transactions is another major factor influencing deal success and long-term performance. According to Myers and Majluf (1984, p. 32), companies with asymmetric information may avoid issuing new equity to finance M&A, as investors may interpret equity issuance as a signal that the company is overvalued, leading to adverse selection and stock price depreciation. This is supported by the pecking order theory, in which companies prioritize internal financing and debt over the new issues of equity, when funding acquisitions (Brealey et al., 2020, p. 495). Empirical research also highlights that deals financed with cash payments are more likely to succeed compared to those funded with stock, as cash transaction provide immediate value to target shareholders and minimize valuation uncertainty (Tanna, Yousef & Nnadi, 2021, pp. 2-3). Contrarily, stock-financed acquisitions introduce risks related to market fluctuations and potential misalignment of incentives between the acquirer and the target. These financing considerations directly impact on the post-merger performance and value created, reinforcing the importance of funding decisions in M&A transactions.

Beyond the direct impact of cash versus stock financing, the broader macroeconomic environment and market conditions also play a crucial role in determining what could be the optimal funding strategy for a M&A transaction. During periods of lower interest rates and economic stability, companies may prefer debt financing, which enables the utilization of tax advantages and lower borrowing costs to fund the M&A (Brealey, et al., 2020, pp. 846-847) while also avoiding shareholder dilution (Jensen, 1986, p. 324). Even if debt can yield benefits and optimization, excessive reliance on debt also increases financial risk, especially if the outcomes of the transactions fail to materialize or if the overall economic conditions deteriorate during or after the transaction. Empirical evidence also suggest that companies operating within industries with higher median leverage are more likely to prefer debt financing (Frank & Goyal, 2009, pp. 26-27). These factors can enhance access to credit at again reduced borrowing costs, making debt a practical way of financing M&A's.

In contrast, equity financing can be very attractive during bullish market conditions, where companies tend to have high or even overvalued stock valuations which can enable acquirers to use equity as a means to finance M&A transactions (Shleifer & Vishny, 2003, p. 309). Overvaluation though can be problematic, since there is a risk of overpaying for the target if the company's stock deteriorates in value.

Mixed-payment structures also exist, which combines the use of cash and stock to form a flexible alternative for financing M&A. This can reduce the overvaluation risks but also preserve liquidity. It can also signal confidence that a company uses stock to finance part of the transaction and also this limits the debt burden typically generated by a debt-financed transaction (Berk et al., 2015, pp. 718-719). Additionally, a growing emphasis on sustainability has emerged in the world of M&A, where the use of green bonds or ESG-linked bonds finance these transactions and allow companies to achieve sustainable development through, for example environmental and governance objectives (Chen et al., 2020, pp. 1-2). In the end, the decision of financing comes down to the strategic objectives and the market conditions, which ensure that the M&A transaction achieves long-term value creation rather than an unnecessary financial burden.

### **2.5.3 Short-term and long-term M&A performance**

#### **2.5.3.1 Short-term M&A performance**

Short-term performance in the acquisition world is generally measured with an event study method, which is based on the stock price movements. This methodology is appropriate for analyzing short-term financial performance and it utilizes the acquiring company or the target company's results surrounding the announcement with "normal returns" from a period unaffected by the event (Faulkner et al., 2012, p. 118). Regarding the event study methodology, there is no academic consensus to be found in prior literature on what the optimal length of the event window should be (McWilliams et al., 1999, p. 341). Event windows can range from narrow [-1, +1] and [-2, +2] to more extended periods [-180, +180]. According to Faulkner et al. (2012, p. 119), a two-day

window has been largely adopted by many renowned researchers for analyzing short-term performance.

Despite extensive use of narrow period event-studies, findings indicate that on average M&A transactions do not consistently generate superior financial performance in the short-term (King et al., 2004, p. 198). While some studies report positive abnormal returns post-acquisition, Faulkner et al. (2012) and King et al. (2004) both highlight that acquiring companies tend to experience negative abnormal returns. The event study methodology though widely in use, has received criticism from researchers. Larsson and Finkelstein (1999, pp. 3-4) argue that the method doesn't account for organizational integration and human reactions, which are crucial for the outcome of the transaction, making the method problematic. Additionally, the method can only be used to measure the short-term performance of publicly listed companies making it unsuitable for private acquisitions (Faulkner et al., 2012, p. 118).

As discussed earlier, the choice between cash, equity and debt and to finance also matters. Myers and Majluf (1984) have argued that new issuance of equity might send negative signals, while the use of debt or internal cash can signal confidence. If the M&A transaction is conducted with debt or cash, investors can interpret this as positive news, leading to better short-term performance. This is supported by Travlos (1987, p. 961), who studied that equity-financed M&A's are associated with negative abnormal returns. Additionally, a more recent study by Crestanello (2019) revisited the topic and reinforced the earlier findings that companies face negative abnormal returns while using equity to finance their acquisitions. Gaughan (2015, p. 16) highlights that equity transactions could yield certain tax benefits, like tax deferral regarding capital gains, that cash transactions can't provide.

On the other hand, Travlos (1987, p.944) study results indicate that cash transactions offer the investor "normal" returns, while the aforementioned equity-financed transactions are associated with negative abnormal returns. This is further supported by a

analysis conducted by King et al. (2004, pp. 195-196), who point out that the financing structure impacts the short-term performance and that cash deals often lead to more positive market responses. Debt-financed M&A's can also benefit the acquiring company positively in the short-term, since debt forces financial discipline on the company's management (Jensen. 1986, p. 325).

### **2.5.3.2 Long-term M&A performance**

While short-term performance is often assessed using narrow event windows, long-term M&A performance relies on extended event study windows and additional accounting-based metrics (King et al., 2004; Renneboog & Vastenkiste, 2018, p. 4). Short-term analyses tend to primarily catch immediate market reactions, while long-term performance evaluation tries to focus on the actual synergies and operational efficiency.

Academics commonly assess the long-term performance using cumulative abnormal returns (CARs) over multi period event study windows, as well as accounting-based measures such as return on assets (ROA), operating margins, and sales and employee growth (Renneboog & Vastenkiste, 2018, p. 4). These metrics provide answers to whether the acquisition achieves targeted synergies and financial performance. As highlighted by Damodaran (2005, p. 10), long-term performance is influenced by factors like integration and post-merger innovation, which the long-term metrics account for. Empirical studies presented by Faulkner et al. (2012, pp. 121-130), Gaughan (2015, pp. 265-268), and Renneboog and Vastenkiste (2018, pp. 37-38) suggest that long-term M&A performance is highly variable, with many deals failing to generate positive CARs. King et al. (2004, p. 198) add to this highlight that a median ROA is also declining in many acquisitions.

Academic literature has introduced an interesting perspective to long-term transaction benefits through a distinction between "glamour" versus "value" acquisitions. Glamour acquirers are companies with a low book-to-market ratio, and often according to research these acquirers experience negative long-term abnormal returns following

acquisitions (Gaughan, 2015, p. 266). Rau and Vermaelen (1998, pp. 226-227) found that equity-financed transactions tend to be overvalued at the time of the deal, thus leading to market corrections in the long-term. Initially the markets react positively, but as time goes on, stock prices decline. This trend is illustrated in Gaughan's (2015, p. 278) findings, where glamour acquirers' book-to-market ratio increases post-transaction due to loss of market value and market confidence.

Contrarily to glamour acquisitions, there are the value acquirors with high book-to-market ratios. Rau and Vermaelen (1998, p. 226) found that these value acquirers tend to outperform the glamour acquirors in the long run, earning significant positive abnormal returns, as they typically target undervalued companies. Renneboog and Vastenkiste (2018, p. 8) reviewed empirical studies showing that three years post-acquisition abnormal returns for glamour acquirors were -17,3 % whereas for the 7,6 % value acquirors.

One important dimension in long-term M&A performance arises when comparing cross-border (CB) and domestic transactions. Cross-border deals often present higher integration complexities due to cultural and regulatory environments, which can decrease synergy realization and lead to unideal post-deal performance outcomes. Several studies such as Moeller and Schlingemann (2004, pp. 29-30) have found that even though cross-border deals provide favorable opportunities, they tend to underperform compared to their domestic counterpart in the long run.

### **3 Mergers and Acquisitions in Logistics Companies**

Mergers and Acquisitions (M&A) play a significant role in the logistics, freight and supply chain industries, allowing companies to grow inorganically. Given the increasing complexity of global logistics and supply networks, companies often turn to M&A as a strategic tool to optimize supply chains, improve logistics infrastructure and gain access to more advanced technologies. This chapter goes through the basic concepts related to logistics and supply chains and how the M&A's can have influence in this industry and why.

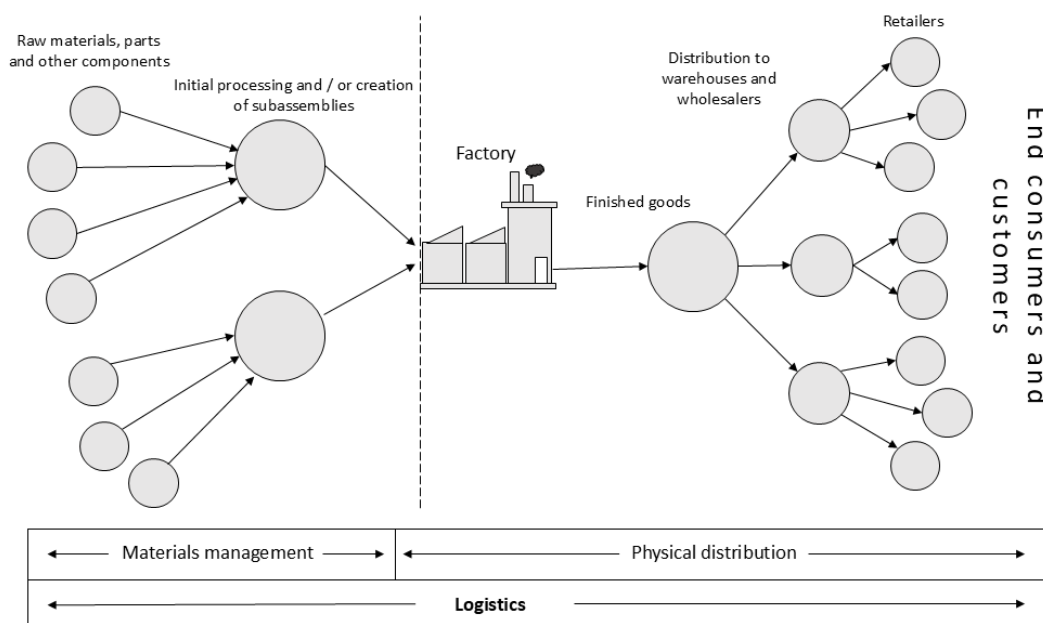
#### **3.1 Supply chains and Logistics**

To fully understand the impact of M&A on logistics companies, it is essential to define some of the key concepts. A supply chain comprises the entirety of sourcing, producing, storing and delivering goods from raw material suppliers to end consumers (Murphy & Knemeyer, 2018, p. 97). Supply chain management (SCM) ensures the coordination of these aforementioned activities to enhance efficiency, reduce costs and to improve overall service levels (Mangan & Lalwani, 2016, p. 11). Importantly, both supply chains and their management extend beyond the physical flow of products and services, since information and other intangible resources play a significant role in ensuring a well operating supply chain. Given their natural strategic importance, these elements contribute significantly toward company's ability to achieve competitive advantages and drive sustainable long-term growth.

Logistics is a fundamental component of the supply chain which focuses on the efficient movement and storage of goods, services and related information. It includes key functions such as transportation, warehousing, procurement and demand forecasting (Murphy & Knemeyer, 2018, p. 21). The primary objective of logistics is to ensure that the evolving customer needs are met as efficiently and as reliably as possible. Murphy and Knemeyer (2018, p. 33) identify several essential logistics functions, which include customer service, demand forecasting, inventory management, material handling,

warehousing, packaging and procurement. These elements collectively contribute to the effectiveness of a company's logistics operations and its ability to adapt and respond to market conditions.

Since physical movement of goods and materials occurs throughout the supply chain, efficient and well-organized logistics are essential for maintaining operational and cost-effective supply chain (Gupta, 2012, p. 135). The broader goal of logistics is to optimize transportation and storage processes, ensuring the right product reaches the right place, at the right time, in the right quantity, with the right quality and at the right cost to the right customer (Mangan & Lalwani, 2016, p.9). Logistics is thus regarded as a multi-stage process due to steps it takes before the product reaches the end consumer as illustrated in Figure 4. As Mangan and Lalwani (2016, p. 9) emphasize, logistics incorporate far more than just “trucks and warehouses”, which is why Murphy and Knemeyer (2018, p. 23-27) underscore the increasing importance of logistics in modern business operations, attributing this growth to factors such as deregulation, technological advancements, intensified competition and evolving customer expectations.



**Figure 5.** Company logistics (adapted from Murphy & Knemeyer, 2018, p.27)

In retail and wholesale industries, distribution centers form the backbone of logistics networks (Gupta, 2012, p. 135). The strategic importance of distribution centers and production facilities cannot be overstated, as they serve as crucial components of efficient logistics and supply chains systems. Murphy and Knemeyer (2018, p. 167) also emphasize the significance of facility locations in ensuring the effectiveness of logistics and supply chain operations. These factors frequently serve as some of the key motivators for mergers and acquisitions in the logistics industry, a topic explored in the following sections.

## **3.2 M&A in Logistics: Driving Efficiency and Growth**

As logistics and supply chains play a vital role with business success, companies within these industries invest heavily in their optimization. Many companies choose mergers and acquisitions (M&A) to accelerate the efficiency and growth process, gaining access to established supply chain and logistics networks, reducing operational redundancies and integrating new logistical capabilities. By acquiring or merging with other logistics companies, companies can strengthen their market position (horizontal expansion), improve service quality and channel control (vertical expansion), and achieve economies of scale, all of which are general motivations for M&A. In this following section, we will go through the motivations, opportunities and challenges associated with M&A in logistics and supply chain businesses.

### **3.2.1 Motivations Behind Logistics M&A**

Companies in logistics and supply chain industries pursue M&A primarily to expand market presence, enhance efficiency and gain synergies. Some key motivations within the industry include broader geographic coverage, increased market share, improved distribution network, cost reductions and access to new technologies (Gupta, 2012, p.131-133). Hesse and Rodrigue (2004, p. 171) have highlighted that horizontal and vertical acquisitions are the most common ones, since horizontal acquisitions strengthen the

competitive positioning within the industry, while through vertical integration companies optimize logistics and supply chain control, reducing dependence on external service providers.

#### **3.2.1.1 Market expansion and Growth**

M&A enables companies to expand their operations into new markets more efficiently by acquiring existing infrastructure rather than building it from scratch, avoiding significant capital expenditures in terms of time, debt or equity. The M&A approach provides strategic advantages such as immediate access to distribution centers and warehouses, while reducing the costs and risks associated with organic expansion (De Villiers et al., 2019, p. 2). Hesse and Rodrigue (2004, p. 171) argue that in the case of logistics, expansion to new markets can mean more efficient and reliable movement of goods. Acquiring companies with other complementary resources such as products or services can enhance the overall flow of the logistics and supply chains (Gughan, 2015, p. 38).

As an example, through impressive integration Exel was integrated as a part of DHL in 2005, strengthening their global logistics channels which resulted in value creation to DHL (Firstbrook, 2007, 54). Before the acquisitions, Exel had impressive logistics networks, which allowed DHL to penetrate new markets by acquiring complementary logistics resources. Nowadays DHL is one of the world's largest and leading logistics companies and it offers its services almost everywhere.

#### **3.2.1.2 Efficiency, Synergies and Optimization**

Cost synergies can also drive M&A decisions. Operational efficiencies, reduced inventory carrying costs, tax benefits and larger distribution scales contribute to financial advantages post-merger (De Villiers et al., p. 10). However, the success of these synergies depends on factors such as the compatibility of business models, geographic proximity and regulatory environments. Procter & Gamble's (P&G) acquisition of Gillette in 2005 enabled the company to streamline its distribution network by consolidating smaller

facilities into larger, better-equipped ones (Gupta, 2012, p. 135-136). Domestic acquisitions typically yield higher cost synergies due to fewer cultural, legal and geographic integration challenges compared to cross-border deals which can pose significant challenges pre- and post-acquisition (Häkkinen et al., 2004, p. 31 ; Galpin, 2014, p. 6).

Moreover, companies must carefully assess whether they seek to increase market share by acquiring competitors or expand their product and services offering through diversification. Research suggests that in supply chains and logistics, M&A diversification strategies may destroy value than create it, as they dilute core competencies and add operational complexities (Alexandrou et al., 2013, p. 217). Instead, companies should focus on strategic acquisitions that enhance the logistics and supply chain performance.

Beyond efficiency and cost synergies, M&A in logistics is also driven by strategic considerations such as geopolitical positioning and regulatory compliance. Acquiring a company that has an established presence in a specific region allows the acquiring company to avoid local trade barriers, mitigate geopolitical risks and ensure good compliance with the local regulations, all of which could otherwise pose a significant challenge to organic expansion (Firstbrook, 2007, p. 54). Moreover, in an industry that is characterized by intense competition and price pressures, M&A can serve as a defensive mechanism to prevent rivals from gaining market control or consolidation of industry control (Alexandrou, et al., 2013, p. 217). Companies can also with M&A reduce market fragmentation and enhance their operational resilience in an increasingly globalized and relatively uncertain economic environment. Russia's 2022 invasion of Ukraine serves as a day-to-day reminder and an example of a major disruptor in global logistics, forcing companies to adjust and reroute key shipping and freight routes, leading to higher transportation costs and possible supply chain inefficiencies.

### **3.2.1.3 ESG Considerations**

Environmental, social and governance (ESG) factors are increasingly affecting the M&A activity in the logistics and supply chain industries. Given that the industry has a

significant environmental footprint due to emissions, fuel usage and packaging materials, environmental considerations are often good motivations behind acquisitions strategies. Companies tend to seek target companies, which have already established green capabilities such as circular logistics systems, strategic sustainability plans, energy-efficient warehousing solutions or cleaner manufacturing infrastructures (De Villiers et al., 2019, p. 4-5; Imran et al., 2024, pp. 5-7). Acquiring companies that meet these standards allows the company to reduce their Scope 1 and 3 emissions and to align their operations with emerging regulations and stakeholder expectations.

De Villiers et al. (2019, p. 12) emphasize that cross-border M&A's can help companies to achieve more transparent regulatory frameworks which allows them to combat tightening global sustainability directives and reporting structures. ESG motivated acquisitions can serve as strategic sustainability investments for logistics and supply chain companies to improve their operational performance and long-term sustainability.

On the social and governance side of ESG, logistics M&A involves labor practices and compliance structures and internal controls. Acquiring companies must evaluate human resource risks and the governance structures of the target companies to ensure that the acquisition doesn't generate any reputational harm. For example, Chou, Natarajan and Zheng (2022, pp. 720-721) have found out that well-treated and informed labor forces are more productive and stable, making social responsibility good consideration for M&A decision making.

From a governance perspective, transparent reporting and internal risk management structures play an essential role. In the case of cross-border acquisitions for example, the company with better regulatory compliance and transparent company governance becomes more instantly more attractive to the acquirer. Misalignment with cultural differences and management structures may pose a high integration risk. Hence the ESG alignment within all of the ESG pillars is an important driver for deal attractiveness and poor due-diligence can pose a threat in long-term value creation.

### 3.2.2 Challenges in Logistics M&A

From a logistics perspective as seen in the previous chapter, M&A can generate some serious synergies and economies of scale, but they can also introduce significant challenges. Discussion around M&A often focusses on potential benefits, while the risk and difficulties tend to receive less attention. However, nearly all M&A transactions face challenges and in this following section, we examine the key obstacles that can arise when expanding logistics and supply chain operations through M&A.

Due diligence plays a key role in M&A, especially in the logistics industry where large companies rely on complex and multilayered supply chains, transportation networks and warehousing systems. Unlike some industries that have a more straight forward asset evaluation, logistic focused M&A deals can require a more in-depth assessment of operations, infrastructure compatibility and regional compliance (Murphy & Knemeyer, 2018, p. 97; De Villiers et al., 2019, pp. 9–10). Thus, the evaluation of target companies' logistics infrastructure, its efficiency and scalability pose a challenge, since for example distribution centers, fleet capacities and cross border trade capabilities must be assessed for compatibility with the acquiring company's existing network. Hidden inefficiencies such as untapped assets, outdated transportation methods or poor warehouse management systems can cause inflation in the perceived synergies and create unnecessary costs post-M&A (Alexandrou et al., 2013, p. 216).

The general over-optimism as seen in the last paragraph suggest that companies often overestimate potential synergies and underestimate costs (Galpin, 2014, p.4). Häkkinen et al. highlight that in logistics, it is relatively easy to identify theoretical synergies in distribution networks, but the actual realization of said synergies is far more difficult. Mangan and Lalwani (2016, p. 256-263) suggest a risk management to take place already within this stage, as it can prevent excessive synergy estimates and ensure a more realistic approach to evaluation potential gains. Without proper risk management, M&A deals can quickly become costly as integration of transportation networks, standardizing

distribution fleet operations and other logistics alignment can require significant capital expenditures!

Post-merger integration is often one of the most challenging aspects of M&A, especially in logistics due to its complexity and direct effects on operational efficiency and service reliability. While horizontal acquisitions are the most common within the industry and aim to consolidate market position, vertical acquisitions meanwhile seek to streamline the distribution and supply chain control. Häkkinen et al. (2007, p. 27) have highlighted that both acquisition variants require careful integration planning and execution to avoid disrupting the existing logistics networks. Poorly executed integration can lead to transportation inefficiencies, warehousing mishaps and vague supplier coordination. This can offset the needed M&A synergies and harm the value created by the transaction.

## 4 Data & Methodologies

This part of the thesis presents the data and methodological framework used to conduct an empirical analysis of the performance of mergers and acquisitions (M&A) in the logistics and supply chain sector. First, the data collection is described, including the selection criteria and the final sample composition. Then we introduce the methodologies used in the study, which are designed to capture both the immediate and short-term market reactions to the M&A announcements and the longer-term implications. This approach is structured to generate valuable insights into the performance and impact of M&A transactions within the logistics industry.

### 4.1 Data

The dataset for the study contains M&A transactions from the United States listed market, covering the period ranging from 2013 to 2024. Data is gathered from LSEG SDC Platinum Investment Banking database, and it's provided by Senior Researcher Jaakko Tyynelä from the University of Vaasa. The LSEG SDC Platinum database offers extensive and detailed transaction-level information, including factors such as announcement dates, micro and macro industries classifications, deal values, cross-border deal flags and the nationalities of companies involved. The sample is restricted to acquisitions where the acquiring company is based in the United States.

To ensure the relevance of the dataset to the study, the transactions were filtered with the Refinitiv Business Classification industry group of Freight and Logistics services (524050\*). This industry group is further divided into specific industries, the "Courier, Postal, Air Freight & Land-based Logistics", "Marine Freight & Logistics" and "Ground Freight & Logistics". These industries also enclose unique operational activities, such as Warehousing, Courier Services and various freight-related services. This classification and filtering framework allows is to conduct a precise description of the logistics sector, ensuring a robust industry specific examination of the M&A transactions and their performance.

**Table 1. Sample selection process**

	Sample size
Initial Sample from SDC Platinum	1542
- 1.) No public data	-132
<b>Sample after 1.) constraint</b>	<b>1410</b>
- 2.) No DataStream available	-958
<b>Sample after 2.) constraint</b>	<b>452</b>
- 3.) DataStream insufficient	-326
<b>Sample after 3.) constraint</b>	<b>126</b>
<b>Final sample</b>	<b>126</b>

The final sample used in this study was derived from the original dataset from LSEF SDC Platinum database and initially contained 1542 M&A transactions in the logistics sector. Table 1 describes the further filtering process that was applied to the raw sample, which ensured that only suitable transactions with reliable and sufficient data were used in the empirical analysis.

First the 132 transactions were excluded due to the acquiring company not being publicly listed. This aligns with Faulkner et al. (2012), since they emphasize that the use of only publicly listed companies enhances the reliability and the compatibility of empirical M&A research. This reduced the sample to 1410 observations, and next a significant number of cases, 958, were removed due to the unavailability of matching data in the DataStream database. This reduction resulted in a sample size of 452 transactions. Finally an additional 326 transactions were excluded due to insufficient historical market data in DataStream, such as missing trading days during event windows or other factors that could bias the empirical calculations. The final sample was set to 126 M&A transactions, and their characteristics are displayed in table 2.

**Table 2. Deal characteristics of dataset M&A transactions**

<b>M&amp;A by Announcement Year</b>	<b>Number of Transactions</b>	<b>Percentage</b>
2013-2014	21	17 %
2015-2016	26	21 %
2017-2018	16	13 %
2019-2020	13	10 %
2021-2022	31	25 %
2024	19	15 %
<b>Total</b>	<b>126</b>	<b>100 %</b>

<b>M&amp;A by Geographical Scope</b>	<b>Number of Transactions</b>	<b>Percentage</b>
Domestic	120	95 %
Cross-Border	6	5 %
<b>Total</b>	<b>126</b>	<b>100 %</b>

<b>Acquiror Mid Industry</b>	<b>Number of Transactions</b>	<b>Percentage</b>
Professional Services	33	26 %
Transportation & Infrastructure	92	73 %
Other Industrials	1	1 %
<b>Total</b>	<b>126</b>	<b>100 %</b>

<b>Type of Acquisition</b>	<b>Number of Transactions</b>	<b>Percentage</b>
Industry-related	122	97 %
Conglomerate	4	3 %
<b>Total</b>	<b>126</b>	<b>100 %</b>

<b>Acquiror Size</b>	<b>Number of Transactions</b>	<b>Percentage</b>
Large	48	38 %
Mid	56	44 %
Small	22	17 %
<b>Total</b>	<b>126</b>	<b>100 %</b>

Table 2 represents the breakdown of the deal characteristics for the final sample of 126 M&A transactions. The transactions range from 2013 to 2024, with the highest frequency observed during years 2021-2022, which account for 25% of the total sample.

The distribution is relatively balanced over time, ensuring that the sample reflects a variety of market conditions and M&A cycles. In terms of geographical scope, the dataset is heavily skewed towards domestic transactions, which represents 95% of all deals. This concentration of transactions may reflect the complexities and risks of international transactions in the logistics industry.

Looking at the industry classification of the acquiring companies, the majority with 73% share operates in the Transportations and Infrastructure sector, followed by Professional Services sector at 26%, and a minimal share of 1% going to other industrial categories. This distribution is consistent with the general sectoral composition of logistics-related firms in the U.S. market. The dataset is also dominated by industry-related M&A's, which constitute a whopping 97% of total acquisitions, leaving 3% for the conglomerate deals. This could indicate that the companies sought synergies more favorable for their core business areas rather than pursuing diversification.

Finally, the sample includes a relatively balanced distribution of acquiror sizes, based on enterprise value tertiles. Mid-sized acquisitions account for 44% of the sample, following by large size acquirors at 38% and 17% for small size acquirors. This spread allows for good analysis of whether firm size can affect the M&A outcomes.

## **4.2 Methodologies**

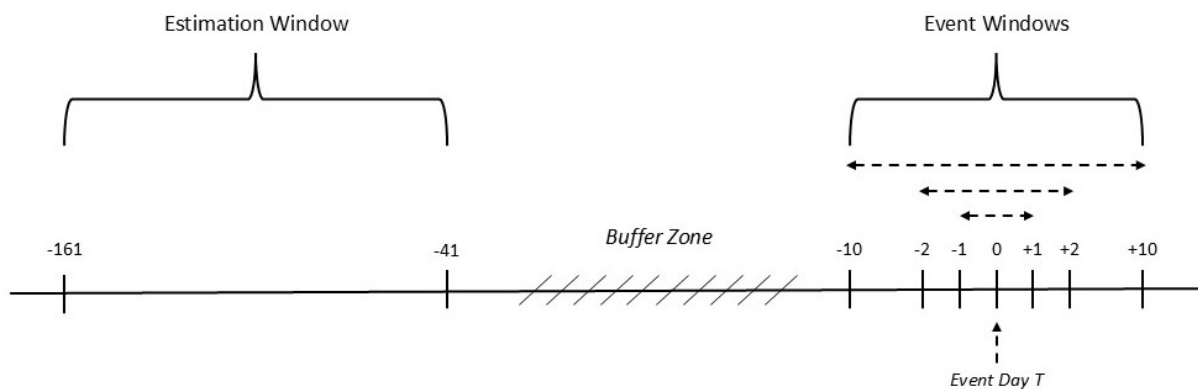
This study employs a dual methodological approach. First, we conduct an event study to analyze the short-term stock market reactions of the following M&A announcements. Then to assess the medium and long-term performance we utilize a regression analysis to see the impact on the acquiring financial performance.

### **4.2.1 Event Study Methodology**

The event study methodology is used to calculate whether the M&A announcements have generated statistically significant abnormal returns for the acquiring companies

using a couple different event windows. Event studies in general are used in finance and economics due to their ability to capture and evaluate the immediate and short-term impacts of specific events, such as aforementioned M&A announcements, on stock prices and shareholder gains. By comparing the actual stock returns around the event day to the expected returns based on a market model, the methodology helps us to determine whether the event had a statistically significant impact on shareholder value.

According to MacKinlay (1997, pp 13-14), the event study methodology has its origins in the early 20<sup>th</sup> century, when Dolley (1933) first introduced the method through a study on stock splits. Later renown scholars such as Ball and Brown (1969) and Fama et al. (1968) improved the model and demonstrated that the markets react quickly to new information during the event windows. These adjustments laid the foundation to what we know as the event study today, and why this approach is useful in M&A research. McWilliams et al. (1999, pp. 341-342) support the paper of MacKinlay on the event study method, emphasizing the methods clarity, replicability and efficiency to produce robust results with relative ease. Given the attributes and the general acceptance of the method in the academic field of finance, the event study was chosen as a practical part of the empirical study.



**Figure 6.** Structure of estimation, buffer and event windows used in the event study

In this study, an event study framework was employed, which is described in Figure 5. The study incorporates three different event windows  $[-1, +1]$ ,  $[-2, +2]$  and  $[-10, +10]$  to

capture both the immediate and potential delayed market reactions of the M&A announcements. Each event window is comprised of anticipation days, event day (denoted by  $t=0$ ) and the adjustment days. The anticipation days refer to the time prior to the event day, allowing the model to account for information leakage or speculation before the M&A announcement. The adjustment days meanwhile capture the post-announcement market behavior.

The shorter windows are intended to capture the immediate market reactions, which is often the most volatile time frame due to new information flooding the markets. Prior research has shown that markets may initially overreact or be too optimistic to M&A announcements (Bradshaw et al, 2006, pp. 54-55) and therefore also the longer event window was incorporated to the study. This longer time frame may detect the effects of reverse and correction movements following the announcement, which may be significant for the study. This multi-window approach is consistent with prior event study literature, such as MacKinlay (1997), which recommends combining narrow and extended windows.

As shown in Figure 5, the event study framework also introduces the buffer zone and the estimation window, which are key in ensuring good estimations of expected returns. The buffer zone, which lies between the actual event windows and the estimation windows, is comprised of 41 trading days and is used to minimize any risk of information leakage or speculative trading that might affect the estimation of normal returns. By separating the estimation window from the event windows with this buffer zone, the model used in the study reflects the normal behavior of the stock more reliably. The use of a buffer zone between 20 to 60 trading days is consistent with prior literature (Kothari & Warner, 2007, pp. 32-34; MacKinlay, 1997, pp. 19-20), where the aim is to minimize the influence of overlapping information and increase robustness of the model.

The estimation window precedes the buffer zone and is used in calculating the company specific parameters  $\alpha$  and  $\beta$  by regressing the historical stock returns against the market

index. In this study, an estimation window of 120 is used, which falls within the recommended range (McWilliams et al., 1999, pp. 341-342).

The actual analysis begins with the calculation of daily normal (arithmetic) returns for both the stock and the market. The returns  $R_t$  are calculated with the following equation (1):

$$R_t = \frac{P_t}{P_{t-1}} - 1 \quad (1)$$

Where  $P_t$  is the closing price on trading day  $t$ , and  $P_{t-1}$  is the closing price on the previous trading day. The use of normal returns is widely applied in event studies, as they provide a simple measure for daily price changes. Their use is particularly appropriate, given that daily returns have a smaller fluctuation and the difference to logarithmic returns is relatively insignificant (Kothari & Warner, 2007, p. 27).

After calculating the normal returns, the next step in the event study is to estimate the abnormal returns (AR). Abnormal or excess returns represent the portion of a stocks return that cannot be explained by the general market movements (McWilliams, Siegel & Teoh, 1999, p.342). In this study, the abnormal returns are calculated with the use of a market model, which assumes a relationship between the returns of the individual stock and the selected market index. Given that the study focuses on U.S. markets, the S&P500 (SPX) index is used as the market index. The abnormal return  $AR_{it}$  for company's stock  $i$  on day  $t$  is calculated with the following equation (2):

$$AR_{it} = R_{it} - (\alpha + \beta R_{mt}) \quad (2)$$

Where:

$AR_{it}$  = Abnormal return for stock  $i$  on day  $t$ ,

$R_{it}$  = Actual return for stock  $i$  on day  $t$ ,

$\alpha$  = Intercept term from the marked model regression,

$\beta$  = Sensitivity of the stocks return to market movements (market beta),

$R_{mt}$  = Return of the market index on day  $t$ .

The company specific parameters  $\alpha$  and  $\beta$  used in equation 2, more formally known as the market model, are estimated with the use of ordinary least squares (OLS) regression (MacKinlay, 1997, p. 20). These parameters were calculated over the defined estimation window (see figure 5.), which includes historical daily returns for both the stock and the chosen market index. The slope coefficient  $\beta$ , which measures the sensitivity of the company's stocks return to changes in the market return, is calculated with the following equation (3):

$$\beta_i = \frac{\sum_{t=T_0+1}^{T_1} (R_{it} - \bar{R}_i)(R_{mt} - \bar{R}_m)}{\sum_{t=T_0+1}^{T_1} (R_{mt} - \bar{R}_m)^2} \quad (3)$$

Where:

- $\beta$  = Slope coefficient (beta),
- $R_{it}$  = Return of stock  $i$  on day  $t$ ,
- $\bar{R}_i$  = Mean return of stock  $i$  over the estimation window
- $R_{mt}$  = Return of the market index (SP500) on day  $t$ ,
- $\bar{R}_m$  = Mean return of the market index over the estimation window,

The intercept term  $\alpha$ , represents the stock's average return independent of the market movements and is calculated as follows (4):

$$\alpha_i = \bar{R}_i - \beta_i \bar{R}_m \quad (4)$$

Once the calculations have been made for the  $AR_{it}$  the next step is to calculate the average these observations to find out the overall market reaction. The Average Abnormal Return (AAR) on day  $t$  is obtained by taking the arithmetic mean of the abnormal returns  $AR_{it}$  across all  $N$  M&A transactions in the final sample with the following equation (5):

$$\overline{AAR}_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (5)$$

To capture the cumulative impact of M&A announcements during a specified event window, the Cumulative Abnormal Return (CAR) is employed. This allows the study the aggregation of abnormal return (AR) across multiple days, which accommodate the market reactions that may not take place immediately during the event day (MacKinlay, 1997, p. 21). The CAR for company  $i$  between  $t_1$  and  $t_2$  is calculated with the following equation (6):

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \quad (6)$$

Where the abnormal return for company's  $i$  stock are summed over the event window  $[t_1, t_2]$ . This provides a thorough view of the price reaction around the announcement date and allows the study to analyze both short-term and longer-term market responses across the varying event windows.

To generalize the results across the entire chosen sample, the Cumulative Average Abnormal Return (CAAR) is calculated with averaging the individual CARs across the  $N$  companies with the following equation (7):

$$\overline{CAR}_i(t_1, t_2) = \frac{1}{N} \sum_{t=t_1}^{t_2} CAR(t_1, t_2) \quad (7)$$

This average measure enables the study to view the overall market reaction to the M&A announcements within the sample.

Lastly, to evaluate whether the observed abnormal returns are statistically significant, the t-statistics are calculated for the cumulate abnormal returns (CARs) over each event window. The t-statistics test assesses whether the CARs differ significantly from zero under the null hypothesis that the M&A announcements had no effect on the stock prices of acquiring companies. This step is crucial in evaluating whether any deviation has taken

place from the expected returns that can be attributed to the M&A announcement rather than random market fluctuations.

According to Kothari and Warner (2007, pp. 29-31) statistical testing forms the foundation for drawing valid conclusions in event studies, particularly in determining if the abnormal returns have deviated significantly from the expected returns under market efficiencies. The statistical significance of CARs in the study is calculated with the following formula (8)

$$t = \frac{\overline{CAR}_i(t_1, t_2)}{\frac{S(CAR)}{\sqrt{N}}} \quad (8)$$

Where:  $\overline{CAR}_i(t_1, t_2)$  = CAAR over the event window  $[t_1, t_2]$

$S(CAR)$  = Sample standard deviation of individual company CARs

$N$  = Number of M&A transactions (observations)

#### 4.2.2 Regression analysis

To further analyze the mid and long-term financial impact of the M&A transactions, this study employs a regression analysis. While event studies are designed to mainly capture short-term abnormal returns around the announcement date, the regression model helps to grasp a more detailed view of the factors which influence post-merger performance of the acquiring companies. By regressing company level performance indicators against a set of explanatory variables, the regression framework helps to identify any statistically significant drivers of value creation or destruction. The following equation (9) represents the regression framework used in the study:

$$\begin{aligned} \text{Acquirer performance} = & \beta_0 + \beta_k \sum \text{DealControls}_{i,t} + \\ & \beta_k \sum \text{FirmSpecificControls}_{i,t-1} + \beta_k \text{ESG}_{i,t-1} + \beta_k \text{TobinsQ}_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (9)$$

Where:

- $i$  = denotes the acquirer
- $t$  = denotes the year of observation
- Acquirer performance* = measured by acquirer ROA
- DealControls* = Consist of year of acquisitions, cross-border dummy size dummy
- FirmSpecificControls* = Consist of company specific characteristics such as leverage (debt ratio), asset turnover and revenue growth
- ESG* = Acquirer ESG score measure
- TobinsQ* = denotes Market-to-book ratio, capturing firm valuation through replacement value of the company's assets
- $\epsilon$  = error term

#### 4.2.2.1 Regression variables

This study uses the equation (9) to evaluate acquiring companies performance using both accounting- and market-based variables. The main performance metric is Return on Assets (ROA) as the dependent variable, which is winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentile to mitigate extreme outliers (Kennedy Lakonishok & Shaw, 1992). ROA is defined as net income divided by the book value of total assets, measured one year after the acquisition event which is consistent with prior literature (Martynova & Renneboog, 2011, pp. 218-224; Kruse et al., 2002, p.18).

The regression framework used in the study build progressively across three models. Model A includes the deal level variables, such as M&A dummy, cross-border (CB) dummy and a size dummy, with the intent on capturing the transaction context. Model B adds a set company specific control variables for the acquiring company that include debt ratio for leverage, asset turnover for operational efficiency and revenue. Lastly the Model C adds two additional independent variables, which are ESG score and Tobin's Q.

Model A's dummy variables:

*M&A Dummy* = Takes the value of 1 if the acquiring company has made an acquisition within the observation year.

*CB Dummy* = Takes the value of 1 if the acquisition involved a foreign target company.

*Size dummy* = Takes the value of 1 if the company total assets of the acquiring company below 25<sup>th</sup> percentile of total assets.

Model B's company specific control variables:

*Debt ratio* = Total debt divided by total assets.

*Asset Turnover* = Total assets divided by net sales or revenue.

*Revenue* = Reported by net sales or revenue.

Model B's control variables are chosen to identify key differences in the financial structures and operational efficiencies of acquiring companies that may experience post-merger changes. Debt ratio is included to capture how the company's leverage affects the acquisitions, since leverage reflects the financial risk and the flexibility to execute acquisitions. Higher leverage can affect post-merger operations and further investment or even increase the risk of default, which all can impact the operating performance (Frank & Goyal, 2009, p. 26).

Asset turnover on the other hand measures the operational efficiency of the acquiring company and reflects how efficiently the company utilizes its assets to generate revenue. When a company utilizes its assets correctly, its productivity and efficiency are enhanced, which is particularly relevant in the field of logistics and supply chains (Gupta, 2012, p. 137). So higher turnover ratios may indicate that the integration of newly acquired assets,

logistics channels and operations has done right, and lower asset turnover ratios may indicate an inability to integrate, resulting in unused capacity.

Lastly, from Model B, the revenue variable is used as a general proxy for company size, market activity and a continuous variable for control. Revenue aims to capture the market reach, which can be used to determine post-merger performance.

The inclusion of ESG scores and Tobin's Q in the Model C of the regression allows the regression analysis to incorporate both non-financial indicators and market-based variables. The ESG scores are from the LSEG SDC Platinum database and are company specific for different years. These ESG scores have become increasingly important in corporate finance as they can signal long-term sustainability, growth and risk management. Empirical studies have shown that higher ESG scores are more likely to influence positive post-merger outcomes with integration and the overall performance of the acquiring company (Barros et al., 2022, p. 3).

Tobin's Q (TQ) or the Q-ratio is a proxy for the company's growth potential which is calculated by dividing the total market value of the company by the total asset value (Martynova & Renneboog, 2011, p. 215). Higher TQ values indicate that the acquiring company is better positioned to generate growth with investments like M&A, while low TQ companies may be associated with overinvestment behavior (i.e. poorly managed companies) (Doukas, 1995, p. 1299). Doukas (1995, p. 1301) further shows that the acquirers with higher TQ can earn significantly higher abnormal returns from acquisitions compared to lower TQ companies. This allings with Jensen's (1986, pp. 322-324) overinvestment and managerial control hypothesis, which proposes that managers within low-growth (=low-TQ) companies with excess free cash flow tend to overinvest for personal motives. By including both the ESG scores and TQ to the regression the model, Model C aims to reflect not only the company core fundamentals but also the market-based perceptions better in order to get a more extensive understanding on the drivers of acquiror performance.

## 5 Empirical Results

This chapter presents the empirical findings of the study conducted, starting with the event study analysis which investigates the short-term market reactions to the M&A announcements by acquirers operating within the logistics and supply chain industries. The purpose of this event study was to evaluate if the acquisitions generate significant abnormal returns around the announcement date with different event windows.

Following the event study analysis, the thesis continues with the regression analysis aimed to examine the long-term performance outcomes of the acquisitions. While the aforementioned event study captures the immediate market reactions, the regression analysis provides us further insight into whether logistics and supply chain acquisitions generate value in the terms of financial performance. The objective of this dual methodology is to assess if the anticipated synergies identified in the literature actually realize over time and if there are short-term returns available within the context of logistics and supply chain industry.

### 5.1 Event study results

#### 5.1.1 Cumulative Abnormal Returns (CARs) descriptive statistics

Event studies are widely incorporated to corporate finance research due to their unique ability to catch and evaluate the immediate market reactions and anticipated synergies (MacKinlay, 1997). In the context of this thesis, the focus is on different acquisitions within the selected industries during years 2013-2024, totalling at 126 different acquisitions. The analysis employs three different event windows  $[-1, +1]$ ,  $[-2, +2]$  and  $[-10, +10]$  around the announcement date. This approach of combining multiple event windows into the analysis allows the study to have a robust assessment of the deals triggering statistically significant cumulative abnormal return (CARs) for the acquiring companies. The results are interpreted by shedding a light from prior M&A literature on performance.

Table 3 presents the descriptive statistics for calculated cumulative abnormal returns (CARs) across the three selected event windows. The mean and median CARs are positive across all event windows, which suggests that on average, M&A announcements in logistics and supply chain industries are perceived good within the investors. The highest mean return is found from the [-1, +1] event window at 1,10%, followed by the [-10, +10] event window at 0,73% and [-2, +2] event window at 0,65%. Similarly the median values display a similar pattern, reinforcing the short-term outcomes and market response.

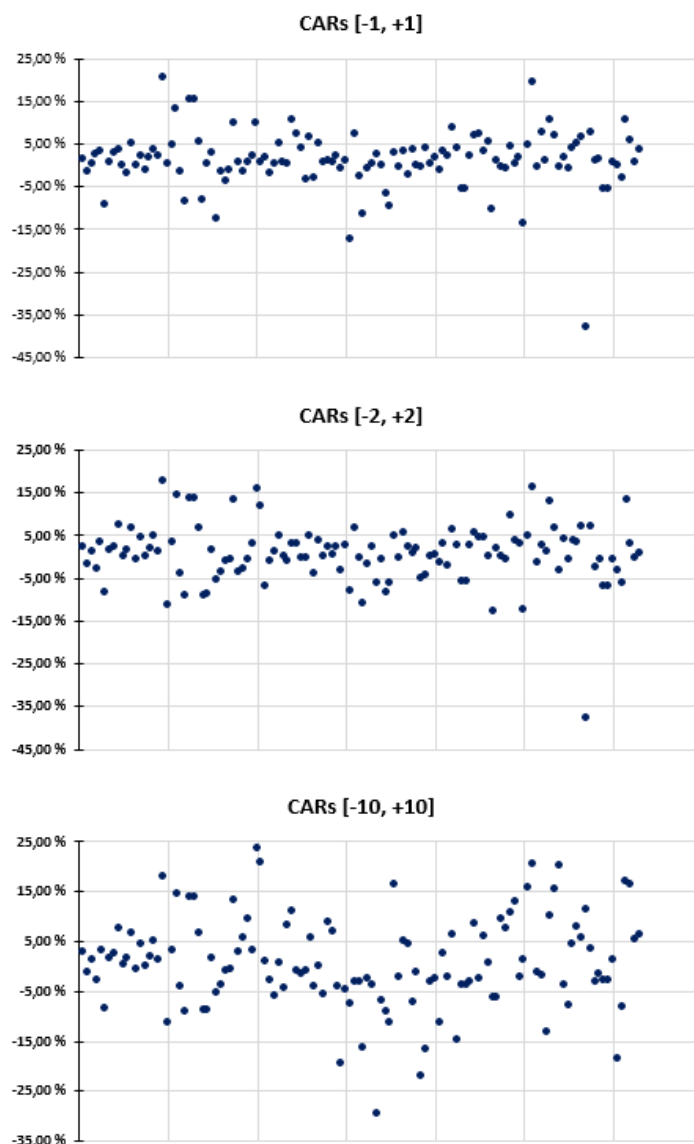
**Table 3.** Descriptive Statistics for CARs

Event Window	[-1, +1]	[-2, +2]	[-10, +10]
Mean	1,10 %	0,65 %	0,73 %
Median	0,95 %	0,63 %	0,07 %
Standard Deviation	0,068	0,069	0,092
Variance	0,005	0,005	0,008
Kurtosis	9,04	7,25	0,72
Skewness	-1,42	-1,10	-0,09
Range	58,31 %	55,66 %	53,23 %
Minimum	-37,84 %	-37,90 %	-29,53 %
Maximum	20,47 %	17,77 %	23,70 %
Sum	1,39	0,82	0,91
Count	126	126	126

Standard deviation values remain relatively stable across the event windows at 0,68 % for [-1, +1], 0,69 % for [-2, +2] and 0,92 % for [-10, +10]. This suggests that the volatility of the three event windows is somewhat comparable between the shorter and longer windows. Even for the [-10, +10] event window the slight increase in standard deviation is moderate, which indicates that the returns don't drastically increase over time. Similarly, the variance follows the same pattern, increasing only a bit from the shorter windows 0,05 % to 0,08 % in the longest window. This limited growth in both the standard deviation and variance fairly stable scattering of CARs across different time frames.

Moving on to kurtosis and skewness values, the kurtosis distribution on CARs for the [-1, +1] and [-2, +2] event windows get high values 9,04 and 7,25 respectively, indicating a presence of asymmetry and fat tails. This means that extreme CARs values, negative or

positive, occur more frequently compared to the normal distribution expectations (Verhoeven & McAleer, 2004, pp. 351-352). However, in the longest event window the kurtosis value drops significantly to 0,72, which indicates a more closer reality to the normal distribution. The skewness values on the other hand in shorter windows  $[-1, +1]$  at  $-1,42$  and  $[-2, +2]$  at  $-1,10$  indicate that the CARs values experience a large number of negative abnormal returns. This again comes closer to symmetry with the  $[-10, +10]$  event window, since the skewness is just  $-0,09$ , indicating a stronger presence of normal distribution.



**Figure 7.** Scatterplots for  $[-1, +1]$ ,  $[-2, +2]$  and  $[-10, +10]$

Finally, the range of the CARs is relatively consistent, with values of 58,31 %, 55,66 % and 53,23 % respectively for the event windows. This indicates that while the length of the event window is increasing, the extreme values remain relatively stable. The minimum and maximum values also stay relatively stable, excluding the minimum values at the short windows, which can be observed also from the skewness of [-1, +1] and [-2, +2] ranging in at -37,87 % and -37,90 % respectively.

To further illustrate the variation of CARs across the different event windows, Figure 6 displays the scatterplots for all three event window CARs. These visualizations allow for more in-depth understanding on how the returns are distributed across the sample for all of the 126 M&A transactions. CARs for each window seem to be dispersed around the zero line, with very visible outliers in both negative and positive directions. This pattern aligns with the presence of fat tails and negative skewness which was documented in table 3.

In particular, the [-1, +1] and [-2, +2] event windows show a larger number of companies with negative CARs, supporting the earlier findings of left side skewness in the distribution. A few transactions also show highly positive abnormal returns, signaling strong market optimism about the transactions synergies or other strategic outcomes. These observations are in line with earlier studies, such as Moeller, et al. (2004, p. 202), who note that investor reactions to M&A deals can be highly influenced by the company and deal specific characteristics, such as size of the acquiring company. The visual clustering near the zero line also suggest that while some transactions generate major abnormal returns, many still get over the line with a fine margin, which suggest semi-strong market efficiency proposed by Fama (1970, p. 383).

Interestingly the [-10, +10] window shows distribution that seems more symmetric and balanced across the board, supporting the findings in table 3. This can mainly reflect the market adjustment over time, as the new information is public and observed by

investors. The scatterplots thus complement the descriptive statistics and highlight the importance of visual analysis in observing the behavior of distribution patterns.

### 5.1.2 Statistical significance of CARS: t-test results

**Table 4.** Cumulative Abnormal Returns t-test.

<b>Event Window</b>	<b>[-1, +1]</b>	<b>[-2, +2]</b>	<b>[-10, +10]</b>
CAR	1,39054	0,81572	0,91385
Average (CAAR)	0,01104	0,00647	0,00725
Median	0,00952	0,00631	0,00072
Standard Deviation	0,06757	0,06896	0,09155
Count	126	126	126
t-test	1,83324	1,05374	0,88929
Significance level	*		

Note: Average CAAR is calculated by dividing the cumulative abnormal return (CAR) by the count of observations (Count). T-test is calculated by first dividing the Standard Deviation with the square root of observations (Count) to obtain standard error. The CAAR is then divided by this standard error to produce the t-statistics.

Table 4 presents the results of sample t-test for cumulative abnormal returns (CARs) across the three event windows [-1, +1], [-2, +2] and [-10, +10]. The average cumulative abnormal return (CAAR) is highest among the shortest window [-1, +1], at 1,10 % and this is statistically significant at 10 % level. This indicates that investors react most strongly to M&A announcements on the first days surrounding the actual event, consistent with Fama's (1970, pp. 404-406) semi-strong efficient market hypothesis. In contrast, the [-2, +2] and [-10, +10] windows have yielded lower CAARs and lack statistical significance from the t-test. This allings with McWilliams et al. (1999, p. 348), who caution that longer event windows may not display significant returns due to markets developing events.

The results are also in line with MacKinlay's (1997, p. 26) methodology guidance, that shorter windows are typically more reliable in event studies, especially when observing how the announcements effect the stock price and possible abnormal returns.

MacKinlay (1997, p 26) also notes that some of the [-1, +1] window returns can be explained through the fact that the announcement was made after market close. The findings of Moeller et al. (2004, p. 203) note and stress that a wide split in CARs across M&A deals can be heavily influenced by company specific and deal specific characteristics. This appears to be particularly relevant in the logistics and supply chain industries, where the value creation is tied to the operational synergies and well managed integration of different assets. This is supported by Tsagkanos et al. (2008, pp. 187-188) who studied supply chain related acquisitions in Europe and reported significant short-term gains. Within the shipping logistics, its studied that companies with lower financial leverage tend to experience significant positive abnormal returns around the announcement, due to deals being perceived as financially stable and strategically sounds (Alexandridis et al., 2012, p. 17).

These findings provide clear support for hypothesis  $H_1$ , which proposed that M&A announcements generate positive short-term abnormal returns for acquiring companies. The statistically significant CAAR of 1,10% in the [-1, +1] event window confirms that the market reacts swiftly and positively to new M&A information in the logistics and supply chain sector. Thus,  $H_1$  is accepted based on the results of the event study conducted.

## 5.2 Regression analysis results

### 5.2.1 Regression descriptive statistics

Table 5 presents the descriptive statistics for the variables that were utilized in the regression analysis directly or indirectly. These statistics provide us the general outlook on the data structure for the sample companies involved in the M&A transactions within the logistics and supply chain industries. Not all of the variables were employed in the final regression framework, but they are displayed here to provide transparency for the sample data.

**Table 5. Descriptive Statistics of Sample Data**

<i>Variables</i>	<i>Mean</i>	<i>Standard Error</i>	<i>Median</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>	<i>N</i>
<i>Return on Assets (ROA, %)</i>	4,121	0,362	4,370	8,593	-44,05	24,78	467
<i>M&amp;A Dummy</i>	0,195	0,017	0,000	0,397	0,00	1,00	564
<i>CB Dummy</i>	0,009	0,004	0,000	0,094	0,00	1,00	564
<i>Size Dummy</i>	0,376	0,020	0,000	0,485	0,00	1,00	564
<i>Industry related</i>	0,993	0,004	1,000	0,084	0,00	1,00	564
<i>Debt Ratio</i>	0,307	0,009	0,308	0,203	0,00	1,74	481
<i>Asset Turnover</i>	1,834	0,097	0,968	2,116	0,00	18,67	479
<i>ESG</i>	39,002	1,071	36,385	19,034	0,61	81,09	316
<i>Revenue (USD)</i>	7405771,90	738637,24	1986902,00	16115161,98	0,00	100338000,00	476
<i>Tobin's Q</i>	1,147	0,066	0,885	1,564	0,00	19,77	564
<i>Return on Invested Capital (ROIC, %)</i>	5,854	0,589	6,235	13,992	-87,89	34,85	467
<i>Enterprise Value (USD)</i>	15276273,71	1584069,89	2204054,00	33640513,07	6199,00	197749498,00	451
<i>Total Assets (USD)</i>	8791534,47	768819,94	2119807,50	16738394,79	1710,00	85980000,00	474

The dependent variable is the Return on Assets (ROA), which captures the accounting-based company performance. This variable has been winsorized for the 1<sup>st</sup> and 99<sup>th</sup> percentile to mitigate the influence of extreme outliers and to enhance the regression results. The mean ROA is 4,12 %, with a standard deviation of 8,59. This on average indicates, that the acquirers in the sample generate fairly modest profitability relative to

their total assets. However, the relatively large standard deviation implies that there is variation among profitability across the sample companies, which can reflect from differences from size, industry, acquisition strategy or integration. After winsorizing, the minimum (-44,05 %) and the maximum (24,78 %) reflect more realistic values.

The M&A dummy variable maintains a value of 0,20, which means that 20% of the observations represent a acquisitions year when a M&A transaction has occurred. The Cross-Border (CB) dummy's value 0,009 indicates that there is a dominance in domestic acquisitions compared to cross-border transactions within the sample. The Industry Related variables mean value of 0,993 indicates on the other hand that nearly all the acquisitions were completed within the same industry as horizontal acquisitions. The strong within-industry focus of these transactions aligns with existing literature such as Gupta (2012, pp. 137-138) and Häkkinen et al. (2004, pp. 27-28) due their ability to generate operational synergies and efficiency gains.

Control variables included in the regression analysis that cover company size, financial structure (leverage), operational efficiency and sustainability are all standard determinant in corporate performance literature (Moeller et al., 2004, pp. 209-210; Alexandridis, Mavrovitis & Travlos, 2012, pp. 679-680). The size dummy distinguishes small companies from large companies based on their total assets, which according to Chung and Pruitt (1994, pp. 70-71) is well suited for examining differences in profitability across various size companies. This variable has a mean of 0,38, suggesting that 38 % of the acquirers are classified as small companies in this study. This size classification is relevant in M&A literature, as smaller companies may perform better and experience different synergy realization compared to the larger companies (Moeller et al., 2004, p. 226).

The leverage was measured with debt ratio, and this variable got a mean of 0,31 and a relatively stable standard deviation of 0,203. This indicates that the sample companies generally maintain a conservative capital structure, and this is consistent with prior literature such as Faulkner et al. (2012, p. 307), who note that an acquirers tend to preserve

moderate leverage ratio even during transaction periods to combat flexibility. Faulkner et al. (2012, p. 308) argue that if the sample included a large number of Leveraged Buy-outs (LBO), the mean debt ratio would likely be significantly higher, indicating that the dataset contains only a limited number of LBO transactions.

To measure the operational efficiency, the asset turnover ratio was used, averaging at 1,83 and with some standard deviation of 2,12. This deviation suggest that within the sample companies, there is a diverse range of asset utilization efficiency available. In the context of logistics and supply chains, the post-M&A performance on a capital-intensive industry is relevant and a key factor in M&A success (Darkow, Kaup & Schiereck, 2008, pp. 338-339).

The Environmental, Social and Governance (ESG) score are available for 316 transactions. The mean ESG score is 39,00, with a moderate standard deviation of 19,03. This indicates that a common ESG engagement is found within the sample, although a variation can be detected in the sustainability practices among the sample companies. The inclusion of ESG as a control variable in the regression reflects how important non-financial performance indicators have become in creating long-term value and how investors perceive sustainability actions taken (Barros et al., 2022, pp. 2-3).

The market valuation which is proxied by Tobin's Q (TQ) to uncover growth opportunities, has a mean of 1,15 and a standard deviation of 1,56. A TQ ratio greater than 1 typically indicates that the company is valued above its replacement costs which can signal growth potential (Doukas, 1995, p. 1291; Moeller et al., 2004, p. 218). The large distribution of TQ is consistent with the diverse (heterogeneous) nature of the companies included in the sample, which includes mature companies with low-growth and ambitious companies with higher-growth. Companies with higher TQ may be more interested in using equity financing in M&A transactions, while leveraging their favourable market valuations for strategic growth (Myers and Majluf, 1984, p. 28).

Lastly the company specific indicators, such as revenue, enterprise value (EV) and total assets, which exhibit considerable dispersion in the sample. The average company generates approximately 7,4 million USD in revenue and holds a EV of 15,3 million USD and possess total assets of 8,8 million USD. Notably, in each category the maximum values exceed the 80 million USD threshold, which highlights further the inclusion of both small and large companies found within the sample. These findings help the generalizability of the regression results and allows for robust insights into how a company's characteristics effect the M&A outcomes in the long-term.

### **5.2.2 Regression results**

Next, we will go through the actual regression results, which were calculated through equation 9. Table 6 presents the regression results for acquirer performance measured by Return on Assets (ROA), winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentile to mitigate the impact of extreme outliers. Three different models progressively introduce additional control functions to isolate the effect of M&A transactions on the post-M&A profitability.

**Table 6. Regression results**

<i>Coefficients</i>	Model A	Model B	Model C
Intercept	-439,373 (-2,169)**	-239,213 (-1,234)	-164,738 (-0,87)
Year	0,220 (2,198)**	0,123 (1,282)	0,086 (0,913)
M&A Dummy	1,639 (1,816)*	1,679 (1,96)*	1,382 (1,643)
CB Dummy	-1,422 (-0,38)	-1,934 (-0,544)	-2,703 (-0,78)
Size Dummy	-4,992 (-6,824)***	-6,735 (-8,472)***	-5,396 (-6,48)***
DebtRatio		-9,618 (-5,715)***	-8,170 (-4,78)***
AssetTurnover		-0,529 (-3,006)***	-0,595 (-3,447)***
Revenue		0,000 (2,666)***	0,000 (0,833)
ESG			0,080 (4,558)***
TQ			-0,851 (-3,918)***
Adjusted R*2	0,100	0,191	0,234
N	564	564	564

Note: Significance levels noted (\*) (\*\*) and (\*\*\*) at 10%, 5% and 1% respectively.

Lets begin the base case Model A regression results, which includes the deal-related variables and deal specific controls. The coefficient M&A Dummy is positive and statistically significant at the 10 % level ( $\beta = 1,63$ ,  $t = 1,82$ ), which suggests that M&A transaction activity is associated with higher post-M&A ROA. The positive affect may indicate that acquisitions generate operational benefits and synergies for the logistics and supply chain industries (Gupta, 2012, pp. 133-134). The Year variable also gives insight to an upward trend in ROA over time, due to the coefficient getting a significance level of 5 % ( $\beta = 0,22$ ,  $t = 2,19$ ). This could reflect an improvement within the industry, potentially due to enhanced automation or increased demand for global logistics during the sample period (Hardning et al., 2022, p. 61). The Size dummy is strongly negative and has a high

significance at 1 %, which may reflect that smaller acquirers face post-merger integration problems due to their size and weaker resources. In prior literature, such as Faulkner et al. (2012, pp. 363-365), the studies suggest that small companies tend to face challenges post-merger due to limited managerial resources, fewer financial resources and weaker absorptive capabilities.

Model B introduces us to additional controls, including Debt Ratio, Asset Turnover and Revenue as a proxy. The Debt Ratio has a negative and highly significant effect ( $\beta = -9,2$ ,  $t = -5,72$ ), reflecting that higher leveraged companies are more associated with lower profitability post-transaction. This is in line with prior literature on capital structure, which goes over how debt increases financial risk, reduces flexibility and can harm other operational improvements which are key for successful M&A (Myers & Majluf, 1984, pp-47-47). More over increased use of leverage may result in inquiries from the lenders and limit access to new capital. Asset turnover in Model B is also negatively associated with ROA at 1 % significance level, which may indicate that inefficient capital usage is associated with the acquirers.

Lastly in Model C, the ESG scores and Tobin's Q (TQ) are added, which yield interesting results to the mix. The ESG variable is positive and highly significant at 1 % ( $\beta = 0,08$ ,  $t = 4,56$ ), providing evidence that companies with stronger ESG scores tend to perform better in post-transaction profitability. This is supported by a body of literature such as Chou et al. (2022, p. 720) and Barros et al. (2022, pp. 1-2) who argue that there is strong links between all of the ESG pillars and financial performance. TQ, a proxy for growth opportunities, shows a negative and highly significant value ( $\beta = 90,85$ ,  $t = -3,92$ ), which potentially indicates overvaluation or post-deal adjustments in high TQ companies (Doukas, 1995, pp. 1292-1293). A key point regarding TQ is that while companies with higher TQ may often be seen as attractive growth opportunities, their elevated valuations may make them more sensible for market corrections or unrealistic synergy expectations.

The regression findings overall provide a strong support for the hypothesis  $H_2$ , which proposed that M&A activity is associated with improved long-term operational performance. Across all three models, the M&A dummy variable remain positive, and in Model A and Model B it reaches 10% significance level. This indicates that companies which engage in acquisitions experience higher post-transaction ROA. This reinforces the view that M&A can generate long-term efficacy gains and synergies in logistics and supply chain industries. Accordingly,  $H_2$  is accepted based on the regression findings and evidence.

### **5.3 Discussion and findings**

This chapter summarizes the key findings from both the event study and the regression analysis to evaluate the performance of M&A in logistics and supply chain industries. The discussion highlights how the short-term immediate market reactions, measured by CARs, and the long-term financial performance, measured by ROA, are influenced by the company characteristics, deal specifics and sustainability factors. These results are also interpreted in the light of previous academic literature.

#### **5.3.1 Short-term reactions, Insights from the Event Study**

The event study methodology revealed that M&A announcements in logistics and supply chain industries generally display positive short-term market reactions across all of the event windows, particularly in the immediate aftermath of the announcement day. While the statistics (see table 4) confirm positive CARs across the event windows, the statistical significance is found solely from the shortest window [-1, +1], underscoring the relevance of the announcement day effects in the M&A research.

The statistically significant CAAR of 1,10 % in the [-1, +1] windows suggest that investors rapidly adjust the stock prices according to the new information available from the M&A. The direction of this reaction reflects the investor sentiment and expectations of the future value created by the transaction, which can be through different synergies,

market expansion, complementary resources or improved logistics capabilities (Gupta, 2012, p. 133-134). However the reaction is contracted around the event itself, and the later event windows fail to reach any statistical significance. Reyers (2018, p. 201) argues that returns may remain elevated a few days after the announcement due to larger news coverage and additional retail investor pressure on the price, but in the study regarding logistics and supply chains this phenomenon doesn't appear to hold at any significant level.

The sharper, short-lived reaction pattern identified in the study is consistent with Mackinlay's (1997, pp. 25-26) work, who highlights that narrower windows are able to isolate the market reactions to new information best before it's gone through media, news or other strategic developments. In the logistics industry, in which the integration and capital deployment can complicate the transactions outcomes, markets may revert to more neutral position after the initial sprint of optimism. McWilliams et al. (1999, p. 352) also note that expanded event windows are more likely to reflect noise and confounding events than the actual causal impact of the transaction.

Takin into account the capital intensity of the industry at hand, investors may assess the M&A deals differently compared to industries like technology and consumer goods. Investors might scrutinize the probability of successful integration, such as new fleet compatibility and warehouse consolidation (Gupta, 2012, p. 136), which are not evident at the time of the announcement. In contrast, the short-term market response reflects optimism for the potential synergies rather than a full thorough valuation of the integration execution risks. Alexandridis et al. (2012, pp. 16-17) noted that acquirers with stronger balance sheets and lower leverage are more likely to be rewarded by the market, as they are seen more likely to execute the transaction and integration without jeopardizing financial stability in the long run. This supports the findings that some companies are rewarded immediately by the market with optimism and thus higher CARs.

In summary, the event study confirms that M&A announcements in the logistics and supply chain industries are on average received positively by the market. However, in capital-intensive industries, the reaction was concentrated around the narrow announcement timeframe, suggesting that longer event windows can be less reliable.

### **5.3.2 Long-term performance, Evidence from Regression Analysis**

The regression analysis provided some critical insights into the longer-term performance implications of M&A transactions within the logistics and supply chain industries. While the event study results gave us insight into the immediate market reactions, the regression framework enables a deeper understanding of what's behind the deals and their success, such as company specifics. Next, we will go through the major and key findings related to the regression results.

One of the core takeaways from the regression models is the difficulty that appears with smaller acquirors in terms of post-merger performance. This finding may be partially connected to the fundamental complexity of logistics industry operations. Unlike asset-light industries like software and financial services, the logistics and supply chain companies' operative with extensive infrastructure which consists of ships, planes, trucks, ports, storage warehouses, road infrastructures and everything else that is necessary to get the goods from point of origin to the point of consumption (Murphy & Knemeyer, 2018, p. 21). All aforementioned components of a logistics chain require careful and well-planned coordination during the integration, to achieve the desired efficiency and a functioning enterprise (Gupta, 2012, p. 129). Proper understanding of qualitative and quantitative issues at hand may result in partially failed integration of assets (Raquib et al. 2003, p. 99), affecting the post-merger performance of the acquiring company.

Smaller acquirors also face other disadvantages when coming to the realization of post-merger in the logistics industry. Limited internal resources and a possible lack of scalability in the operational systems, these companies are less equipped to integrate complex operational infrastructures, such as Supply Chain Management (SCM) systems

which include IT platforms, warehousing systems and fleet management (Gupta, 2012, pp. 135-137 ; Häkkinen et al., 2004, pp. 38-39). Bigger acquirors have the necessary resources to combat integration issues, which can be seen from Procter and Gambles acquisition of Gillette, where they cut a major number of distribution warehouses to replace them with larger, more efficient ones. Häkkinen et al. (2004, p. 38) also note that the challenge becomes more prominent in fragmented markets, where smaller acquirers may face mismatches that complicate the integration. These inefficiencies not only delay the realization of synergies but also increase operational costs which impacts profitability.

The negative relationship observed in the regression between leverage and post-merger ROA reflects how financial constraints interact in capital-intensive businesses. In logistics, high levels of debt not only affect capital structure and increase the cost of capital, but also limit the flexibility in addressing, for example surprise in the integration phase. While debt financing is a common tool to pursue both inorganic and organic growth, its applicability is limited in logistics can constrain the core operations (Alexandridis et al., 2020, p. 14). The post-merger periods usually require additional investments, such as consolidation of ERP systems and optimization of trade routes, which can be affected by high degrees of leverage limiting the breathing room post-transaction. Gupta (2012, p. 143) and Häkkinen et al. (2004, p. 39) highlight the importance of harmonizing the supply networks, warehousing systems and transport fleets in achieving value and synergies for the acquisition. High leverage may disrupt the operations and profitability, if lead-times grow longer and misalignments are born, in which the company can't respond with additional resources.

A notable find in the regression analysis was the positive relationship between the ESG scores and post-merger ROA. While the ESG considerations are increasingly acknowledged, their impact on logistics and supply chains might be particularly relevant. Worldwide environmental considerations begin the fuel usage, carbon footprint, packaging

material and other Scope 1/2/3 related emissions are under microscope from regulators to consumers alike.

Shipping companies, for example, are in the salvage business to recycle older, less environmentally friendly cargo vessels, to build newer ones with more efficient engines run by liquified natural gas (LNG). According to Andrikopoulos (2025, p. 3), global shipping accounts for 2,89 % of the global greenhouse gas emissions, which is a clear indicator why the shipping logistics industry is tilting toward sustainable solutions. Investors seemingly value companies which adopt environmentally sustainable alternatives to reduce their dependency on more traditional fossil fuels in their transportation fleets. Zhao et al. (2022, p) highlight that LNG engines can reduce carbon dioxide emission by 25 to 30 %, which explains why LNG ships are becoming crucial ESG related transition tools in the pursuit of zero-carbon shipping. Other transportation methods can be seen doing similar environmentally friendly adjustments, such as trucking converting to more biodiesel and air transport to sustainable aviation fuel (SAF).

One important finding also from the regression is the negative and statistically significant asset turnover ratio, which suggest that acquiring companies with lower asset turnover tend to perform worse post-merger. In logistics and supply chain context, asset turnover serves as a indicator on operational efficiency in how well the company can utilize its assets to generate revenue. M&A give access to otherwise very valuable infrastructure such as distributions hubs, ports, warehousing facilities and transport vehicles, and these assets may remain underutilized if the integration is not carefully managed (Gupta, 2012, p. 139-141). As the logistics industry is heavily horizontal and capital-intensive, the post-merger operations can make or break the transaction if overlapping operations are not consolidated effectively, which can be seen from the regression results as well (Häkkinen et al., 2004, p. 38)

For example, Gupta (2012, p. 139-141) emphasizes access to strategic logistics assets with M&A, but without correct utilization of gained assets, this may increase fixed costs

and lower the operational productivity and affect the asset turnover ratio negatively. Alexandridis et al. (2012, pp. 11-12) highlight a similar note, if the streamlining of operations fails, investors may penalize the company in terms of lower long-run value.

### **5.3.3 Summary of empirical findings**

The combined findings from the event study and the regression analysis give us a comprehensive picture on how M&A transactions develop within the logistics and supply chain industries, both immediately and overtime. In the short-term, the transaction announcements are welcomed by the market observed in the [-1, +1] window. This response reflects optimism towards the synergy potential offered by the transaction.

Long-term performance, measured by post-transaction ROA, is influenced more heavily by company specifics and operational realities. Smaller acquirers tend to lack scalability and face integration challenges, relative to their larger counterparts. Higher leverage further constraints the post-merger success with limited flexibility and access to follow-up investments. Meanwhile companies with strong ESG scores achieve better outcomes, likely due to long-term sustainability positioning in the industry. As emphasized by Gupta (2012) and Häkkinen et al. (2004), the success in logistics M&A depends not only within the asset acquisition, but also the companies ability to integrate and operate them effectively. Overall, these findings emphasize that value creation is not an automation in logistics and supply chains, but comes through integration expertise, discipline and a good strategic fit.

## 6 Conclusions

This thesis set out to investigate the impact of mergers and acquisitions (M&A) on the company performance in the logistics and supply chain industries, considering both the short-term market reactions and the long-term performance. By applying a dual approach methodology to the publicly listed acquiring companies between 2013 and 2024, the study sought to answer whether the M&A announcements generate abnormal returns for the acquiring companies and if post-acquisition performance could be explained with company specific-characteristics and other transaction related factors.

The findings from the first methodology indicate that the M&A announcement in the logistics and supply chain sector are associated with positive short-term abnormal returns. Although statistical significance is found only from the narrowest event window [-1, +1], this implies that markets may react efficiently to new information especially when the deal and industry display good synergy potential. These results align with earlier studies (e.g. Travlos, 1987; Alexandridis et al., 2012), in which the authors have shown that investors substantially react to deals based on their characteristics, payment method, acquiror characteristics and overall strategic fit.

The regression analysis further revealed that M&A transactions have a positive association with long-term company performance, measured through accounting-based indicators such as return on assets (ROA). Importantly, some company specific variables, including acquiror size and ESG scores, appear to influence the post acquisitions performance. Smaller companies tend to realize more moderate returns, potentially due to greater challenges in integration due to their relative size. These findings support the fact that the value creation in M&A is not dependent on one thing, but more of a complex play including internal and external factors.

Both thesis hypotheses were supported by the empirical study results. The first hypothesis ( $H_1$ ), regarding short-term market reactions, was confirmed through statistically significant CARs in [-1, +1] event window. This reflects that the markets generally react

positively to M&A announcements in the selected industry. Although only the shortest event window showed statistical significance, the other two windows also displayed positive CARs, supporting the hypothesis claims. These findings align with the semi-strong Efficient Market Hypothesis and other previous M&A event study literature. The second hypothesis ( $H_2$ ), which relates to the long-term post-acquisition performance was supported by the regression evidence linking M&A activity and company specific characteristics such as leverage, company size and ESG scores to improved ROA. The model demonstrated that stronger ESG profiles and moderate leverage perform better post-acquisitions, suggesting that sustainability and financial stability play a role in transactions success. Thus, empirically both short-term market expectations and long-term operational outcomes provide support for the proposed hypothesis.

## 6.1 Limitations and future research

Although this study provides valuable insights into the world on M&A in logistics and supply chains, several limitations also highlight avenues for future research.

Firstly, the use of relatively short event windows in the event study can be taken as a limiting factor. In the standard M&A research these short windows have been criticized for their inability to capture organizational integration as a whole including factors such as employee reactions post-acquisitions (Faulkner et al., 2012, p. 119). A potential improvement could be the use of longer event windows, such as [-180, +180] to better account for the market adjustments and developments within the newly formed organization. In addition, the use of Buy-and-Hold Abnormal Returns (BHARs), as proposed by Bessmenbinder and Zhang (2013, p. 83), could offer a long-term performance measure that aligns with real investor experience.

Secondly, this study treated ESG ratings as a single variable. However, as the results indicated that ESG may play a significant role in explaining the post-acquisition performance, future studies could examine ESG scores as individual pillars. A pillar-by-pillar regression for each Environmental, Social and Governance pillar and a aggregate ESG

score could reveal which components are the most value relevant in M&A. Huang et al. (2023) have conducted a relevant study on individual pillars of ESG and found a significant effect on post-merger performance and thus a similar study could be conducted within the logistics and supply chain industries. In the ESG topic also an alignment study could be conducted which reveals if the acquirer target ESG compatibility matches and how it moderates the deal success.

One key limitation of this study lies within the availability and completeness of the transaction level data. Although the data was sufficient enough to conduct the necessary calculations, for many M&A transactions in the sample important deal characteristics were either missing or inconsistent in the data. For example, the dataset did not indicate which party was the bidder in the transaction, making it more difficult to analyze the intended performance outcomes. Also, the deal value was not available for a significant amount of observations, limiting the ability to control the results based on the transaction size. Furthermore, one of the most critical missing data was the payment method used to conduct the transaction (cash, stock, mixed), which has been shown in prior literature to influence both the short-term and long-term performances. These factors restricted the depths of the study, and future research could benefit from more granular transaction data that includes these characteristics.

Additionally, future research could incorporate extra robustness tests, such as alternative model specifications and subsample analysis, for example based on the acquirer size, deal value or payment method, to confirm the validity and consistency of these findings. These tests could help ensure that the observed effects are not driven by some sample-specific biases or flaws in the model assumptions. Together all aforementioned directions could help refine the understanding for how both the financial and non-financial variables can affect the M&A transaction outcomes.

## 6.2 Final remarks

Completing this thesis has been both an academic journey and a personal milestone. Throughout this process I have had the opportunity to explore the intricate dynamics and strategies of mergers and acquisitions in the logistics and supply chain industries, with a focus on sustained long-term performances. While the analytical side of the study was at times demanding and challenging, they were equally rewarding both through empirical and theoretical lenses.

This thesis has deepened my knowledge and appreciation towards the nature of M&A's, especially when examining the actual outcomes through modern dimensions such as ESG. The findings presented here are not absolute conclusions but rather contribute to the academic discussion surrounding the industry M&A in logistics and supply chains. I hope that the analysis can encourage further research into industry-specific performance, sustainable corporate strategies and long-term impacts of financial decisions. On a more personal note, I am thankful for the growth that this process has enabled. From the initial literature review to the final empirical outcomes, the thesis has pushed me to refine both my analytical and technical skills to be able to manage the complexity of a master's thesis. As this chapter closes and the work life slowly begins, I carry the curiosity of M&A onward.

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