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**Abnormal acquirer returns in the Nordic Markets:
Target size, Payment method & Ownership
structure**

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Abstract:

The subject of mergers and acquisitions (M&A) is present in the day-to-day life for most people around the world, and there are so many ongoing M&A deals in the world that it is extremely hard to avoid hearing about them from the news. Due to the volume and the economic impact of M&As, it should not come as a surprise that the subject is widely researched, particularly in the field of finance.

This thesis focuses on gaining insight into the subject of abnormal returns associated with mergers and acquisitions inside the target markets of Northern Europe. In this thesis, the subject of abnormal returns is discussed mainly from the acquirer's point of view. Furthermore, the effects of deal characteristics such as the method of payment, size of the target, and ownership structure of the target on acquirers' returns are examined.

The purpose of this thesis is to conclude a conducted event study to determine if abnormal returns are found during and near the announcement of an M&A transaction. In this thesis, acquisition and daily stock price data are gathered from the Thomson Reuters database. The original data consisted of a total of 3,332 M&A transactions, and after employing a data screening process a total of 217 transactions remained. The empirical analysis of the data is conducted using the event study methodology which has remained a dominant method in the field of finance. In the calculation of abnormal returns three different models were used: The market model, The Capital Asset Pricing – Model, and The Three-Factor – Model.

The empirical analysis found evidence of the existence of abnormal acquirer returns inside the three-day event window chosen for the study, the cumulative abnormal returns found were in general to be positive. Additionally, evidence was found of higher abnormal returns in private target transactions and in transactions where equity was present. Public target acquisitions and acquisitions financed with only cash resulted in smaller abnormal returns. In general acquisitions of smaller and medium sized targets outperformed the acquisitions of large targets. The results show that in general acquisitions generate mainly positive abnormal returns but the characteristics of the transaction impact the magnitude and nature of the returns.

KEYWORDS: Mergers & Acquisitions, Abnormal returns, method of payment, target size, ownership structure, M&As, M&A, Merger, Acquisition,

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TIIVISTELMÄ :

Fuusiot ja yritysostot (M&A) ovat läsnä useimpien ihmisten jokapäiväisessä elämässä ympäri maailmaa ja maailmassa on niin paljon meneillään olevia yrityskauppoja, että on erittäin vaikea välttää kuulematta niistä uutisista. Yrityskauppojen volyymin ja taloudellisten vaikutusten vuoksi ei ole yllättävää, että aihetta tutkitaan laajalti erityisesti rahoitusallalla.

Tämä Pro-gradu tutkielma keskittyy Pohjois-Euroopan kohdemarkkinoilla tapahtuviin fuusioihin ja yritysostoihin ja niihin liittyviin epänormaaleihin tuottoihin. Tässä tutkielmassa epänormaaleja tuottoja käsitellään yrityskaupan ostajan näkökulmasta. Lisäksi tutkielma käsittelee kaupan ominaisuuksien, kuten maksutavan, kohteen suuruuden ja kohteen omistusrakenteen vaikutuksia ostajien epänormaaleihin tuottoihin.

Tämän tutkielman tarkoituksena on tehdä johtopäätökset suorittamalla tapahtumatutkimus (Event study) selvittääkseen, onko yrityskaupan julkistamisajankohdan läheisyydessä havaittavissa epänormaaleja tuottoja sekä vaikuttavatko kohdeyrityksen koko, omistusrakenne sekä yritysoston maksutapa epänormaaleihin tuottoihin. Tutkielman yritysosto- ja päivittäiset osakekursitiedot on kerätty hyödyntämällä Thomson Reutersin tarjoamaa tietokantaa. Alkuperäinen data koostui yhteensä 3 332 yrityskaupasta, tietojen seulontaprosessin jälkeen jäi jäljelle yhteensä 217 yrityskauppaa. Aineiston empiirinen analyysi suoritettiin tapahtumatutkimusmetodologialla, joka on säilynyt vakiintuneena menetelmänä rahoituksen akateemisessa tutkimuksessa.

Tutkimuksessa löydettiin tilastollisesti merkitseviä epänormaaleja tuottoja julkistamisajankohdan yhteydessä. Havaitut kumulatiiviset epänormaali tuotot ovat yleisesti positiivisia. Lisäksi yksityisessä omistuksessa olevien kohdeyritysten yrityskaupat sekä pienten kohdeyritysten yritysostot tuottivat korkeampia epänormaaleja tuottoja kuin julkisessa omistuksessa olevien isojen kohteiden yritysostot. Lisäksi yrityskaupat, joissa maksutapana käytettiin ostajan omia osakkeita, joko pelkästään tai osittain, tuottivat korkeampia epänormaaleja tuottoja kuin käteiskaupat. Lisäksi suurten yritysten yrityskaupat tuottivat huomattavasti korkeampia tuottoja kuin pienempien kohteiden kaupat. Tulokset indikoivat, että yleisesti yrityskaupat tuottavat pääosin positiivisia epänormaaleja tuottoja, mutta yrityskaupan sekä kohdeyrityksen ominaisuudet vaikuttavat tuottojen kokoon sekä laatuun.

KEYWORDS: Mergers & Acquisitions, Abnormal returns, method of payment, target size, ownership structure, M&As, M&A, Merger, Acquisition,

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Abbreviations

M&A's	Mergers and acquisitions
EMH	Efficient Market Hypothesis
CAPM	Capital asset pricing – model
FF3	The Three-factor model
NYSE	The New York Stock Exchange
AMEX	American stock exchange
AR	Abnormal return
CAR	Cumulative abnormal return

1. Introduction

1.1 Historical background of M&A's

The subject of mergers and acquisitions (M&A) is present in the day-to-day life for most people around the world, and there are so many ongoing M&A deals in the world that it is extremely hard to avoid hearing about them from the news. Due to the volume and the economic impact of M&As, it should not come as a surprise that the subject is widely researched, particularly in the field of finance. The volume of M&As has been shown to increase periodically, and this increased rate of M&A activity tends to cluster to a said industry, the high activity is usually sustained for a brief time period before it normalizes (Faulkner, et al. 2012). These brief periods of increased activity are called merger waves.

Andrade et al. (2001) state that the wave-like performance of M&As and the clustering of activity to a specific industry are the two most consistent empirical features in M&As. Two possible explanations for merger waves have been presented in economics and finance: the neoclassical hypothesis and the market mis valuation hypothesis (Harford, 2005; Faulkner et al. (2012). Harford (2005) states that the neoclassical hypothesis stipulates that merger waves are generated by macro-environmental or industrial shocks which lead to a reallocation of assets. The market mis valuation hypothesis states that merger waves occur during periods of high valuation, the hypothesis relies on the assumption that rational management pursues to gain advantages from market inefficiencies and imperfections (Faulkner et al., 2012).

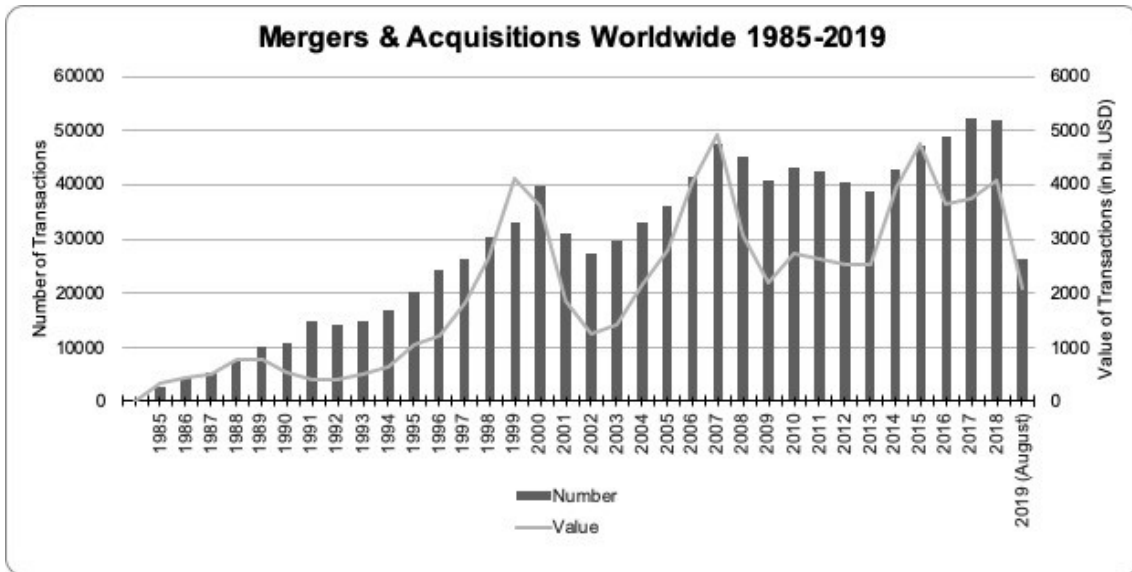


Figure 1: M&A volume from mid-80's to present day (IMAA, 2019).

Merger waves range from the end of the 19th century to the present day, the first merger wave or the “great merger wave” occurred between 1897-1903 in the United States (Faulkner et al., 2012). M&As During this wave were mainly mergers to gain excessive market power and therefore create monopolies (Stigler, 1950). The wave was driven by a lack of antitrust legislation, radical technological changes, economic expansion, and the development of trading on NYSE (Martynova & Renneboog, 2008; Stigler, 1950). The first wave ended due to the equity market crash during 1903-1905 (Faulkner, et al., 2012).

The second merger wave occurred between 1920-1929, initiated by the economic recuperation after the first world war (Faulkner, et al., 2012). According to Stigler, (1950), the majority of mergers and acquisitions during this wave were smaller firms within industries, by which they tried to compete with industry leaders, therefore restructuring industries to a more oligopolistic form. According to Eis, (1969), the activity during this wave was clustered mostly in the petroleum and metal industries. The second merger wave ended due to the Great depression of 1929 (Martynova & Renneboog, 2008).

The third merger wave started in the 1950s, and according to Martynova and Renneboog, (2008) the main characteristic of this wave was the fact that most of the mergers and

acquisitions were motivated by diversification which resulted in a great number of conglomerates; thus, the wave is usually referred as the conglomerate merger wave. Contrary to the prior merger waves, the third wave saw activity in European markets (Faulkner et al., 2012). The third wave lasted for nearly two decades and ended due to the oil crisis in 1973 (Martynova & Renneboog, 2008).

The fourth merger wave began in 1981 and it was driven by the economic recuperation from the prior recession, relaxed antitrust policies, and new financial instruments and markets (Faulkner, et al. 2012; Martynova & Renneboog, 2008). The fourth wave was the first truly international merger wave, seeing activity in the US, Europe, and Asia. This wave brought an end to the inefficiencies of conglomerates formed in the prior merger wave, thus bringing corporations to a greater level of specialization through related acquisitions (Shleifer & Vishny, 2003; 1991). The fourth merger wave was brought to an end by the stock market crash of 1987's (Martynova & Renneboog, 2008).

The fifth merger wave occurred during the 1990s, this wave was driven mostly by the increase of globalization and technological innovation, But also by deregulation and privatization (Faulkner, et al., 2012). During this fifth wave, cross-border mergers and acquisitions increased greatly (Faulkner, et al., 2012). This was due to the fact that companies were trying to compete in the tough global markets through non-domestic acquisitions (Martynova & Renneboog, 2008). Finally, the fifth wave normalized due to the equity market crash of the year 2000 (Martynova & Renneboog, 2008).

Alexandridis, (2011) and Martynova and Renneboog, (2008) imply that there was a sixth merger wave that occurred from 2003-to 2007. The sixth wave started approximately in 2003 and came to an end in 2007 when skepticism about the state of credit markets started to rise before the crisis of 2008 (Alexandridis, 2011).

One of the major drivers for the sixth wave was abundant liquidity. During the year of 2007 companies worldwide were involved in M&A deals totaling almost 5 trillion USD (IMAA, 2019), this was the peak year of the sixth merger wave. When the crisis unfolded,

it resulted in more strict credit markets, which then affected the financing of M&As making it much more difficult to finance deals.

The cyclical nature of M&As is evident from the research in the merger waves of history, first generating momentum for some time and then crashing down following a significant economic change. The cyclical nature is also clearly represented in figure 1 which describes the global M&A activity over the last 34 years.

1.2 Motivation for the study

Most of the previous empirical research regarding mergers and acquisitions tends to focus on the returns of the acquirer and the target, related to the announcement of the deal. A significant number of studies have shown that on a broader scale mergers and acquisitions usually create positive net present values as investments (Jensen & Ruback 1983; Andrade et al 2001; Mulherin and Boone 2000).

The majority of past research, however, suggests that the positive returns associated with M&A transactions tend to favor the target's shareholders. According to the evidence, acquirers' shareholders are in a more unfavorable position, in many cases barely breaking even in these transactions (Bruner 2004). As stated by (Roitto 2017) the evidence of the adverse wealth effects recorded for acquirers, on the other hand, is frequently found to be statistically insignificant, but in some situations statistically, significant losses to the acquirer are discovered. Previous research suggests that acquiring private targets can result in more favorable stock market reactions. This phenomenon has a variety of explanations. (Capron & Shen 2007; Kohers 2000: 1151; Jensen and Ruback 1983).

1.3 Purpose of the study

The purpose of this study is to estimate the most significant factors generating abnormal acquirer returns in M&A transactions in the Nordic markets. A study done by Roitto (2017) studies the same phenomenon in the target market focusing on factors such as deal financing structure and the legal structure of the target (i.e., publicly-traded targets versus private targets). However, the purpose of this study is to focus on the size of the target to the acquirer, the ownership structure of the target, and the financing structure of the transaction similarly to Roitto (2017).

The focus of this study is to examine the performance of acquisitions from the acquirer's side of the transaction. This can be measured by studying if there are significant abnormal returns to be gained with the acquirer's stock around the announcement period of an M&A transaction. The abnormal returns (ARs) can be stated as the actual returns of a security minus the expected (normal) returns of said security (Roitto 2017). The total performance of the security around the announcement period can be derived from cumulative abnormal returns (CARs) which are further explained in the later parts of the study. Furthermore, the effect of the payment method of the acquisition and the size of the target are analyzed in this framework as stated previously.

As there have not been many studies related to M&A performance conducted considering Nordic countries such as Denmark, Finland, Iceland, Norway, and Sweden with the exception of the study conducted by Roitto (2017). The purpose of this study is to further examine the growing amounts of M&A transactions inside these neglected markets and to find the most significant transaction characteristics related to the performance of the acquirer.

1.4 Structure of the study

The structure of this thesis is as follows: Chapter 2 addresses the financial theory of efficient markets, models for calculating expected returns, and the theory behind abnormal returns. In chapters 3 and 4 the general theory and motives of mergers and acquisitions are addressed. In chapter 5 the existing literature on the subject is reviewed and in the last chapter conclusions and suggestions are drawn from the literature review presented in chapter 5.

2. Previous studies

The financial theory considers shareholder wealth as a robust way to evaluate mergers and acquisitions (Martynova & Renneboog 2008). In this framework, it is usual to measure the shareholder wealth of the bidder or the target (Martynova & Renneboog, 2008) this measurement is usually done through abnormal returns. The measurement of shareholder wealth is usually conducted with a short-window event study, focusing on the abnormal stock market reaction around the announcement of the deal, which is then used as a way to evaluate value creation (Andrade et al., 2001). The definition of abnormal returns is further examined in chapter 4.3.

This kind of approach has gained a dominant position in analyzing M&A performance (Martynova & Renneboog, 2008). Event studies were introduced by Fama et al. (1969) in a research paper focusing on stock splits and the reaction of the markets to said stock splits (Martynova & Renneboog, 2008). Event studies are based on the Efficient market hypothesis which assumes that efficient markets react quickly to new information therefore the stock prices adjust quickly to any information (Andrade et al., 2001). A capital market can be described as efficient when the prices always fully reflect available information (Fama et al., 1970).

In traditional event studies two commonly used event windows are the three days immediately around the merger announcement, one day before to one day after the announcement (Andrade et al., 2001). The other window spans from several days prior announcement to the completion of the merger.

A similar event study approach has been applied to assess long-term shareholder wealth, but according to Martynova and Renneboog (2008), this approach faces several obstacles when assessing long-term effects. One of the most substantial obstacles is the fact that the effect of the acquisition becomes significantly harder to isolate from other possible effects (Martynova & Renneboog, 2008). Nevertheless, there are increasing amounts of studies that focus also on the long-term performance of acquirer returns.

One of these studies is by Agrawal et Al. (1992) in which they used a large number of NYSE acquirers and NYSE/AMEX-listed targets.

In their study, Agrawal et al. (1992) find that the shareholders of acquiring corporations tend to suffer negative returns of up to 10 % over a five-year post-merger period. Furthermore, Andrade et al. (2001) and Jensen and Ruback (1983) find that acquisitions are at best zero-gain incidents for the shareholders of the bidder. This was found to be particularly evident in deals between publicly traded corporations according to Andrade et al. (2001). A study by Bradley et al. (1988) suggests that bidder's shareholder returns around the announcement of the deal have been gradually declining through the decades, for instance, in the 1960s these returns were about 4 %, but the returns declined significantly in the following two decades, resulting in negative 3 percent returns in the 1980s Bradley et al. (1988).

In his article "*Does M&A Pay?*" Bruner (2004) summarizes the results of 41 studies regarding acquirer shareholder returns. His article clearly shows that it is difficult to determine a pattern regarding the returns of the acquirer's shareholders. Bruner (2004) states that the evidence is nearly evenly distributed as one-third of the studies show negative returns, the second third show value conservation, and the last third of the studies show positive returns. He also supports the findings of Bradley et al. (1988) in stating that the acquirer shareholder returns have shown a decline in the long term.

Bruner (2004) concludes that the abnormal returns of the bidder's shareholders are zero and that the shareholders are just breaking even, but the subject is still problematic due to the fact that the evidence of value creation for bidder's shareholders is not so clear. According to Andrade et. al., (2001) the average three-day abnormal acquirer returns are negative, but they are not statistically significant at least at conventional significance levels. Due to this fact, it is problematic to state that acquirers' shareholders are always the victims in mergers, but it can be stated that the target's shareholders gain more on the average than their counterparts.

In previous literature, there have been numerous studies that focus on different variables and on determining whether they have an effect on the acquirer's returns. Such studied variables are for example the relative size of the target and the method of payment used in the deal by the acquirer. Another main variable explaining the acquirer's returns that have been studied extensively is the ownership structure of the target, i.e., is the target public or a private company.

2.1 Size of the target

The size of the target in relation to the bidder has been found to be a defining factor explaining the acquirer's returns in M&A transactions. Nevertheless, there has been no clear definition is the relationship positive or negative. Studies from Kane (2000), and Moeller et al. (2004) show evidence of the relation between acquirer's returns and the size of the target to being positive. However, the study conducted by Kane (2000) focuses on "megamergers" in the banking sector between 1991-1998. Therefore, these findings cannot be generalized in more traditional corporate M&A. Högholm (2016) argues that this positive relationship found by Kane (2000) can be either attributed to the possibility of greater synergy gains related to acquisitions of large targets or to the combined entity becoming too big to be disciplined sufficiently.

In his study examining 51 Finnish acquisitions of publicly traded target companies, Högholm (2016) found a significant negative correlation between the acquirer's abnormal returns and the size of the transaction on the day of the announcement. However, he also found a positive correlation between the announcement effect and the size of the transaction. Additionally, a weak negative correlation was found between the relative size of the target and the acquirer's abnormal returns.

According to Asquith et al. (1987), The size of the target is also related to the form of financing due to the debt capacity and excess cash. Large mergers with equity financing

tend to generate larger negative returns for the bidder (Asquith et al., 1997). The researchers state that the abnormal return of the bidder is positively and statistically significantly related to the relative size of the target company when compared to the relative size of the bidder.

In their study of 3691 completed acquisitions of AMEX, NASDAQ and NYSE listed companies between 1990-2007 Alexandridis et al. (2013) find evidence that the acquisitions of larger companies generated significantly higher negative shareholder returns than acquisitions of smaller companies. Alexandridis et al. (2013) also state that an average acquisition of a larger target destroys approximately 500 million of the acquirer's market value. They conclude that even though the bidder is less likely to overpay for target companies in large acquisitions, large acquisitions tend to destroy shareholder value because the economic benefits are more difficult to attain in complex large acquisitions contradicting the argument by Högholm (2016).

A study by Al-Sharkas (2008) supports the argument that the acquisitions of large target companies tend to yield negative returns for the acquirer and positive returns for the target. This is further supported by Bradley and Sundaram (2004) whose study found that the effect on the acquirer's returns in the announcement period is more negative as the size of the target increases. They argue that this can be attributed to agency problems regarding the acquirer's management, whose compensations are likely to be increased. In his study Hansen (1987) argues that the negative relationship could be attributed to the possibility of larger revaluation losses in larger acquisitions.

Additionally, in their study of over 12 000 US acquisitions between 1980-2001, Moeller et al. (2004) show that smaller acquirers generally perform better than their larger counterparts during the announcement period. Furthermore, they state that larger acquirers experience significant negative announcement period returns regardless of the financing decisions related to the acquisition. They conclude that their findings are consistent with

the hubris hypothesis by Roll (1986) in which the hubris of managers is related to larger acquisition premia.

2.2 Method of payment

The payment method in mergers and acquisitions is a subject that has been studied extensively in the past, in previous research there has been significant documentation of negative acquirer stock reactions following the announcement period, particularly in stock financed acquisitions (Martin, 1996). One of these studies was conducted by Travlos (1987), who explores the effect of the payment method on the acquirer's stock performance post-announcement. In his research Travlos (1987) finds that there were significant differences in abnormal acquirer returns between stock financed deals and cash-offers as the results were positive in favor of cash-offers. Furthermore, studies by Wansley et al. (1983), Franks et al. (1988), and Asquith et al. (1987) document that the shareholder return of the acquirer tends to suffer especially in stock financed deals compared to cash-offers.

In their study Asquith et al. (1987) analyze 343 completed mergers where both the acquirer and the target were listed on the NYSE between the years 1975-1983. They find that the reaction of the market is affected by the form of merger financing. They conclude that the bidders suffer significantly lower returns in stock financed deals contrary to cash financed deals. This is further supported in a study by Agrawal et al. (1992) where they state that in both tender offers and mergers the returns of stock financed deals are outperformed by their cash financed counterparts.

Franks et al. (1988) use a large amount of US and UK deals from the mid-1950s to mid-1980s and in their study, they find supporting evidence for the study by Asquith et al. (1987) stating that cash offers generate significantly higher returns than stock financed acquisitions. Furthermore, they find evidence that in the US, the bidders' shareholders sustained negative abnormal returns in the following two years after a stock financed

acquisition, therefore, suggesting that the negative returns are not only tied to the announcement period.

Additional studies supporting significant negative abnormal returns for the acquirer in equity-related transactions inside the announcement period are studies such as by Moeller et al (2004), Moeller & Schlingemann (2005), and Martynova & Renneboog (2011). In their study, Martynova & Renneboog (2011) found that European transactions result in similar results as found by Moeller et al. (2004) in the US.

In their study Sudarsanam and Mahate (2003) list 519 UK-based acquisitions in their sample, which shows that among all-cash, all-stock, and mixed payment methods, the mixed payment method is the most popular. In their sample, mixed payment was used in 61,5% of the transactions, whereas 18,7% were cash financed deals and 19,2 % were stock financed deals. The performance of deals with mixed payment is somewhat mixed. According to Franks et al. (1988), there are no significant wealth effects in mixed deals for the bidders. According to the study of over a thousand UK acquirers by Ekkayokkaya (2009), acquisitions with mixed payment generate negative abnormal returns to the bidder's shareholders around the announcement period. Furthermore, Asquith et al. (1987) report negative bidder returns in their sample of 343 acquisitions between NYSE listed companies. They find that the returns of mixed deals were negative, although they were less so than all equity deals.

2.3 Ownership structure

As stated, the ownership structure of the target company is a well-documented factor regarding abnormal acquirer returns in M&A Transactions. On average, the acquisitions of public companies tend to generate worse returns for the acquirer than the acquisition of private companies around the announcement period when measured by cumulative abnormal returns. A study by Capron & Shen (2007) cross-examines the abnormal returns of acquirers in acquisitions of both public and private targets in the US, their study found significant positive abnormal returns for private targets. The authors argue that

this is caused by information asymmetry and “the private firm discount”. According to Koeplin et al. (2000), private companies are acquired on average at 18 percent book multiple discounts and 30 percent earnings multiple discounts. Koeplin et al. (2000) argue that this is a result of a liquidity discount which is caused by the difficulty of selling unlisted stocks.

In contrary to the studies by Franks et al. (1988), Asquith et al. (1987), and Agrawal et al. (1992), a study by Fuller et al. (2002) suggests that in acquisitions of subsidiaries and private companies, the shareholders of the bidder gain larger returns when the acquisition is financed by stock. They explain this phenomenon with tax considerations and monitoring benefits, meaning that the owners of the target will delay their tax liabilities until the gained stock is liquidated. Thus, they may be willing to accept a lower price. Furthermore, if the transaction results in a large acquirer block holding in the target company, the bidder’s shareholders gain from the acquirer’s ability to monitor the activities of the target company. These claims are supported in a study by Chang (1998) in which evidence was found that bidders experience small positive abnormal returns in stock financed acquisitions of private companies.

Contrary to private targets, the acquisitions of public targets seem to cumulate negative abnormal returns as stated by Capron & Shen (2007). This is further supported by the study conducted by Fuller et al. (2002) which also found that the shareholders of acquiring companies tend to suffer negative returns in acquisitions of public companies in the announcement period.

3. Hypotheses

Most of the studies on M&As consider a number of different variables which could affect the returns for the acquirer and the target. It can be concluded that even though many different variables have been studied, there are two to three distinct variables that have a more dominant role in empirical research. These dominant variables are concluded to be the relative size of the target, the method of payment by the acquirer, and the ownership structure of the target. From existing literature, it is easy to conclude that the shareholders of the target company are in a better position when it comes to acquisition, whereas their counterparts hardly gain anything.

Most of the existing literature related to shareholder value creation in M&As gathers evidence using event studies in which the stock market reactions are measured using cumulative abnormal returns around the announcement date of the transaction. Under conditions of efficient capital markets, the stock prices should incorporate the announced news quickly into the price of the asset. As stated by Andrade et al. (2001) the total effect of the transaction should be fully incorporated into the stock prices when all uncertainty has been removed i.e. When the transaction is complete under the efficient market hypothesis.

As stated, prior, most existing studies employ event study methodology to determine value creation for the acquirer's shareholders. The event window used in prior literature varies from starting several days before the announcement and ending on the day of the event to a three-day event window, in which the window incorporates the day prior, the day of the announcement, and the day past the announcement. In this study, however, the impact of the transaction is measured with abnormal returns in the aforementioned three-day event window which is best suited for the use of the efficient market hypothesis.

To determine abnormal returns for the acquirer's stock, a measurement of normal return for the stock is required. This normal return can be defined as the expected return for

the acquirer's stock or as the returns the acquirer's stock would experience if the transaction had not occurred at all. As there is a multitude of methods for the definition of expected returns, the appropriate method must be carefully considered. In this study, three models are used to define expected returns for the acquirer's stock. The models chosen are the capital asset pricing model, the market model, and the Fama & French – three-factor model which are further explored in chapter 4.

As the expected returns for the acquirers have been determined it is possible to define the abnormal returns. However, even though the concept of abnormal returns is simple, as they can be defined as returns differing from the expected return be it positive or negative (Kohtari and Warner 2006), the calculation of abnormal returns (ARs) is dependent on the model which is used to determine expected returns. As the ability to calculate abnormal returns ARs has been achieved by determining expected returns for the securities in question, the impact of the event can be determined by calculating the cumulative abnormal returns (CARs) inside the defined event window. The main goal of this study is to determine the existence of the acquirer's stock's abnormal returns ARs inside the event window. The abnormal returns (ARs) and the cumulative abnormal returns (CARs) are calculated for every acquirer in the 217 transactions included in the sample.

In this study, the null hypothesis (H0) is stated as a situation where there are no abnormal returns for the acquirer inside the event window. In other words, the mean abnormal return is zero. The counter hypothesis (H1) on the other hand states that on average, abnormal returns exist inside the event window. These hypotheses can be denoted as follows:

H1: *Median CARs inside the event window of an acquisition announcement are zero.*

Furthermore, from these hypotheses, it is possible to extrapolate further into other more specific hypotheses regarding the outcomes of M&As. The data sample is broken up into subsamples to determine which factors are most incremental in a successful M&A transaction in terms of maximizing the shareholder value for the acquirer.

3.1 Net present value hypothesis

As the existence of abnormal returns inside the event window is for the whole sample determined, the possible value creation or destruction of an M&A transaction for the acquirer's shareholders must be examined. In other words, do M&A transactions, in general, create or destroy the acquirer's shareholder's value? The following hypothesis (H2) is rejected if the cumulative abnormal returns (CARs) inside the event window are not found to be positive.

H2. M&As are on average positive net present value investments

3.2 Payment method hypothesis

As the existing literature shows that the returns for the acquirers' shareholders are affected by the nature of how the transaction is financed, it is also examined in this sample. Usually, the target companies in M&As are acquired using cash, the common stock of the acquiring company, or a mix of both.

This hypothesis (H3) is used to test whether there is variation in the abnormal returns of the acquirer between subsamples divided by their financing characteristics.

H3. Method of payment has an impact on the acquirer's abnormal returns

H3a. Cash financing has a positive impact on the acquirer's abnormal returns

H3b. Stock financing has a positive impact on the acquirer's abnormal returns

H3c. Mixed financing has a positive impact on the acquirer's abnormal returns

If statistically significant differences between these subsamples are detected, hypotheses based on contingency pricing effect, signaling theory, risk advertising, information characteristics, and differences in merger incentives could be used to explain them. In Chapter 4.4, the payment method for the transaction is discussed, as well as ideas for evaluating the relationship between the target's ownership structure, size, and acquirer performance.

3.3 Ownership structure hypothesis

From the existing literature, it can be stated that the acquisitions of private targets by public acquirers tend to generate a more positive stock market reaction for the acquirer's stock than their counterparts when measured with abnormal returns ARs and cumulative abnormal returns CARs. Therefore, it is important to also examine if there is a statistically significant difference between these transactions. The total sample is divided into transactions with private targets and public targets. Hence, the following hypothesis is created:

H4. Target's ownership structure has an impact on the acquirer's abnormal returns.

From the initial hypothesis (H4) more specific hypotheses regarding ownership structure and acquirer's returns are presented for the subsamples. By combining the hypothesis with the net present investment hypothesis, the nature of the impact on abnormal returns caused by the ownership structure of the target can be examined. The sub-hypotheses are as follows:

H4a. Private ownership has a positive impact on the acquirer's abnormal returns.

H4b. Public ownership has a positive impact on the acquirer's abnormal returns.

Additionally, as the existence of a positive impact caused by either target ownership structure is determined, it is possible to define which target characteristic results in

higher value creation for the acquirer's shareholders. The hypotheses are denoted as follows:

H4c. Acquisitions of private targets yield higher abnormal acquirer returns than public targets

H4d. Acquisitions of public targets yield higher abnormal acquirer returns than private targets

If statistically significant differences between the subsamples are found, these differences could be described for example with liquidity differences, agency problems, and information availability. These are extrapolated further in chapter 4.4

3.4 Size hypothesis

In the existing literature, various studies state that the size of the acquired target has an effect on the abnormal returns ARs of the acquirer. In this study, the size of the target is determined using the value of the transaction as a proxy for the target's market value due to data constraints caused by using the target's actual market value. The hypothesis is as follows:

H5. *Target's size has an impact on the acquirer's abnormal returns*

Additional propositions regarding the preferred target size from the acquirer's shareholder's point of view are presented as follows:

H5a. *Acquisitions of larger size targets yield higher abnormal acquirer returns than smaller targets*

H5b. *Acquisitions of smaller size targets yield higher abnormal acquirer returns than larger targets*

In a situation where significant statistical difference is found between the subsamples, the differences could be explained by possible greater synergy gains or the lack of synergy gains, unobserved complexity of the acquisition, and agency problems. These factors are discussed further in chapter 4.4.

4. Financial theory background

4.1 The hypothesis of efficient markets

The Efficient market hypothesis (EMH) is one of the cornerstones of financial theory. According to Fama et al., (1970) a market in which all share prices fully reflect all information, is considered efficient. Fama et al., (1970) introduce three levels of market efficiency, which are the strong form, the semi-strong form, and the weak form. The hypothesis and the three forms of market efficiency lean strongly upon the information that is available to an investor, this available information is the variable that defines the said forms of market efficiency.

The first level of market efficiency is the weak form, which relies on the historical information of stock prices (Brealey, et al., 2017). In this weak form of market efficiency, the stock prices of the tomorrow will follow a random walk, which was suggested by Kendall et al. (1953) and which is further discussed in a paper by Fama, (1965). Due to the random walk of stock prices in the weak form of market efficiency, it is not possible to outperform the market consistently (Brealey, et al., 2017).

The semi-strong form of market efficiency dictates that stock prices reflect all available public information (Brealey, et al., 2017). The stock prices also adjust rapidly to such announcements as stock splits and acquisitions. According to a study by Fama et al., (1969), the information of a stock split on the dividend payments of the future is on average reflected fully on the price of the stock in question at the time of the split.

In the strong form of market efficiency, the prices of shares fully reflect all the information that there is to be gained by the analysis of the company or even the economy (Brealey, et al., 2017). This essentially means that theoretically there should not be a way to consistently outperform the market, due to the fact that all information is accounted for in the price of the stock. Therefore, gaining excess returns should not be theoretically possible by skilled stock picking or via fundamental or technical analysis. Fama et al.,

(1970) describe this form to be best viewed as a benchmark to observe deviations from the strictest sense of market efficiency. From the efficient market hypothesis, it can be concluded that the more efficient the market is, the harder it is to gain excess returns from it.

4.2 Models for expected returns

In this chapter three distinctive models for calculating the expected returns of an asset are presented: the capital asset pricing – model (CAPM), the three-factor model (FF3), and the market model.

CAPM is a fundamental part of modern financial theory. It is a creation of William Sharpe, (1964) and John Lintner, (1965) and it was awarded Sharpe a Nobel Prize in 1990. It can be considered as the foundation of asset pricing. The model itself assesses the relationship between the expected returns and the systematic risk of an asset, which is usually a stock. The capital asset pricing model can be denoted as follows:

$$E(R_i) = R_f + B_i * [E(R_{mt}) - R_f] \quad (1)$$

Where:

- $E(R_i)$ = the expected return for asset i
- R_f = the risk-free rate
- B_i = beta of the investment
- $[E(R_{mt}) - R_f]$ = the market risk premium

This denotation is slightly modified from the equation that was summarized by Fama and French (2004) as the Sharpe-Lintner CAPM equation, which references to the studies by Sharpe (1964) and Lintner (1965). The model has been a subject of criticism since its creation, mostly due to the fact that it requires unrealistic assumptions to be derived, such as market equilibrium, risk-free lending, and the ability to borrow money at the same rate as investors lend it (Brealey et al., 2017), strongly efficient markets, no transaction costs, risk-averse investors and unrestricted short selling (Levy, 2010).

From the assumptions stated before, it is clear why the model has received theoretical and empirical criticism, one example of such theoretical criticism was introduced by the prospect theory by Kahneman and Tversky (1979). The prospect theory contradicts the assumption that all investors are risk averting. Due to the empirical criticism of the CAPM, Fama, and French (1992) use a regression approach to find evidence of the empirical failures of the CAPM. In their study they find that size, earnings-price ratio, debt-equity ratio and book to market ratio add to the explanation of expected returns provided by the market beta.

These findings pointed out possible fatal failures of the CAPM (Fama & French, 2004). These findings have been supported later by Levy (2010) who states that direct empirical tests on CAPM show no significant support for the risk-return relationship and even in some cases they show strong rejection of it. Levy (2010) also states that the beta is not a robust explaining variable of variation of the mean returns.

Based on the evidence they found, Fama and French (1993, 1996) suggest a new model with three distinctive factors, in which the expected return is affected by the systematic risk factor, size factor, and the value factor. The model is called the three-factor model. The three-factor model for expected returns is denoted as follows (slightly modified from Fama and French, 2004):

$$E(R_{it}) = R_{ft} + \beta_1[E(R_{Mt}) - R_{ft}] + \beta_2SMB_t + \beta_3HML_t \quad (2)$$

Where:

- $E(R_{it})$ = the expected return for asset i
- R_{ft} = the risk-free rate
- R_{Mt} = the total market portfolio return
- $[E(R_{Mt}) - R_{ft}]$ = the market risk premium
- SMB_t = the size factor (small minus big)
- HML_t = the value factor (high B/M minus low B/M)
- $\beta_{1,2,3}$ = the beta-coefficients of the factors

In their paper, Fama and French (2004) present an implication of the three-factor model where the intercept is zero in the time-series regression, which is denoted as follows:

$$R_{it} - R_{ft} = \alpha_{it} + \beta_1(R_{Mt} - R_{ft}) + \beta_2SMB_t + \beta_3HML_t + \varepsilon_{it} \quad (3)$$

Where:

- R_{it} = the total return for asset i
- R_{ft} = the risk-free rate
- R_{Mt} = the total market portfolio return
- $R_{it} - R_{ft}$ = the expected excess return of asset i
- $R_{Mt} - R_{ft}$ = the expected return of the market portfolio
- SMB_t = the size factor (small minus big)
- HML_t = the value factor (high B/M minus low B/M)
- $\beta_{1,2,3}$ = the beta-coefficients of the factors
- α_i = the intercept
- ε = error term

According to Fama and French, (1993; 1996; 2004) using the criterion that the intercept is zero, the three-factor model captures much of the average return variation in portfolios formed on the ratios which cause problems for the CAPM, such as size or book to market – ratio. Since its inception, the three-factor model has gained popularity as a model to calculate expected returns in empirical research (Fama & French, 2004).

The market model is the third model introduced in this thesis for estimating the expected return of an asset. The model was introduced by William Sharpe in 1963 and according to the model, the price of an asset is related to the return of the market and the responsiveness of the asset to said market, which is measured by beta. The model is simply a regression model with a single variable, where the alpha return is the constant and the beta of the asset is the return coefficient of the asset on a chosen benchmark- index (e.g., market index) (Sharpe, 1963). According to the CAPM by Sharpe (1964) and Lintner

(1965), the expected return of an asset is determined by the beta of the company. Furthermore, the expected return is also affected by the alpha return of the asset (Brealey, et al., 2017). According to Brealey, et al. (2017), one should be assured that the stock has behaved normally during the estimation period of the alpha return and the beta coefficient. Mathematically the market model can be denoted as follows:

$$E(R_i) = \alpha_i + \beta_i (R_m) + \varepsilon_i \quad (4)$$

Where:

- $E(R_i)$ = The expected return for asset i
- α_i = The alpha return for asset i
- β_i = The beta coefficient for asset i
- R_m = The Market return
- ε_i = The Error term

4.3 Abnormal returns in financial theory

Abnormal returns (ARs) are usually used as a measure in event studies which in turn can be used to assess the financial impact of changes in corporate policy (McWilliams & Siegel, 1997). The main goal of these event studies is to determine if there is an abnormal stock price effect associated with an unanticipated event (McWilliams & Siegel, 1997). By definition abnormal return is any negative or positive fluctuation from the expected return of given security such as the stock of a publicly-traded acquirer in an M&A transaction.

Like many other methods in finance and economics, the abnormal return methodology relies on several assumptions (McWilliams & Siegel, 1997). The first assumption is that the market is efficient, the second assumption is that there are no confounding effects, and the third assumption is that the events are unanticipated (McWilliams & Siegel, 1997). According to McWilliams and Siegel, (1997) the assumption that the researcher is able to isolate the effect of a particular event from all other possible effects is perhaps

the most critical. It is imperative that the researcher is able to avoid contamination from all other effects on the abnormal returns.

The abnormal return itself is simply the excess return of an asset when the expected return of an asset is compared to its actual return (Brealey, et al., 2017; McWilliams & Siegel, 1997). The expected return of an asset can be estimated for example with the CAPM, FF3, and the market model, all of which have been described in the prior subchapter. According to Brealey, et al. (2017), the formula for abnormal returns can be denoted simply as follows:

$$\text{Abnormal return} = \text{actual return} - \text{expected return} \quad (5)$$

Another more mathematical way to denote the formula for abnormal returns is described by McWilliams and Siegel, (1997) as follows:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (6)$$

Where: AR_{it} = abnormal return
 R_{it} = actual return
 $(\alpha_i + \beta_i R_{mt})$ = expected return

Usually, in studies regarding abnormal returns in the presence of an unexpected event, the abnormal returns are calculated from the whole event window to form cumulative abnormal returns (CARs), which are used to evaluate the performance of the announcement inside the event window. In the case of this study, the unexpected event is the acquisition of another corporate entity. In the next subchapters, the impact of transaction characteristics on abnormal returns is examined from existing literature.

4.4 Abnormal acquirer returns & Transaction characteristics

Mergers and acquisitions are by nature corporate events which convey information to the public markets about the value of the two participants in the transaction. The question is, how the public market reacts to an announcement of an M&A transaction and how quickly the market is able to incorporate the new information into security prices. To capture this impact the appropriate measure is abnormal return, and to calculate a security's abnormal return the expected return of said security is needed which in turn is defined using the aforementioned models in chapter 4.2.

The efficient market theory states that any new information should be incorporated into security prices instantly and therefore, the existence of abnormal returns should be impossible during an event window of an M&A announcement. However, the financial markets of today do not meet the requirements to fulfill the expectations of fully efficient markets. As this is the case, there is always a possibility for the shareholders to lose out or gain during an M&A transaction. The existing literature shows that on average the acquirer's stock suffers a negative reaction related to acquisitions, studies from Travlos (1987), Martin (1996), and Andrade et al. (2001) show negative returns related to acquisitions. Now if there is a possibility of both value creation and destruction, the question is, what are the characteristics of transactions resulting in value creation, and what are the characteristics of the ones which destroy shareholder value? In other words, which are the characteristics of a successful acquisition for the acquirer's shareholders.

4.4.1 Abnormal acquirer returns & Payment method

As a transaction characteristic, one of the most impactful has been found to be the form of payment used in the transaction i.e., the form of financing used in the acquisition. As public acquirers have a multitude of options when making a financing decision regarding an acquisition such as equity issuances, cash offers, stock offers, and a mixture of the aforementioned methods, typically in M&A research transactions are spread to three

distinct groups: Cash offers, stock offers, and mixed offers. The study conducted by Travlos (1987) shows that acquisitions of public targets financed with the acquirer's stock tend to generate negative abnormal returns and acquisitions financed with cash tend to result in nonexistent abnormal returns.

Chang (1998) argues that this is caused by the fact that financing acquisitions of public targets with the acquirer's stock are similar to an offering of new equity. On average equity, issuances tend to generate negative abnormal returns as they are more likely to occur when the issuing firms' stock is overvalued (Smith 1986). Therefore, it is imperative to divide transactions by their payment methods to be able to examine the wealth effect of the acquirer's shareholders (Andrade et al. 2001).

From existing M&A research regarding payment methods and acquisition performance, it is evident that the attributes of the target company such as the ownership structure and the size of the target have an impact on the performance of acquisitions with varying payment methods. As stated, stock financed acquisitions of public targets tend to generate negative abnormal acquirer returns. However, this is not the case for private targets. Studies by Chang (1998), Kohers (2004), and Mateev (2016) show that on average stock financed acquisitions of private targets result in positive abnormal returns for the acquirer, Chang (1998) reports a 2,64% abnormal return for stock financed deals with private targets. Additionally, the results by Chang (1998) indicate that on average the acquirer's abnormal return for cash-financed deals with private or public targets is zero.

As most of the existing research agrees, that stock financed acquisitions of private targets create more shareholder value, it is important to find the driving factors of the differences between stock and cash financed transactions. Chang (1998) and Draper & Paudyal (2006) argue that this is caused by the transformation of existing owners to block holders of the resulting entity in stock financed deals. Therefore, the new block holders are able to monitor managerial performance and ease the merging process (Corporate monitoring hypothesis). Additionally, propositions include taxation differences between

stock and cash financed deals, information asymmetry, and signaling theories (Information asymmetry hypothesis & Signaling hypothesis). For example, large shareholders of a private target may be more willing to accept stock payments for their shares to avoid tax obligations (Fuller et al. 2002). Therefore, the acquirer is able to gain a discount using common stock as a payment method. The signaling hypothesis implies that the acquirer's management has information on the value of the target company which the public market does not have. Therefore, it could be argued that as the management of public acquirer is by law obligated to act in the best interest of their shareholders, the chosen payment method signals the superior information, for example, Martin (1996) argues that stock financing can be used as a risk-sharing tool, this could convey information about the target being overvalued, as the shareholders of the private target are forced to share the risks of the transaction process.

4.4.2 Abnormal acquirer returns & Ownership structure

Existing literature provides evidence that on average, positive abnormal acquirer returns are found in acquisitions of private targets around the announcement period. On contrary, on average acquisitions of public targets tend to result in net-zero abnormal returns at best. This has been found to be the status quo across various geographical areas and time periods. However, as many different studies have found statistically significant results on abnormal acquirer returns in the short term (announcement period), this is not the case regarding long-term returns. Data limitations and required assumptions to assess statistical significance in long-term returns greatly reduce the reliability of results. Hence, this paper focuses on the short-term returns in the announcement period.

Many reasons for the outperformance of private target acquisitions on their public target counterparts have been presented. One of these is the so-called "Private firm discount" which was briefly discussed in chapter 2. However, even when the existence of the discount has been proven, the cause has eluded researchers. It is also clear that the non-existent market price of privately-owned companies increases the difficulty of measuring the discount. The discount is proposed by Capron and Shen (2007) and Faccio et al.,

(2004) to be caused by information availability and by the illiquidity of unlisted stock. The illiquidity of unlisted stocks naturally causes the willing seller of a business to find a willing acquirer who might be willing to pay less. However, no empirical support has been found to support the liquidity discount. Faccio et al., (2004) argue that the outperformance of private target acquisitions cannot be solely caused by the illiquidity of the unlisted stock of a private target. The information availability of public targets causes the possibilities of positive abnormal acquirer returns to diminish as the acquisition is more likely to be done with the fair value of the target company in public target acquisitions.

4.4.3 Abnormal acquirer returns & Target size

As stated in chapter 2, Alexandridis et al., (2013) found that acquirers who target larger companies perform significantly worse, in their study the authors present negative cumulative abnormal returns of 2,82% inside a three-day event window, statistically significant at 1%. Additionally, the percentage of acquisitions which destroy the acquirer's shareholder value was found to increase in correlation with the target's size. These results indicate that acquisitions of smaller targets are better off when compared to acquisitions of large targets when compared with abnormal acquirer returns. The results pointing to the negative market reaction in large target acquisitions are further supported in their study with findings in acquirer's abnormal returns related to deal withdrawals. The study found that withdrawals from large target transactions usually generate a positive market reaction whereas withdrawals from small target deals generate a negative market reaction (Alexandridis et al., 2013).

In their study Fuller et al., (2002) show that acquisitions of public targets with increasing size destroy on average more of the acquirer's shareholder value inside a five-day event window. The median cumulative abnormal return for the acquirer in acquisitions of targets with a market value of 10% - 19,99% of the acquirer's market value was -1,31%. Respectively in acquisitions where the target's market value was over 20% of the acquirer's market value the median cumulative abnormal return for the acquirer was -2,03% (statistically significant at 1% level). The negative market reactions could be argued to be

caused by a possibility of diseconomies of scale and the increased complexity of the merging process as the target's size increases (Alexandridis et al., 2013)

4.4.4 Transaction characteristics combined

As stated, the characteristics of an acquisition have a significant effect on the performance of the acquirer's abnormal returns. In conclusion, existing research shows that stock financed acquisitions of private targets outperform cash financed acquisitions of private targets, and acquisitions with mixed payment methods (cash and stock) fall in between, carrying characteristics of both financing methods. The increased performance of stock financed private transactions are supported by the *corporate monitoring hypothesis* and the positive signal of accepting stock as a payment method (*Signaling hypothesis*) (Ekkayokkaya et al., 2009).

In public target acquisitions, cash financing is related to higher abnormal returns for the acquirer and on the contrary acquisitions with stock or mixed financing tend to yield significant negative abnormal returns inside the announcement period due to the acquirer's tendency to use its own stock as a payment when the stock is overvalued. Stock financed deals have similarities with equity issuances, as it is in line with the proposition that equity issuances tend to yield negative market reactions. (Ekkayokkaya et al., 2009).

Additionally, the target's size is detrimental to the success of acquisitions, it can also be seen as a compounding factor on the other characteristics. According to Fuller et al., (2002) in private target acquisitions financed with stock or mixed financing the acquirer's abnormal returns increase with the target's size. On the other hand, on average in public target acquisitions where stock financing is used the acquirer's abnormal returns decrease as the target's size increases (Fuller et al., 2002). In public target acquisitions, from the acquirer's shareholder's perspective cash financing is the best option as the target's size increases (Fuller et al., 2002).

In conclusion, it is clear that the mentioned deal characteristics affect the acquirer's stock performance post-acquisition, it is also clear that the various characteristics are linked. The latter part of this study seeks to find evidence if the existing results hold for the Nordic M&A market.

5. Theory of M&As

A corporate acquisition is a process where a corporation gains control of another corporation by purchasing most of the target corporation's shares or assets (Depamphilis, 2018). This transaction can be accomplished by exchanging cash, equity, or a mixture of both; hence the terms cash offers, and equity offers (Brealey, et al., 2017). A merger is a situation where two corporations believe that they are more competitive as one entity rather than as two separate ones, therefore the two corporations integrate their operations forming one bigger entity (Brealey, et al., 2017). In a merger one of the merging corporations automatically assumes all of the assets and liabilities of the other corporation, such a merger requires at least a 50% approval ratio of the shareholders in both corporations (Brealey, 2017).

A takeover can be defined as the process of shifting the control of the target company to the buyer. A friendly takeover is a situation where the board and shareholders approve the transaction (Brealey, et al., 2017). Contrary to a friendly takeover, a hostile takeover is usually conducted with a tender offer. *In* a tender offer, the buyer reaches out directly to the shareholders of the target corporation, offering a set price for the stock of the target, therefore bypassing the board of directors (Brealey, et al., 2017; Depamphilis, 2018). The buyer can offer cash, securities or a mixture of both, the buyer's bid is usually higher than the market price of the target corporation's stock, therefore generating an incentive for the shareholders to relinquish their shares (Brealey, et al., 2017). For example, in cash tender offers of the 1970s and 1980s targets, shareholders received average premiums of 30% (Billet, 1997).

5.1 Horizontal, Vertical, and Conglomerate deals

In M&A theory there are three distinctive types of mergers and acquisitions, which are horizontal mergers, vertical mergers, and conglomerate mergers. A merger is defined as horizontal when the two corporations are operating in the same line of business (Brealey et al., 2017). A vertical merger involves corporations at a different stage of production,

for example, the buyer can expand its operations toward raw materials or the final product (Brealey et al., 2017). A conglomerate merger differs from both of the previous examples, in the sense that a conglomerate merger involves companies in unrelated lines of business.

5.2 Cross-border M&As

Cross-border mergers and acquisitions are a form of M&As where the two separate entities are located in different countries. There are multiple reasons why corporations decide to pursue cross-border deals. Corporations might pursue growth, lower labor costs, lower material costs, industry consolidation, or diversification (Depamphilis, 2018).

The relative volume of cross-border M&As has been increasing in recent decades, but in more recent years it has been on the decline. In 1998 23% of the global M&A volume were cross-border deals and in 2007 it had increased to 45% (Erel, et al., 2012). According to J.P. Morgan (2019), the volume of global M&As accounted for 30% of the total global M&A volume.

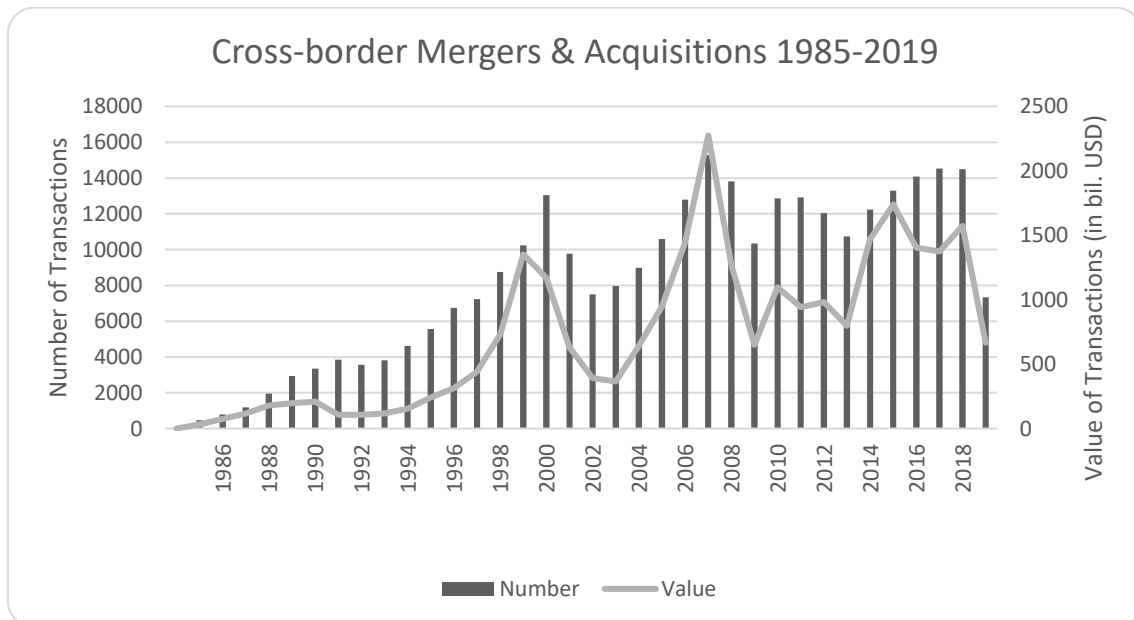


Figure 2. Cross-border M&A 1985-2019 (IMAA 2019).

5.3 Leveraged buyouts

A leveraged buyout (LBO) is an acquisition by a specialized investment (i.e., private equity firm) firm using a financing technique where a significant amount of the transaction price is financed by debt. In a typical LBO transaction, a private equity firm acquires the control of an existing mature company (Kaplan & Strömberg, 2009). According to Faulkner et al., (2012), there are three main types of buyers in LBOs: private equity buyout firms, hedge funds, and the management without sponsorship from private equity firms or hedge funds. The last-mentioned kind of LBO is defined as a non-sponsored management buyout (MBO).

Due to the fact that LBOs are financed largely by debt, the popularity of LBOs is greatly affected by the existing interest rates and the general availability of debt. This is evident in the years 2004-2007 when the interest rates were low and debt availability was high. A large number of LBOs took place during these years. On contrary, there was a great falloff in LBO volume in the years after the most recent financial crisis, due to the lack of debt financing (Gaughan, 2015), this can be seen clearly in figure 3

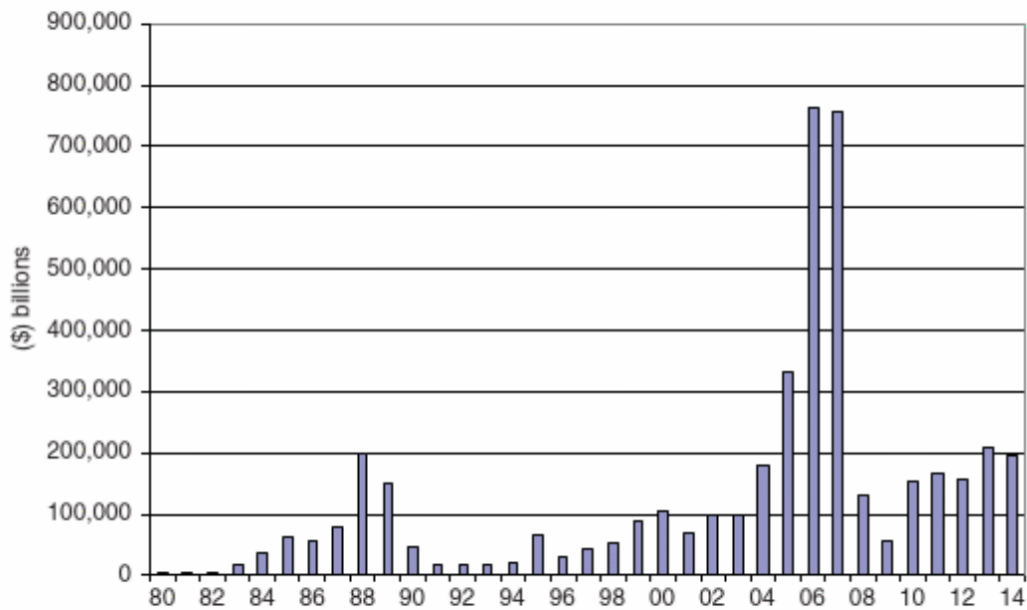


Figure 3. Value of global LBO's 1980-2014 (Gaughan,2015)

5.4 M&A process

The M&A process is defined by Depamphilis, (2018) as a series of activities culminating in the transfer of ownership from the seller to the buyer. The process has been divided into two segments, pre-negotiation, and post-negotiation. From these two segments, the process is further divided into 10 phases (Depamphilis, 2018). The actual process of M&A is vastly complicated; therefore, this subject is not reviewed in great detail. The process is however reviewed in general detail from the acquirer's point of view using the mentioned segments and phases. Furthermore, these segments and phases are illustrated in figure 4 and figure 5.

5.4.1 Pre-contact phases

The strategic plan for the whole corporation is the fundamental factor that drives the decisions of a corporation, and therefore the M&A process is no exception to this. The first phase of an M&A process is to develop a strategic plan for the whole business i.e.,

a business plan (Depamphilis, 2018). The next phase of the process is to develop an acquisition plan which should be derived from the business plan and should therefore support the developed business plan.

When the said plans have been formed the next logical step is to find suitable candidates for the acquisition. Before this search is started, the acquirer establishes search criteria e.g., industry, geographical location, or maximum price to be paid, which can be defined as P/E-ratio, P/B-ratio, or in terms of actual dollars (Depamphilis, 2018.) When the acquirer has found suitable candidates for the acquisition, the screening phase begins.

In the screening phase, the acquirer prioritizes the initial candidates using secondary criteria, for example, the degree of leverage in the target corporation (Depamphilis, 2018). Furthermore, other criteria could be for example cultural compatibility, financial performance, or the market segment of the target.

When the right candidate has been chosen, the last phase of the pre-negotiation segment is the first contact from the acquirer to the target company. This process initiates negotiations between the two companies. If these negotiations were to fail, a hostile takeover (cf. Chapter 2) could be initiated by the bidder.

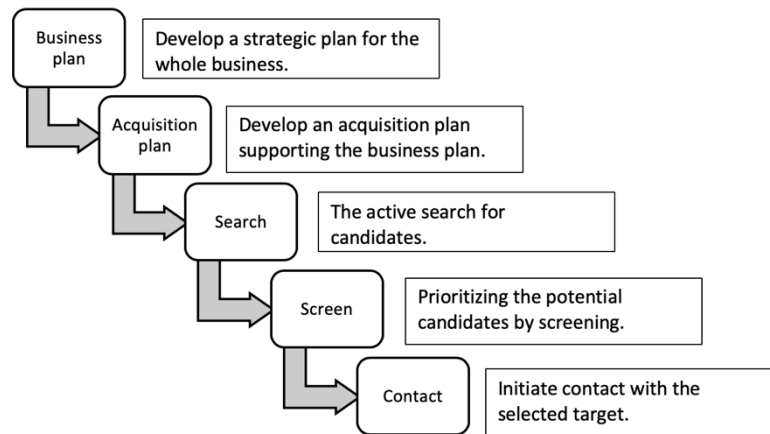


Figure 4. Pre-negotiation phases of the M&A process, modified from (Depamphilis, 2018)

5.4.2 Post-Contact phases

The negotiation phase is most certainly the most complex phase included in the M&A process, in this phase the actual price paid for the target is determined through a process of its own. According to Depamphilis, (2018), there are four activities in this phase, which are listed as refined valuation, due diligence, financial planning, and structuring of the deal. After the financials of the deal have been determined, the acquirer needs to form an integration plan to make sure that the predetermined goals of the deal are met. Depamphilis, (2018) states that the transitional issues to be solved include human resource, customer, and supplier issues. In addition, it is crucial to identify ways to effectively combine processes, assets, and resources between the two entities.

The actual closing of the deal entails gaining all necessary shareholder, regulatory, and third-party (e.g., customer and vendor contracts) consent and also completing the definitive purchase agreement (Depamphilis, 2018). After the deal has been consummated, the next steps include the implementation of the described integration plan and the post-closing evaluation of the acquisition.

The implementation of the integration plan is a critical phase in M&As because all of the projected synergies and other gains can be lost if the integration fails. The integration

begins with the appointment of an integration manager (Bruner, 2004). Depamphilis, (2018) and Bruner, (2004) state that the ability to retain employees is crucial for the success of the integration because the knowledge base of the employees is a valuable asset that should not be lost. According to Depamphilis, (2018) acquirers should focus especially on retaining the middle-level management due to the fact that they run the day-to-day operations of the corporation. Employee retention can be achieved with sufficient morale-boosting communication and with the implementation of bonuses for instance (Depamphilis, 2018; Bruner, 2004).

The final step in the process is evaluation, in which the objective is to evaluate the performance of the acquisition and if it is meeting the set expectations (Depamphilis, 2018). With the help of this evaluation, possible problems can be addressed, and corrective actions can be taken to eliminate these problems.

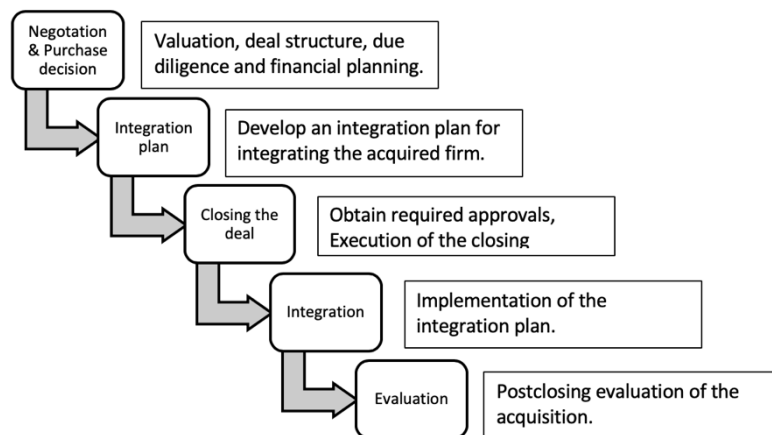


Figure 5. Post-contact phases of the deal process. Modified from (Depamphilis, 2018).

6. Motives for M&As

There are a lot of different motives for mergers and acquisitions, these motives can be classified as value increasing or value decreasing motives (Nguyen, et al., 2012). Bradley et al., (1988) define value-increasing M&As as the ones which are pursued to gain synergies from the merging of operations. The value-decreasing motives for mergers are further divided into three major types which are agency, hubris, and market timing Nguyen et al., (2012). In addition, Berkovitch and Narayanan, (1993) find three major motives for M&As, that are synergy, agency, and hubris.

6.1 Undesirable M&A motives

One of the three major motives for M&As according to Berkovitch and Narayanan (1993) is agency. Furthermore, they find agency to be a more dominant factor in value-decreasing takeovers than hubris. Agency problems are present when the bidder's management consumes perquisites at the expense of shareholders Nguyen, et al., (2012).

According to Morck et al. (1990) when a corporation makes an investment, the manager considers the effects of the investment on the market value of the corporation and the possible personal benefits that he is able to gain from it. Furthermore, they state that corporate managers are willing to sacrifice market value in favor of personal benefits. Managers might pursue acquisitions to increase the size of the company to further increase their power and salary (Depamphilis, 2018). Therefore, it can be stated that if there are significant personal financial benefits to be gained from acquisitions, there clearly is a motive to acquire other corporations even with higher costs. Morck, et al. (1990) summarize this stating that managers tend to overpay for targets with high personal benefits.

Berkovitch and Narayanan, (1993) find that even though synergy is the most dominant motive for M&As, there is strong evidence that hubris plays a major role in many takeo-

vers. This endorses the hubris hypothesis by Roll, (1986) whereby many M&As are affected by hubristic management and the bidders with hubristic management tend to pay disproportionately large premiums for their targets. Hubristic managers also have a higher chance to initiate M&A deals (Nguyen et al., 2012). Furthermore, Hayward and Hambrick, (1997) find that there is a strong association between takeover premiums and CEO hubris, indicating that hubristic CEOs are more likely to overpay for targets.

Market timing as a motive refers to the market timing hypothesis by Baker and Wurgler, (2002). According to the scholars the intention of “market timing” is to gain from temporary changes in the cost of equity relative to the cost of debt. In the context of M&As, this means that corporations are more likely to use equity when their market value is high.

Shleifer and Vishny, (2003) present a model of stock-driven acquisitions, they find that there is a strong incentive for corporations to have their equity overvalued so that they could use the stock for acquisitions. Their model also states that overvalued acquirers tend to use stock to acquire relatively undervalued targets regardless of the fact that both the acquirer and target could be overvalued. In addition, according to a study by Dong et al. (2006) highly valued acquirers are more likely to use stock in acquisitions, which supports the model by Shleifer and Vishny.

6.2 Desirable M&A motives

6.2.1 Operational Synergy theory

Depamphilis (2018) lists common theories on why M&As happen, one of these theories is the theory of operational synergy. DeLong (2003) defines operating synergy as a sum of economies of scale, economies of scope, and improved efficiency through newly acquired complementary assets and skills.

Economies of scale are defined by Depamphilis (2018) as a reduction of the average total cost for a firm producing a single product due to the decline of fixed costs as production volume is increased. Economies of scale are mainly the goal of horizontal mergers, but they can also be achieved in non-horizontal mergers. Moreover, economies of scale are not exclusive to production-focused companies. Brealey et al. (2017) give an example of a merger between the Bank of New York and Mellon Financial Corporation in 2007, where the merger resulted in annual cost savings of 700\$ million or 8% of the combined annual costs. This was possible due to the fact that the combined entity could share technology and services, resulting in the possibility to reduce personnel.

The example above shows that the complementary assets and skills, such as technologies and services of the two entities pre-merger, gave an opportunity to create significant cost savings. Furthermore, in the same example Brealey, et al. (2017) mention that part of the target's management was replaced by the acquirer's management. Jensen and Ruback (1983) state that mergers are an effective way to eliminate ineffective management from the target company, therefore improving efficiency.

Economies of scope are crudely defined as a reduction of the average total cost for a firm producing two or more products, this reduction is accomplished in average costs because it is more cost-efficient to produce multiple products in one firm than in multiple separate ones (Depamphilis, 2018). Economies of scope can be achieved by reducing

distribution costs by shipping multiple products to a said location rather than shipping a single product.

6.2.2 Financial synergies

Depamphilis (2018) states that financial synergy refers to a lower cost of capital for the acquirer due to successful acquisition or merger. Furthermore, Damodaran (2005) states that the payoff from financial synergy is usually in the form of lower cost of capital and higher cash flows. According to Damodaran (2005) and Depamphilis (2018) financial synergy appears in the form of increased debt capacity, tax benefits, diversification, and in the form of investment possibilities from excess capital in a case where the target has high return projects but no excess capital to invest in them.

In M&As the debt capacity of the two companies can increase due to the fact that the formed entity may become more predictable and stable than the two separate entities (Damodaran, 2005). The formed entity may also gain access to a wider range of capital and the acquired assets of the target may lower the cost of capital.

Tax benefits in M&As may manifest as the acquirer sheltering its profits by acquiring a company that generates net losses, which can then be utilized to reduce the tax burden of the acquirer (Damodaran, 2005). Furthermore, if a company is able to increase its depreciation rates post-acquisition, it will gain tax benefits and therefore, increase its value.

Diversification in M&As can create financial synergies according to Depamphilis (2018). He states that the possible uncorrelated cash flows between separate business units can lead to a reduction of systematic risk, which is formed from factors that affect all firms (e.g., inflation or interest rates). This is contrary to the conventional view, which holds that a corporation is only able to reduce the non-systematic risk it faces. Depamphilis, (2018) and Hann et al. (2013) argue that the non-correlative cash flows between busi-

ness units, especially in multi-product line companies allow them to have lower systematic risk than companies with correlative cash flows. Furthermore, Depamphilis, (2018) states that the imperfect correlation of cash flows allows cash transfers from cash-rich business units to cash-poor units, therefore increasing tolerance of financial distress.

7. Data sample selection

7.1 Data sources

This chapter gives a description of the data used in this study and of the collection methods used to gather the data. Additionally, more definitive descriptions of the sample selection and screening are presented. The transaction data used in this study has been gathered from a platform provided by the University of Vaasa with the assistance of Senior researcher Jaakko Tyynelä. The period for the transaction data stretches from the year 2010 to the year 2021 and it contains transactions from the Nordic markets (Finland, Denmark, Norway, and Sweden), Iceland was excluded from the sample due to data limitations.

The transaction data used provides detailed information about each transaction, which includes the date of the announcement, target's nation, acquirer's nation, transaction value, percentage of shares acquired, percentage of shares owned after post transaction, target's ownership status, and the type of payment used in the transaction (*CASH/STOCK/MIXED*).

In addition, to conduct an event study to examine the impact of these transactions on the acquirer's stock price, the stock price data is required for each acquirer in the data sample. The stock price data is mostly gathered from Yahoo Finance. Lastly, to define the abnormal returns for every acquirer, a measure of market performance must be defined. In this study, the market performance is determined with OMX Nordic 40 index which is provided by NASDAQ.

7.2 Data screening

The initial sample contains a total of 3,332 transactions inside the Nordic M&A market, all of these transactions have been conducted by a publicly-traded entity during the time

period between 2010 and 2021, both cross-border and domestic transactions are included in the sample as long as the transaction is confined to the target markets. The initial data includes transactions with limited information; hence the following criterion is applied to refine the sample. The criterion listed below is further explained in the chapter.

1. The acquirer must be a listed company inside the target markets.
2. The target must be confined to the target markets.
3. The acquirer must have the required data for return estimation.
4. The dollar value of the deal must be known.
5. The deal value must be over 1 million dollars.
6. The acquisition must result in majority ownership of the target.
7. The ownership of the acquirer must increase at least 50%.
8. The transaction must have been completed.
9. The announcement day of the transaction must be between the 1st of January 2010 and the 31st of December 2021.
10. The transaction must be financed with Cash, Stock, or a mix of both.
11. Acquirers with multiple transactions within a year are excluded.

7.3 Final data sample

The final data sample consists of a total of 217 transactions between the years 2010 – 2021. The initial sample consisted of thousands of transactions but due to the intensive screening process implemented the sample shrunk considerably. This was due to many reasons, the initial sample consisted of a great number of clustered transactions and transactions completed by acquirers with insufficient stock return data to estimate expected returns for the empirical analysis. Additionally, a significant number of acquisitions were targeting insignificantly small targets which resulted in a deal value of less than a million dollars. Below descriptive measures of the transactions are listed by transaction characteristics and per country of origin.

Table 1. Distributions of the final data sample

Panel A: # Of transactions per year and country					
Year	Denmark	Finland	Norway	Sweden	Total
2010	1	4	2	8	15
2011	0	0	2	4	6
2012	0	2	1	1	4
2013	0	3	2	2	7
2014	2	1	0	3	6
2015	1	5	3	10	19
2016	3	6	2	8	18
2017	3	5	3	17	28
2018	4	1	4	21	30
2019	4	5	3	10	22
2020	1	10	4	17	32
2021	2	4	4	19	29
Total	21	45	30	120	217

Panel B: # Of transactions per payment method					
Payment method	Denmark	Finland	Norway	Sweden	Total
CASH	12	19	4	45	80
MIXED	6	21	16	44	86
SHARE	3	6	10	31	50
Total	21	46	30	120	217

Panel C: # Of transactions per ownership structure					
Ownership structure	Denmark	Finland	Norway	Sweden	Total
Private target	21	42	26	98	186
Public target	0	4	4	22	30
Total	21	46	30	120	217

Panel D: # Of transactions per target size.					
Target size	Denmark	Finland	Norway	Sweden	Total
Large ¹	3	6	6	15	30
Medium ²	8	19	11	35	72
Small ³	10	21	13	70	114
Total	21	46	30	120	217

¹ Large targets are transactions valued over 100 million USD.

² Medium targets are transactions valued between 15 – 100 million USD.

³ Small targets are transactions valued between 1 – 15 million USD.

In Table 1, Panel A lists the total number of M&A transactions every year which occurred in the chosen time period between 2010 – 2021. From Panel A it can be noted that the number of transactions in the target markets increased in the post-financial crisis time period and has remained rather stable in the last five years. In Panel B, the transactions have been listed by their payment methods and their respective countries, from this panel it can be noted that pure *CASH* transactions have been a minority in the given time period, as 136 of the 217 transactions have been conducted using *SHARE* or *MIXED* payment method. Additionally, from Panel C, where the transactions have been listed per the target's ownership structure, we can determine that a vast majority of transactions have been focused on private targets. Lastly from Panel D, where transactions are listed per the target's size, we can note that most of the transactions in the sample have been acquisitions of small targets.

7.4 Data limitations

The data used in the study have some limitations, as it can be seen from Table 1 during the chosen time period there were no transactions with public targets from the Danish capital markets which survived the data screening process. Additionally, there is major skewness in the geographical scope of the data as over half of the total number of transactions were inside the Swedish markets. Also, the total number of observations used in the study is rather small due to the intensive screening process and the limited time period chosen for the study. This can affect the statistical significance of the findings.

Additionally, the factor data extracted from the data library of Kenneth R. French, (2021) which is used in the aggregation of expected returns with the three-factor model is constructed using the data of numerous developed European markets such as Germany, Great Britain, Italy, Switzerland, Belgium, Austria, Spain, France, Portugal, and The Netherlands in addition to the actual markets which this study focuses on. This can affect the expected returns calculated with the three-factor model as the factor estimates might not be able to explain as much of the individual stock returns.

8. Methodology

8.1 Event studies

Event studies are a well-known and widely used method used in the field of finance to examine the impact of an economic event on the value of a given company. These economic events can be for example earnings announcements, an announcement of an M&A transaction, issues of equity, or issues of debt. The foundation of the event study methodology is rooted in the assumption that in a rational market, the effect of an economic event should be immediately reflected on asset prices, therefore, allowing the measurement of the economic impact using the price fluctuations of an asset over a short period of time (Campbell et al., 1998).

Event study methodology has a long history, dating back to a study published by Dolley (1933), which focused on the price effects caused by stock splits, using nominal price fluctuations at the time of a stock split. As event studies have been in widespread use over the past decades, the methodology has evolved tremendously with modifications tackling violations of statistical assumptions of the early methodology, therefore, allowing the testing of more complex hypotheses Campbell et al., (1998).

In this study, the event study methodology is implemented to gain insight into the returns of an acquirer's stock related to an M&A transaction (economic event). This is done to test the various hypotheses presented in chapter 3. First, the existence of abnormal acquirer returns is tested in all transactions inside the data sample. Secondly, the effect of different transaction characteristics (payment method) and target characteristics (ownership structure & target size) on abnormal acquirer returns are examined.

As the measurement used to examine acquisition performance is the abnormal return of the acquirer's stock, the expected return of said stock must be measured. As stated in chapter 4.3, the abnormal return is the residual of the expected returns and the actual returns of a given stock, the expected returns, in this case, refer to the returns that the

stock would have yielded had the event not taken place in the first place. The expected returns are denoted for every day (t) inside the event window for every acquirer (A) in the sample.

Inside the framework of event studies, there are multiple different approaches regarding the calculation of expected returns. In their textbook on Econometrics, Campbell et al. (1998) divide the approaches into two groups: *Statistical models* and *Economic models*. The main characteristics of the statistical models are the statistical assumptions they make on asset returns and their independence from any economic factors. On the other hand, the economic models are not based entirely on statistical assumptions but rather on assumptions regarding investor behavior. However, in practice, if the economic models are used in favor of their statistical counterparts, statistical assumptions must be added. Therefore, the advantage of economic models over statistical models lies in the ability to calculate expected returns more precisely using economic restrictions (Campbell et al., 1998).

In this study, the basic event study methodology used by Brown and Warner (1980, 1985) is used in to lay out the framework of the event study. Additionally, the approaches by Oberndorfer et al. (2013) and Maitra & Dey (2012) are applied to the framework, therefore, providing comprehensive means of expected return calculation as the models used for expected returns are the Market model (*Statistical model*), Capital asset pricing model (*Economic model*) and the Fama French three-factor model (*Economic model*).

8.2 Variables

The main dependent variable in this study is the abnormal returns of the acquirer's stock. The study is conducted by using the event study methodology to estimate the abnormal returns of an acquiring company's stock. The determination and creation of the main dependent variable and additional independent variables in this study have been conducted by using the existing literature. Mainly referring to the examples of Capron & Shen (2007) and McWilliams & Siegel (1997).

First, Following the approach by Capron & Shen (2007), the first binary variable of the ownership structure of the target is created. To do this the total observations in the data sample are divided into two subsamples with private ownership and public ownership, in practice, the division is done by considering private-owned targets equal to one (1) and publicly owned targets equal to zero (0).

The second binary variable considers the method of payment employed by the acquirer. In practice, all of the transactions in the total sample are given a classification in regard to the payment method. These classifications are STOCK transactions CASH transactions & MIXED transactions

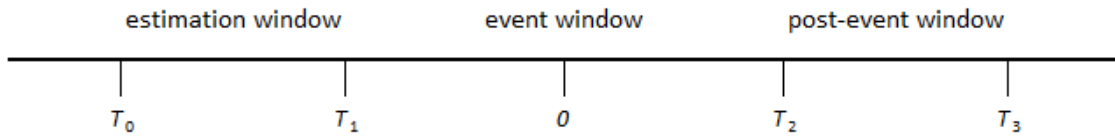
The third variable considers the target's size, all of the observations in the sample are divided into their own grouping relevant to the size of the deal, which is used as a proxy for the target's size due to data limitations. Deals valued between 1-15 million are defined as *SMALL*, deals between 15-100 million are defined as *MEDIUM*, and deals valued over 100 million are defined as *LARGE*.

8.3 The Models and the Approach

The structure for the event study applied in this study is presented by Campbell et al. (1998). First, the event window which incorporates the corporate event presumably affecting the acquirer's stock price is defined, in this case, the corporate event in question is the announcement of an M&A transaction. According to Campbell et al. (1998), the event window is in practice usually expanded to two days to include the day after and the day prior to the announcement to include the effects of post-market announcements. In this study, however, the event window used consists of three days similarly to Andrade et al., (2001), the day prior (T_{-1}), the event day ($T=0$), and the day after (T_{+1}). A short event window has advantages over a longer event window as it is less likely to incorporate additional contaminating events due to its shorter length (Andrade et al., 2001).

Additionally, an estimation window must be defined to estimate the model parameters. A commonly used method is to use the data from the period prior to the event window as the estimation. In their textbook Campbell et al., (1998) the authors provide an example for an estimation window in an event study using daily data and the market model in which the market-model parameters could be estimated over 120 days prior to the announcement. However, there is no rule for the length of the estimation window, but studies by Armitage (1995) and Park (2004) suggest that estimation windows of over 100 days are preferred.

Similarly, to the example presented by Campbell et al. (1998) an estimation period of 120 days is chosen to estimate the model parameters. Additionally, similarly to Chang (1998) to exclude the event from the estimation window, the estimation window begins eleven days before the event window (T_{-1}) and ends 130 days before the event window (T_0). The timeline of an event study is presented below according to Campbell et al., (1998)



In order to capture the effect of the announcement event of an M&A transaction, the abnormal returns for the acquirer's stock are calculated by eliminating the actual return of the stock inside the event window from the expected returns. Therefore, the abnormal returns for acquirer i in day t can be defined as the residual between the actual returns and the expected returns as follows:

$$AR_{it} = (R_{it} - R_{ft}) - E(R_{it} - R_{ft}) \quad (7)$$

8.3.1 The Capital asset pricing model

As previously discussed, the capital asset pricing model (CAPM), is an *economic model* which has the advantage of being able to calculate more precise expected returns in addition to the statistical assumptions (Campbell et al., 1998). The CAPM approach for abnormal returns can be defined with the following formula:

$$AR_{it} = R_{it} - [R_{ft} + \beta_i(R_{mt} - R_{ft})] \quad (8)$$

Where R_{it} is the expected return of the security, β_i is the market risk (systematic risk), R_{ft} is the risk-free rate and R_{mt} is the market index return, which in this study is the OMXH Nordic 40 index provided by Nasdaq.

8.3.2 The three-factor model

In addition to the CAPM model, another *economic model* is applied with multiple factors, this model being the three-factor model by Fama and French (2004). This model gives even more precise calculations of expected returns to be used in the study to determine

abnormal returns. The structure of the three-factor model for a company “i” in day “t” is as follows (Oberndorfer et al., 2013):

$$R_{it} - R_{ft} = \alpha_i + \beta_{i1}(R_{mt} - R_{ft}) + \beta_{i2}SMB_t + \beta_{i3}HML_t + \varepsilon_{it} \quad (9)$$

In this model the SMB_t represents the size factor and HML_t is the value factor for day “t”, ε_{it} is the error term and α_i is the intercept. The factors α_i , β_{i1} , β_{i2} , and β_{i3} are unknown and must be estimated. The unknown parameters are estimated by OLS based on the three-factor model for the whole estimation window.

8.3.3 The Market model

According to the market model, companies’ security prices are defined by market factors and company-specific factors. The same estimation window of 120 days is used with the model. The model can be defined with the following equation:

$$R_{it} = a_i + \beta_i (R_{mt}) + \varepsilon_{it} \quad (10)$$

According to the efficient market theory, the returns of a security cannot consistently differ from the expected returns. Hence, the expected value of the error term ε_i cannot differ from zero. Therefore, as the error term is equal to zero the regression is transformed to:

$$R_{it} = a_i + \beta_i (R_{mt}) \quad (11)$$

Where R_{it} is the expected return of security “i” on time “t” the α_i is the intercept or OLS parameters of security return on market return, β_i is the beta coefficient estimated through OLS measurement, and (R_{mt}) is market index return (OMXH 40 Nordic) on time “t”, Brown & Warner (1984) and Maitra & Dey (2012). Abnormal returns are then calculated as:

$$AR_{it} = R_{it} - [a_i + \beta_i (R_{mt})] \quad (12)$$

The market model is one of the most commonly used methods in event studies where acquirer returns are examined, for example in their studies Chang (1998) and Fuller et. al., (2002) used the market model. However, the estimation window can contain other company-specific events which may cause contamination in the output of the model. In this study, this problem is mitigated within the data screening process, as contaminating events in the estimation window such as other mergers or acquisitions are excluded.

8.3.4 Analysis of abnormal returns

As the abnormal returns for each acquirer in the study have been calculated the cumulative abnormal returns (CAR) for each stock can be calculated as follows:

$$CAR_{it} = \frac{1}{120} \sum_{t=-130}^{-11} AR_{it} \quad (13)$$

Where CAR_{it} is the cumulative abnormal return of security “i” on time “t” and AR_{it} is the abnormal return of security “i” on time “t”. As the CARs have been calculated for each acquirer in the sample, the median CARs can be calculated. The median CARs are required to examine the existence of abnormal returns related to M&A transaction announcements. Naturally, as the objective of the study is not only to examine the existence of abnormal returns related to M&A transaction announcements in general but further subsamples are also defined. These subsamples include deals with specific characteristics such as the method of payment, public or private ownership status of the target, and the target’s size.

When the required metrics regarding the performance of M&A announcements the statistical significance of the results must be tested. In this study, a combination of parametric and non-parametric tests is employed. As under the null hypothesis of this study, the median CAR is expected to be zero i.e., there are no abnormal returns related to M&A transaction announcements, similarly to the approaches of Norden and Weber

(2004), and Galil and Soffer (2011), a parametric t-test and a non-parametric Wilcoxon sign rank test is employed to test the significance of the results.

When the test statistic has been calculated, the null hypothesis can be rejected if the calculated absolute value exceeds the given critical value i.e., is not within the bounds of the determined confidence interval. The most used critical value equals 5% or 0.05 level of significance, in this study this critical value is also employed, but in addition, critical values of 1% and 10% are also considered. In the next chapter, the empirical analysis of the results is presented, and the results are divided into four subchapters where the results of the total sample and the subsequent subsamples are discussed individually.

9. Analysis of the Event Study

This chapter of the study presents the results of the empirical analysis conducted, first in chapter 9.1 the results from the total sample of all 217 observations are presented on a model-by-model basis. In each Table, in the following subchapters, the CARs are presented with their respective p-values of the t-test and the Wilcoxon sign rank test stating the significance of individual CARs. The result tables are further divided into different panels where the pre-event CARs and their respective p-values are divided from the event window CARs and their respective p-values.

Further subchapters present the results of the subsamples which have been constructed using different transaction characteristics presented in chapter 4.4. In these subchapters, each of the models used in the study is represented with its own result table. Chapter 9.2 presents the results regarding the ownership structure of the target entity; chapter 9.3 presents results regarding targets of different sizes and finally chapter 9.4 presents the results regarding transactions with different payment methods.

9.1 Acquirer returns – total sample

Table 2 presents the results from the total sample of 217 observations with the three different models used to compute expected returns. As can be seen from comparing panels A and B there are statistically significant CARs inside the event window, it is also clear that the event has had a positive impact on the abnormal returns inside the sample. The market model and the capital asset pricing model yielded the same CARs inside the event window of 3,17% as the three factor-model yielded positive CARs of 2,82%.

As the main hypothesis (H0) of this study is that the median abnormal returns are zero inside the event window, there is strong support to reject this hypothesis in favor of the counter hypothesis that the median is non-zero. Hence, the results show robust evidence that inside the total sample, abnormal returns exist inside the event window and that the nature of these abnormal returns is positive.

Table 2. CARs – total sample, all models.

<i>Model</i>	<i>The market model</i>	<i>CAPM</i>	<i>Three factor-model</i>
<i>Panel A: Total sample Pre-Acquisition CARs [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	0,22 %	0,07 %	-0,42 %
<i>p t-test</i>	0,001***	0,001***	0,000***
<i>p sign rank test</i>	0,001***	0,001***	0,001***
<i>Panel B: Total sample CARs inside the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	3,17 %	3,17 %	2,82 %
<i>p t-test</i>	0,004***	0,003***	0,013**
<i>p sign rank test</i>	0,000***	0,000***	0,000***
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

9.2 Acquirer returns – private - & public targets

Table 3 presents the market model returns of private and public transactions; from panels A and B it can be noted that the CARs from the public target transactions are not statistically significant but the CARs from private target transactions are robust and hence due to the contradiction between the significance of the results it is not possible to state that ownership structure of the target has a positive or negative impact on the acquirer's abnormal returns inside the event window. Nevertheless, the results show that acquisitions of private targets yielded statistically significant positive CARs of 3,47% with p-values of 0,000 and 0,000 and the acquisitions of public targets yielded statistically non-significant CARs of 1,26%.

Table 3. Market model - CARs, private and public targets.

<i>The market model</i>	<i>Private targets</i>	<i>Public targets</i>
<i>Panel A: Market model CARs Pre-acquisition [-10.-1], Zero is the event day.</i>		
<i>CAR (Median)</i>	0,27 %	-0,23 %
<i>p t-test</i>	0,003***	0,236
<i>p sign rank test</i>	0,001***	0,066*
<i>Panel B: Market model CARs in the event window [-1.1], Zero is the event day.</i>		
<i>CAR (Median)</i>	3,47 %	1,26 %
<i>p t-test</i>	0,000***	0,440
<i>p sign rank test</i>	0,000***	0,382
*** CARs are significant at 1% level		
** CARs are significant at 5% level		
* CARs are significant at 10% level		

Table 4 presents the results of CARs computed with the capital asset pricing model; the capital asset pricing model suffers from the same problem with the statistical significance of public target results inside the sample as can be seen from panel B. The results are extremely similar to the results from the market model. It can be noted that the private target results are statistically significant, and the CARs are similar to the ones computed using the market model as the event window CARs for private targets were 3,66% and 1,17% for public targets respectively.

Table 4. CAPM – CARs, private and public targets.

<i>CAPM</i>	Private targets	Public targets
<i>Panel A: CAPM CARs Pre-acquisition [-10.-1], Zero is the event day.</i>		
<i>CAR (Median)</i>	0,12 %	-0,28 %
<i>p t-test</i>	0,002***	0,285
<i>p sign rank test</i>	0,001***	0,057*
<i>Panel B: CAPM CARs in the event window [-1.1], Zero is the event day.</i>		
<i>CAR (Median)</i>	3,66 %	1,17 %
<i>p t-test</i>	0,000***	0,475
<i>p sign rank test</i>	0,000***	0,309
*** CARs are significant at 1% level		
** CARs are significant at 5% level		
* CARs are significant at 10% level		

Table 5 presents the results from CARs computed using the three factor-model. Similarly, to the results presented in tables 3 and 4, the CARs of public target acquisitions are not statistically significant when the three-factor model is employed. Additionally, the private target CARs are similarly statistically significant inside and outside the event window. Using the three-factor model the CARs of private targets were 2,99% and 1,39% in acquisitions of public targets respectively. It must be noted that the three factor-model CARs inside the event window are the most significant of the three models employed, therefore, indicating stronger explanatory power of the model.

Between the three result tables, a clear trend can be noted, the CARs of private target acquisitions are higher than those of public targets. Nevertheless, a clear statement

about which characteristic has a more significant impact cannot be made due to the statistical weakness of the results.

Table 5. Three factor-model CARs, private and public targets.

<i>Three factor-model</i>	Private targets	Public targets
<i>Panel A: Three factor-model CARs Pre-acquisition [-10.-1], Zero is the event day.</i>		
<i>CAR (Median)</i>	-0,47 %	0,28 %
<i>p t-test</i>	0,000***	0,094*
<i>p sign rank test</i>	0,001***	0,021**
<i>Panel B: Three factor-model CARs in the event window [-1.1], Zero is the event day.</i>		
<i>CAR (Median)</i>	2,99 %	1,39 %
<i>p t-test</i>	0,002***	0,456
<i>p sign rank test</i>	0,001***	0,299
*** CARs are significant at 1% level		
** CARs are significant at 5% level		
* CARs are significant at 10% level		

From the presented tables 3, 4, and 5 it is clear that private target acquisitions outperformed public target acquisitions by a considerable margin. All three models employed produced statistically significant event window CARs ranging from 2,99% to 3,66% in private target acquisitions. These findings are in line with previous literature as stated in chapter 2, for example, the study by Capron and Shen (2007) presented significant positive abnormal returns in private target acquisitions. The authors argue that this is caused by information asymmetry and the so-called “private firm discount”, as information from public targets is widely available in contrast to private companies. Koeplin et al. (2000) argued that the performance differences are caused partly by the difficulty of selling shares of an unlisted entity (liquidity discount). However, contrary to previous literature in this study no negative CARs were found in public target acquisitions, though the results are not statistically significant.

9.3 Acquirer returns – target size

This chapter presents the results from the perspective of target size characteristic. Table 6 presents the results from CARs computed using the market model for small, medium, and large targets. From the table, it can be stated that acquisitions of large targets tend

to yield smaller abnormal returns for the acquirer as the median was 1,80% although the results are not statistically significant. With the market model, the CARs in small target transactions are the highest (3,43%) with p-values of 0,014 and 0,041 both significant at 5% level inside the event window. Medium target acquisitions yielded event window CARs of 3,19% with p-values of 0,024 (significant at 5% level) and 0,002 (significant at 1% level). Therefore, results regarding small and medium transactions are statistically significant when tested with both, a parametric t-test, and a non-parametric sign rank test.

Table 6. Market model CARs, Target size.

<i>The market model</i>	Small	Medium	Large
<i>Panel A: Market model CARs Pre-acquisition [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	0,09 %	0,47 %	0,27 %
<i>p t-test</i>	0,017**	0,010***	0,931
<i>p sign rank test</i>	0,001***	0,028**	0,339
<i>Panel B: Market model CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	3,43 %	3,19 %	1,80 %
<i>p t-test</i>	0,014**	0,024**	0,479
<i>p sign rank test</i>	0,041**	0,002***	0,289

*** CARs are significant at 1% level
 ** CARs are significant at 5% level
 * CARs are significant at 10% level

Table 7 presents the results using the capital asset pricing model, from the table similar results can be seen as the results with the market model with a small exception. Transactions of large targets yielded 1,98% statistically non-significant CARs inside the event period which is the lowest of the three size samples as acquisitions of small targets yielded 3,60% with p-values of 0,058 (significant at 10% level) and 0,005 (significant at 1% level). Acquisitions of medium targets yielded 3,69% statistically significant CARs with p-values of 0,028 (Significant at 5% level) and 0,004 (significant at 1% level). The exception to table 6 is that acquisitions of medium-sized targets yielded higher CARs inside and outside the event window than their smaller counterparts.

Table 7. CAPM – CARs, Target size.

CAPM	Small	Medium	Large
<i>Panel A: CAPM CARs Pre-acquisition [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	-0,18 %	0,40 %	-0,30 %
<i>p t-test</i>	0,013**	0,018**	0,758
<i>p sign rank test</i>	0,001***	0,035**	0,199
<i>Panel B: CAPM CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	3,60 %	3,69 %	1,98 %
<i>p t-test</i>	0,058*	0,028**	0,473
<i>p sign rank test</i>	0,005***	0,004***	0,318
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

Table 8 presents the three factor-models results regarding the size characteristic; the results of large target acquisitions suffer from weak statistical significance as they did with the two other models. Nevertheless, using the three factor-model large target acquisition yielded statistically non-significant CARs of 1,76% inside the event window. Additionally, using the three factor-model we can see that the statistical significance of small target acquisitions suffers, resulting in statistically non-significant CARs of 2,99%. The only statistically significant CARs inside the event period were found in acquisitions of medium-sized targets as they yielded CAR of 2,78% with p-values of 0,046 (significant at 5% level) and 0,006 (significant at 1% level).

Table 8. Three factor-model CARs, Target size.

Three factor-model	Small	Medium	Large
<i>Panel A: Three factor-model CARs Pre-acquisition [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	-0,94 %	0,56 %	0,08 %
<i>p t-test</i>	0,000***	0,001***	0,370
<i>p sign rank test</i>	0,001***	0,002***	0,188
<i>Panel B: Three factor-model CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	2,99 %	2,78 %	1,76 %
<i>p t-test</i>	0,111	0,046**	0,622
<i>p sign rank test</i>	0,129	0,006***	0,572
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

As per previous literature, the results presented in tables 6, 7, and 8 show a similar pattern. As discussed in Chapter 4.4, Alexandridis et al., (2013) found that acquirers who acquire larger targets tend to perform significantly worse than those who target smaller targets. In their study, Alexandridis et al., (2013) found statistically significant negative CARs of 2,82% inside a three-day event window for large targets, in this study however the event window CARs were not found to be negative nor were they statistically significant, but a trend is visible from the presented tables. The results presented show that acquirers of smaller targets tend to perform better than their counterparts, results from two of the three models show that the acquirer's shareholder wealth effects increase as the target size decreases, these findings are also statistically significant.

These results could be caused by unforeseen merger complexity and a lack of forecasted synergy gains in large acquisitions. Also, agency problems are more likely to arise in large acquisitions as usually the compensation of the higher management is likely to be increased (Al-Sharkas 2008). Additionally, the hubris hypothesis of the acquirer's management by Roll (1986) is linked to acquisitions of larger size, leading to misinformed acquisitions. Hansen (1987) argued that in large acquisitions the possibility of larger revaluation losses contributes to the negative performance of large target acquisitions.

9.4 Acquirer returns – payment method

Table 9 presents the results from transactions with different payment methods using the market model. As we can see from panels A and B CASH transactions suffer from low statistical significance inside and outside the event window. Additionally, the event window CARs for CASH transactions were 2,00% inside the event window although statistically insignificant. However, statistically significant CARs were found in the subsamples of MIXED deals and SHARE deals. In transactions where the payment was made with the acquirer's shares, the median CAR was 4,21% inside the event window with p-values of 0,055 and 0,094 both significant at the 10% level. Additionally, in transactions where the payment was made with a mixture of shares and cash the event window CAR was 3,83%

with p-values of 0,047 (significant at 5% level) and 0,002 (significant at 1% level) respectively.

Table 9. Market model CARs, Payment method.

<i>The market model</i>	SHARE	CASH	MIXED
<i>Panel A: Market model CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	-0,50 %	0,66 %	0,27 %
<i>p t-test</i>	0,102	0,351	0,005***
<i>p sign rank test</i>	0,006***	0,221	0,001***
<i>Panel B: CAPM CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	4,21 %	2,00 %	3,83 %
<i>p t-test</i>	0,055*	0,335	0,047**
<i>p sign rank test</i>	0,094*	0,160	0,002***
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

Table 10 represents the returns of acquisitions with the same characteristics when the capital asset pricing model is employed to compute the abnormal returns. It can be seen that the subsample of CASH transactions still suffers from statistical insignificance. Regardless, the event window CARs for CASH transactions were 2,60%. SHARE transactions yielded CAR of 4,14% inside the event window, according to the sign rank test p-value the result is statistically insignificant. However, the p-value of the t-test conducted on the same result (0,052) indicates that the result is statistically significant at 10% level. The most robust results can be found in the subsample of MIXED transactions, where the CAR inside the event window was 4,12% at p-values of 0,045 (significant at 5% level) and 0,002 (significant at 1% level).

Table 10. CAPM – CARs, Payment method.

<i>CAPM</i>	<i>SHARE</i>	<i>CASH</i>	<i>MIXED</i>
<i>Panel A: CAPM CARs Pre-acquisition [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	-0,83 %	0,65 %	-0,16 %
<i>p t-test</i>	0,077*	0,263	0,011**
<i>p sign rank test</i>	0,003***	0,116	0,002***
<i>Panel B: CAPM CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	4,14 %	2,60 %	4,12 %
<i>p t-test</i>	0,052*	0,354	0,045**
<i>p sign rank test</i>	0,128	0,151	0,002***
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

Table 11 is the final table regarding the payment method characteristic. The table presents the results when the three factor-model is employed in the computation of returns in the study. Here we can see those transactions where the acquirer's shares were used as a payment method, the median CAR was -1,17% which is statistically significant according to the t-test conducted with a p-value of 0,082 (significant at 10% level) and insignificant according to the sign rank test.

In contradiction to the CAPM results, the CAR inside the event window is negative. However, they share the same statistical attributes. Additionally, the subsample with MIXED method payment yielded negative CAR at -0,54% inside the event window. This result is also statistically significant with p-values of 0,072 (significant at 10% level) and 0,008 (significant at 1% level). Similarly, to the CAPM and market model results, the subsample of CASH financed transactions suffer from statistical insignificance. However, the CAR for CASH financed transactions yielded an event window CAR of 0,53%.

The pre-event CARs were statistically significant in all of the three subsamples, and they indicate that the markets did not expect the announcement of the acquisition. This notion is clearly seen in the *SHARE* and *MIXED* subsamples, as the statistically significant pre-event CARs were negative. The negative CARs for the two subsamples were -1,17% and -0,54% respectively. This is further supported by comparing CARs of *CASH* deals.

Table 11. Three factor – model CARs, Payment method

<i>Three factor-model</i>	SHARE	CASH	MIXED
<i>Panel A: Three factor-model CARs Pre-acquisition [-10.-1], Zero is the event day.</i>			
<i>CAR (Median)</i>	-1,17 %	0,53%	-0,54 %
<i>p t-test</i>	0,001***	0,057*	0,001***
<i>p sign rank test</i>	0,001***	0,012**	0,001***
<i>Panel B: Three factor-model CARs in the event window [-1.1], Zero is the event day.</i>			
<i>CAR (Median)</i>	3,64%	2,34 %	4,38 %
<i>p t-test</i>	0,082*	0,625	0,072*
<i>p sign rank test</i>	0,188	0,372	0,008***
*** CARs are significant at 1% level			
** CARs are significant at 5% level			
* CARs are significant at 10% level			

The findings regarding the acquirers' abnormal returns inside the event window indicate that in transactions where the acquirers' common shares are used at least in part of the financing, the abnormal returns are higher when compared to all cash transactions. All of the three models indicate that SHARE and MIXED transactions outperformed their CASH counterparts with statistical significance.

These findings support the notion of Fuller et. al., (2002) that large shareholders of private companies are more willing to accept stock payments to avoid tax obligations, therefore, creating a possible discount for the acquirer. Additionally, according to Martin (1996), the acquirer's shares can be used as a risk-sharing tool as large shareholders of the target company become new owners of the acquirer's shares, hence this could signal that the target is overvalued and also create an incentive for the large shareholders to make sure that the transaction and the merger process runs smoothly.

10. Findings and Conclusions

The main objective of this thesis was to study the general performance of M&A transactions from the point of view of the acquirers' shareholders inside the target markets of Northern Europe (Iceland excluded). In addition to the general performance of these transactions, the possible impact of certain transaction characteristics is considered to gain further insight into the variables responsible for M&A performance. In this final chapter of the thesis, the hypotheses described in chapter 3 are cross-examined with the results presented in chapter 9. Furthermore, an analysis of the significance of the results is conducted to present possible further research regarding the subject.

As the main hypothesis (H1) of this study is that the median abnormal returns are zero inside the event window, there is strong support to reject this hypothesis in favor of the counter hypothesis that the median is non-zero. Hence, the results show robust evidence that inside the total sample, abnormal returns exist inside the event window and that the nature of these abnormal returns is positive. Additionally, strong evidence is found for the second hypothesis of the thesis (H2) "M&As are on average positive net present value investments" in table 2 where the total sample results are presented.

Hypothesis 3 (H3) considers if the payment method chosen for the transaction has an impact on the acquirer's returns. The results presented in chapter 9 support this hypothesis as statistically significant evidence is found that transactions, where the acquirers shares are used in some way, performed well. In contradiction, all-cash transactions underperformed though the results were statistically insignificant. Therefore, strong support for hypotheses H3, H3b, and H3c is found. Hypothesis 3a (H3a) is rejected on the basis that the results indicate that cash transactions were outperformed by their share and mixed counterparts, and the results were statistically insignificant.

Hypothesis 4 (H4) considers the impact of the ownership structure of the target on the acquirer's returns. The results presented are in line with previous literature as private

target acquisitions outperformed public target acquisitions in the sample. However, definite answers cannot be stated as results from public target acquisitions suffer from statistical insignificance. Private target acquisition results were found to be strongly statistically significant as their public target counterparts were statistically insignificant.

Hypothesis 5 (H5) considers the impact of the target's size on the acquirer's abnormal returns. The results indicate that acquisitions of smaller targets outperformed the acquisitions of larger targets. However, the results for large targets are statistically insignificant and the medium sized target acquisitions outperformed the acquisitions with small targets by a small margin. Therefore, support for hypothesis H5 is found. From the results, support for hypothesis H5a can be found due to the performance of medium sized transactions. However, support for hypothesis H5b is not found as the results for large target acquisitions are statistically insignificant and the small target acquisitions were outperformed by medium sized target acquisitions.

The data used in this study have some limitations as described in chapter 7.4. As expected, the explanatory power of the three factor-model was found to be the best of the three models. However, the margins between the explanatory powers of the models employed are rather small. For further research, the models could be improved by employing different benchmark indexes in the model regressions. Additionally, the statistical significance suffers from the rather small sample used in the study. This is evident especially in some of the subsamples, for example in the case of public deals. Therefore, more robust results could be found if the chosen time period and the scope of the target markets is expanded, or if the data screening process would be simplified. As in this thesis, the decision to exclude Icelandic markets was made due to the usage of the three-factor model as the benchmark data for the model did not include Icelandic markets. Hence, the size of the sample could be increased with the inclusion of Icelandic markets though the markets are rather small.

The economic significance of this study is implicated by the found impacts of certain transaction characteristics, the findings could be employed by managers to make more informed investment decisions to better fulfill their legal responsibilities to advance the interests of their shareholders.

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