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How did Covid-19 pandemic affect the profitability of M&A transactions?

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ABSTRACT:

Historically, mergers and acquisitions (M&As) have been pivotal for corporate growth, but with mixed outcomes. Some enhanced company value, but many diminished it. However, a recent study by Alexandridis et al. (2017) shows that the efficiency of M&A transactions has significantly improved during the last decades.

The Covid-19 crisis in early 2021 caused global economic turmoil. Yet, M&As reached a record high that year. However, until this research, it was unclear whether Covid-19 had any effect on abnormal returns from the conducted M&As. Prior research, such as a study by Beltratti and Paladino (2013), indicated that the 2008 financial crisis led to negative average abnormal returns, raising questions about Covid-19's impact on M&A efficiency and whether recent efficiency improvements suggested by Alexandridis et al. (2017) persisted.

This study examines the impact of Covid-19 on the abnormal returns of acquirers' shareholders in Nordic markets. Firstly, the relationship is analyzed by using cumulative average abnormal returns (CAAR) for data subgroups. Secondly, multivariate regression is used to further assess the relationship between Covid-19 and abnormal M&A returns. Not only does this study focus on the possible changes in the abnormal returns, but also on the timing of these returns.

Results show, that accordingly with the findings of Alexandridis et al. (2017), the abnormal returns indeed have become more efficient lately. However, the effects of Covid-19 on the abnormal returns have mainly been negative. Even though Covid-19 affects the abnormal returns mainly negatively, the abnormal returns remain positive during the Covid-19 in all of the models. In other words, the abnormal returns have been positive during Covid-19, but lower than before the crisis. Surprisingly, the timing of the abnormal returns does not differ during Covid-19 from the period before it.

KEYWORDS: Merger, Acquisition, Abnormal return, M&A announcement

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TIIVISTELMÄ:

Fuusioilla ja yritysostoilla on historiallisesti ollut keskeinen merkitys yritysten kasvulle, mutta niiden tulokset ovat olleet vaihtelevia. Jotkin niistä ovat lisänneet yrityksen arvoa, mutta monet ovat toisaalta vähentäneet sitä. Alexandridisin ja muiden (2017) tuore tutkimus osoittaa kuitenkin, että yrityskauppojen tehokkuus on parantunut merkittävästi viime vuosikymmeninä.

Covid-19-kriisi vuoden 2021 alussa aiheutti maailmanlaajuista taloudellista myllerrystä. Silti yrityskaupat saavuttivat tuona vuonna ennätyskorkean tason. Tähän tutkimukseen asti oli kuitenkin epäselvää, oliko Covid-19:llä vaikutusta toteutettujen yrityskauppojen epänormaaleihin tuottoihin. Aikaisempi tutkimus Beltratilta ja Paladinolta (2013) osoitti että vuoden 2008 finanssikriisi johti negatiivisiin keskimääräisiin epänormaaleihin tuottoihin yritystransaktioista, mikä herätti kysymyksiä Covid-19:n vaikutuksesta yrityskauppojen tehokkuuteen ja siitä, säilyivätkö Alexandridisin ym. (2017) ehdottamat viimeaikaiset tehokkuuden parannukset.

Tässä tutkimuksessa tarkastellaan Covid-19:n vaikutusta yritysostajien osakkeenomistajien epänormaaleihin tuottoihin pohjoismaisilla markkinoilla. Ensinnäkin yhteyttä analysoidaan käyttämällä kumulatiivisia keskimääräisiä epänormaaleja tuottoja (CAAR) aineiston alaryhmien osalta. Toiseksi Covid-19:n ja yrityskauppojen epänormaalien tuottojen välistä suhdetta arvioidaan edelleen monimuuttujaisen regression avulla. Tässä tutkimuksessa keskitytään paitsi epänormaalien tuottojen mahdollisiin muutoksiin myös näiden tuottojen ajoitukseen.

Tulokset osoittavat, että Alexandridisin ja muiden (2017) havaintojen mukaisesti epänormaalit tuotot ovat todellakin tehostuneet viime aikoina finanssikriisin tuottoihin verraten. Itse Covid-19 pandemian vaikutukset epänormaaleihin tuottoihin ovat kuitenkin olleet pääasiassa negatiivisia. Vaikka Covid-19 vaikuttaa epänormaaleihin tuottoihin pääasiassa negatiivisesti, epänormaalit tuotot pysyvät kuitenkin positiivisina Covid-19:n aikana kaikissa malleissa. Toisin sanoen epänormaalit tuotot ovat olleet positiivisia Covid-19:n aikana, mutta vähemmän positiivisia kuin ennen kriisiä. Yllättävää kyllä, epänormaalien tuottojen ajoitus ei poikkea Covid-19:n aikana sitä edeltävästä ajasta.

AVAINSANAT: Merger, Acquisition, Abnormal return, M&A announcement

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1 Introduction

World's business landscape is relentlessly shaping towards a more competitive and challenging playground. Enterprises are constantly required to readjust their operations and come up with new creative and efficient ideas to stay ahead of the competition. Mergers and acquisitions, known as M&As, have increased their popularity remarkably in recent decades. Lately, M&As have become an important practice for companies to enhance their businesses and gain inorganic growth. Transaction amounts have doubled during the past two decades, and the total value of worldwide M&A transactions is even ten times larger than what it was in 1985. Also, the growth of M&As does not seem to be slowing down, as the transaction amounts have reached their all-time highs in the past few years. (Institute for Mergers, Acquisitions, & Alliances; 2022).

When a company announces its intentions to carry out an M&A deal, the stock price tends to fluctuate based on how warmly investors welcome the news about the planned transaction. Often the market reaction is positive, but other times the announcement may cause a drop in the announcing company's stock price. Previous literature has tried to explain how abnormal returns from M&A announcements are determined. However, thus far the findings have been inconsistent. M&A activity and outcomes have appeared to be highly dependent on economic situations and cyclicality explains much of the varying unexpected returns. Thus, after unprecedented last years, a general understanding of M&A profitability needs to be revisited. (Gaughan, 2018).

Previous literature regarding abnormal returns from M&As has not been very congruent. Bruner and Perella (2004) gather dozens of previous studies related to M&A profitability and summarize the findings of those studies. Their research shows that some studies resulted in positive abnormal returns from M&A announcements, while other studies gave evidence of negative abnormal returns. Thus, historically the results have been divided almost equally between positive and negative outcomes. Later, Beltratti and Paladino (2013) studied how the economic situation affects abnormal returns. They studied abnormal returns from two perspectives that were around M&A announcements and around M&A completions. Their study concludes that M&A announcements do not cause any significant abnormal returns, whereas around M&A completions the abnormal returns are positive and significant. More recent research by Alexandridis et al. (2017) shows interesting evidence about the trend of M&A profitability. According to their research, M&As have become significantly more efficient post-financial crisis and the abnormal returns of M&As have increased substantially.

After the studies by Beltratti and Paladino (2013), and by Alexandridis et al. (2017), humanity has faced one of its most difficult challenges ever. An unknown virus, named Corona Virus Disease 2019 (Covid-19), started to spread all over the world shortly after its detection. On the 12th of March 2020, World Health Organization (WHO) declared that the disease had become a global health pandemic. Since then, the pandemic has affected people all over the globe and is still affecting everyday living. (Tao et al., 2021). Not only had Covid-19 huge effects on people's health but also countries' economies. Stock markets dropped significantly over the world. For instance, the S&P 500, one of the world's most-followed indexes, fell by 33,9% between February 19, 2020 and March 23, 2020. Similar to previous economic crises, the Covid-19 pandemic had unheard effects on businesses and individuals. (Shu et al., 2021).

As explained above, previous literature has provided inconsistent findings regarding M&A profitability. Abnormal returns seem to vary depending on different macroeconomic conditions and deal characteristics. However, a comprehensive study that compares M&A abnormal returns during a global health crisis to a time of expansion, is yet to be carried out. Consequently, this paper aims at filling that gap by observing how M&A profitability has changed from the time before the Covid-19 pandemic through the epidemic. Results are highly relevant for different M&A practitioners, who possibly try to utilize timing as part of their financial decisions based on concrete evidence of the market's reactions. Moreover, the study is a revision of previous studies that have studied abnormal returns through prior crises.

1.1 Purpose of the study

As said in the previous section, the phenomenon of abnormal M&A returns has previously been studied by observing former crises like the global financial crisis in 2008. However, an event study about how a global health pandemic affects abnormal returns is yet to be done. The Covid-19 pandemic is unique in multiple aspects, as the crisis was unprecedented and simultaneously affected individuals and enterprises all over the world. Further, some sectors benefitted while some sectors suffered great losses due to the epidemic. Even though the profitability of M&As has been studied by various sources, previous research still fails to conclude whether these remarkable deals are value-creating or value-diminishing investments.

This study is relevant for enterprises considering M&A actions and looking to capture as much value as possible. The paper aims to clarify whether it is recommendable for a company to pursue mergers and acquisitions during a time of crisis or in a more stable time. The results of this study help decision-makers to better understand what times are best for conducting M&A deals from the perspective of the bidder company. The information is important not only for M&A practitioners but also for lenders who make major decisions by lending large amounts

of money for different investments. Overall, the results show if M&As are profitable operations for companies, or if the deals do not have any significant value effects. Finally, the findings of this paper will help investors to make more rational investment decisions.

Most of the existing literature related to M&A profitability observes the markets of the United States and the markets of the European Union. To improve the general understanding of the M&A profitability, a decision to only observe the Nordic countries was made. Overall, astonishingly little previous research exists on the Nordic countries. This study aims at filling that gap by focusing on this area, particularly on Denmark, Finland, Iceland, Norway, and Sweden. Nordic countries are also considered the top countries in the world when it comes to standards of living. It is interesting to reflect on how these countries have been able to utilize investment opportunities. (Greve et al., 2020).

1.2 Hypotheses

One of the cornerstones for the Theory of Investments by Modigliani and Miller (1958) is, that any investment being profitable for a company should be conducted. As the main objective of a company is to create value for its shareholders, all investments having positive net present value (NPV) succeed in fulfilling that main requirement and should be carried out. For M&A transactions, the most common way to measure the value implications of investments is to estimate the abnormal returns for shareholders caused by the transaction. Such abnormal returns can be estimated by defining the difference between a company's stock prices and its expected stock prices based on a suitable index benchmark. (McWilliams and Siegel, 1997).

Further, as the famous Efficient Market Hypothesis by Fama (1970) states, in efficient markets all information should be reflected in stock prices without delays. Consequently, according to the theories of Fama (1970), and Modigliani and Miller (1958), companies should only conduct investments that have positive NPVs. If all those conducted investments had positive NPVs, the stock price reactions to these investment announcements should always be positive by the amount of added value for the acquiring company. Also, the price adjustments should be immediate and not happen some days after. Ultimately, according to the above-presented theories, despite what investments would be made and what the conducting company is, the abnormal returns from all investments, including M&A transactions, should be positive with no exception.

However, previous studies observing the value implications of M&A transactions have appeared to be inconsistent. Several studies (e.g. Dodd, 1980; Houston, et al., 2001; Sirower, 1998) have shown negative abnormal returns for the acquiring company's shareholders.

Therefore, many of the practical outcomes of M&A profitability are inconsistent with the expectations that Fama (1970), and Modigliani and Miller (1958) set for the markets. Many studies have shown that in practice the markets do not function in the way that the researchers (Fama, 1970; Modigliani & Miller, 1958) explained.

On the other hand, other studies have shown the acquirers' abnormal returns to be positive around M&A announcements (e.g. Alexandridis et al., 2017; Eckbo & Thorburn, 2000; Kohers & Kohers, 2000). Thus, several studies are also consistent with the assumptions of Fama (1970), and Modigliani and Miller (1958), at least to a degree that investments have positive returns in general. Especially a recent study by Alexandridis et al. (2017) results in extremely interesting outcomes. According to them, abnormal returns from M&A transactions for acquirers have previously been negative, but in recent decades the abnormal returns have improved significantly and turned positive. Thus, their results suggest that M&A efficiency has improved remarkably and resulted in better transaction performance in general. Moreover, their findings suggest that the efficiency of markets has improved lately.

Like Beltratti and Paladino (2013), this paper does not only observe the abnormal returns themselves but also the timing of the abnormal returns through several event windows. When the economy is booming and more investments are conducted, people are generally confident about the future. Once an M&A announcement is published during a bull market, the news should be reflected in the price of the acquiring company closer to the announcement. In turn, during crises, people are more skeptical about the future. When M&A announcements are made during crises, people are aware that more uncertainty is associated with the transaction. Thus, during crises, it is more unclear whether the M&A will end up being successful or miscarried. Further, due to the uncertainty people may not be willing to make the price adjustments until the transaction is proven to be successfully finished. Therefore, it may very well turn out that remarkably lower abnormal returns from deal announcements are realized during crises.

When Covid-19 started to spread, people reduced their spending and started preferring savings against the future's uncertainty. Reduced spending affected all companies by lowering their revenues and ultimately their available cash flows. That way, companies became more vulnerable and riskier due to increased volatility of profitability. The increased riskiness of companies further affected their capital availability. Not only did equity become much more expensive for companies as people were relying on safer investment products, but also debt lenders started requiring higher returns for their funds. Increased costs of capital and reduced cash flows ultimately resulted in lower company valuations across all sectors. It meant, that the companies were cheaper to buy than before the crisis when the valuations were higher.

(Abbas Rizvi et al., 2022). Shleifer and Vishny (2003) arrive at similar results saying that companies are undervalued during economic downturns and overvalued during upswings.

As Beltratti and Paladino (2013) explain, rational companies with healthy financial standing often utilize the opportunity of acquiring cheaper companies during times of lower valuations. Moreover, many of these utilizations take place during crises when the valuations are at their lowest as described in the previous paragraph. Beltratti and Paladino (2013) further explain that when companies give M&A announcements during crises, investors may think of it as a positive signal indicating a positive financial standing for the acquiring company. Constantly tightened regulators would not be likely to accept an M&A transaction by a company that is financially constrained, at least not during an ongoing crisis. For these reasons, bidding companies' shareholders are expected to consider M&A announcements during crises as positive information signaling management's trust in the company.

In addition, studies have shown (Bernanke, 1983; Bloom, et al., 2007; Gulen & Ion, 2016), that during uncertain economic times companies generally postpone their large and risky investments, such as M&As. Thus, the amount and value of M&As generally decrease when economic crises occur (Ravichandran, 2009; BCG, 2020). Consequently, as fewer transactions are carried out due to stricter selection criteria during uncertain times, only the most profitable investments are selected to be conducted. Moreover, this leads to higher expected returns from those investments compared to the average returns outside of crisis. Eventually, more profitable transactions during crises should lead to increased abnormal returns for the acquiring company's shareholders. (Nguyen & Phan, 2017).

Because of the abovementioned reasonings, the first hypothesis of this paper is formulated as below:

H1: Covid-19 had a positive effect on the abnormal returns for shareholders from M&A transactions.

Another important aspect to study is the timing of abnormal returns during a crisis. As earlier explained, investors are more cautious during economic crises and make their investment decisions rather conservatively. Therefore, a reasonable assumption is that people are more careful with their stock transactions during an ongoing crisis and invest only when the outcome of the deal is more certain. Consequently, it is highly possible that the abnormal returns from M&A announcements appear on delay during a crisis compared to the time outside of a crisis. It may turn out that the abnormal returns are generated delayed after the uncertainty related to the announced M&A transaction decreases. Similarly, the results of the study by Beltratti

and Paladino (2013) show that during a crisis, abnormal returns are generated closer to deal completion, rather than deal announcement. The timing of the abnormal returns is studied by using several event windows around the announcements. Consequently, the second hypothesis of this research is stated below:

H2: During Covid-19, abnormal returns appear on delay compared to the period before the crisis.

1.3 Structure of the paper

The structure of this thesis will be described next. After the introductory chapter, the second chapter discusses the theoretical framework around the thesis topic. The most important financial theories related to the subject are introduced. Also, the general characteristics of M&A transactions and the general deal process are explained. The third chapter discusses the motives behind M&A transactions. The motives of the seller and the buyer are both observed. Previous research will be discussed in the fourth chapter. It is a comprehensive literature review introducing the most important previous publications, that have studied the same phenomenon from different perspectives. The methodology and the data of this thesis are explained in detail in the fifth chapter. The sixth chapter presents the findings and discusses the results of the empirical analysis of this thesis. Finally, concluding words are expressed in the seventh chapter, in which the key elements and findings of this research are summarized.

2 Theoretical background for M&As

Mergers and acquisitions, often referred to as M&A transactions, are large deals between two market participants. To understand the value implications of M&A deals, it is essential to first understand the fundamentals of merger and acquisition transactions. This chapter will cover the basic M&A knowledge, before exploring the previous research literature. First, the most important financial theories explaining M&A transactions will be reviewed. The theory-related section will be followed by a brief explanation of the most common deal characteristics. The chapter will end with a description of different features and steps in an M&A process.

M&A transactions can be roughly divided into two categories that are mergers and acquisitions. In an acquisition the acquiring company acquires the so-called target company as part of it. In a merger, the target company merges itself with another company which results in one combined company. However, in a merger the merging companies do not form a new company, which would be called a consolidation. In M&As the bidding company buys the shares of the target company to gain a majority of the target's voting rights. After acquiring most of the voting rights, the bidding company has control over the acquired/merged company. (Berk and DeMarzo, 2019).

2.1 M&A related theories

M&A transactions are more or less affected by several financial theories. In 1938 John Burr Williams wrote a book that shaped the understanding of investment's value. According to Williams (1938), the intrinsic value of a company is the present value of its future dividends. The concepts that Williams explains in his book are essential fundamentals of finance for anybody that needs to master M&As. Valuation of M&As is a key area of the topic and for that reason, the investment's value process proposed by Williams is crucial for M&A practitioners. Since the foundations of Williams (1938), investors have relied on their investment decisions rather on concrete valuations than speculations.

Eugene F. Fama (1970) presented the world-famous efficient market hypothesis (EMH). The idea of EMH is that markets are efficient and all securities in markets are always correctly priced. Market prices are adjusted immediately after new information is available, with no errors in the pricings. In other words, EMH assumes that all securities in the market are always priced at their fair market values. The main emphasis of EMH is that the theory tries to explain how efficiently the market reacts to newly available information. Fama (1970) further divided the EMH into three different forms. According to the weak form only past information, being historical stock prices and volumes, are reflected in current stock prices. The second form,

called the semi-strong form, says that stock prices reflect all public information in addition to historical information. Consequently, the semi-strong form of efficiency says that whenever companies release any new public information, such as M&A announcements, the prices should instantly be corrected accordingly. Lastly, the strong form of market efficiency is a condition where market prices reflect all public and private, as well as historical information. Brealey (2017) emphasizes that in strongly efficient markets no market participant is able to yield any abnormal returns, except with pure luck.

In practice, markets are never as efficient as the strong form demonstrates. The existence of market anomalies, inexplicable deviations from market efficiency, has been known for a long time and a lot of emphasis has been given to better understanding them. Many studies (e.g. Fama & French, 1988; Kahneman & Tversky, 1979) have tried to find explanations for why anomalies are existing, with varying outcomes. Some theories (e.g. Fama and French, 1988) claim that anomalies are explained by asset pricing theories and contingency, while other perspectives (e.g. Kahneman & Tversky, 1979) claim the anomalies to be caused by individuals' irrational decisions due to cognitive limitations. (Yalçın, 2010). Additionally, in his later research, Fama (1991) agreed that the strong form of markets is unrealistic and should rather act as a benchmark for research purposes.

Stephen Ross was the first one to introduce an asset pricing model that explores the misvaluations of assets. Ross (1976) presented the arbitrage pricing theory in his early research. According to him, mispricings of securities can be analyzed with his model that observes several macroeconomic factors. Later on, Shleifer and Vishny (2003) applied the principles of Ross when they introduced the misvaluation hypothesis. The misvaluation hypothesis says that companies make their M&A decisions based on the market's incorrect valuations. Therefore, the hypothesis does not expect markets to be efficient, which leads to mispricings. On the other hand, decision-makers of acquiring companies are expected to be rational and thus can utilize mispricings in their decision-making. Rational actors purchase other companies when they are undervalued. Also, when the acquiring company is overvalued compared to other markets, it uses equity as the form of payment when carrying out M&A investments. Through these utilizations of mispricings, the market participants are able to create excess value over the long run. Studies (e.g. Dong et al., 2006; Rhodes-Kropf et al., 2005) have provided supporting evidence for the mispricing hypothesis and shown that company misvaluation has significant effects on M&A activity and outcomes. Generally, studies have concluded that the volume of M&As is dependent on the valuation levels of markets. Also, the more overvalued the target company, the lower the abnormal returns have been for the bidder. (Dong et al., 2006).

Synergies are one of the main motives for doing M&A transactions. In 1988 Bradley et al. proposed a synergy hypothesis, which is a theory explaining synergy benefits. Synergy hypothesis was later complemented by Seth (1990), and then by Hubbard and Palia (1999). According to the synergy theory, the value of two separate companies can be larger by combining their strengths, compared to the values of the companies continuing to operate separately. The combining companies may achieve operational benefits from the merger or acquisition if both companies have their own operational strengths, that by combined could lead to excess value together. Also, by combining two companies' capacities, the merging or acquiring company often gains economies of scale, which is another common synergy benefit. Overall, the theory explaining synergies is highly involved in the daily M&A processes and is one major reason for why these deals take place. Synergies will be discussed in greater detail later in the paper. (Seth, 1990; Hubbard and Palia, 1999).

Agency theory, initially introduced by Jensen and Meckling (1976), is a theory that assesses the conflicting interests between different stakeholder groups of a company. A company's shareholders, top management, and debt lenders often have different motivations driving their decisions. The shareholders of the company want to maximize their profits, both the value of the company and the returns from it. However, if the company's management does not have any incentives for the company, their interest might differ from the ones that shareholders have. Management may want to improve their status by, for instance, acquiring non-profitable target companies to increase their influence power. Finally, the debt lenders often want to restrict the actions of the borrowing company to maximize the probability of them getting repaid. When it comes to conducting M&A deals, the management of the company may oftentimes carry out investments that do not benefit shareholders or lenders. Candra et al. (2021) list some motives why management may want to carry out an M&A. They may want to diversify their knowledge into new areas to improve their personal skills. The M&A could be driven due to personal wealth interests, as the management could be interested in new incentive program opportunities, or the management may just want to polish their public image by replenishing their curriculum vitae. If an M&A deal is made because of such personal interests, it may lead into negative abnormal returns for the bidding company's shareholders.

Hubris means a person who is arrogantly overconfident in their capabilities. Thus, hubris can lead to irrational decisions that are affected by a person's biased self-confidence. The hubris hypothesis was first introduced by Richard Roll in 1986. According to him, due to a psychological effect of the management, the acquiring company sometimes offers too high purchase price with an over-estimated premium. Such mistakes are most often caused by the management's overconfidence. Many times, the management simply estimates the possible returns on the investment incorrectly and thus ends up offering an unprofitable purchase price.

Another common reason for the overly priced purchases is a tendency for the management to be anchored in the desire to win the tender process by any means. The abovementioned reasons may be an explanator for why some companies end up losing their value when carrying out M&As. (Richard Roll, 1986).

Another important theory significantly affecting M&As is the so-called Winner's Curse. Thaler (1988) was the first one to explain in detail what it means and in which situations it usually occurs. Hypothetically, assume a company wants to be sold and many bidders take part in the tender. All the bidders estimate the target's value independently with their own assumptions. The average of the estimates might be near the true value of the investment. However, some companies highly under-estimate the value whereas others highly over-estimate it. Logically, the highest bid often wins the tender. Consequently, the winning bidder oftentimes steps into a trap by offering too high bid compared to the true intrinsic value of the target. In the field of M&A transactions, the curse regularly leads to companies winning bids with too high offers. Once the company has won the tender with an overly priced offer, it is usually followed by a decrease in the acquirer's value. (Thaler, 1988).

Modern portfolio theory, introduced by Harry Markowitz (1952), has also had large effects on M&A deals. The Nobel prize-winning theory highlights the importance of diversification when making investment decisions. Markowitz illustrates in his research that by diversifying investment decisions across several investment opportunities, investors can optimize their expected returns on investments, given them having some predetermined level of risk. In other words, when investing in more than one investment opportunity, investors can reduce the riskiness without limiting the expected returns. When it comes to M&As, it is obvious that according to the modern portfolio theory, one motivation for carrying out transactions is the opportunity to diversify investments into new opportunities.

2.2 Deal characteristics

According to Gaughan (2018), there are three different types of M&A transactions, that are horizontal, vertical, or conglomerate deals. An M&A deal can be horizontal, which is a situation where two participants from the same industry either merge or conduct an acquisition. Usually, horizontal transactions are conducted between two competitors. Vertical acquisition is a transaction, where two companies from the same supply chain conduct a transaction. A common example of a vertical acquisition is a deal in which the two sides of the transaction have a buyer-seller relationship between each other. The third option, conglomerate transaction, refers to all other deals than vertical and horizontal. For instance, if a company wants to diversify its business into completely new industries, it may acquire a company that is neither its

competitor nor from the same supply chain. In such a situation the transaction would be considered a conglomerate. (Gaughan, 2018).

Acquisitions and mergers can be paid by cash, equity, or by a combination of those two. Paying by equity means that the purchasing company exchanges its own shares against the shares of the acquired/merged company's shares. Moreover, it is advisable for companies to acquire/merge other companies when the other companies are undervalued, and the acquiring company itself is overvalued. In such a situation the trade-off would be as profitable as possible from the acquirer's perspective. From cash and equity payments, equity has generally been the more commonly used method of payment. (Vernimmen et al., 2017). The below figure illustrates the usage of cash (billion US$) versus equity in worldwide transactions between 1980-2010.

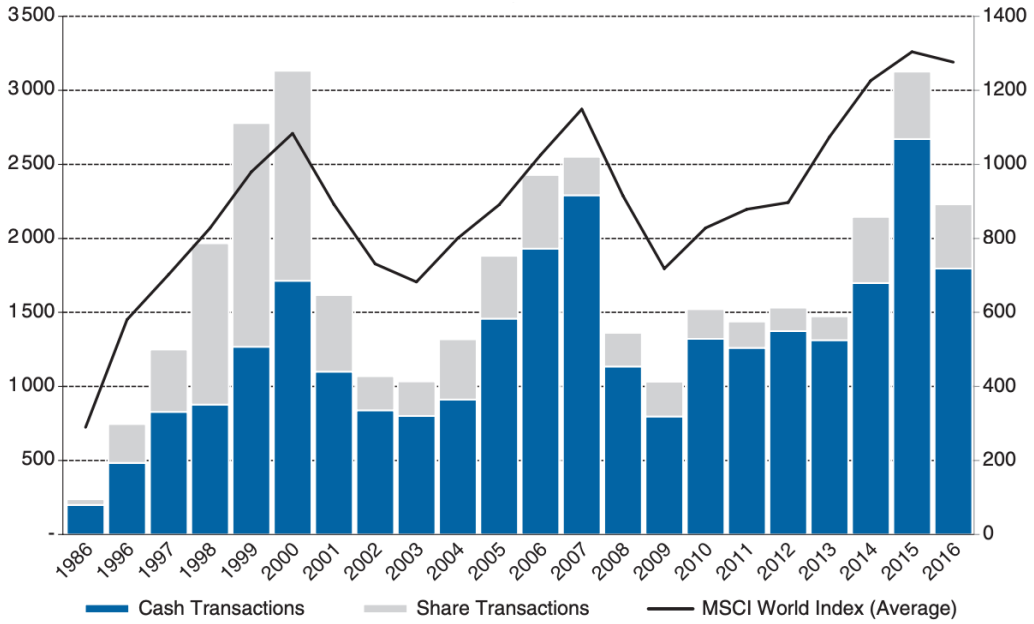

Figure 2.1. Worldwide Merger Activity (€bn). (Vernimmen, et al., 2017)

One of the easiest ways to expand into new markets is to conduct a cross-border transaction. A cross-border transaction is a deal where the seller is operating in a different country than the buyer. As many economies of developed countries have matured, companies have started to expand into new developing markets that have higher growth potential. The amounts of cross-border transactions have steadily increased all over the world. (Caiazza & Volpe, 2015). Cross-border transactions are more complex deals, as different countries have different regulations that need to be respected. Increased regulation tends to result in increased work amounts and delayed schedules. Consequently, when the costs of the project increase,

additional restructuring of the differing businesses may be needed, and the overall probability of the deal succeeding decreases remarkably. (Depamphilis, 2021).

Transactions, of which a significant part is being financed by debt, and only a minor portion by equity, are called leveraged buyouts (LBO). In LBOs the debt-to-equity ratio is oftentimes around 8 to 9, indicating that the amount of debt financing is eight to nine times higher than equity financing. Assets of the acquired and the acquiring companies are used as collaterals for external financing, which explains how the acquirers are able to raise so much debt funding. The acquirer of the LBO generally acquires a controlling stake in the acquired company. (Gaughan, 2018).

The popularity of LBOs is significantly affected by the level of interest rates, as well as the availability of debt financing. The obvious reason for that is the fact that such transactions are mainly financed with debt. During the years 2004-2007, a lot of LBOs were conducted, as the economy was overheated and interest rates were exceptionally low. However, the trend took a turn in 2008-2009 when the availability of debt financing dropped due to the financial crisis. Afterward, during 2010-2017, debt has been well available, but investors have been more cautious with their investments. (Gaughan, 2018).

2.3 Mergers and Acquisitions Process

M&A transaction is a huge process, involving several parties and plenty of time spent. Krallinger (1997) states that an average length of an M&A deal is about one year. During such a lengthy process the companies involved spend a lot of their resources on finding opportunistic target companies, having difficult negotiations, and getting help from third-party professionals. This chapter will start by describing the planning stage of an M&A deal. A comprehensive business plan and transaction plan are crucial for a successful deal. The planning stage will be followed by an implementation phase. During the implementation of an M&A deal, the companies go through difficult negotiations, they agree on several required agreements, and they best possibly try to reach their strategic transaction objectives.

2.3.1 M&A planning

Everything about a company starts with a transparent business plan. The key objectives of a succeeding business plan are vision and mission. After the company knows how it wishes to develop, it must decide on a doable business strategy that it can use to achieve its goals. One strategic option is to carry out a merger or an acquisition. When a company starts considering making an M&A transaction, it must first develop a transaction plan. Without a structured plan,

the motives behind an M&A would not necessarily be clear and the deal could lead to lost value. Consequently, if the plan is precisely and realistically created, it increases the chances of the transaction creating additional value. The acquiring company must also form an implementation strategy to guide the company with the practicalities of the process. (Depamphilis, 2021).

Roche (2002) brings up some key things to consider when creating a transaction plan. First, the acquiring company should define which persons are responsible for the transaction and how much authority each of them has. Secondly, the company should reflect carefully on its own business by detecting what are its strengths and weaknesses, and what are its main operational drivers. Next, the plan should include an analysis of the future of the target industry. Purchasing a company from a declining industry could easily lead to long-term losses. In addition, the bidder should conduct a detailed competitor analysis. Lastly, the company should reflect on its track record of its previous transactions by questioning how those transactions succeeded and for what reasons.

Roche (2002) describes that after the plan is in place the company needs to start searching for potential target companies to be acquired. It begins with first defining specific criteria for the ideal target. Depamphilis (2021) lists the following features as examples of commonly used criteria: profitability, market share, CEO's age, company's reputation, and market segment. After the criteria are clear, the bidder company has two options for how to proceed with the search phase. One option is to use the random approach. In the random approach, the buying company contacts several different third parties and asks if any of those parties know any companies that are currently for sale. That way, they might end up finding a suitable target through random communication channels. The other option is to use the search approach. The analysts of the company and/or a paid external participant, such as an investment bank, utilize different data sources to find potential targets that fit the selected criteria. Depamphilis (2021) highlights the importance of the reliability of the used data. The searching phase is followed by a more specific screening process. In the screening stage, only the most promising target candidates are separated from the mass of potential targets.

2.3.2 M&A implementation

The planning stage of an M&A deal is followed by the implementation phase. When appropriate searching and screening processes have been made, it is time to start contacting the shortlisted targets. The acquiring company should have a strategy for how it is going to approach each potential target with a specific proposal. A key objective of the approach strategy is to detect the reasons why the target would even consider being sold. These reasons will be

explained in the end of the second chapter where motives to sell a company are listed. An ideal scenario for approaching the targets would be that the contacting person from the acquiring firm would personally know someone from the target company. Otherwise, the contacting person must be very courteous when introducing the proposals. If the contacting person knows someone from the target company, the first contact can be more casual and happen by a call or an e-mail, for instance. If the target is fully unknown, the approach method should be more formal such as a letter. Depamphilis (2021).

After the first contact, the target company may either be interested to continue with the discussions, or it may immediately reject the proposals. If the proposals are rejected, the bidder should continue by focusing on the other candidates. However, if the target expresses any interest in the deal, the bidder should move on by initiating further negotiations, preferably a face-to-face meeting. In the negotiation phase, the key objective is to agree on the purchase price. Both sides of the transaction have their own valuations. The buyer naturally wants to drag the purchase price as low as possible and uses consequent assumptions and a valuation model. On the contrary, the seller uses assumptions that increase the purchase price as high as possible. Moreover, the valuations and assumptions should be realistic for the deal to be even possible to happen. It can be extremely difficult at times to find common terms through the negotiations that satisfy both sides' goals. In most successful negotiations both sides aim for finding common solutions for the raised issues, rather than just stating one-sided requirements. (Depamphilis, 2021).

Next up are the essential documents for being able to proceed with the deal. The firms need to agree on a few agreements, namely, confidentiality agreement, term sheet, and letter of intent. Both sides want to utilize and review as much information from the other side as possible. Thus, a confidentiality agreement needs to be signed so that neither side leaks any information to any third parties. Letter of intent (LOI) is a broad agreement, that states the terms and conditions for the M&A agreement. Things like method of payment for each asset class and some employees' rights to compete with the new-born company, are usually agreed upon in the LOI. If the LOI of a bidder is accepted, it has limited access to some of the data of the target. Lastly, a term sheet is basically a summary of the LOI. A term sheet is normally a few pages, stating the major features of the deal, such as the price range and the objective of the acquisition. (Depamphilis, 2021).

The negotiation phase does not only include discussions about the price, but it also consists of several other important topics. During the negotiations, the buyer and seller conduct detailed due diligence by reviewing the last years' financials of the other deal side. By conducting due diligence, the companies try to become as positive as possible about the other side's

capabilities and financial standings. Due diligence aims to detect potential sources of additional value (through synergies) and possible hidden risks. When new information is revealed during the negotiation process, the valuations are updated accordingly. The most common topics that the due diligence focuses on are compliance with regulatory laws and if the company has had some aggressive movements in tax deductions or contract provisions. (Roche, 2002).

General deal structuring is a highly important objective of the negotiation cycle. During the structuring of the deal, the participants aim to agree on things like the form of payment, how the ownership is divided post-transaction, and how the assets are moved to the bidder. Lastly, the buyer needs to define a financing plan for the transaction. A key objective of the financing plan is to find out a realistic cost of capital for the buyer. The cost of capital is generally determined as a weighted average between the cost of equity, cost of debt, and mezzanine financing. (Depamphilis, 2021).

According to Roche (2002), the last steps of the implementation stage are final negotiations and the closing of the deal. Final negotiations are a crucial stage of the deal. A lot of money and time have been used to get to this point of the transaction, which increases the importance of the deal being successful. In the closing phase not only the most important required agreements are finalized, but also the financing for the deal is ensured. The required documents that need to be finished are the M&A agreement, necessary regulatory approvals for the completion of the M&A, and an update of the necessary vendor and customer contracts. The M&A process ends with post-transaction implementation activities. After the closing, it is important to ensure the success of many practicalities. These practicalities are things like keeping all stakeholders well informed and agreeing on the new employee benefits to keep all satisfied.

3 Motives for M&A transactions

Many studies have explained the reasons why companies do M&A transactions. Several explanations have been brought up and many studies result in similar findings. Naturally, different motives drive the buying side company's decisions compared to the selling side of the transactions. This chapter will discuss the main reasons why companies carry out M&As.

3.1 Buyer motives

Most of the M&A researchers (e.g. Gaughan, 2018; Tamosiuniene and Duksaite, 2009; Roche, 2002) state that growth is one of the major drivers of M&As. All companies try to survive and thrive in the market, and growing business is one extremely important aspect of winning the competitors. A company's growth can be either organic or inorganic. Organic growth is what can be generated by improving and growing the operative core business of a company. On the other hand, a company can seek its growth from outside of its own business, which is referred to as inorganic growth. M&As are the main channel for such external growth. As earlier discussed, cross-border transactions can be a very efficient practice to grow the business internationally. M&A transactions are usually seen as the faster alternative for growth, but also as a riskier option as it involves plenty of additional financing and other uncertainties. Mergers and acquisitions are an important way to gain additional market share.

According to the literature, the second main motivator of M&A deals is possible synergies. (Depamphilis, 2021; Tamosiuniene and Duksaite, 2009; Gaughan, 2018). Synergy is a situation where the value of two companies combined is larger than what the sum of those companies' values would be separately. In other words, if the value of the acquiring company is 100.00$, the value of the acquired company is 50.00$, and the value of the new combined company after the acquisition would be equal to 175.00$, the synergies would be worth 25.00$. However, oftentimes also the costs associated with M&A transactions are significant and may even worsen the performance and the value of the merged/acquiring company. (Depamphilis, 2021).

There are two kinds of synergies: operational synergies and financial synergies. Operating synergy is an advantage that can be achieved from economies of scale, economies of scope, or the acquisition of complementary capabilities. Complementary capabilities may include advanced staff, improved technology, or complementing material options. Financial synergy is an advantage where the acquirer's cost of capital can be reduced by acquiring or merging another company. The acquired company might have very stable cash flows or an excellent capital structure, which can be drivers for a reduced cost of capital for the acquiring company. (Depamphilis, 2021).

Another important driver for making M&A deals is the possibility to increase purchasing power. When a company acquires another company, its purchasing power increases as its actions have larger effects on the economy and the economy is more dependent on the company. Consequently, as the economy is more dependent on the company, it has more influence and it can, for instance, adjust the prices of its products more freely (Depamphilis, 2021). Moreover, Gaughan (2018) explains that improved purchasing power may also lead to reduced costs as the company has more power to negotiate beneficial contracts for it.

One motivator for M&As that literature is bringing up constantly is diversification. Companies aim to broaden their business into new sectors and that way try to spread risks over several industries. When a company has a well-diversified portfolio through M&As, not only its vulnerability to cyclicality is reduced, but it can also focus on the business areas that are growing the fastest. Diversification also enables the company to start selling its products together with other solutions, and that way the company can offer a broader selection of solutions for the customers. (Depamphilis, 2021; Gaughan, 2018). In turn, as earlier discussed, when a company diversifies its business into completely new areas through conglomerate deals, the risks associated are higher due to the lack of knowledge of the acquiring company.

Another key driver for doing M&As is mentioned by Tamosiuniene and Duksaite (2009), which is an access to the target company's intangible assets. According to the researchers, intangible assets in this context means three different things. Firstly, the intangible assets include customer capital, which includes the target company's organization, innovation, and processes that are uniquely being used to best serve their clientele. Secondly, another part of the possible acquired intangible assets is the human capital of the target. Human capital consists of all the capabilities that the current employees of the target company have. Lastly, structural capital is the value of all customer relationships of the target company. As an example, a company that is unsatisfied with its current management can consider acquiring another company with potentially more competent leaders to replace them. In such an acquisition the incentive for the transaction would be an access to the intangible assets.

Gilson et al. (1988) also note about the tax benefits of an M&A transaction. If a company acquires another company with retained losses, the acquiring company is ultimately righted to deduct those losses from its future income. Hayn (1989) concludes in her research that accumulated net operating losses and tax credits do have an empirical positive relationship with the abnormal returns of the acquiring firm's shareholders. Moreover, some companies move their headquarter offices to low-cost countries and in such situations, their tax obligations reduce consequently. (Gilson et al., 1988).

As Gaughan (2018) and Depamphilis (2021) describe, another suggested reason for doing M&A can be management's personal benefits. Management may carry out M&A transactions to increase the size of the company to possibly improve their own influence, compensation, prestige, or other individual benefits. Depamphilis (2021) names this phenomenon managerialism. Managerialism and hubris, which was earlier discussed in the M&A-related theories section, are often overlapping and closely related. Over-confident managers are often positive about their capabilities to successfully run even larger companies, which may lead to transactions that increase the prestige of the manager with the cost of destroying shareholders' value.

Misvaluation is a commonly studied phenomenon. As previously discussed, markets are not always pricing companies correctly and mispricings do occur. Consequently, companies can utilize these misvaluations in their investment decisions. If a company is undervalued by the market, it is expected that the price of that company will increase in the future to its fundamental value. In such situation another company can utilize it by acquiring the undervalued company and expect to do a profit in the future. In turn, if a company is highly overvalued, it can utilize the situation by acquiring other companies (that are less overvalued than the company itself) with its own shares. In this situation the company would be getting more for less. (Depamphilis, 2021). A recent study by Lee and Yerramilli (2022) observes how the timing of an M&A announcement and the relative valuation between the bidding and the target company affect the abnormal returns for the acquiring firm's shareholders. Their study shows that bidders with higher valuations relative to the target company, end up creating more abnormal returns for their shareholders. Consequently, for a bidding company, it would be most gainful to make the M&A announcement when its stock price is at its highest and to acquire the target company when its valuation is at its lowest.

3.2 Seller motives

The motives of the selling side are overlapping to some degree with the motives of the buying side. Sometimes the seller company might have run out of resources to further grow its business and might need external help (in the form of financing or experience) to create growth. Thus, growth is one common driver of M&As that the seller and buyer often share. The company might not have enough knowledge to expand into new markets. Such a situation to sell itself to a capable company is one option to reach new markets with its products. The seller company might simply not have the same access to capital and thus wants to be sold for a company that has. (Tamosiuniene and Duksaite, 2009).

As misvaluation might be a motivator for the buyer side to buy undervalued companies, misvaluation can naturally act as a driver for the selling company too. If the seller thinks that it is remarkably overvalued, it might be tempted to be sold for a higher premium. The founder of the company might be thinking about retiring. If there are not any competent replacers for the founder, they might end up choosing to sell the company. New competition sometimes acts as a driver for companies to be sold. The competitive environment could have become too difficult to stay in or too unprofitable. If the company cannot be profitable anymore, it may decide to sell the business before suffering any further financial constraints or value destruction. Lastly, if the company is owned by investors such as a private equity company, the investors might want to exit and simply realize their cash outs. (Tamosiuniene and Duksaite, 2009).

4 Previous Literature

4.1 History of M&As

Gaughan (2018) says, that the popularity of M&A transactions started to spread at the end of the 1890s. As the below figure by IMAA (2023) shows, the value and the number of M&As have both increased steadily in the past decades, on average. However, the M&A activity seems to evolve cyclically. As the figure shows, some other periods are much more active, and some others are not. These cyclical periods are referred to as merger waves.

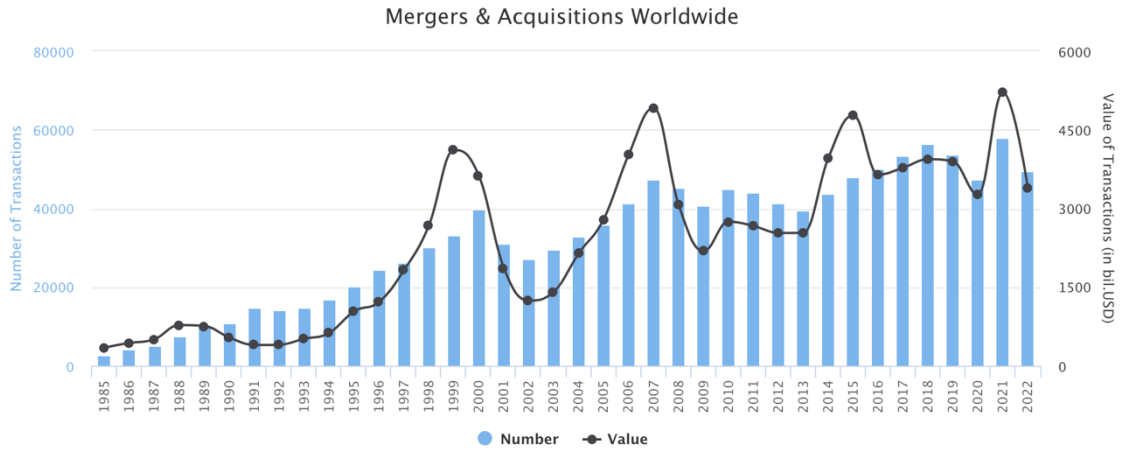

Figure 4.1. Number and Value of M&As Worldwide. (Institution for Mergers, Acquisitions and Alliances, 2023)

Martynova and Rennebook (2008) try to explain reasons why M&A activity occurs in the form of such waves. According to their research, several factors can trigger the waves. M&A transactions are clearly correlated with the stock markets. When the economy is growing and credit is easily available, the M&A activity seems to be relatively high. In turn, when the economy is slowing down, a recession is approaching, and credit sources vanish, the M&A activity decreases correspondingly. The researchers also mention regulatory changes, industrial shocks, and technological shocks as some of the main reasons for the cyclically changing M&A activity.

The research by Cho and Chung (2022) states that seven M&A waves have taken place in total. Five of those waves saw light in the 20th century, and two have taken place in the 21st century. Cho and Chung (2022), as well as the majority of the literature, focus on the first five waves during the 20th century. The first one of the waves began in the 1890s and lasted approximately one decade. Later, it has been called “The Great Merger Wave”. This wave consisted mainly of horizontal mergers, as many companies in similar industries decided to combine their forces. Moreover, due to horizontal mergers, many monopolies came to exist during this

wave. Similar to other waves, this particular wave was boosted by a positive economic situation during the time. In addition, many structural changes in the manufacturing industry and some country-specific regulatory changes partly boosted the first wave.

The second wave, according to Cho and Chung (2022) happened after the first world war, from the end of the 1910s until the mid-1920s. Most of the deals during that wave were made between small companies to answer the increased market competition. These transactions were mainly vertical types. Stigler (1950) explains that during the second wave, the main goal was to improve economies of scale, and to form oligopolies rather than monopolies as in the first wave.

The second wave ended when the Great Recession took place from 1929 onwards. From there, the M&A market was frozen for a long time until post-Second World War. During this time, regulation started to limit the existence of monopolies. In the 1950s, during the third wave, the transactions were mainly conglomerate deals. Companies started to allocate their industry-specific risks by investing in completely new industries through M&As. The second wave was quite long-lasting: it lasted for almost two decades. It was ended by the global economic recession that started in 1973. (Cho and Chung, 2022).

The fourth M&A wave took place between 1984 and 1989. Due to the increased amount of research, the characteristics of the fourth wave were different from the previous ones. New studies showed that acquiring a company from a completely different business area was a value-decreasing decision on average. Consequently, the popularity of conglomerate mergers ended by the fourth wave. Instead, this wave was the time of corporate ridings and hostile takeovers. During the fourth wave companies started using debt and junk bonds as a financing source for transactions. Thus, during this wave concepts such as leveraged buyouts and management buyouts became exceptionally popular. Like the previous waves, this wave ended in a market crash in 1989. (Cho and Chung, 2022).

Cho and Chung (2022) tell that the fifth wave occurred at the end of the 20th century. In the 1990s globalization became more important and companies had to start considering how they would succeed in an international competitive setting. One major solution was cross-border transactions. Companies began to conduct enormous mega deals that were as massive as hundreds of billions of dollars. Also, these deals were often made with two companies operating in different countries. At the time the dot com bubble was heating at a rapid pace, as IT services were booming alongside the increased popularity of the Internet. In the late 1990s, the Dot-com bubble popped and simultaneously the fifth M&A wave came to its end.

Alexandridis et al. (2012) examined the first wave of the 21st century that took place soon after the Dot-com bubble. According to the researchers, the sixth M&A wave started in 2003 as the economy was heating again. The wave had the following characteristics: companies had large cash flow reserves, acquiring companies had higher valuations than during the previous wave, and the CEOs' overconfidence was lower than previously. Consequently, the deals that were made during the sixth wave were more rational and the premiums paid were lower than previously. Companies preferred the usage of cash and debt instead of equity, due to the low interest rates, acquirers' large cash reserves, and the unfavorable valuations for equity usage.

As Ching (2019) describes, the seventh wave is the most recent wave. It started soon after the financial crisis when the economy had recovered, and many consider the wave still continuing. For the seventh wave, the high volatility has been a natural characteristic. Companies have understood that the new normal is the volatility of the markets, which in turn has increased the uncertainty of M&A transactions.

4.2 M&A profitability

Abnormal returns from M&A transactions, in other words, M&A profitability, have been studied by many researchers in the past. Bruner and Perella (2004) conduct a broad literature review on past studies about abnormal returns of M&As. Their review succeeds very well in summarizing findings from previous related studies. They recap findings from past studies that have analyzed the returns from M&As for both bidding and target companies. For the bidding companies' returns, Bruner and Perella (2004) gathered data from 44 previous studies. The recap by the researchers shows that the findings of previous studies are highly contradictory to each other, and therefore the topic should be further studied with additional newer evidence.

Out of the 44 studies that Bruner and Perella (2004) introduce in their research paper, twenty studies result in negative abnormal returns for the shareholders of the acquiring company. 13 out of those are statistically significant. In turn, 24 studies show positive abnormal returns for the acquiring firms, of which 17 studies are statistically significant. Therefore, the results of the previous studies are divided almost evenly showing contrary results. The dates of the previous studies, as well as the data of those differ remarkably. Moreover, all the 44 studies that Bruner and Perella (2004) recap have been conducted before the year 2004, so none of those is anyhow related to a recent economic crisis. Due to the evenly distributed results, their study concludes that the profitability of M&As for the bidding company's shareholders has been near zero on average.

Some after Bruner and Perella (2004), following the financial crisis of 2008, Beltratti and Paladino (2013) conducted a study where they observed the effects of a crisis on the abnormal returns from M&As. They studied how M&A profitability changed during the 2008's financial crisis. Their study focuses on the European banking sector, and they examine a sample of M&A deals through the years 2007-2010. They observe abnormal returns around M&A announcements, as well as around the completion of the deals. Their findings do not show significant abnormal returns around the announcement windows. However, the abnormal returns are positive for the deal completion windows and those findings are statistically significant. Therefore, their study's results suggest that when an M&A transaction is announced by an acquiring company, it does not affect the acquiring company's shareholders' value. When the transaction takes place and is finalized, the abnormal returns seem to be positive for the acquiring company's shareholders at the time of deal completion. The positive abnormal returns for M&A completions vary between 2,3% and 0,7% depending on the length of the event window. Further, as the results of the abnormal returns of M&A announcements are non-significant in their study, they cannot conclude whether the crisis does or does not have an effect on the abnormal returns from the announcement windows.

Beltratti and Paladino (2013) additionally study what determinants are the main drivers for abnormal returns. After estimating the abnormal returns, they determine some key variables which they use as control variables in their cross-sectional analysis. Bank characteristics seem to be the main explanatory determinants for the abnormal returns of M&A completions. Especially bank's efficiency, profitability, and capital structure are shown to be the most significant drivers of abnormal returns. The more efficient a bank is, and the less the bank has debt, the larger its abnormal returns from M&A transactions are on average.

A more recent study by Alexandridis et al. (2017) shows extremely interesting findings about M&A profitability. Their results suggest that compared to 1990-2009, the post-2009 M&A transactions have succeeded to create significantly higher abnormal returns for the acquiring company's shareholders. According to Alexandridis et al. (2017), the improvements in the profitability of M&As have been significant in recent decades. In the sample analyzed by them, the abnormal returns are positive in 43% of the transactions during the 1990s. In the 2000s the amount was only 39%, partly lowered due to the financial crisis. However, during 2009-2015 the majority of transactions have been able to create positive value for acquirer shareholders, with 54% of the deals resulting in added value. The average abnormal returns for the shareholders of acquiring company were -1,08% during 1990-2009, whereas in 2010-2015 it had increased to 1,05%.

As Alexandridis et al. (2017) describe, many things changed after the financial crisis of 2008. Companies' management became more specialized than before, the risk management processes were improved, and incentive programs were restructured. Generally, after the chaotic credit crisis of 2008, companies finally truly understood the importance of structured and well-thought processes as part of their core business. When such large improvements are implemented, it is highly possible that the investment processes of a company become more efficient, more transparent, and more targeted. Due to all these improvements in companies' internal control mechanisms post-financial crisis, it is truly important and interesting to observe how all the changes affect the profitability of M&A investments in practice. Alexandridis et al. (2017) study a period when the economy was mainly growing and doing well, right after a crisis. This thesis aims to clarify whether these M&A profitability improvements remain also during difficult economic times.

Amewu and Alagidede (2018) study the same phenomenon of abnormal M&A profits. Their scope is in the African economies, as more and more funds have flown to those countries in recent decades. Amewu and Alagidede analyze a sample of 245 acquisitions, that have an African-based acquiring firm. The researchers ended up finding positive abnormal returns in several different event windows. The abnormal returns were statistically significant starting from six days prior to the announcement, and lasting 25 days beyond the announcement. Thus, clear information leakage can be detected from the results of their study. The findings of Amewu and Alagidede (2018) support the main discoveries of the study by Alexandridis et al. (2017) by giving evidence for positive M&A abnormal returns in the recent past.

Research by Song et al. (2017) results in supporting findings with the ones by Amewu and Alagidede (2018), and Alexandridis et al. (2017). Similar to those studies, Song et al. (2017) study the abnormal returns from M&A transactions for the acquiring participants. Their study is focused on Chinese firms and their sample includes 279 observations. According to their findings, acquirers' abnormal returns were positive during the years 1990-2008. Thus, their findings for the pre-financial crisis period are inconsistent with the results by Alexandridis et al. (2017). Furthermore, their findings conclude that transactions financed with cash have lower abnormal returns on average. Also, the acquiring company's valuation significantly affects the amount of abnormal returns, as over-valued acquirers manage to create larger abnormal returns.

One major variable affecting economic conditions is political uncertainty (Phan et al., 2021). Many studies (e.g. An et al., 2016; Phan et al., 2021) have concluded political uncertainty to be counter-cyclical, meaning that when the economy is growing and having an upswing (booming), the uncertainty is lower. Vice versa, during crises and economic downturns the

uncertainty increases. Further, Nguyen and Phan (2017) find a positive relationship between policy uncertainty and the acquiring company's abnormal returns from M&A announcements. Thus, their results imply that abnormal returns should be larger during crises. During crises, the uncertainty is at its highest and so would be the abnormal returns for the acquiring companies. (Nguyen & Phan, 2017).

Augusto Brunassi Silva and Gallucci Netto (2022) observe the abnormal returns for the acquiring company's shareholders during periods of recessions. They make a comparison between transactions made during crises and outside of crises. Their sample consists of 279 transactions made in Brazil between the years 2002-2017. Their findings conclude that abnormal returns for the bidding company's shareholders are significantly larger during recession periods than expansion periods. Abnormal returns are 2,4% higher on average for the periods of recession than for the expansionary periods. Moreover, the total abnormal returns are positive for the recession periods, while being negative for the expansion periods. Thus, the findings by Augusto Brunassi Silva and Gallucci Netto (2022) give support for the explanation that the M&A investments would be more targeted during recessions yielding better returns on average.

5 Data and Methodology

5.1 Data

The following chapter will describe the data used in this thesis, as well as the methods applied to conduct this research. The data for this thesis has been retrieved from Refinitiv Eikon (Thomson Reuters) database with the assistance of a Senior Researcher at the University of Vaasa, Jaakko Tyynelä. The initially retrieved data includes 110,920 observations of M&As that have been announced in the European Union area between the observed time frame.

After the retrieval of the data, the final sample is filtered out with the following criterion. Firstly, the acquirer must be a public company that is listed in any of the markets inside the European Economic Area (EEA) and the United Kingdom. In this thesis European Economic Area includes countries that are part of the EEA as of 1.1.2022, and Switzerland. The target company of each transaction must also be from some of the European Economic Area's countries or from the UK or Switzerland. The final sample only includes transactions that have been announced between 1.1.2017 and 31.12.2022. Transactions that are missing any crucial information, such as stock price information or announcement date, are excluded from the final sample.

Specific financial information, such as EBITDA, also needs to be available for the acquirer. Required financial information is further explained later in this chapter when the control variables of the regression model are discussed. Acquirers' financial information is mainly retrieved from the Refinitiv Eikon Datastream database. Possible duplicate transactions in the database are excluded so that none of the transactions appears twice in the final sample. M&As by so-called serial acquirers that have more than one acquisition during the observed time frame are excluded. Acquirers whose firm type is described as financial buyers are excluded. Only transactions that are marked as completed are held in the sample. The deal value of the deal must be known, and it must be more than 5 million USD. To avoid minority interest transactions, the acquirer must control more than 50 % of the target company after the transaction and the ownership of the acquirer must increase by at least 50 %.

Finally, to calculate the abnormal effects of each transaction on the acquirer's value, the share price information of the acquirers is needed. Share price information is retrieved for the most part from Yahoo Finance and companies' financial statement information is mainly extracted from Refinitiv's Datastream. Calculation of abnormal returns requires a measure of a market portfolio. As this paper focuses on Nordic markets, the benchmark market portfolio used in this research is OMX Nordic 40, provided by NASDAQ. If the acquirer's stock price information is not available, the transaction will be excluded from the final sample.

The below table presents the final sample's observation amounts by acquirer's country and by announcement year. Most of the transactions of the final sample have been conducted by a Swedish acquirer. Swedish acquirers represent over half of the sample's transactions, whereas only two acquisitions have been made by an Icelandic acquirer. Thus, the transactions are divided relatively unequally between the Nordic countries. The last three years of the sample have been the most active in conducting M&A transactions. Especially year 2021 was a significantly active year in the field, with 53 transactions during the year.

Table 5.1. Observation distribution

	Sweden	Norway	Finland	Denmark	Iceland	**Total**
2017	14	5	2	3	1	**25**
2018	17	5	6	2	0	**30**
2019	9	5	4	2	0	**20**
2020	18	7	5	4	0	**34**
2021	37	7	5	4	0	**53**
2022	15	8	7	1	1	**32**
Total	**110**	**37**	**29**	**16**	**2**	**194**

Table 5.2. Summary Statistics

	ROE	Leverage	Assets	Profitability	Completion	National Dummy	Public Dummy	Industry Dummy	Deal Value	Rel Size	COVIDdummy
Min.	-12.4444	0.0000	2.405	-975.0000	0.00	0.0000	0.00000	0.0000	5.111	0.0000008	0.0000
1st Qu.	0.0070	0.0824	4.769	-0.0018	0.00	0.0000	0.00000	0.0000	11.333	0.0000328	0.0000
Median	0.1159	0.1986	5.504	0.0613	34.00	0.0000	0.00000	1.0000	31.118	0.0001367	1.0000
Mean	0.0758	0.2230	5.472	-5.4313	63.05	0.4948	0.06186	0.6392	161.357	0.0040216	0.6134
3rd Qu.	0.1852	0.3544	6.169	0.1147	91.75	1.0000	0.00000	1.0000	92.296	0.0005235	1.0000
Max	16.4459	0.8650	8.844	4.1455	382.00	1.0000	1.00000	1.0000	7728.190	0.6555782	1.0000

The above table shows the summary statistics of the final sample after the clearance of the data. It can be noted that the smallest deal's value in the sample is approximately 5.1 million dollars. The largest transaction of the sample is as enormous as about 7.7 billion dollars, so the variation between deal sizes is large. The average deal size is approximately 161 million dollars. In more than half of the sample's transactions, the acquirer and the target are operating in the same industry. Therefore, a minority of the sample's transactions are conglomerate deals. About half of the deals are cross-border transactions. Only about six percent of the

target companies are publicly listed corporations. Deals' completion times vary between 0 and 382 days.

5.2 Methodology

Oftentimes companies are affected by different economic events and occurrences. The event study method is the most used practice to measure the economic effects of such events on a company's value. In the field of finance and accounting, the most common examples of such events are merger and acquisition announcements, initial public offering announcements, debt or equity issuances, and earnings announcements. Simply put, the effects of any event can be measured by observing a company's stock price over a short period of time and analyzing unexpected price variations. Given the rationality of the markets, and according to Fama's (1970) efficient market hypothesis, the effect of a specific economic event should be immediately reflected in the company's value. (Campbell et al. 1997).

The history of event study methodology dates back to 1933 when Dolley (1933) first time applied the method while studying companies' abnormal share price fluctuations caused by stock splits. While event study methodology has been in active usage since Dolley's (1933) publication, it has evolved significantly alongside more recent research. Bakay and Meyers (1948), Barker (1956, 1957, 1958), and Ashley (1962) were one of the first ones to apply and improve the methodology of event study. Later at the end of the 1960s, Ball and Brown (1968), and Fama et al. (1969) further developed the event study methodology to a form that is still mainly applied today. (MacKinlay, 1977).

According to Campbell et al. (1997), an event study begins with defining the event of interest. In this study, the observed events are going to be companies' merger and acquisition announcements. After the definition of the event, the timeframe needs to be specified. In the context of event studies, the timeframe used is usually referred to as event window. Event windows can vary from one day to several hundreds of days. According to Andrade et al. (2001), the shorter the event window used the better. In longer event windows other corporate-specific events may cause price variations over the observed timeframe and thus the results may become biased. In turn, many studies utilize longer event windows, as many market reactions seem to appear before the event or delayed after it. Shorter windows may result in missing these pre- and post-event effects.

Related studies presented in the previous chapter (Beltratti & Paladino, 2013; Alexandridis et al., 2017) have different approaches for the usage of the length of event windows. Alexandridis et al. (2017) decide to use only one event window to make their findings as comparable as

possible with the previous studies. They decide to only observe the immediate effects of the announcements, by using an event window of [-1,+1]. Paladino and Beltratti (2013), on the other hand, have a different approach. They use several event windows, namely [-10,10], [-10,+5], [-10,-5], [-5,+10], [-5,+5], and [-1,+1]. The advantage of observing the days also after the announcement is that sometimes the market reactions are delayed. Moreover, many studies, such as the one by Amewu and Alagidede (2018), have shown that sometimes the abnormal returns are realized already before the M&A announcement, due to premature information leakage. Similar to the study by Beltratti and Paladino (2013), this research utilizes several event windows, namely [-1,+1], [-5,+5], and [-10,+10] to capture the abnormal returns over a longer period around the announcement, and to see the timing of the abnormal returns.

In addition to the event windows, the length of an estimation window needs to be defined. Estimation window is the period that is used with the chosen model to estimate the expected returns and to compute the stock's beta. Similar to event window, estimation window could range from a shorter period to a longer one. Campbell et al. (1997) describe in their book that estimation period could be, for instance, a 120-day time interval. Moreover, Armitage (1995) and Park (2004) emphasize in their studies that the estimation window should be at least one hundred days long. For instance, Alexandridis et al. (2017) use a very long estimation window in their research, [-301,-46]. Again, longer estimation windows are more vulnerable to different industry events that may shape the stock price unexpectedly and cause deviations from the real expected returns. To improve the robustness of the studies by Alexandridis et al. (2017) and by Beltratti and Paladino (2013), an estimation window of 120 days will be used in this research accordingly with the example by Campbell et al. (1997). For all three observed event windows, there will be a 20-day buffer in between of the end of estimation window, and the beginning of the event window. A 120-day estimation window will be used before the buffer period. Each stock's beta will be estimated with the used estimation window. Consequently, the expected returns of the stocks are calculated based on the estimation window, similar to other event studies. (Beltratti & Paladino, 2013; Alexandridis et al., 2017)

After the definition of the event itself, the event windows, and the estimation period, abnormal returns can be computed. The process of estimation of abnormal returns includes several steps and calculations, that will be explained next. Firstly, observed companies' stock price data needs to be utilized in order to calculate firm-specific returns for the observed companies. Accordingly with the suggestion by Vaihekoski (2004), logarithmic returns will be used in this study rather than using percentage returns, due to several advantages of logarithmic returns. Logarithmic returns will be estimated for every observed company of the sample as shown in the below formula 1:

$$R_{i,t} = \ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right) \quad (1)$$

Where $R_{i,t}$ denotes the logarithmic return for the security "i" at time "t", $P_{i,t}$ denotes the price of security "i" at time "t", and $P_{i,t-1}$ denotes price of security "i" at time "t-1".

Similar to the above equation of logarithmic returns for a security, an equation for the logarithmic returns of a market portfolio is formed as below:

$$R_{m,t} = \ln\left(\frac{P_{m,t}}{P_{m,t-1}}\right) \quad (2)$$

Where $R_{m,t}$ denotes the logarithmic return for the used market portfolio "m" at time "t", $P_{m,t}$ denotes the price of the used market portfolio "m" at time "t", and $P_{m,t-1}$ denotes price of the used market portfolio "m" at time "t-1".

To estimate abnormal returns for the observed companies, the expected returns also need to be calculated. As Campbell et al. (1997) explain, expected returns can be estimated with several optional methods. These methods can roughly be divided into two categories, namely economic and statistical methods. The most used statistical models are Market Model and Constant-Mean-Return Model. Among the economic models, the most known and used ones are the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Model. To improve the robustness of this research, an economic and a statistical model will both be used to calculate the expected returns of the companies. The used models, namely Market Model and CAPM, will be further introduced below.

5.2.1 Market Model

The statistical model used in this research to calculate the expected returns will be the Market Model. Market Model estimates the relative return between some specific security and the used market portfolio. In this research, the used market portfolio will be OMX Nordic 40. The equation of the Market Model is written below:

$$E(R_{i,t}) = a_i + \beta_i * (R_{m,t}) + \varepsilon_{i,t} \quad (3)$$

Where $E(R_{i,t})$ denotes the expected return for security "i" at time "t", $R_{m,t}$ denotes the return of the market portfolio "m" at time "t", and a_i and β_i denote the intercept and the beta coefficient of the OLS regression of specific security's return regressed on the market returns. $\varepsilon_{i,t}$ denotes the error term. However, according to the efficient market hypothesis, the actual

returns of a security cannot differ from the expected returns, so therefore the error term must not differ from zero. Consequently, due to the error term's value of zero, the equation will result in the following form:

$$E(R_{i,t}) = a_i + \beta_i * (R_{m,t}) \quad (4)$$

Where the denotations are the same as in the previous equation 3.

5.2.2 Capital Asset Pricing Model

The economic model used in this research to estimate the expected returns will be the famous Capital Asset Pricing Model (CAPM). The CAPM has been developed separately by Sharpe (1964), by Lintner (1965), and by Mossin (1966). Campbell et al. (1997) state that economic models are generally more precise models to estimate expected returns. According to the CAPM, the expected returns and market risk have a linear relationship when an equilibrium exists. Moreover, the equation of the CAPM can be formulated in the following form:

$$E(R_{i,t}) = R_f + \beta_i * [E(R_{m,t}) - R_f] \quad (5)$$

Where $E(R_{i,t})$ is the expected return for a security "i" at time "t", R_f is the risk-free interest rate, which in this study will be the 5-year Finnish government bond rate. $E(R_{m,t})$ is the expected return of the used market portfolio "m" at time "t", and β_i is the beta for the security "i". The beta for the security is calculated with the below formula:

$$\beta_i = \frac{COV\ (R_i R_m)}{\sigma^2(R_m)} \quad (6)$$

Where $COV\ (R_i R_m)$ denotes covariance between the return of the security and the return of the market portfolio. $\sigma^2(R_m)$ denotes the variance of the market portfolio's return and β_i denotes the beta of the security.

5.2.3 Abnormal returns, CARs and CAARs

After the aforementioned parameters have been calculated, the abnormal returns and the cumulative average abnormal returns can be calculated. Several different sets of abnormal returns will be computed for the analysis. The first three sets of abnormal returns are computed by using the expected returns of the CAPM model. The other three sets of abnormal returns use the expected returns of the market model. Thus, a total of six sets of abnormal returns will be analyzed. As Jacobsen (1988) expresses, abnormal returns are the difference between

actual returns and expected returns. Consequently, abnormal returns are calculated with the below equation:

$$AR_{i,t} = R_{i,t} - E\left(R_{i,t}\right) \quad (7)$$

Where $AR_{i,t}$ is the abnormal return for security "i" at time "t", $R_{i,t}$ is the actual return for security "i" at time "t", and $E\left(R_{i,t}\right)$ is the expected return for security "i" at time "t". The abnormal returns are calculated separately for each of the event windows used.

After the calculation of abnormal returns, the cumulative abnormal returns (CARs) can be computed. Abnormal returns are unexpected returns for a security on some specific day. Moreover, cumulative abnormal returns are sum values that tell how a specific event has affected a security's price over time. Cumulative abnormal returns are calculated separately for each event window used and for each transaction in the final sample. Once the CARs have been computed, they are the dependent variable of the multivariate regression analysis. For the calculation of CARs, the below equation will be used:

$$CAR_{i(t_1,t_2)} = \sum_{t_1}^{t_2} AR_{i,t} \quad (8)$$

Where $CAR_{i(t_1,t_2)}$ is the cumulative abnormal return for security "i" between t_1 and t_2, and $AR_{i,t}$ is the abnormal return for a security "i" at time "t". As the equation of CAR shows, cumulative abnormal return is a sum of abnormal returns over a predefined time period.

Once the CARs have been calculated, the CAARs (cumulative average abnormal returns) can be computed. For the calculation of the CAARs, AARs (average abnormal returns) need to be computed first. AARs are simply daily average abnormal returns of the companies in the sample. AARs and CAARs are calculated separately for the observations from before Covid-pandemic, and for the observations during the pandemic. These sub-groups are calculated separately to make the comparison possible. The average abnormal returns are calculated with the following equation:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t} \quad (9)$$

Where AAR_t is the average abnormal return of the sample during time t, N is the number of observations, and $AR_{i,t}$ is the abnormal return of a security i at time t.

After the AARs have been calculated, CAARs are computed similarly to CARs. Moreover, CAARs are a sum of AARs over the predefined event window. The formula for the calculation of CAARs is shown below:

$$CAAR_{i(t_1,t_2)} = \sum_{t_1}^{t_2} AAR_t \quad (10)$$

Where $CAAR_{i(t_1,t_2)}$ is the cumulative average abnormal return of the sample i over the time period from t_1 to t_2, and AAR_t is the average abnormal return of each day of the sample. Eventually the CAARs are divided into sub-groups and the abnormal returns are compared between crisis time and stable time.

Finally, to determine whether there are statistically significant differences between the pre-Covid-19 and during-Covid-19 subgroups, it is essential to conduct an independent samples t-test. Specifically, Welch's two-sample t-test will be employed to analyze the disparity in abnormal returns across these periods. This test will utilize the following equation to compute the t-statistic, which will ascertain if the differences in average abnormal return sample means are statistically significant:

$$t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{{s_1}^2}{n_1} + \frac{{s_2}^2}{n_2}}}$$

Where $\overline{X_1}$ and $\overline{X_2}$ are the sample means for groups one and two, ${s_1}^2$ and ${s_2}^2$ are the sample variances for groups one and two, and n_1 and n_1 are the sample sizes of groups one and two.

5.2.4 OLS regression model

When the CAAR analysis is done for all observed event windows and sub-samples, a regression analysis is performed for the individual CAR observations of the companies. The OLS (ordinary least square) analysis is the most practical and used tool for analyzing which variables are affecting the acquirer's cumulative abnormal returns from M&A announcements. As earlier written, the dependent variable of the study will be the CARs, because the study aims to conclude whether Covid-19 had or did not have an effect on the abnormal returns.

Furthermore, the effect of Covid-19 on the CARs needs to be captured. The pandemic's effects are addressed by creating a Covid-19 dummy variable, which is the independent variable of the regression model. The Covid-19 dummy takes a value of 0 if the transaction has been announced during the years 2017, 2018, or 2019 (pre-Covid-period). In turn, if the transaction's

announcement date takes place during 2020, 2021, or 2022 (Covid-period), the dummy takes a value of 1. This way, when performing the regression analysis, Covid-19's effect on M&A abnormal returns can be observed.

Additionally, accordingly with the previous literature (e.g. Beltratti & Paladino, 2013; Alexandridis et al., 2017), specific control variables are added with the intention of trying to improve the explanatory power of the regression model. Both firm-specific and deal-specific variables will be used based on the availability of variable data. The control variables of this research are introduced in the following list:

1. *ROE*, calculated as Net Income divided by Shareholder's Equity, from the previous year of the M&A announcement.
2. *Leverage*, calculated as Total Debt to Total Assets, from the previous year of the M&A announcement.
3. *Assets*, calculated as the log of total assets in the previous year of the M&A announcement.
4. *Profitability*, calculated as Net Income divided by Total Revenues, from the previous year of the M&A announcement.
5. *National*, a dummy variable which gets a value of 1 if the companies are headquartered in the same country, otherwise 0.
6. *Public,* a dummy variable which gets a value of 1 if the target is a publicly listed company, otherwise 0.
7. *Industry,* a dummy variable which gets a value of 1 if the target and the acquirer are operating in the same industry, otherwise 0.
8. *Value,* the deal value in 2023 dollars.
9. *Relsize,* calculated as Deal Value divided by Acquirer's Total Assets in the previous year of the announcement.
10. *Completion,* number of days between the deal announcement and its completion.

5.3 Limitations of the study

This research unfortunately faces some limitations. The number of transactions is very unequally distributed across the observed countries. Over half of the final sample's observations are M&As conducted by a Swedish acquirer. The other smaller portion is divided between the four other countries. Icelandic acquirers conducted only two deals during the observed time interval, and no deals were made by an Icelandic acquirer during 2018-2021. Consequently, the results may be biased by describing the state of some particular markets rather than all of the study's observed markets.

In the multivariate regression analysis, some compromises needed to be made. Unfortunately, a numeric measurement of the severity of the Covid-19 pandemic was not available. A simple dummy variable had to be created and used to measure the impact of the crisis. This way, the transactions were allocated between two categories, which were during the Covid-19 pandemic and before it. A numeric measurement of the daily severity of the pandemic could have resulted in more accurate outcomes.

There were also limitations related to the data. Many companies did not have available stock price data. Some financial information was missing for several companies. Also, some considered control variables, such as the method of payment, were missing from the available databases. All this lacking information had to be excluded from the sample, which reduced the final sample size by a little. The sample size still remained large enough to result in highly significant outcomes.

6 Results

6.1 CAAR analysis results

This chapter discusses the empirical results of this study. First, the CAARs for all event windows will be introduced and interpreted. Additionally the sample means will be compared between observed time periods, to see if Covid-19 had any effect on the abnormal returns from M&As. Second, the results of the multivariate regression analysis will be presented in detail. The following sections below show the results for the cumulative average abnormal returns of [-1,1], [-5,5], and [-10,10] event windows, respectively. In the forthcoming results, the meaning of *** implies statistical significance at 0,1%, ** implies statistical significance at 1%, and * implies statistical significance at 5 %. While in some of the models the sample mean differences between pre-Covid-19 and during-Covid-19 are significant, some models do not find any significant effect by Covid-19 pandemic. Moreover, when observing individual sets of abnormal returns, all CAARs in every sample are highly statistically significant, having a significance of less than 0,1%. Overall, the cumulative average abnormal returns are positive in all event windows and models, indicating that M&A announcements yield positive shareholder abnormal returns on average, despite of the used model.

Table 6.1. Cumulative average abnormal returns of the (-1,1) event window

Expected returns	Before Covid-19	During Covid-19	Two-sample t-test p value
Market Model	4,82%***	5,07%***	0.6576
CAPM	4,87%***	5,58%***	0.0164*

The above table shows the CAARs for the shortest of the event windows (-1,1). Before the pandemic, cumulative average abnormal returns from M&A announcements were 4,82% according to the market model estimations and 4,87% according to the CAPM estimations. During the Covid-crisis, the abnormal returns increased to 5,07% for the market model, and to 5,58% for the CAPM. When comparing the means of the samples, only the ones measured with CAPM seem to be statistically significantly different. Therefore, according to the results of the model in which CAPM estimates are used, the CAARs differ significantly from each other when comparing pre-Covid to during-Covid periods. **Consequently, the results of the (-1,1) window partly support the first hypothesis of the thesis, by suggesting a statistically significant increase in abnormal returns during a crisis.** It seems that investors are reacting more

optimistic for M&A news during a crisis (at least according to the shortest event window). They may consider that company's financial standing is in a good shape if it can carry out such large investments. That may be an explanation for the higher abnormal returns during the Covid-19 crisis.

The below figure illustrates the accumulation of abnormal returns during the (-1,1) event window. It shows that in the three-day window, the abnormal returns are increasing throughout this short event window in all of the models, before and during Covid-19. Also, the figure shows that abnormal returns have been higher during the Covid-19 pandemic than before it. However, the timing of the abnormal returns is the same in this event window for the crisis period and for the pre-crisis period. Therefore, the shortest event window does not support the second hypothesis of the thesis.

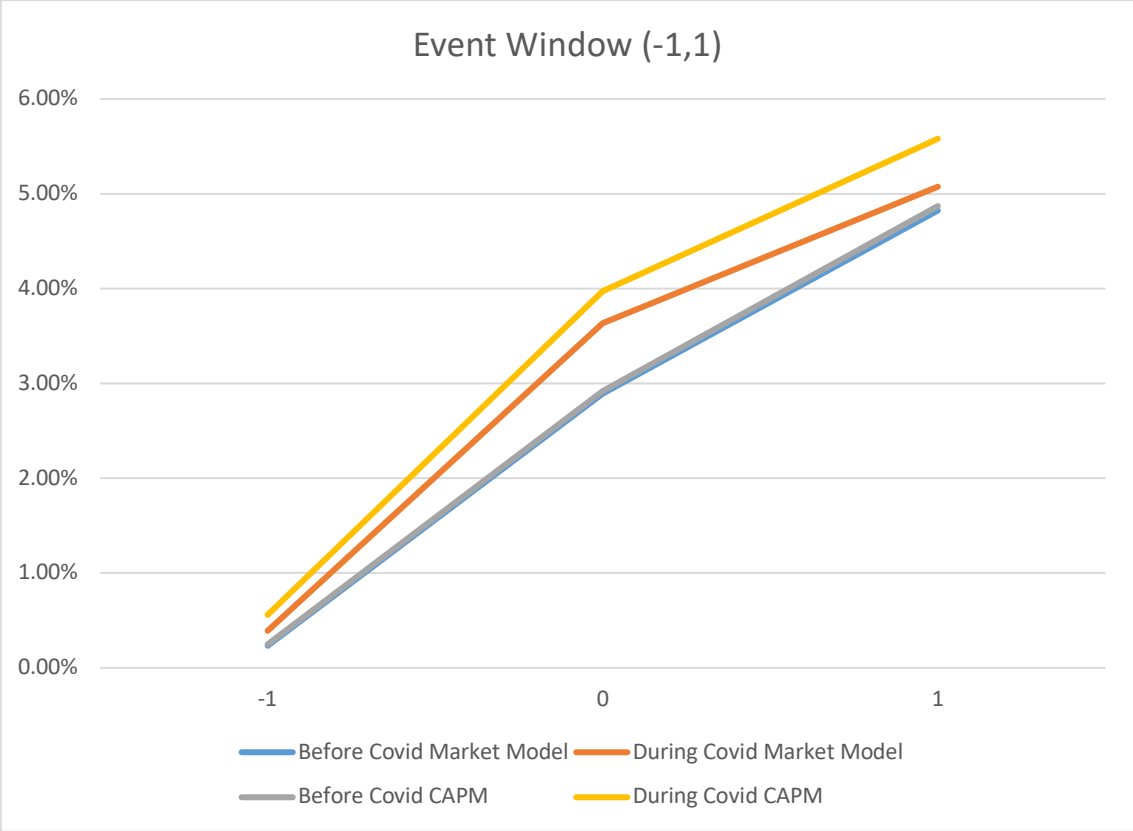

Figure 6.1. Daily CAAR accumulation (-1,1)

Table 6.2. below shows the results for the second shortest event window of (-5,5). Surprisingly, the longer event window of (-5,5) shows contradictory results compared to the shortest event window presented above. Before the Covid-crisis, the CAARs of the (-5,5) market model and CAPM were 4,69% and 4,98%, respectively. However, coming to the crisis, the returns drop to 2,84% and 4,73%, respectively. Therefore, the (-5,5) window indicates that the abnormal

returns are lower during the Covid-pandemic than before it. When looking at the differences between sample means, again only the model in which CAPM estimates were used, results in statistically significant difference. Market model does not shed any evidence for a difference between pre-Covid and during-Covid. **According to the model in which CAMP estimates were used, the abnormal returns from M&As are lower during Covid-19 than before it. Therefore, the results of the (-5,5) event window do not support the first hypothesis.**

Table 6.2. Cumulative average abnormal returns of the (-5,5) event window

Expected returns	Before Covid-19	During Covid-19	Welch's test p value
Market Model	4,69%***	2,84%***	0.5103
CAPM	4,98%***	4,73%***	0.0339*

Figure 6.2. below illustrates the daily accumulation of abnormal returns for the (-5,5) event window. The CAARs are remarkably different than in Figure 6.1. As the figure below shows, the cumulative abnormal returns first increase around the announcement date. Soon after, towards the end of the event window, the abnormal returns decrease steadily. The results show that the market seems to be overreacting to the announcement news and then the price of the security corrects by decreasing. Therefore, neither is the second hypothesis supported by this finding. Abnormal returns are not delayed in this event window either for the crisis period.

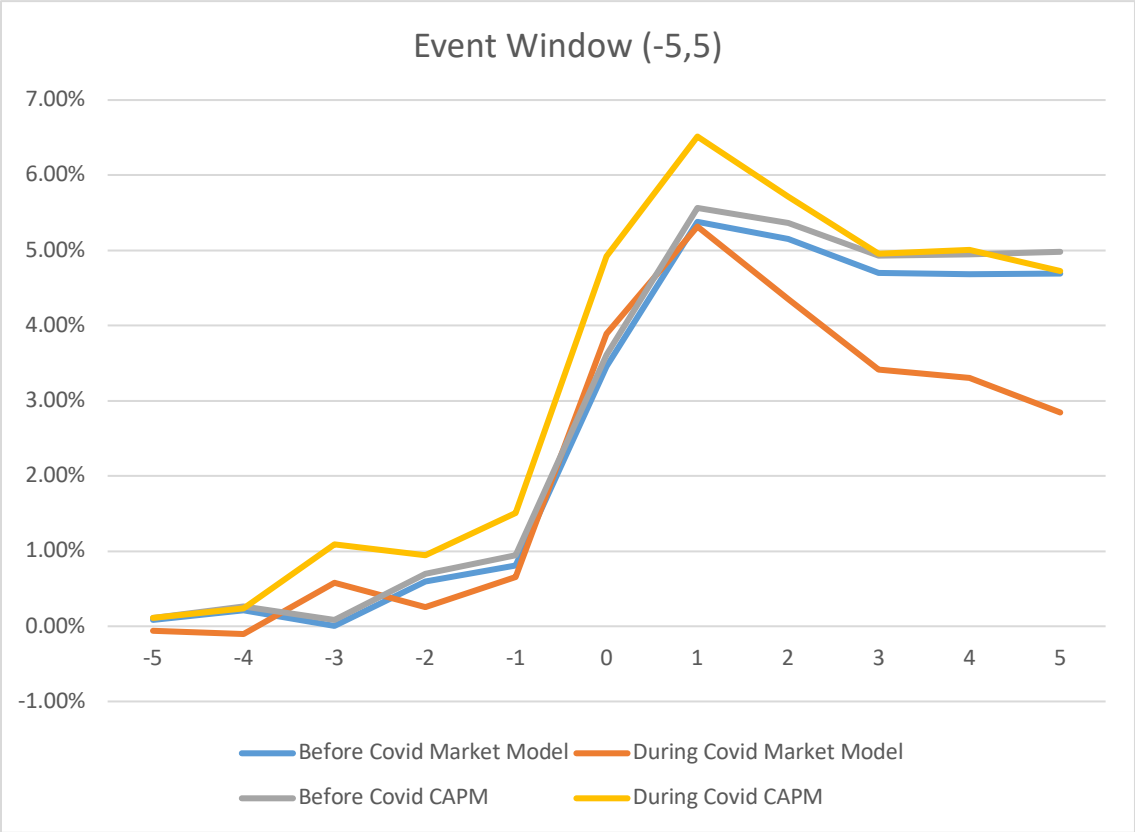

Figure 6.2. Daily CAAR accumulation (-5,5)

Lastly, the 6.3. table below shows the results for the longest event window observed, (-10,10). The abnormal returns vary the most in this event window when comparing the time before the pandemic to the time of the Covid-crisis. The results are similar to the (-5,5) event window, showing lower cumulative average abnormal returns for the crisis period. Especially the results of the market model are differing remarkably from the other ones. Before the Covid-crisis, the CAARs of the market model and CAPM are 4,37% and 4,59%, respectively. However, during Covid-19, the abnormal returns of the market model drop to 0,68% and the abnormal returns of the CAPM to 4,11%. However, when testing for the difference between the pre-Covid and during-Covid, the one with market model's estimates is not significant. Again, only the one in which CAPM estimates are being used, implies a significant difference between the pre-Covid-19 and during-Covid-19 abnormal returns. Also, according to the results of the CAPM model, the difference of the abnormal returns is not that big between the observed periods.

Table 6.3. Cumulative average abnormal returns of the (-10,10) event window

Expected returns	Before Covid-19	During Covid-19	Welch's test p value
Market Model	4,37%***	0,68%***	0.3734
CAPM	4,59%***	4,11%***	0.0302*

Figure 6.3. below shows how the daily abnormal returns accumulate over the longest 21-day event window. The figure shows that the cumulative abnormal returns are smaller during the Covid-19 pandemic than before it. Also, the figure shows the same trend as the previous figure 6.2., illustrating that the CAARs first increase sharply around the announcement date, followed by a steady decrease during the following event window days. Again, the timing of the abnormal returns is not different during the crisis compared to before the crisis. The peak of the returns appears right around the announcement date and then decreases steadily. The second hypothesis is not supported by any of the event windows.

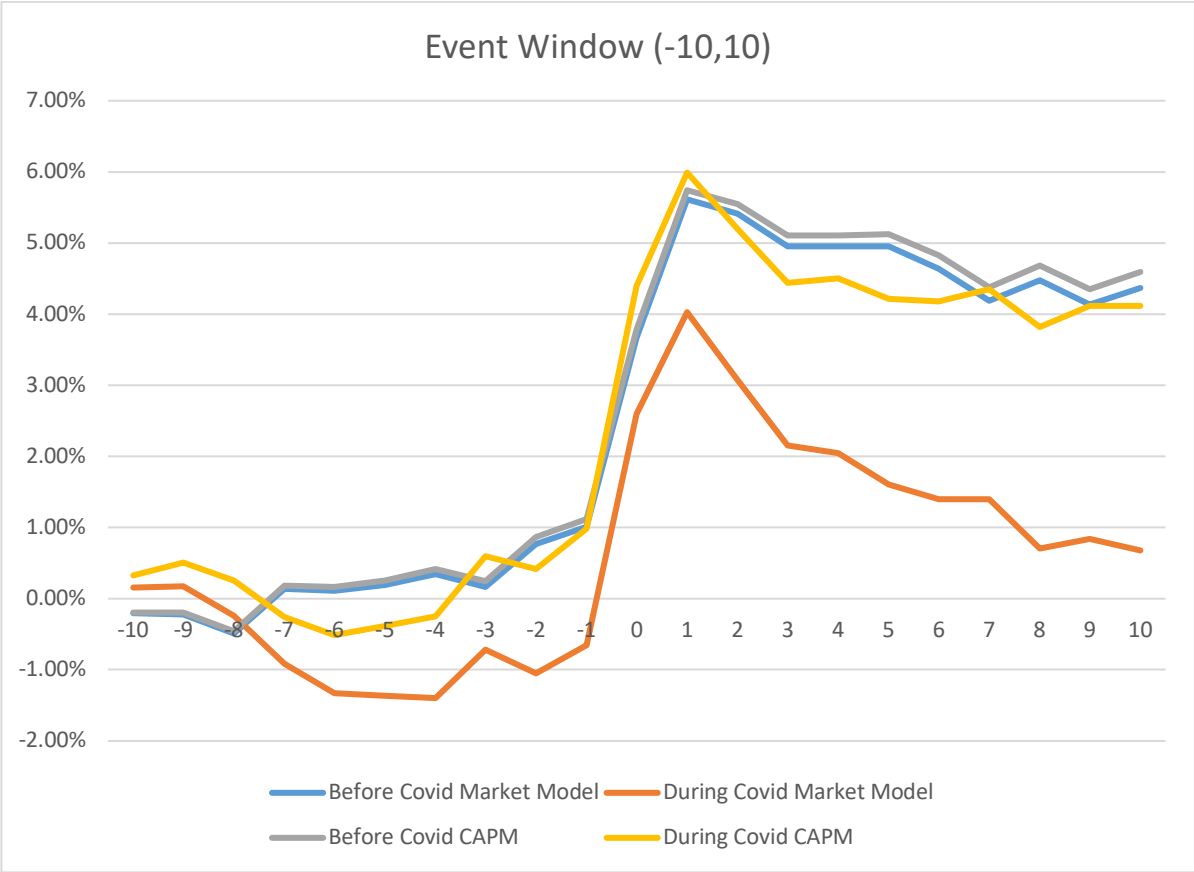

Figure 6.3. Daily CAAR accumulation (-10,10)

As the figures illustrating the daily accumulation of the CAARs show, market's reaction on M&A news is immediate and happens mainly on the announcement date and the date following it.

Then, the stock price starts to come down and it steadily decreases over each of the event windows. The reaction is similar for M&As announced during the Covid-19 and M&As announced before it. Market seems to be overreacting on M&A news, despite of the model used, and time period observed. The figures show that slight information leakage may appear on average. Stock price has increased already minorly the day before the announcement, suggesting that private information could have been leaked. However, the information leakage and pre-announcement stock price hike are a matter of another research. The timing of the abnormal returns is similar in all models observed.

Companies do M&As to exploit the opportunity of synergies. Therefore, outside a crisis, the investors rely on the acquiring company's capabilities to utilize the synergies. When Covid-19 hit, the confidence of investors decreased as Phan et al. (2021) suggest. The decreased confidence of investors affects their investing behaviour, by decreasing the willingness to invest. When a company announces an M&A transaction during a pandemic, people are more pessimistic about the outcomes due to the increased uncertainty of the markets. Therefore, the market reaction is worse to M&A announcements during Covid-19. It is a highly possible explanation for why the CAARs are lower for the Covid-19 period in all of the models, except the shortest one.

When studying if the Covid-19 affected abnormal returns from M&As, the findings are varying. In the models where market model estimations were used, there seems not to be any statistically significant difference between the period of Covid-19 and the period before it. In other words, when market model estimates are used, Covid-19 does not seem to have any effects on the CAARs from M&A announcements. The models in which CAPM estimates were used, do however result in significant differences between the observed time periods. The results of the CAPM estimate models suggest that Covid-19 did affect the CAARs from M&As. The results are significant at 5%. It is unclear, whether the effect on abnormal returns was negative or positive, as the shortest event window suggests higher returns for the Covid-19 period, while the longer event windows imply lower returns for the Covid-19 period.

6.2 Multivariate regression analysis results

The below table 6.5. shows the results of the multivariate regression analysis. As the R-squared values of the six models show, the explanatory variables explain between 11,15% and 19,71% of the variations of the CARs. After trying to improve the explanatory power of the control variables by excluding some of them, the result was always a decreased R-squared. Therefore, the best models were reached by including all of the control variables in the models. Again, the significance levels of the variables are 0,1% for the ***, 1% for the **, and 5% for the *.

Table 6.4. Multivariate Regression Results

	CAR (-1,1) MM	**CAR (-1,1) CAPM**	**CAR (-5,5) MM**	**CAR (-5,5) CAPM**	**CAR(-10,10) MM**	**CAR (-10,10) CAPM**
Variables						
	(***)	(***)	(***)	(***)	(**)	(***)
Intercept	0.2107	0.2251	0.1906	0.2493	0.1795	0.2758
	(**)	(**)				
ROE	0.009729	0.009451	0.008153	0.005866	0.002966	0.001502
Leverage	0.04606	0.05432	-0.02416	0.0007916	0.01441	0.06907
	(***)	(***)	(***)	(***)	(**)	(***)
Assets	-0.03407	-0.03671	-0.02946	-0.03964	-0.03409	-0.05127
			(**)	(**)		
Profitability	0.0001245	0.0001357	0.0002912	0.0003337	0.0001778	0.0002569
				(*)	(**)	(**)
Completion	0.0000672	0.00004372	0.0002210	0.0002160	0.0003801	0.0003646
National	(**)	(**)	(**)	(**)		
Dummy	0.03186	0.03086	0.04248	0.03816	0.03696	0.02513
Public Dummy	-0.005108	-0.005199	0.02066	0.02287	0.04025	0.04523
Industry						
Dummy	-0.005526	-0.006165	-0.01386	-0.01723	0.006181	-0.0005918
	(*)	(**)				(*)
Deal Value	0.00002566	0.00002576	0.00002446	0.00002546	0.00003364	0.00003549
	(**)	(**)				(**)
Relative Size	0.4245	0.3967	0.01711	-0.1104	-0.3738	-0.5615
COVID					(*)	
Dummy	-0.009513	-0.005158	-0.03050	-0.01544	-0.04421	-0.01326
R-Squared	0.1847	0.1971	0.139	0.1672	0.1115	0.1609
Observations	194	194	194	194	194	194

As the results show, many of the explanatory variables are statistically significant in explaining the cumulative abnormal returns from M&A announcements. *Return on equity* has a positive correlation with the dependent variables of all models. However, the results are significant only in the 3-day event window models, and the coefficients are marginally small with values less than a percentage. The correlation between *leverage* and CARs is varying between the models, but *leverage* is not statistically significant in any of the models. CARs in all models are negatively affected by the variable *Assets*. Coefficients of the *Assets* are varying between -2,95% and -5,13%, meaning that when the *Assets* of the acquiring company increase by a unit, the CAR of the M&A announcement decrease by 2,95% to 5,13%, on average.

Profitability of the acquirer is positively associated with the dependent variables in all models. However, *Profitability* is significant only in (-5,5) event window models, and the coefficients of the models are again near zero, meaning that the effects on dependent variables are almost nonexistent. The same applies to the *Completion* variable. Its coefficients are marginal in all of the models, three of the models being statistically significant and others not. *National dummy* is statistically significant at 1% in four of the six models. It is significant in (-1,1) and (-5,5) models. The effect of *National dummy* on the dependent variables is positive across all models. When the acquiring company and the target company are from the same country, the CAR of the M&A announcement is larger by the amount of the model's coefficient (3% - 4,2%).

Public dummy and *Industry dummy* result in inconsistent results in all of the models with positive and negative coefficients. These explanatory variables are not statistically significant in any of the models, therefore not affecting the CARs remarkably. *Deal value*, again, has inconsiderably small coefficients in all models. Three of the models are statistically significant, but the coefficients are very near zero. *Relative size* is the most difficult explanatory variable to interpret, as it gets both negative and positive coefficients across the observed models. The variable is positively correlated with the CARs in three of the models, and negatively in the three other models. Overall, the relative deal size affects the CAR positively when a shorter event window is used, and negatively when a longer event window is observed. So according to the shorter windows, the smaller the deal value relative to the acquirer's total assets, the larger the abnormal returns from the M&A announcement.

Finally, the *COVID dummy* results in negative coefficients in all of the models. It means, that transactions during the observed Covid-period have resulted in lower cumulative abnormal returns from M&A announcements compared to the time before Covid-pandemic. The p-values of the *Covid dummy* variable's coefficients were relatively small in all of the models, but only one of the models ended up being statistically significant at 5%. The model with the longest event window (-10,10) and with the market model being used in the calculation of expected returns, resulted in the only significant coefficient of -4,4%. Consequently, the M&A announcements given during the Covid-19 period resulted in 4,4% lower cumulative abnormal returns, on average. Therefore, the results are consistent with the results of the previous CAAR analysis. Both analyses, except the shortest event window of the CAAR analysis, suggest that the Covid-19 pandemic affected the CARs from M&A announcements negatively.

Overall, the results of the multivariate regression are robust for excluding some control variables from the models. When controlling for different sets of control variables, the results remain constant. Despite of which controls are used, the coefficients for the Covid-19 dummy

remain negative in the models. Therefore, the negative relationship between Covid-19 and abnormal returns from M&A announcements is robust for alternative regression models.

7 Final discussion and conclusions

This research was conducted to study if the recent Covid-19 pandemic affected the abnormal returns from M&A announcements and the timing of those abnormal returns. The relationship between Covid-19 and cumulative abnormal returns was analyzed through two different methods. First, the sample was divided into sub-samples, and then the CAAR calculations were made for each of the samples. Finally, the CAARs across different sub-samples were compared to see if the Covid-crisis affected these returns. Moreover, a comprehensive multivariate regression analysis was run to further observe the correlation. The study concentrated on the Nordic countries.

The first hypothesis of this research suggests that the abnormal returns from M&A announcements are higher during a crisis than outside of a crisis. The findings of this study partly support the hypothesis and are partly contradictory with it. The comparative t-test for the CAARs showed, that according to the shortest event window of (-1,1), the abnormal returns were higher for the crisis period when calculated with the CAPM method. Therefore, the hypothesis is supported by this finding. The CAAR results of the market model were not statistically significant and do not provide any evidence for the hypotheses.

In the other hand, when observing the longer event windows of the CAAR analysis and the multivariate regression analysis, the results are the opposite. The longer event windows of the CAAR analysis, namely the (-5,5) and the (-10,10) windows, show lower abnormal returns for the Covid-19 period. Again, the CAAR results calculated with the CAPM method gave statistically significant differences, while market model did not. Moreover, the multivariate regression findings result in negative coefficients for the Covid-19 dummy in all models. The Covid-19 dummy result is statistically significant in one of the models. According to the significant result of the multivariate regression model, the cumulative abnormal return of an M&A announcement is 4.42% lower during the Covid-19 period than before it. Overall, these results show that for the most part, the first hypothesis is not supported by the findings. A big part of the results shows that Covid-19 had a negative effect on the abnormal returns from M&A announcements.

The interpretation of the results is highly dependent on what time frame is being observed. As explained above, the results of the shortest window in CAAR analysis show that Covid-19 had a positive effect on the abnormal returns of M&A announcements. Therefore, when the event window is short, excess returns during the crisis are possible for the acquiring company's shareholders. It seems that when an M&A announcement is given during the Covid-19 crisis, the market is overreacting more positively than outside of the crisis, on average. After a few days, the overreaction seems to calm down and the stock price decreases closer to its pre-

announcement price. The longer the event window is observed, the more the price decreases back to its initial level.

Overall, due to the varying findings of this study, the first hypothesis can neither be fully accepted nor rejected. Even though Covid-19 affects the abnormal returns positively in the shortest window of the CAAR analysis, most of the outcomes show a negative correlation. Also, when it comes to analyzing the added value for shareholders, the changes should be observed over a longer period of time than only three days. There could be several reasons why the effects of Covid-19 seem to be negative for the most part. A highly possible explanation for the lower abnormal returns during Covid-crisis is the lack of investors' confidence. Future predictability is worse during a crisis, which leads to increased riskiness. Furthermore, the increased uncertainty leads to lower confidence of the investors and shareholders. Also, the available cash flows are limited during an economic crisis like Covid-19. Once a company announces its intentions for an M&A transaction, people may see it as negative unnecessary risk-taking and wasting already limited cash reserves. Thus, the share price of the acquiring company may end up decreasing, or at least not increasing as much as it would outside the crisis. This will generate lower abnormal returns for the current shareholders of the acquiring company, compared to time outside the crisis.

When it comes to the timing of the abnormal returns, none of the event windows supports the second hypothesis of the thesis. The second hypothesis may thus be rejected. Despite what event window is observed, the timing of the abnormal returns does not differ between the time of Covid-19 and the time before it. For both observed periods, the timing of the abnormal returns is immediate, right around the announcement date. The longer the event window is, the more the abnormal returns decrease closer to the initial pre-announcement price.

The findings of this study conflict with the ones by Beltratti and Paladino (2013), who observed how the financial crisis affected the abnormal returns from M&As. They found that abnormal returns were delayed during the crisis, actualizing during the time of the deal's completion. The results of this study show that abnormal returns of the M&A announcement are positive, and they appear at the time of the announcement. However, the results show that the abnormal returns decrease with a delay towards the pre-announcement price. Also, Beltratti and Paladino (2013) do not find any significant returns for the announcement event windows, while this research yields several significant results for the announcement period.

Results of Alexandridis et al. (2017) show that the profitability of M&As has improved recently. The findings of this study support their findings. Abnormal returns indeed seem to be higher and significantly positive nowadays. Augusto Brunassi Silva and Gallucci Netto (2022) found

that abnormal returns were higher during recessions than expansionary periods. Therefore, the shortest event window of this thesis supports their findings by showing higher abnormal returns for the Covid-19 period. However, most of this study's findings are inconsistent with their findings, by showing a negative correlation between Covid-19 and the abnormal returns from M&A announcements.

Results of this study show that companies should rather announce their M&A intentions outside of an economic crisis than during it. By doing so, they would gain a maximum share price increase, on average. If the announcement is made during an economic crisis, the company can expect lower abnormal returns. Investors can also utilize these findings as part of their investment decisions. Clearly, investors should generally invest in companies announcing M&A intentions, but rather do that outside of a crisis to maximize their expected returns. Also, to maximize the abnormal returns, investors should consider investing in the announcing company's stock only over a 3-day period around the announcement.

This study opens some opportunities for future research. As told, the findings of this paper show that abnormal returns are higher during Covid-19 around the announcement, but the abnormal returns soon drop back towards zero. Because the longest event window observed was only a 21-day window, a study with a longer time frame should be carried out. In the longer term, if the abnormal returns keep following the same trend, they might become negative. Therefore, it would be important to understand how M&A profitability develops over the long term. Also, a study utilizing a self-created numeric measurement of Covid-19 would be useful and could yield new practical findings.

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