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Determinants of Value Creation and Long-term Performance in Mergers and Acquisitions – Empirical Evidence from the Nordic Stock Markets

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ABSTRACT

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Mergers and acquisitions have been a popular topic of research in the field of corporate finance for decades, and a vast amount of previous studies have been made concentrating on value creation and M&A performance. However, the results are mixed due to several suggested reasons, and the puzzling problems on the topic have not been completely solved. In general, the evidence of previous studies suggests that only half of the M&As succeed in creating shareholder value. The objective of this study is to examine how the stock market reacts to M&A announcements, how the acquiring company's operating performance changes due to the acquisition, and what are the determinants of successful M&As. With a sample of 76 transactions executed during 2013-2014, this study provides some evidence of Nordic acquirers. The stock market reaction is measured with the event study, while the accounting study is applied to measure the long-term performance of acquiring companies. In addition to traditional statistical tests, the performance outcomes are analyzed using the QCA method.

The results of this study indicate that, on average, the acquiring firms' shares generate an abnormal return of 1,37% on the announcement day. Also, the study shows that the market reacts differently between different deal-specific characteristics. The accounting study indicates that the acquiring firms outperform their industry peers in the pre- and post-acquisition period, but the actual change in any of the performance ratios is not statistically different from zero. Some deal characteristics seem to affect long-term performance, and the results suggest that the more the acquirer and target are related, the higher are improvements in post-acquisition performance.

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Yritysjärjestelyt ovat olleet suosittu tutkimuksen kohde yritysrahoituksessa jo vuosikymmenien ajan ja merkittävä määrä tutkimuksia keskittyen arvon luontiin ja järjestelyjen kannattavuuteen on tehty. Tulokset ovat kuitenkin olleet ristiriitaisia useista syistä johtuen, eikä ongelmallisia kohtia ole pystytty aukottomasti ratkaisemaan. Yleisesti aikaisemmat tutkimukset väittävät, että vain puolet yritysjärjestelyistä luo omistaja-arvoa. Tämä tutkimus pyrkii selvittämään kuinka osakemarkkina reagoi yritysostotiedotuksiin, miten ostavan yhtiön operatiivinen tehokkuus muuttuu yritysjärjestelyn myötä, ja mitkä ovat ratkaisevat tekijät onnistuneissa yritysjärjestelyissä. Tämä tutkimus koostuu 76 transaktiosta vuosilta 2013-2014 ja pyrkii tarjoamaan evidenssiä pohjoismaisista yritysostajista. Osakemarkkinan reaktiota mitataan tapahtumatutkimusmenetelmällä ja yritysostajien pitkän aikavälin kannattavuutta mitataan taloudellisiin tunnusluikuihin perustuvalla muutosmallilla. Perinteisten tilastollisten menetelmien lisäksi kannattavuutta analysoidaan käyttämällä QCA metodia.

Tutkimuksen tulokset osoittavat, että keskimäärin ostavan yhtiö osake tuottaa 1,37% epänormaalin tuoton ilmoituspäivänä. Tulokset myös näyttävät, että markkina reagoi eri tavalla eri ominaisuuksilla varustettuihin yritysostoihin. Tulokset osoittavat, että ostavat yhtiöt ovat kannattavampia kuin niiden toimialakohtainen verrokkiryhmä ennen ja jälkeen yritysoston. Kuitenkaan varsinainen muutos kannattavuuden tunnusluvuissa ei ole tilastollisesti merkitsevä. Tietyt ominaisuudet transaktioissa näyttävät vaikuttavan pitkän aikavälin kannattavuuteen, ja tulosten perusteella näyttää siltä, että mitä lähempänä ostavan yhtiön ja kohdeyhtiön toimialat ovat toisiaan, sitä suuremmat hyödyt transaktiolla saavutetaan.

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In Helsinki, 1.2.2020
Niki Korhonen

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1. INTRODUCTION

Mergers and acquisitions (M&A) play a significant role in corporate development when firms aim to economies of scale and scope, growth in existing and new markets, as well as other financial, managerial, and strategic synergies. On the other hand, the others claim that the driving force of M&As comes from agency problems, such as the desire of enterprise building, agency costs of free cash flow, and the market for corporate control. However, forming a substantial part in the field of corporate finance, M&As are in the interest of researchers and practitioners. Like economic conditions in general, M&As tend to occur in waves that are driven by several factors. So far, the existing literature has identified six merger waves, mainly occurred in the U.S., while one may say that we are on the seventh. A brief review of history explains some motives of this complex phenomenon.

The first merger wave started in the late 1890s following radical changes in technology, economic expansion, and innovation. The wave was majorly driven by horizontal transactions resulting in large corporations and monopolies in several industries. The first wave ended in 1903-1905 to a crash in equity markets. The second wave emerged in the late 1910s that was a movement towards oligopolies. Large firms were no longer dominating the industries, and smaller firms started to merge in order to achieve economies of scale and greater power in competition with larger companies. The second wave ended in 1929 due to the great economic recession and collapse of the stock market. (Martynova & Renneboog 2008)

The 1960s was an era of corporate diversification, and the third wave is known for the establishment of large conglomerates. The conglomeration was rationalized by diversification benefits, such as less volatile cash flows, and cost-efficient internal capital markets. Also, the stock market preferred conglomerate transactions by rewarding the firms with abnormal returns on the acquisition announcement day. The third merger wave collapsed in 1973 as a result of the oil crisis that ran the economy into a recession. The fourth wave took place in the 1980s, representing an era of hostile takeovers, and leveraged and management buyouts. The wave was highly boosted with changes in anti-trust policy and deregulation in the financial sector. The wave ended in 1987 after the crash in the stock market. (Schleifer & Vishny 1991)

The fifth wave started in the early 1990s and was characterized by friendly takeovers, industry-related, and cross-border acquisitions. The equity market collapse in 2000 ended the fifth wave. (Martynova & Renneboog 2008) The sixth merger wave started in 2003 continuing with a large number of cross-border acquisitions and ended in 2008 due to the financial crisis (Yaghoubi et al. 2016a)

1.1 Background and Motivation

The past decade has seen a strong increase in the activity of mergers and acquisitions, and especially in recent years, M&A has been a major driver in companies' growth strategies and corporate development. In 2018 the value of global M&A increased by ten percent, representing a total value of USD 5,303,713.00 million[1], which is one of the highest peaks in history. The number of announced deals was approximately 97 thousand during the year. Some indicators that have driven M&A activity in recent years can be distinguished. Positive global growth, increased cash flows, strengthened balance sheets as well as low interest rates, and low cost of debt have played a major role in companies' activity to undertake mergers and acquisitions. The first half (H1) of 2019 represented a decline in both M&A value and volume comparing to H1 of 2018. The future is uncertain considering regulatory changes, geopolitical headwinds, and macroeconomic uncertainty. One estimates an end of the current M&A boom, and others have different views. (Bureau Van Dijk 2019; Mergermarket 2019; JP Morgan 2019; Kengelbach et al. 2019)

What is certain is that many traditional industries are in a revolution. Manufacturing companies are adding new technologies to the products, finding the right kind of professionals in tightening labor markets, and seeking opportunities by entering new markets. Consumer industry companies are investing in new technologies and reshaping their business models due to the pressure of more demanding customers that are more cognizant of quality, environmental, and other factors. Financial services companies improve technologies that allow better ways to make payments and invest but also enable them to face clients in more efficient ways. Many banks have pressures to cut

[1] Depends on a method used in calculations and limitations of data. Bureau Van Dijk report 5,3 trillion, Mergermarket 3,5 trillion, JP Morgan 4,5 trillion and Boston Consulting Group (Kengelbach et al. 2019) 3,06 trillion

costs and improve efficiencies. Media & Entertainment (M&E) sector has experienced the disruption caused by competitors from the technology sector producing content and providing it directly to consumers. Although, the leaders in M&E realized how crucial such a technology is and started to launch their own platforms. Also, tech-companies are reshaping their businesses by allocating resources to fast-growing segments, such as the automotive industry and IoT, etc. These are all significant factors that drive current M&A activity. (Ernst & Young 2018)

Besides, that mergers and acquisitions are highly important strategic activities that affect various stakeholders of a company, they also seem to be a favorite strategy to grow businesses all over the world. That might be a reason why academics, especially in finance and strategic management, have been interested in mergers and acquisitions for a long time. Despite that the level of interest in research has fluctuated during the years, numerous studies of the topic have published by focusing on performance, value creation, motives, and trends in M&A. The first studies on M&A performance can be traced to the 1960s, but still, the puzzling problems have not been solved. (Das & Kapil 2012; Haleblian et al. 2009; Yaghoubi et al. 2016a)

A remarkable number of the existent literature is arguing whether acquisitions create value or not, and the failure rate varies between 44 and 50 percent (Cartwright & Schoenberg 2006). If the range is accurate, it is obvious that this is a “half empty – half full” point of view, and generally speaking, it would be more interesting to find out why half of the acquisitions succeed and the other half not. However, the previous results are controversial, and the research has not consistently identified influencing factors to post-acquisition performance (King et al. 2004). Moreover, there have been several arguments on how the performance should be measured, and questions have been raised whether some applied methods and metrics are valid. Also, prior research is lacking consideration in events of simultaneous value creation and destruction, and the main problem, concerning sources of value in mergers and acquisitions, has remained unsolved (Yaghoubi et al. 2016b).

Even though many empirical studies of M&A have been made, they do not cover geographical areas equally. The vast amount of studies is justifiably focusing on the markets in the US or UK because of their relatively higher value and volume in M&A deals. The M&A research focusing on Nordic markets has drawn only a little attention, and

thus the evidence of performance in Nordic M&As is limited. According to Moschieri and Campa (2009) there exist several differences in the transactions between US and Europe, that are related to, e.g., legislation, acquisition techniques, payment methods, and trends, etc., which highlights that some existing theoretical and empirical frameworks of mergers and acquisitions (generated in the US context) do not necessarily apply in Europe. Also, the differences between European countries are remarkable when considering, e.g., paid premiums and the time spent on integration processes.

The focus of this study is to find out how M&As affect to shareholder wealth, how the acquiring company's operating performance changes due to the acquisition, and what are the determinants of successful mergers and acquisitions in Nordic countries. I approach the problem by examining crucial factors in M&A events in a way that combines widely used methodologies but also try to bring something new on the table. The aim is to capture the value delivered to acquirer's shareholders and find out how the chosen performance ratios evolve in the post-acquisition period, as well as to examine what are the factors that drive performance. The results are meant to benefit several parties. First, the information enables investors to examine whether they gain or suffer in mergers and acquisitions. Secondly, the managers will get a benchmark about previous transactions and their performance, and thirdly the results hopefully provide new insights that can be exploited in future research.

1.2 Research Problem, Objectives and Limitations

Many previous studies argue that most of the M&As destroy acquiring companies' shareholder value. However, such an argument is mostly based on earlier studies on M&A wealth effects, and modern literature is not completely consistent with the argument. The existing literature also argues that the firm's long-term performance is, at least, partially affected by deal characteristics. This study aims to provide evidence of mergers and acquisitions from Nordic markets in the 2010s. Four research questions are formed around the research problem:

1. To what extent do mergers and acquisitions create value in Nordic countries?
2. How the market reacts to acquisitions with different deal-specific factors?

3. What are the deal-specific factors that affect long-term operating performance?
4. Are the stock market returns after the M&A announcement linked to long-term performance?

Answering to the research questions provide insights of Nordic M&As. Whether they create value, and is it possible to forecast the outcome of the M&A with deal specific characteristics, are specifically meant to be the contribution of this study. The study applies two of the most used empirical methodologies in order to answer the above questions. The event study methodology is used to examine short-term share price reaction. It consists of an examination of the acquirer's cumulative abnormal returns (CAR) after the M&A announcement. Accounting study that is based on analyzing of firm's financial ratios before and after the acquisition is used to examine the impact of an acquisition on long-term operating performance and value creation. Also, qualitative comparative analysis (QCA) is used trying to identify combinations of factors that affect value creation.

This study focuses only on the acquiring companies since the targets are mostly non-listed companies. Also, the evidence on targets' wealth effects in prior literature is quite clear indicating that target firms' shareholders clearly benefit from M&As. The scope of analyzed period is from 2010 to 2017, and three years pre- and post-acquisition accounting data must be available of acquiring firms, meaning that the M&As must have executed during 2013-2014. It is evident to understand that the three-year time period after the transaction may be too short to capture the benefits on highly strategic acquisitions. However, according to the management survey of Kengelbach et al. (2018), most of acquiring companies estimated that achieving the aimed synergies of the transaction will take two to three years.

Figure 1 illustrates the research framework and structure of this study. The paper has six main chapters and the rest of the study is organized as follows. Chapter 2 presents the theoretical background of mergers and acquisitions including basic concepts and M&A process, as well as behavioral and neoclassical theories related to M&A. Chapter 3 discusses the previous research and findings on M&A performance by focusing on the two widely used methodologies. Chapter 4 describes the sampling and data

collection, and the methodologies of this study in practice. Chapter 5 presents the empirical results of the study. Finally, chapter 6 summarizes the findings and answers to the research questions, as well as discusses possible fields for further research.

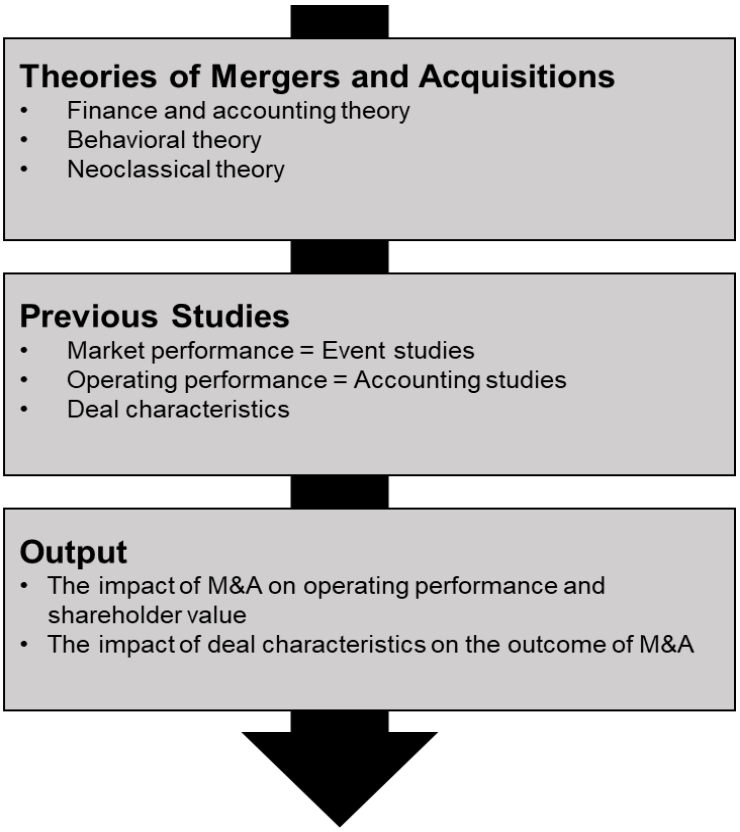

Figure 1. Research Framework

2. THEORETICAL BACKGROUND OF M&A

This chapter explains the concepts of mergers and acquisitions by starting with terminology and description of the M&A process. Thereafter the behavioral and neoclassical theories on M&A are explained. Both theories explain the motives behind the M&As, stock market reactions and long-term performance of acquiring firms. In addition to these theoretical concepts, the terminology and description of processes in M&As constitute an essential part when examining the results on abnormal returns and long-term performance.

2.1 Basic Concepts of Mergers and Acquisitions

M&A as a concept is often not adequately understood in general discussion, and terms merger and acquisition are widely used interchangeably. Not only in economic newspapers but also in academic journals, these terms are often used as synonyms. (Sherman & Hart 2005, p. 11; Immonen 2018, p. 17) However, the M&A concept involves a variety of transactions that are technically different. In this chapter, I describe the basic forms of transactions, and terminology related to the M&As, in order that the reader can better understand technicalities of these transactions, as well as recognize what type of transactions are involved in this thesis. On the other hand, after this chapter, I follow the widely used approach, and when discussing about merger, acquisition, M&A, or takeover, the author does not make a difference between them but instead referring them synonymously.

M&As have three basic forms: merger or consolidation, acquisition of stock, and acquisition of assets. In a merger, one company will be absorbed into another company in a way that the acquirer receives all the assets and liabilities from the acquired company. After the merger, the acquiring company retains its name and identity while the acquired company ceases to exist. (Ross, Westerfiel & Jaffe 2008, p. 812) The transaction begins when the board of directors of both companies have decided to merge the firms and received approval for the agreement from both companies' shareholders (Damodaran 2001, p. 835). Typically, the number of votes required for the approval is two-thirds of the shares, but the amount can vary depending on country laws and/or articles of incorporation. Consolidation is the same kind of transaction as a merger,

with the exception that both companies will lose their legal existence as they become a part of the newly established company. (Ross et al. 2008, p. 812)

An acquisition is also often called a takeover, which may be a better description of a situation where acquiring company achieves a majority stake of the target and its voting rights. Also, ‘reverse takeover’ is a widely used definition, which means that the acquirer is smaller than the target, and/or a private company buys a listed company. (Immonen 2018, p. 35) Moreover, the term takeover can be divided into *hostile takeovers* and *friendly takeovers*, which are describing the nature of how the acquiring firm is approaching the target.

Acquisition of stock means that one company buys another company’s voting stock by using cash, shares of stock, other securities, or a mix of the previous ones (from now on, I use the term ‘hybrid’ for the last one) as a method of payment. The acquisition process can begin from a private offer that is made by the acquirer to the target company’s management. After that, the offer will be delivered to the target company’s shareholders, usually by making a tender offer that is publicly announced offer -made by the acquirer to the shareholders of the target company - to buy the outstanding stock at a specific price. (Ross et al. 2008, p. 813) A tender offer can also be made directly to the shareholders of the target company without having negotiations with the board of directors and the management of the target company. This kind of procedure is referred to as hostile takeovers. (Damodaran 2001, p. 835) Typically, a hostile takeover is directed to minority shareholders, and early sellers are promised to receive a higher price of their shares in order to encourage others to sell as well. This strategy is known as a ‘two-tier tender offer’. After approaching minority shareholders, the buyer is trying to increase its ownership to receive a voting power. Other methods for hostile takeovers are ‘sweep the street’ and ‘creeping acquisition’ method. The former describes a situation where shares will be purchased at a high price until a defined level of ownership has achieved, and the rest of the shares are purchased at a low price. The latter instead is a strategy of buying huge amounts of shares from the stock market before making a tender offer ensuring adequate voting rights and hedging against competing bids. (Immonen 2018, p. 36)

As described in the name, the acquisition of assets means that one company buy all the assets from another company. In such a transaction, the seller does not necessarily

cease to exist as it can still retain its legal entity without having the assets anymore. As in merger and acquisition of shares, also the acquisition of assets needs approval from the target company's shareholders. (Ross et al. 2008, p. 813)

Lastly, two categories can be distinguished from the basic concept of M&A: Management Buyout (MBO) and Leveraged Buyout (LBO). The former refers to the case where a company is acquired by its own management. Usually, after the transaction, if the company is publicly listed, it exits from the stock market and becomes a private company. In the latter case, a group of investors decides to acquire a company, and the transaction is financed with high debt. To describe a level of debt, it is not uncommon that debt to equity is 10 to 1 in such transactions. (Damodaran 2001, p. 835; Jensen 1986)

Commonly, the acquirers in M&As are either corporations (i.e., one company buys another), or venture capitalists and private equity investors, and thus preferences for the transactions of each acquirer are different. Usually, in corporate M&As, the acquirer seeks synergies by combining the two firms and making the combination more valuable than the sum of its parts. Private equity firms (PE) are looking for mature companies that generate stable cash flows but have a limited amount or limited ability to undertake new investment projects. PE's focus is often to improve the company's efficiency, capitalize concealed opportunities in the target's business environment, and grow the business. The target will be under the private equity firm's control and management at a specific time until the PE decides to exit, usually by running an IPO or selling the target. Also, PE can seek synergies in some situations if it already has a perfect candidate in its portfolio, which can be merged with another company. Transactions made by PEs are often LBOs as they are financed with a high amount of debt. Venture capital firms instead are typically seeking immature companies that they can develop over time and earn the profits later. In figure 2 below are expressed different types of transactions, which are often seen as a part of the M&A concept.

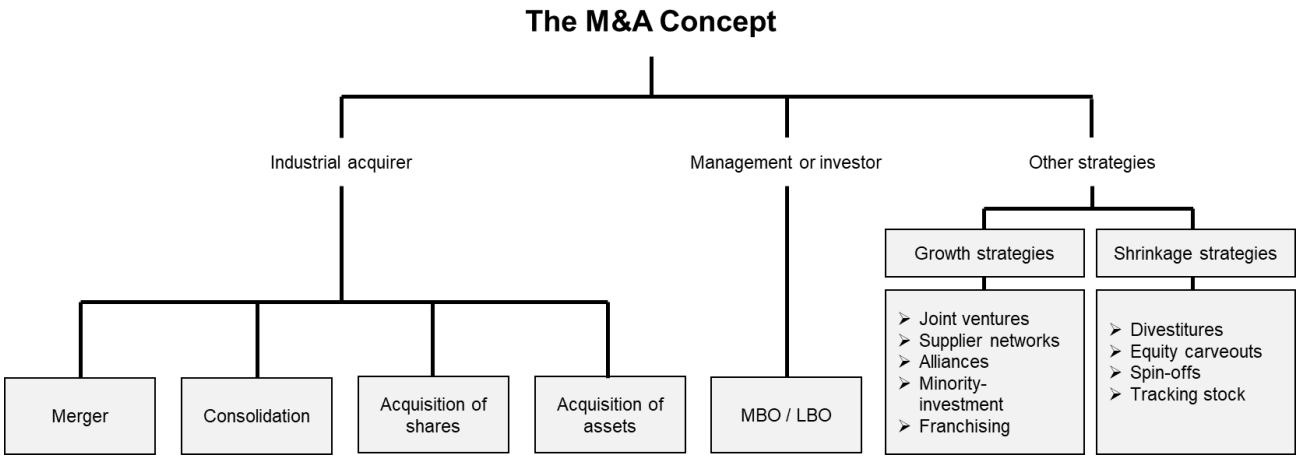

Figure 2. Transactions related to M&A (Copeland et al. 2005, p. 756; Damodaran 2001, p. 836; Sherman & Hart 2005, pp. 254-255)

It is important to note that M&A can sometimes be understood as a wider concept that involves several other growth and shrinkage strategies in addition to basic mergers and acquisitions. However, the growth and shrinkage strategies are alternatives to mergers and acquisitions (Copeland et al. 2005, p.756; Sherman & Hart 2005, pp. 254-255). Those strategies on the right-hand side of the figure are not involved in this thesis. Also, MBOs and LBOs are excluded.

Moreover, industrial acquirers have different kinds of motives for pursuing M&A. Companies can acquire others from similar industries or totally different industries, and this leads us to examine transaction types. Mergers and acquisitions are typically classified into the following categories: *horizontal* acquisition, *vertical* acquisition, and *conglomerate* acquisition (Ross et al. 2008, p. 814). Before moving to the definitions of these different types of transactions, the author finds that the terms should be briefly discussed so that the reader can understand the motives behind these different types of acquisitions. Terms horizontal and vertical are well known in the research of economics and strategy, and the focus is on the company's horizontal and vertical chains (i.e., competitors and cooperating partners, respectively). When examining these chains, we are typically interested in how the company is and how much it should be integrated horizontally or vertically, and which are the benefits and risks of that integration. From the economic and strategic point of view, when considering horizontal integration, one can ask how large the company's output should be in order to maximize the value of the company. When considering vertical integration, the puzzle is related to the

question, whether the company should make or buy a particular asset that is used in its production.

Horizontal acquisition refers to a transaction where the acquirer and target are both operating in the same industry (Ross et al. 2008, p. 814), and thus their products or services are similar (Avinadav, Chernonog & Perlman 2016). A motivation behind horizontal acquisitions is to aim at economies of scale and scope through reducing overlapping processes and exploiting cost- and revenue-based synergies (Capron 1999) as well as increasing market power or entering a new market (Sherman & Hart 2005, 17). In a vertical acquisition, merged companies exist in different levels of the value chain, meaning that the combined companies previously sold or bought goods or services from each other (Avinadav et al. 2016). Vertical acquisitions are mainly motivated by the efforts to make coordination more efficient with closely related activities (Ross et al. 2008, p. 817) as well as aiming operational synergies and economies of scale (Sherman & Hart 2005, p. 17). An example of this type of acquisition can be, for instance, a transaction where a manufacturing company acquires a company that is delivering raw materials for it.

Conglomerate acquisitions completely differ from horizontal and vertical acquisitions. In horizontal and vertical acquisitions, companies are operating in the same industry, either offering same products or services or they belong to the same value chain. Yet, in conglomerate acquisitions, the acquirer and the target are completely unrelated to each other (Ross et al. 2008, 814). Unlike horizontal and vertical acquisitions, conglomerate acquisitions are not expected to deliver synergy gains because acquirer and target are not related to each other (Yaghoubi et al. 2016). Conglomerate acquisitions are usually driven by motives of diversification or willingness to enter new markets. Like Sherman & Hart (2005, p. 14) puts it, sometimes it is cheaper to buy brand loyalty and customer relationship than to build them itself. Overall, results related to the benefits of conglomeration are somewhat controversial.

2.2 M&A Process

The M&A process can be divided in several ways depending on the examiner's preferences or nature of a specific transaction. Usually, a classic way to present the M&A process is to divide it into three phases: planning, execution, and integration, which all

consist of several sub-phases. (Immonen 2018, pp. 45-46) According to Katramo et al. (2013, p. 39) each transaction process is unique to its nature, but in general, it is possible to distinguish some common sub-phases from the process. The M&A process is illustrated in figure 3. below.

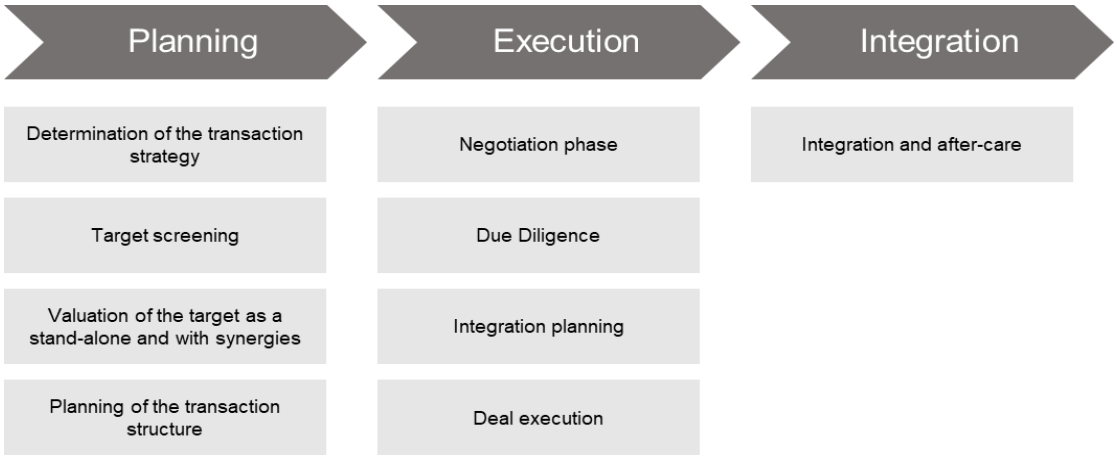

Figure 3. Illustration of M&A Process (Immonen 2018, p. 46; Katramo et al. 2013, p. 39; Gates & Very 2003)

The planning phase is usually started by determining the transaction strategy and ensuring that an acquisition will be the right solution for strengthening the company's business and organizational strategy. (Katramo et al. 2013, p. 39) After that, the planning phase continues to target screening and identification, where the focus is on examining the target from a long-term strategic point of view. (Immonen 2018, p. 46) The screening criterion is based on the acquirer's acquisition strategy, and potential targets can be ranked, for example, based on their industry, market share, size, geographical location, profitability, growth potential, and other financial and technical characteristics. (Katramo et al. p. 42) After the potential target has selected, the valuation of the target as a stand-alone and with synergies will be prepared (Immonen 2018, p. 46). Also, careful planning of the transaction structure is one of the key areas in the planning phase, which involves clarification of market risks, taxation, and accounting practices. When planning the transaction structure, the acquirer must consider its level and cost of debt, financing structure for the deal, as well as the target's capital structure and the structure of the whole organization after the deal. (Katramo et al. 2013, p. 46)

The execution phase starts with negotiations concerning the terms of the transaction. Crucial items in negotiations are the financing of the transaction and the method of

payment; in other words, in which form (cash, stocks, hybrid) the payment will be delivered to shareholders of the target. (Immonen 2018, p. 46) The transaction price consists of both acquirer's and target's criteria. Negotiation of the acquisition price is placed between the acquirer's maximum acceptable purchase price and target's minimum acceptable selling price. Acquirer sets the acceptable price based on valuation, i.e., value as a stand-alone plus with relevant and achievable synergies. Valuation methods vary, but the most common methods are based on free cash flows and market multiples derived from industry peers or earlier executed acquisitions. Typically, several different methods are used to complete each other in order to make the analysis more accurate. Also, negotiation tactics and possible competing bids from the acquirer's competitors can affect to the actual price of the transaction. (Katramo et al. 2013, pp. 47, 49-50, 101-103)

Due Diligence (DD), usually made by a third-party, is essential part of the execution phase which purpose is to provide a full picture of legal, financial and operational characteristics of the target company and to ensure that there will be not any undesirable surprises after the transaction (Immonen 2018, p. 48). DD process can be divided into commercial, financial, tax, and operational due diligence, which all provide necessary information for negotiations as well as analysis and valuation of the target. Like Arden & Nappi (2013) states, Due Diligence should be a well-defined process that identifies potential synergies and risks through scenario analysis and make sure that the numbers used in valuation are correct. They point out that often numbers in an early stage of the transaction are not that accurate, and if for example, the cost savings are attempted to achieve by reducing overlapping processes without understanding how they would be implemented and measured, a company may end up increasing its operational costs instead of achieving savings.

Gates and Very (2003) suggest that an integration plan is recommended to prepare before closing the deal as many actions concerning the integration should be started right after the closing. Also, if the integration plan is prepared before the closing, it is possible to gather valuable knowledge from deal analysis, DD, and negotiations in order to ensure process continuity. Furthermore, documenting the value drivers -recognized in valuation- into the integration plan as well as building a measurement system, the company can measure and manage the integration process and value creation from day one after the closing.

The integration phase itself has several challenging steps as the acquirer has to implement the target into the organization in order to realize forecasted synergies and cash flows. The integration phase can be seen as a process where a company is managing the value creation and at the same time, avoiding value leakage (Gates & Very 2003). Implementable processes are related to operational resources (such as marketing, distribution, R&D, and purchasing), manufacturing processes, organizations, accounting, and IT systems as well as social (HR) and financial (capital structure, transfer pricing, credit policy etc.) functions. (Immonen 2018, p.45) Integration is a highly complex process, and it is often stated that the failure of acquisition is attributed to the failure of integration. Typical generalization is that the first hundred days are crucial to the success of integration (Katramo et al. 2013, p. 58) and the focus during those days should be pointed to both companies' momentum and people in order to create an encouraging atmosphere for synergy realization (Gates&Very 2003).

As it is obvious, the M&A process is not that straightforward that illustrated in figure 3. Instead, some of the sub-phases of the process exist in all main stages (see figure 4). Due Diligence is an excellent example of that, and it should not be seen only as a part of the execution phase or prior to closing. It can be divided into multiple stages depending on the target's characteristics, transaction type, available resources, and acquirer's procedures. (Katramo et al. 2013, p. 51)

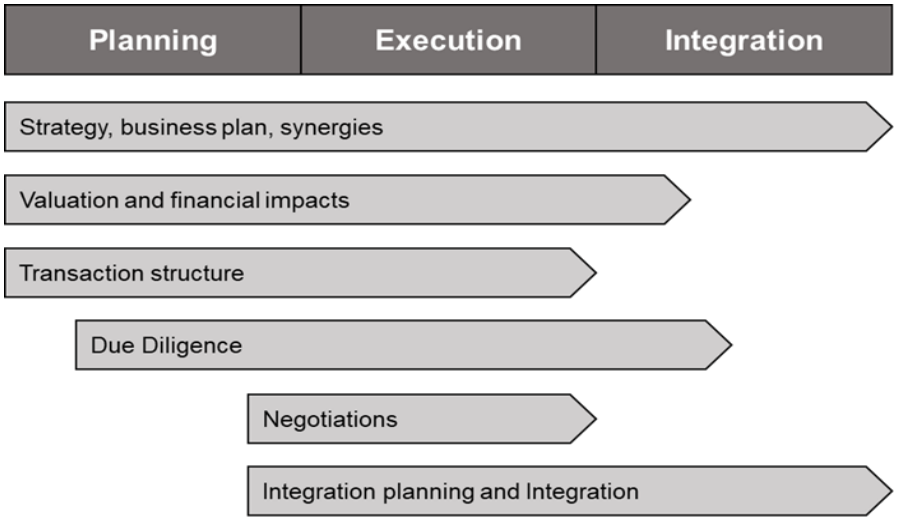

Figure 4. Task Flow in the M&A Process (Katramo et al. 2013, p. 51)

Christofferson, McNish, and Sias (2004) state that usually acquirers have little information about the target and that is why external advisers are needed in the transaction

to draw a clear picture of the target and help asses synergy estimates. Information accumulates during the process, and it might change the acquirer's opinions about the target. Sometimes information gathered in Due Diligence might lead to withdrawing of an acquisition. (Katramo et al. 2013, p. 52) Also, as mentioned earlier, the numbers used in the early stage of the transaction usually are not accurate and needs verification. That is why it may be necessary to re-valuate the target and synergies during the process when more information is available.

2.3 Behavioral Theories on Mergers and Acquisitions

The research in economics has drawn several insights from psychology that affect individual decision-making. Behavioral economics is a substantial concept in modern research that has applied to several topics. (Camarer, Loewenstein & Prelec 2005) Behavioral finance, one of its sub-divisions, suggests that unlike in the traditional finance theory, some investors are influenced by behavioral biases that affect their decision-making, and thus actions are not always based on rationality. Behavioral biases in the context of corporate finance are two-folded. Whether managers act rationally and response when the market is mispricing securities or on the other hand, managers make poor corporate financing decisions that are a result of behavioral biases. The evidence seems to support both suggestions. (Byrne & Brooks 2008)

In M&A studies, behavioral theories are trying to explain shareholders' reactions to the transaction announcement as well as motives why managers undertake acquisitions. Quite often, these theories are used to explain unsuccessful transactions. For example, Doukas & Petmezas (2007) state that some managers are overconfident by overestimating their skills, and they expect too high synergies while underestimating the risks. On the other hand, there is also a distinct view. Shleifer and Vishny (2003) argue that misvaluations on the stock market are the main driver for M&As as when some firm is underpriced, managers from other firms are trying to take advantage of it by executing an acquisition.

2.3.1 Agency Theory

Agency theory, also known as the principal-agent problem, was first introduced in the context of economics by Ross (1973) in his paper: *The Economic Theory of Agency: The Principal's Problem*. The theory relies on a proposition that the decisions made by agents (managers) on behalf of principals (shareholders) do not always benefit shareholders as the managers may act based on their self-interests. The problem causes costs (agency costs), as Jensen & Meckling (1976), who studied the problem a few years later, state that ensuring that the managers will make optimal decisions on behalf of the shareholders is impossible at zero costs. These costs arise from positive monitoring and bonding; in other words, measuring and observing managers' behavior and performance is not free of costs, neither is the managers' commitment to the company.

Agency theory on M&As relies strongly on Jensen's (1986) concept of agency costs of free cash flow. The theory proposes that sometimes there is a conflict of interests between managers and shareholders that occurs in a way that the company does not pay excess cash to shareholders, but instead uses it to projects that generate lower returns than the cost of capital or wasting it on other inefficiencies. He presents an example of diversification programs in the oil industry in the early 1980s when crude oil prices had increased heavily in almost the past decade due to expectations of an increase in future prices and industry expansion. When the consumption of oil decreased, the prices followed, and real interest rates, as well as exploration and development costs, increased. The industry had the excess capacity as refining and distribution capacity were forced to run down. The industry had consolidation pressures, and it had to shrink, but instead of paying out to shareholders, many companies continued exploration and development programs and also started to diversify by acquiring non-related companies outside the industry. These projects were NPV negative investments and thus destroyed shareholders' wealth.

This empirical observation points out that M&As are not always executed by the interest of shareholder value maximization. There are several explanations why such behavior exists, and one is that paying out to shareholders reduces managers' resources and thus their power. The risk of withholding the payouts is more likely in organizations that generate substantial cash flows but have little profitable investment and growth opportunities. (Jensen 1986) However, sometimes M&As can be used as a vehicle to

solve such problems, and this is explained in chapters 2.4.2 and 2.4.4, where we deal with financial and managerial synergies.

2.3.2 Hubris

The hubris theory is affiliated with corporate managers' overconfidence, and it is closely linked to the winner's curse effect, which arises in auctions. In general, the winner's curse means that when many bidders are competing for some particular object which value is uncertain, the range of given bids varies widely, and the winner with the highest bid often pay excessively over the fair value of the object. (Copeland et al. 2005, p.764) Hubris in M&As refers to a situation where managers misvaluate targets and acquire companies even if no synergistic gains are available (Berkovitch & Narayanan 1993)

Roll (1986) elaborates that the hubris hypothesis suggests that acquiring managers often overpay in acquisitions because they are unable to act rationally, and they have errors in valuations. He states that although some companies are executing multiple M&As, on average, individual managers have only a few opportunities to participate in these transactions. Therefore, they are holding a significant risk to overestimate the value of the target while convincing themselves that the valuation is accurate. These transactions are value destroying from the acquirer's point of view, and the value would be transferred to the target. Furthermore, he argues that as managers have an insufficient amount of opportunities to be involved in M&A transactions, they cannot learn from their past mistakes. Hubris hypothesis relies on the assumption that if the transaction cannot generate any synergies or other gains, but the acquiring company still believe so, the premium (the amount of paid price that exceeds target's pre-announcement market price) paid to the target represents a random error, that is a mistake in valuation. However, even if M&As will generate gains derived from synergies, at least a part of the premium may be explained with valuation error and hubris because competing bids cause the winner's curse and acquirers' end up paying too much Roll (1986) explains.

There is a vast amount of studies arguing that hubris, at least partially, explains M&A activity as well as large premiums. However, despite the evidence that managerial hubris does exist, the main motive for mergers and acquisitions is synergy (see e.g.,

Berkovitch & Narayanan 1993, and Kiymaz & Baker 2008). Also, even though hubris and agent problems explain that managers can't always act rationally and make optimal decisions from shareholders' point of view, there is evidence that managers, on average, do listen to the market, and when managers disclose information about large investment plans that do not satisfy shareholders, they tend to withdraw the proposed transactions. This can be viewed when markets are pricing the company's shares down after the announcement, but when the proposition is rejected, the price rebounds to the level where it was before the initial announcement. (Kau, Linck & Rubin 2008)

2.3.3 Signaling Theory

Signaling theory suggests that markets are not fully efficient, and corporate managers can use financial policy decisions (e.g., adjustments in the capital structure) to signal positive information about the company to the market. This is possible when there is an information asymmetry between managers and investors. The signaling theory in M&A research is often used to explain the method of payment, which is used in financing the acquisition. The general assumption is that when the acquisition is financed with equity (cash), acquiring company stock is overpriced (underpriced). (Yook 2003) Thus, the assumptions are closely related to Myers's (1984) pecking-order theory, which suggests that when managers issue stock, it signals to the market that the company is overvalued, and when they issue cash, it signals about undervaluation.

Often researchers have examined how the method of payment affect short-term share pricing; in other words, how the market reacts to the used financing method. I will discuss the results presented in earlier literature in chapter 3.2.1. What is evident here is to go through different views that have presented in prior studies concerning what kind of signals the method of payment can send. As Yook (2003) states, information asymmetry in mergers and acquisitions is more complicated than it is when issuing new capital. In M&As, managers hold private information about the value of the acquisitions while in capital markets, the information is related to the value of the issuer's assets in place. Therefore, in M&As the focus should be pointed to the value of the combined firm, which is mostly derived from synergies. He suggests that bidder is likely to prefer cash (equity) when managers assessment of synergies is higher (lower) than what the market expects on the announcement day.

There also exist other explanations of why investors value cash financed deals more than equity financed. Hazelkorn, Zenner, and Shivdasani (2004) suggest that cash financed transactions may send positive signals to the market about decreasing agency costs. This is because usually, cash financed acquisitions require large debt issuance, and thus to meet debt obligations, managers are more committed to manage integration and realize expected synergies. The argument is consistent with for example Jensen's (1986) as well as Harris's and Raviv's (1990) arguments that debt can be highly efficient control mechanism because by issuing debt, managers are forced to pay out cash flows to the bondholders as the default would allow them to take the company into bankruptcy court.

Cools, Gell, Kengelbach, and Roos (2007) provides another kind of view by arguing that financing the deal with cash sends a signal about serious commitment and carefully assessed calculations as actual money has put on the table. When managers are ready to do so, they seem to be more confident that the investment is NPV positive.

2.4 Neoclassical Theories on Mergers and Acquisitions

Neoclassical theory, unlike behavioral theories, suggests that decision-making is based on rationality, and the actions are taken in means of value maximization. Mergers and acquisitions occur due to industry shocks that require asset reallocation, and companies are responding to a shock by acquiring other companies. Moreover, the neoclassical theory relies on the assumption that the overall merged company is valuable and more efficient than what the companies would be independent. (Harford 2005) This explains why neoclassical theories are also known as synergistic theories.

Synergy is the most used motive for M&As, and it functions to both ways between the acquirer and target. Managers of both firms are trying to maximize their shareholders' wealth, and M&A would be executed only if both firms' shareholders gain from the transaction. Thus, the net benefit from M&A has to be positive, and it realizes through synergies. (Berkovitch & Narayanan 1993) Value creative synergies can be derived from different sources, and I will discuss the most relevant sources that have been identified in previous literature in the following chapters.

2.4.1 Operating Synergies

Damodaran (2005) explains that operating synergies are referred to as economies of scale, greater pricing power, synergies that come from a combination of different functional strengths, and higher growth in existing or new markets. These synergies allow companies to improve operating income, and they generally exist as higher cash flows, affecting positively to the value of an acquisition.

Economies of scale, by definition, mean that average unit costs in production decline when production increases, and that way, the marginal cost of the last produced unit is lower than the average cost (Besanko, Dranove, Shanley & Schaefer 2010, p. 42). Typically, horizontal and vertical M&As realize economies of scale, but one may claim that conglomerate M&As also offer such economies from sharing administrative and management tasks (Brealey, Myers & Allen 2011, p. 823). Generally horizontal M&As reduce competition as a rival leaves the market and acquiring company receives a greater market share. That may allow higher pricing power for acquiring company and improve its margins and operative income. (Damodaran 2005)

The combination of different strengths refers to a resource-based view, where both parties in M&A have different resources that can be exploited in the merging company's business and thus achieve revenue-enhancing capabilities (or just revenue-based synergies). Such resources are, for example, R&D capabilities, specialized manufacturing skills, marketing skills, or supplier networks. On the other hand, cost efficiency theories rely conversely to cost-based synergies, where asset divestiture is the key to improve operative profits. In such a case, the merging company is cutting overlapping functions such as personnel in R&D, manufacturing, logistics, sales networks, and administrative services as well as disposing physical assets. (Capron 1999) Higher growth in new or existing markets is also a fundamental goal in M&As. Sometimes it may be difficult to enter into foreign markets, and cross-border acquisition is required. On the other hand, companies in saturated industries undertake acquisitions as it is the most straightforward (and sometimes only) method to grow.

According to Devos, Kadapakkam, and Krishnamurthy (2009), operating synergies are often used to justify mergers and acquisitions; in other words, managers are promising to shareholders productive efficiencies that allow higher operating profits or cuts in

capital spending. The authors state that operating efficiencies are the main source of synergies in acquisitions. Although, their findings are not consistent with all synergy sources mentioned above, as they argue that for example revenue increases and savings in costs are not contributed positively to synergies, but instead economies in capital expenditures (CAPEX) and working capital (WC) investments are often major gains realized in acquisitions. The evidence provided by Devos et al. seems to be somehow related to cost efficiency theories and economies of scope as the merging company can reduce its investments to fixed assets when the production is transferred from two companies into one. Also, increased bargaining power related to payment terms and efficiencies in inventory turnover management can be a sign of benefits that are achieved by increasing firm size.

2.4.2 Financial Synergies

Financial synergies include tax benefits, a greater debt capacity, a cash slack, and diversification. The rationalization behind financial synergies is that they arise as higher cash flows or lower cost of capital (i.e., lower discount rate) or sometimes in both forms, and thus increases the value of the merged company. (Damodaran 2005)

After the merger, the company can increase its debt capacity and borrow more than earlier if it has more stable cash flows. This way, the company is able to create a greater tax shield that lowers its cost of capital[2]. Tax benefits are also achievable from utilizing tax laws as the acquirer can write up target's assets, (i.e., increasing their book value if they do not represent the fair market value) and thus increase depreciations, or exploiting target's net operating losses in the case where the profitable company buys an unprofitable one. (Damodaran 2005) Also, merged companies may have a possibility to borrow at lower costs as they can make fewer and larger security issues, but also borrowing at a lower interest rate may be possible if the company is less risky in debt payments after the merger. (Brealey et al. 2011, p. 828) This one also pushes the WACC down due to a lower cost of debt, which increases the value of the company.

Cash slack is also one type of financial synergy, or sometimes it may be a bad motivation to buy another company, as Jensen explains (see chapter 2.3.1). Looking at a

[2] More specifically, assuming that cost of debt nor bankruptcy costs do not increase because of a higher amount of debt, adding debt into capital structure pushes the WACC lower due to tax deductions.

synergy point of view, it refers to M&A, where one party has a substantial amount of cash but a limited amount of profitable investment opportunities while the other party has highly profitable investment opportunities but a limited amount of cash. The value in such a transaction is created by executing the high profitable investments using excess cash. This type of synergy goals typically occurs in M&As between large and small companies or listed and private companies. (Damodaran 2005)

There are different rationales explained for conglomerate transactions, but diversification is the most controversial argument. Trautwein (1990) argues that one way to achieve financial synergies is to undertake a conglomerate acquisition that lowers the acquirer's systematic risk. The argument is partially true and consistent with the findings of Chatterjee & Lubatkin (1990) as they show that conglomerate M&As decrease the systematic risk, but they also point out that non-conglomerate M&As decreases the systematic risk as well. Whether diversification benefits the shareholders is another matter, as Damodaran (2005) states that diversification in most publicly listed companies is way less expensive and easier for investors to do by themselves as it is for the company.

2.4.3 Strategic Synergies

Mergers and acquisition might offer strategic benefits or opportunities which occur in the form of options that were not available for the acquiring company earlier (Ross et al. 2008, p. 816; Damodaran 2005). There is no exhaustive list of what type of opportunities they may be as it depends on the company's business environment, and it is possible that they do not realize immediately but far way in the future. However, these types of opportunities can be related to such as possibilities to enter new markets or create whole new businesses. Also, we can consider that, for example, patents or R&D projects are sorts of opportunities that realize in the future. One may say that it is not possible to valuate such opportunities, while the others say that it is, but they are not trivial problems to solve.

A great empirical example of strategic synergies or in fact "the possibility to create synergies" as the authors put it, is provided in the paper of Collan & Kinnunen (2009) where they break down the acquisition of Partek Inc. by Kone Inc. by discussing applying real option valuation methods in mergers and acquisitions.

In 2002 Kone acquired a company named Partek by a hostile takeover. The target was partially Finnish government-owned corporation keeping inside several businesses. The acquisition price was € 1,450.00 million. The parts of the target that fitted to Kone's core business (including elevators, escalators, container, and load handling businesses) were evaluated to be between € 960 and 1,040 million. Those parts were integrated into a separate division of Kone that was later renamed to Kone Cargotec, and today stands for Cargotec. The other parts which not fitted into Kone's main business were divested. What is noteworthy is that all the parts of Partek, which Kone decided to divest (such as forestry machine, tractor manufacturing, energy-efficient & fire safe insulation manufacturing businesses, real estate, etc.) were initially valuated at € 650 – 800 million by the target. Eventually, Kone received € 1,150 million by selling those businesses. Altogether, Kone paid € 1,450M of the acquisition, but the value inflow was € 2,110 – 2,190 million. (Collan & Kinnunen 2009) The case is dealt with more thoroughly in the paper: *Acquisition Strategy and Real Options.*

The case is a great example of how the target was misevaluated its assets but, more importantly, how the acquirer recognized the misvaluation and had business intuition. Kone had planned actual synergies, and it had a plan on how to realize them. In other words, it has built a real option into the investment (option to divest) and decided to exercise it. Moreover, it established a new business that is today a separate organization. Real option valuation methods are a way to evaluate this kind of option-based synergies. Although, those are not discussed more detailed in this study as it would be a whole other story.

2.4.4 Managerial Synergies

According to Trautwein (1990) managerial synergies arise in M&As if acquiring company's management increases the target's performance by bringing better planning and monitoring skills into a business. However, it is essential to understand the difference between managerial synergies and a disciplinary approach to the target's management. As Martin & McConnel (1991) point out that synergistic acquisitions are motivated by combining physical operations, but in disciplinary acquisitions, the aim is to affect to target's managers that are executing poor investments and non-value maximizing strategies. These sorts of transactions are not related to synergies which arise from combining two companies, but instead, it is a way to eliminate inefficiencies and

often requires a replacement of old management with a new one (Brealey et al. 2011, p. 824)

As discussed in chapter 2.3.1, agency cost of free cash flow relies on the fact that managers are spending excess cash to value-destructing projects. However, there is another nuance for poor management, as Brealey et al. (2011, p. 824) state that value destructive behavior is not only cash wasting but also represents an inability to decrease costs and generate higher earnings. Such behavior can occur, for example, in forms of excessive employee benefits, overpayment for raw materials, or ineffective management that results in weak efficiency (Martin & McConnel 1991).

From the arguments above, we can consider that actual managerial synergy follows the basic definition of synergy, and arise, for example when both companies' managers fulfill each other's, and when the transaction combines different functional strengths (as mentioned in chapter 2.4.1). However, the managerial synergy concept is also closely related to Jensen's (1986) hypothesis of agency cost of free cash flow. When managers are wasting cash on inefficiencies, the firm also exposes itself to as the target for other companies that try acquiring it and stop such activities. Therefore M&As can function as an efficient management monitoring mechanism. Jensen explains that the same happened in the oil industry (see chapter 2.3.1) as later companies started to merge, and in the transaction process, companies took large amounts of debt, paid capital to shareholders, reduced expenditures in bad investments, and lowered excess capacity. The efforts resulted in remarkable value and efficiency gains for shareholders. Moreover, he states that taking these empirical observations into account, M&As represent both activities: conflicts of interest between shareholders and managers, and a solution to stop this problem.

3. LITERATURE REVIEW

The M&A performance has been studied in the fields of corporate finance, strategic management, and organizational behavior for decades in order to understand whether the transactions create or destroy value (Zollo & Meier 2008; Krishnakumar & Sethi 2012). The successful M&A can be defined in several ways. Researchers have examined value creation from the acquirer's or target's perspective as well as the total value created in a transaction. Also, some studies have taken a wider approach by focusing on other stakeholders of the company, such as bondholders, managers, employees, and customers. Finance theory usually observes shareholders' wealth effects and define it as a criterion to examine value creation. (Martynova & Renneboog 2008) This study follows the same approach. More specifically, this study focuses on the value delivered to the acquirer's shareholders.

As mentioned very beginning, the results presented in prior literature are mixed, and used methodologies have varied. Even though a large amount of studies has been done by M&A researchers, there is no agreement for the one right method to measure performance. The topic has been approached from subjective methodologies, such as assessments of synergy capture or examinations of integration processes, that usually involve manager or advisor surveys, to objective methodologies which focus on financial and accounting metrics. Organizational studies have analyzed improvements in companies' competitive positions, and process level studies are examining factors in different stages of the transaction, for example, post-acquisition plans and sizes of paid premiums. (Zollo & Meier 2008)

Many existing studies are based on only a single performance measure, which may affect negatively to the understanding of full picture concerning the acquisition performance, as each of the metrics has their strengths and weaknesses. Schoenberg (2006) suggests that M&A studies should apply several performance metrics in order that the outcome would be more comprehensive. Also, Haleblian et al. (2009) argue that by matching multiple performance measures, one can have a fuller understanding of acquisition performance.

In the following subsections, I describe the most used methodologies to measure performance and their limitations as well as the most important factors that affect the

acquirer's returns, presented in earlier literature. Given the number of existing studies, the review is inevitably selective.

3.1 Measuring Post-acquisition Performance

Objective studies in the field of mergers and acquisitions are typically empirical researches that most often use event study or accounting study methodologies and sometimes both to measure the performance improvements and value creation in transactions. Both methodologies are used in this thesis, and therefore discussed in the literature review. Briefly defined, event study focuses on share pricing, and that way is representing actual returns to shareholders. More specifically, event studies examine abnormal returns generated by the acquisition, which are calculated by subtracting an expected return from realized return. Therefore, abnormal return is the amount generated because of the transaction, and it would not be earned (or lost if negative) in case if the acquisition has not taken place (Martynova & Renneboog 2008). Abnormal returns are usually presented in the form of cumulative abnormal returns (CAR). Accounting studies, on the other hand, are based on ratios computed from financial statements. The aim is to examine changes in different financial ratios and compare them with non-acquiring industry peers or other way relevant benchmark companies. In other words, find out whether acquiring companies' operating performance improves due to acquisitions and do acquirers outperform their non-acquiring peers. The used financial ratios have varied widely. (Bruner 2002)

Krishnakumar & Sethi (2012) find that event studies are dominating M&A performance research internationally. Consistent with them, Bruner (2002) points out that event studies have been a dominant methodology since the 1970s. The event study methodology was first introduced by Fama, Fisher, Jensen, and Roll (1969) in the context of stock splits. Accounting studies are the second most popular method to measure performance. Accounting metrics are usually employed to measure long-term performance, while most of the event studies focus on short-term returns. (Zollo & Meier 2008)

The existent literature argues heavily about strengths and weaknesses between these two methodologies. Bild, Cosh, Guest, and Runsten (2002) argue that accounting-

based measurements do not represent a true value which is generated in the transaction as such indicators cannot measure whether or not the acquisitions are net NPV positive investments. They point out that accounting metrics do not take cost of capital into consideration, and that is why one cannot observe does the return from acquisition exceeds the required return of the company. Moreover, Richard, Devinney, Yip, and Johnson (2009) state that as accounting performance measures represent historical figures, the accounting studies are limited to predict the company's future performance.

Event studies have also received criticism that is usually related to examined time periods on these studies. Many of the event studies are built around short-term time windows, meaning that the evidence of stock returns has gathered immediately after the announcement day (Dutta & Jog 2009). Generalization behind this approach is that short-term event studies are considered to be forward-looking, assuming that share prices represent the present value of expected future cash flows to shareholders of the company (Bruner 2002). Therefore, it is evident that the event study methodology relies on the assumption that markets are efficient. One issue concerning this assumption is that the market might overestimate the acquisition benefits on the announcement day and revise their expectations downwards later when more information is available (Martynova & Renneboog 2008). The same also applies to the other direction, as happened for example in the acquisition of WhatsApp by Facebook, as shown in the report made by Kengelbach, Roos, and Keienburg (2014).

Despite the fact that many of the studies are using short-term event windows, there are several concerns related to this method. Zollo & Meier (2008) argue that short-term event study measures a judgment of the acquisition, which is made by markets at the time of the announcement. However, this judgment is made without information about how the acquiring firm is going to manage the acquisition because normally, markets will not have integration plans available at the time. Furthermore, they argue that the market does not have sufficient information that could be exploited to evaluate the success of the acquisition at the time of the announcement. They suggest that short-term event window studies are more likely referred to market expectations rather than the actual performance of the company. Also, Healy, Palepu, and Ruback (1997) point out that acquisition performance, measured by announcement returns are more likely confusing or misleading estimates if managers have private information, or if the benefits of the acquisition are uncertain during the announcement. They prefer accounting-

based measures in their study. Altogether several studies are sharing these opinions, and their beliefs are that the actual value is created in the integration process, and therefore, it should be measured in a long period of time.

Nevertheless, long-term event window studies are not free from criticism. The major concern is how to isolate the effects of other factors affecting share prices. Martynova and Renneboog (2008) explain that isolating is impossible because many other strategic and operational decisions, as well as changes in financial policy decisions, may arise during the long-term event window. Therefore, judging one particular M&A to be value destructive (creative) may be misleading if the negative (positive) results occur due to a research design problem. Researchers are neither unanimous how the benchmark of required return should be defined in order to calculate abnormal returns. Bruner (2002) explains that typically, the benchmark is assessed by CAPM or using the return of a large market index. Dutta & Jog (2009) believes that the best benchmark is a portfolio consisting of similar firms that have not made acquisitions at the same time.

Overall, both methodologies have their own strengths and weaknesses, but those are still the most used methods to measure performance in prior literature. In other words, the best methodologies identified thus far. Although, unlike many of the prior studies are using only one of the discussed methodologies, this study uses both of them consistent with the advice represented earlier. In the following two subsections, I will discuss the results presented in prior literature.

3.1.1 Event Studies

The evidence from event studies unanimously shows that target firms shareholders gain from M&As. Bruner (2002) in his meta-analysis, examined 21 studies concentrating on target companies' returns and 44 studies concentrating on acquirers' returns. He finds that target firms shareholders earn statistically significant positive average abnormal returns ranging between 20 - 30%. However, acquiring companies' shareholders returns are more problematic. Approximately 30% (13 out of the 44) of the studies show significantly negative returns for acquirers' shareholders, hence indicating value destruction, whereas 39% (17 out of the 44) of the studies report significantly positive returns for acquirers and thereby value creation. Similar results are reported

by Martynova & Renneboog (2008). The authors mention that acquirers' abnormal returns are often close to zero. This is also supported by Parrino and Harris (1999). Table 1 summarizes the results of studies on shareholders' wealth effects that are referred to in this chapter.

Andrade, Mitchell, and Stafford (2001) investigated a sample of 3,688 acquisitions that took place in the U.S. during 1973-1998. They reported negative announcement returns of -0,7% for acquiring companies and positive announcement returns of 16% for target companies. The authors point out that the target companies' shareholders clearly benefit from M&As as the 16 percent return increases to 24 percent when longer event window is adjusted, and both estimates are statistically significant at the 1% level. However, the evidence for acquiring company's shareholders is not that clear. The reported average -0,7% abnormal return declines in time at the level of -3,8% when longer event window is used, but neither of the returns are statistically significant at conventional levels. Therefore, judging that acquirer's shareholders lose in M&As is difficult, but assuming that they will not gain as much as target's shareholders is appropriate, according to Andrade et al. (2001).

Campa and Hernando (2004) study a sample of 262 European M&As announced during 1998-2000. The authors found that on average, the target's shareholders earn statistically significant CAR of 8,90% in a one-month event window that is centered on the announcement day, while conversely acquiring companies' CARs are not significantly different from zero. They report negative returns for almost 55% of the acquiring companies.

Loughran and Vijh (1997) reported significantly negative BAHRs of -15,9% for acquiring companies in mergers and insignificant positive BAHR of 43% in tender offers using a 5-year event window. BAHR stands for the buy-and-hold abnormal return, and it has been typically used when measuring long-term returns. It measures the average multiyear return if one invests in acquiring companies and sells the shares at the end of the predefined holding period. The return from this strategy is then compared to returns, which would be generated if invested in non-acquiring peers. The usefulness of BAHR measurement is highly questionable as it causes serious statistical problems. (Mitchell & Stafford 2000; Andrade, Mitchell & Stafford 2001)

Table 1. Findings of previous studies on abnormal returns in M&As

Author(s)	Published	N	Region of acquirer	Time period	Event window short / long	Measure	Acquirer returns	Target returns	Notes
Andrade et al.	2001	3,688	USA	1973-1998	Short	CAR	-0,7%	16%*	
Andrade et al.	2001	3,688	USA	1973-1998	Long	CAR	-3,8%	24%*	
Campa & Hernando	2004	262	Europe	1998-2000	Short	CAR	0,56%	8,90%*	
Loughran & Vijh	1997	947	Global	1970-1989	Long	BAHR	-15,9%*	29,6*	Mergers
Hazelkorn et al.	2004	1,547	USA	1990-2002	Short	CAR	-0,4%*	n/a	
Sudarsanam & Mahate	2006	519	UK	1983-1995	Long	APR	-10,1%*	n/a	Friendly acquisition
Sudarsanam & Mahate	2006	519	UK	1983-1995	Long	APR	-1,23%	n/a	Hostile acquisition
Kiymaz & Baker	2008	869	USA	1989-2003	Short	CAR	-0,82%*	12,55%*	
Alexandridis et al.	2017	22,267	USA	1990-2009	Short	CAR	-1,08%*	n/a	
Alexandridis et al.	2017	3,811	USA	2010-2015	Short	CAR	1,05%*	n/a	

* Indicates statistically significant results

Hazelkorn et al. (2004) report slightly negative (-0,4%) return for acquirers by using a short-term event window to a sample of 1,547 U.S. acquisitions. However, the authors provide a more comprehensive insight than many of the other studies by concentrating on the whole sample and not just average figures. Although the average and median returns were slightly negative for acquirers', a large part of the acquisitions generated extremely high or low returns. For example, near than 15% of the acquisitions earned higher than 10% returns, while almost 15% of the acquisitions generated less than -10% returns. Altogether 38% of the transactions earned more than 2% CAR, and 40% of the transactions generated less than -2% CAR. They point out that typically other studies have ignored this wide variation in returns. The authors argue that this evidence highlights the fact that acquisition can be very profitable for acquiring company's shareholders and thus emphasize the importance of carefully planned and executed acquisition strategy.

Hazelkorn et al. (2004) also utilized a longer event window to compare long-term wealth effects to short-term returns. According to the results, acquisitions that performed well during the short event window continued the good performance also in the long run, and similarly, the acquisitions which earned negative announcement returns generated losses also in the long term. They argue that this evidence shows a clear link between short-term returns and conclusive success of acquisitions. Hence, at least some level, the market seems to be capable of estimating long-term value creation.

Also, Sudarsanam and Mahate (2006) used a long-term event window (three-years) for a sample of 519 acquisitions of UK target companies during 1983-1995. The authors report significantly average negative abnormal performance index return (APR) of -10,1% (based on the market-adjusted benchmark model) for acquirers in friendly acquisitions, whereas hostile acquisitions generated insignificant -1,23% APR. They preferred APR -which is: "an abnormal return compounded over the same event window"- because of the concerns raised from BHARs. The authors argue that the evidence of hostile acquisitions outperforming the friendly ones raises questions related to the efficiency of the market for corporate control. (see chapter 2.4.4 a discussion of disciplinary acquisitions)

Kiymaz and Baker (2008) studied large domestic M&As in the U.S. that were announced during 1989-2003. Their final sample consists of 869 acquiring companies

and 795 of target companies. The authors report significantly negative CAR of -0,82% for acquiring companies over the two-day event window. The reported CARs were also significantly negative for other short-term event windows. Conversely, the CARs were significantly positive for target companies (12,55% over the two-day event window).

A more recent study by Alexandridis, Antypas, and Travlos (2017) provides different evidence of acquiring companies' success in M&As. The authors study U.S. acquisitions that were announced during 1990-2015. They argue that there is a clear change in deal attributes and quality during the period after the year 2009. In fact, Alexandridis et al. report positive and statistically significant average CAR of 1,05% for acquirers in acquisitions that took place during the years 2010-2015 (measured with 3-day event window). The corresponding average CAR was -1,08% for acquisitions during 1990-2009. They state that M&As have created value since 2009 for acquiring companies' shareholders more than ever before. They point out that after the 2008 financial crisis, there have been remarkable developments in the corporate governance environment and suggest that it has improved the number of optimal investment decisions and hence provided higher returns for acquiring companies' shareholders.

Table 1, i.e., studies referred to in this chapter summarizes quite well the big picture of the research in the field of M&A. The majority of the studies have been made in the US or UK context, and the popular measure used is cumulative abnormal returns in a short event window. Earlier studies referred to in this study have typically found that the acquirers' short-term abnormal returns are often slightly negative, whereas the targets experience highly positive returns. Some studies using long-term event windows find that acquirers' returns are highly negative, but the findings are generally doubted due to the difficulties of isolating the other events that affect returns.

3.1.2 Accounting Studies

The results of accounting studies are also mixed. Martynova and Renneboog (2008) examined 26 studies that investigate performance using accounting measures. 14 of these studies report a decline in post-acquisition operating returns for acquiring companies. In 7 studies, profitability changes were insignificant, whereas 5 of the studies report significant positive increase in operating performance. Table 2 summarizes the

results of studies on long-term operating performance that are referred to in this chapter.

Many of the early studies have used earnings-based measures and report losses for acquiring companies. For example, Hogarty (1978) found that firms undertaking M&As generally perform worse than their industry peers. Similar results have been reported by Ravenscraft and Scherer (1987). They found that, on average, acquiring firms were 3,1% less profitable than comparable non-acquiring firms.

Healy et al. (1997) measured post-acquisition performance with operating cash flow returns. Their sample consists of fifty largest industrial acquisitions in the U.S. carried out during 1979-1984. They found significant improvements in operating cash flow returns after the acquisition by ignoring paid premiums to the target firms. On the other hand, taking the actual paid premiums into account, the acquirers did not generate any additional cash flows, resulting in that, on average, the transactions were NPV zero investments for acquirers. However, they also reported a wide variation in the results as the median cash flow returns varied between 19% and -20%.

Parrino and Harris (1999) study 197 U.S. acquisitions announced during 1982-1987. They also measured operating performance with cash flow returns and reported statistically significant average cash flow return of 2,1% for acquiring companies, thus indicating that acquirers show improvements in operating performance after the transaction. They also reported significant average 3,1% return for acquisitions where target management was replaced, supporting the propositions that M&As are an efficient solution for monitoring managerial performance and, consequently, an important part of the corporate governance system. Positive and significant cash flow returns (1,81%) are also reported by Linn and Switzer (2001)

Table 2. Findings of previous studies on long-term operating performance in M&As

Author(s)	Published	N	Region of acquirer	Time period	Measure	Change in profitability	Notes
Hogarty	1978	43	USA	1953-1964	EPS	-2,00%*	
Ravenscraft & Scherer	1987	153	USA	1975-1977	Operating ROA	-3,10%*	
Healey et al.	1997	50	USA	1979-1984	CF / Assets	1,10%	
Parrino & Harris	1999	197	USA	1982-1987	CF / Assets	2,10%*	
Linn & Switzer	2001	413	USA	1967-1987	CF / Assets	1,81%*	
Sharma & Ho	2002	36	Australia	1986-1991	Multiple earnings- and cash flow-based measures		Most of the measures show a decline in profitability
Ghosh	2001	315	USA	1981-1995	CF / Assets	0,66%	
Powell & Stark	2005	191	UK	1985-1993	Several cash flow-based measures		All measures indicate a positive change in profitability
Dutta & Jog	2009	1,300	Canada	1993-2002	CF / Assets	1,3%* -0,6%	Industry adjusted benchmark Matching firm adjusted bench-mark

* Indicates statistically significant results

Sharma and Ho (2002) reviewed earlier accounting studies and found that generally, studies using earnings-based measures report losses, whereas studies using cash flow-based measures report gains. The authors found that only one of the reviewed studies had used both measures. Moreover, the authors argue that many of the accounting studies before the 1990s have several limitations. Also, Ghosh (2001) argues that many of the results showing improved operating performance may be biased if the benchmark group in the study is built by using industry-median firms. He explains that usually acquiring firms are larger than industry-median firms and tend to undertake acquisitions after well performed period. He used firms related to acquirers' pre-acquisition performance and size as a benchmark group and found no evidence of post-acquisition performance improvements (measured with cash flow-based returns). However, consistent with Ghosh's (2001) suggestions, Powell and Stark (2005) employed a benchmark group based on acquirers' industry, size, and pre-acquisition operating performance and reported post-acquisition operating performance improvements.

More recently, Dutta and Jog (2009) also examined operating performance. The authors used an industry median adjusted and matching company adjusted benchmarks. They report significant improvements in operating performance when using industry adjusted benchmark, but when considering matching firm adjusted operating performance, they found no significant improvements.

As showed, accounting studies are also sensitive to issues of methodological choices. Also, differences in regulation, accounting standards and practices cause problems when comparing accounting returns of firms from different geographical regions across the globe. Accounting returns also ignores the market value of the company and can be suffered even from manipulation. (Krishnakumar & Sethi 2012) Also, choices of the accounting methods related to M&A transactions may have affected to results of the earlier studies, due to their distorting effects on profitability based measures (see Chatterjee & Meeks 1996) arising from the choices of immediate write-off versus capitalization for goodwill and restructuring costs, and asset revaluations. In order to avoid distortions arising from different accounting treatments and practices, employing operating cash flow-based measures work better at some level. (Sharma & Ho 2002).

3.2 Determinants of Post-acquisition Performance

A number of previous studies have tried to explain the factors affecting value creation and post-acquisition performance. Widely studied factors are the method of payment, transaction type (horizontal, vertical, and conglomerate), bidder's attitude (hostile or friendly), size of the target, acquirer's pre-acquisition valuation on the stock market, and whether the acquisition is domestic or cross-border. Overall, the results of previous studies are quite mixed. Most of the studies concentrating on deal characteristics have tested only the main effects, i.e., examined how one particular factor affects performance, and considering the effects of a combination of multiple factors on performance has drawn less attention. In the following sub-sections are discussed the previous findings on the factors that are examined in this study.

3.2.1 Method of Payment

The method of payment is a widely studied factor in prior research. Early studies by Datta, Pinches, and Narayanan (1992) show that when the transactions are financed with stock, the short-term returns for acquirers are significantly negative. Similar results are reported by Loughran and Vijh (1997) by using long-term returns. Hazelkorn et al. (2004) found that the market reaction was positive in the short-term as well as long-term for cash financed deals, and the acquirers earned median short-term CAR of 0,9% and median CAR of 4,3% in the long run. The corresponding returns for acquiring companies in equity financed deals were -1,9% and -5,2%, respectively. Also, Yook (2000) found that acquirers are better off when acquisitions are financed with cash, while equity financed deals result in negative announcement returns.

In fact, evidence almost unanimously shows that the market reacts positively when acquisitions are financed with cash, whereas for stock financing the reaction is negative. Many researchers have examined these 'subgroups' in their samples, and while the reported returns for acquiring companies, on average, are close to zero, cash financed deals often generate positive returns. Yook (2000) points out that this phenomenon has usually explained with signaling theory and debt theory (see chapter 2.3.3). However, there are geographical differences in the results and the former is not completely true. Martynova and Renneboog (2008) found that U.S. studies consistently report slightly negative abnormal returns in equity financed deals, but European studies show that acquirers earn positive returns.

Despite that earlier literature generally, report losses for equity financed deals, Alexandridis et al. (2017) provide contrary evidence. The authors find that the stock financed deals do not anymore generate negative abnormal returns during the most recent period (2010-2015), which is the first time in history in the context of U.S. public firms. In fact, the market reaction was slightly positive.

Also, several studies have found that method of payment affects long-term operating performance as well. Ghosh (2002) find that companies financed acquisitions with cash earned positive and significant operating cash flow returns of 3% after the acquisition. Equity financed acquisitions, on the other hand, did not increase companies' cash flows. Further, he mentions that in some cases, for example, cash flow margins and sales growth appeared to decrease after stock financed acquisitions and argue that such transactions fail to realize promised synergies. Similar results were also reported earlier by Linn and Switzer (2001). They found that acquiring companies which used cash, earned significantly larger operating cash flow returns (3,14%) than companies using stock financing (0,77%). In hybrid (cash and stock) deals, the authors report a median operating cash flow return of 2,03% for acquiring firms.

One interesting part of the acquisition financing structure that has not drawn that large attention in previous studies (in the context of wealth effects and operating performance) than the three typical ones (cash, stock and hybrid) is the earnout mechanism. Earnout is an alternative to cash, stock and hybrid offers and it may reduce information asymmetry between the bidder and target, as well as the valuation risk of both transaction parties. The payment structure in earnout deals is divided into two stages: an initial upfront payment (also known as down payment) which is delivered in form of cash, stock or hybrid, and the second stage payment which is usually, but not always, delivered in form of cash. The second stage payment is conditional of the predefined post-acquisition performance goals that are set to the target. In other words, the target's performance under the bidder's ownership is monitored after the transaction, and the second stage payment will be delivered only if the predefined goals are achieved. The goals may be determined based upon, e.g., cash flows, EBITDA, sales, net income or other performance metrics. (Barbopoulos & Sudarsanam 2012; Cain, Denis & Denis 2011) Usually, the earnout mechanism is used when the target is for example: young firm, high tech firm, or operates in young industry, holds highly intangible assets or is otherwise difficult to valuate. Typically, in such cases, the target has more optimistic

view of its future than the bidder has, and therefore demands higher price of its business than what the bidder is willing to pay. (Barbopoulos & Sudarsanam 2012; Katramo et al. 2013)

Studies that have investigated earnout deals report higher abnormal returns for bidders that are financing the acquisitions by using earnout, than for their counterparts using non-earnout payment method. The results are similar whether using short- or long-term event windows. The long-term value creation is explained by target's stronger commitment to realize expected post-acquisition performance when the second the stage payment is tied to the predefined performance goals. (see e.g. Barbopoulos & Sudarsanam 2012; Kohers & Ang 2000).

3.2.2 Cross-border and Domestic Acquisitions

Seth, Song, and Richardson (2002) study cross-border acquisitions executed during 1981-1990 with a sample of 100 U.S. industrial targets. The authors report mean CAR of 0,11% for foreign acquirers. They also executed deeper analysis in order to find sources of value creation and destruction in these acquisitions and came out with some interesting results. The authors find that several sources of value creation exist in synergy driven cross-border acquisitions involving asset sharing, reverse internalization of valuable intangible assets as well as financial diversification. They also found geographical differences in wealth gains, resulting in French and Japanese acquirers earned the largest gains in transactions.

Earlier Gonzales, Vasconcellos, Kish, and Kramer (1997) study the financial characteristics of U.S. and foreign firms that undertake M&As during the same time period (1981-1990). Their findings are similar, resulting in that foreign acquirers can create value by acquiring U.S. companies. Moreover, they found that U.S. firms executing cross-border acquisitions tend to be mature companies that are holding large amounts of assets and have substantial cash flows while their organic growth opportunities and price to earnings ratio are low. According to Gonzales et al. this indicates that such cross-border transactions are motivated by efforts to create value by signalling to the market that geographical diversification reduces the company's risks. More recently, Koerniadi, Krishnamurti, and Tourani-Rad (2015) made an interesting finding by examining U.S. companies that executed cross-border acquisitions. The authors find

that, on average, cross-border acquisitions decrease the overall default risk of acquiring companies.

However, several studies that have compared domestic and cross-border acquisitions report higher returns for domestic deals. Black, Carnes, Jandik, and Henderson (2007) study U.S. companies that acquired foreign targets during 1985-1995. They find that acquirers undertaking cross-border acquisitions earned on average, negative and statistically significant CARs in the long-term (3 and 5-year event window) and the returns were worse than reported for domestic acquisitions. Moeller and Schlingemann (2005) reported approximately 1% lower announcement CAR and significantly lower operating performance improvements for U.S. companies acquiring cross-border targets than those who acquired domestic targets. More recently, Andriosopoulos, Yang, and Li (2016) investigated UK bidders and report over two times higher CARs for domestic acquisitions (0,763%) than cross-border acquisitions (0,363%), measured with three-day event window.

Typically used explanation for unsuccessful cross-border acquisitions is cultural differences between the acquirer and target, which creates remarkable challenges and may affect negatively to the integration process and thus combined firm's operations in the long run, even if there would be potential synergies. (see e.g., Bower 2001) Also, differences in political and economic environments, quality of accounting and disclosure practices as well as corporate governance norms and bilateral trade relationships between different countries create challenges in cross-border acquisitions (Koerniadi et al. 2015).

3.2.3 Horizontal, Vertical and Conglomerate Transactions

Transaction types were defined in chapter 2.1. Typically, studies classify horizontal and vertical acquisitions into the same group as industry-related transactions, whereas conglomerate acquisitions are separated as non-related acquisitions. As discussed earlier, horizontal and vertical acquisitions are motivated by synergistic gains, while conglomerate acquisitions are often rationalized by diversification benefits. Berger and Ofek (1995) study diversifying M&As carried out between 1986 and 1991. They compared firms' segment stand-alone values to the actual values of these firms and found that, on average, the total values were 13-15% less than the values of their segments,

indicating that, on average, diversification programs destroyed value. The authors explain that value losses from diversification are often justified with greater debt capacity that results in increased tax shield, or with possibilities to realize tax savings by exploiting other segments' losses against others' profits. However, they estimated that such savings were negligible and not even close to cover the realized value losses.

Also one common and perhaps most accepted rational explanation concerning the benefits of conglomeration is that allocating investment funds from mature and high cash flow generating subsidiaries to fast-growing segments is cheaper and more efficient through internal capital market created in the conglomerate firm than it would be through the banks or stock and bond market. However, diversifying acquisitions are also observed to be a result of agency problems, and they have typically seen to fail. The crucial factor explaining why conglomerate acquisitions fail is that acquiring managers know little about target's operations, and thus business decisions are made by non-specialized managers. (Jensen 1986; Shleifer and Vishny 1990; Shleifer & Vishny 1991)

Most of the studies show that industry-related acquisitions create more value (i.e., higher short and long-term returns) than conglomerate ones. Similar results can be observed from studies examining long-term operating performance; most companies do not benefit from diversification, while industry-related acquisitions are suggested to increase post-acquisition operating performance (King et al. 2014). Healy et al. (1997) classified acquisitions to *strategic takeovers* (friendly acquisitions where the target was industry-related firm and the deal was financed with stock) and *financial takeovers* (hostile acquisitions, target unrelated, financed with cash). They find that strategic takeovers provided higher synergies, involved lower paid premiums to the target, and generated substantial gains for bidders, whereas financial takeovers reached to the break-even level at best. Overall, the existent literature seems to quite unanimous that industry-related acquisitions outperform the non-related ones.

3.2.4 Growth and Value Acquirers

Acquirers' pre-acquisition valuation is also one of the deal characteristics that has drawn interest in previous studies, and it is also linked to the method of payment that is chose in acquisition financing, as discussed earlier. Typically, companies that are

expected to have high growth opportunities are traded at high price valuations based on their past earnings and cash flows (Andriosopoulos et al. 2016), and due to positive future expectations, these firms are allowed to make poor acquisitions without suffering immediate price decline (Sudarsanam & Mahate 2003). These growth or 'glamour bidders', as often referred to in prior literature, are typically expected to gain higher short-term abnormal returns versus value bidders, but when it comes to long-term performance, the case is reverse (Rau & Vermaelen 1998).

However, some of the more recent studies, by testing whether growth bidders earn higher short-term returns than value bidders, show contrary results that are usually expected. Freund, Trahan and Vasaudevan (2007) report positive and significant average CAR of 2,05% for value bidders in a three-day event window, whereas the returns for growth bidders are not statistically different from zero. Similar results are reported by Andriosopoulos et al. (2016), indicating that, in fact, investors reward value bidders higher than growth bidders.

Table 3 summarizes how different deal characteristics are expected to affect abnormal returns and long-term performance based on the findings of previous studies and suggestions of theory. The + sign indicates that the variable is expected to have a more positive impact than the opposite variable from the same category, and – sign indicates the reverse. Hence, for example, + sign in case of variable *Domestic* not necessarily indicate that the overall outcome is positive, it is just more positive than with variable *cross-border*.

Table 3. The Impact of Different Deal Characteristics

Variable / Deal Characteristic	**Expected Impact to Abnormal Returns**	**Expected Impact to Operating Performance**
Cash	+	+
Hybrid	+	+
Stock	-	-
Earnout	+	+
Cross-border	-	-
Domestic	+	+
Horizontal	+	+
Vertical	+	+
Conglomerate	-	-
Growth Acquirer	+	-
Value Acquirer	-	+

3.3 Hypotheses

Based on the theoretical background and existing literature, four hypotheses are formed.

The evidence of prior studies shows that the market reacts to M&A announcements. The reaction on the target company's share price is positive and high, whereas the reaction on the bidder's share price is, on average, slightly positive or close to zero. Neoclassical theory suggests that managers take actions that are intended to maximize shareholder wealth, and thus undertaken investments should create value. Therefore, managers should engage in M&A transactions only when they create value.

H1: There is a positive and small price reaction on the bidder's share price on and a few days after the announcement day.

Synergy is the primary motive for M&As, and synergistic gains can be derived from different sources. Economies of scale, higher pricing power, a combination of different functional strengths, higher growth, and possibilities in existing and new markets improve the firm's operating performance. Typically, these improvements can be observed as higher operating income and cash flows. Therefore, *H2* is formulated as follows:

H2: Acquiring companies' operating performance improves due to the acquisition.

A number of studies show that the stock price reaction depends on deal characteristics. The majority of the studies suggest that cash financed acquisitions outperform the stock financed ones. Industry-related acquisitions outperform the non-related transactions, and growth bidders earn higher short-term returns than value bidders. Findings on long-term performance also show different results between acquisitions based on deal characteristics. The results concerning the method of payment and industry relatedness are similar to short-term returns. However, the evidence suggests that value bidders perform better in the long run than growth bidders. Moreover, the target's geographical location affects the operating performance. Cross-border deals provide synergies in asset sharing, possibilities in new markets and may decrease a company's risks due to geographical diversification. However, cross-border deals are also challenging and may cause difficulties that are related to, e.g., cultural differences, and

several studies show that domestic deals outperform the cross-border ones. Based previous literature on deal characteristics, the following hypotheses are formulated as follows:

H3: Deal characteristics have an impact on short-term returns and long-term operating performance.

H3a: Domestic acquisitions earn higher short-term abnormal returns than cross-border acquisitions, and outperform in the long run.

H3b: Cash financed deals earn higher short-term abnormal returns than stock and hybrid deals, and outperform in the long run.

H3c: The more the target is related, the higher are short-term abnormal returns and improvements in long-term operating performance.

Unlike traditionally, but based on more recent findings, I formulate the hypothesis concerning the growth and value bidders as follows:

H3d: Value bidders earn higher short-term returns than growth bidders, and outperform in the long run.

This study applies the QCA analysis in order to examine the interactions of multiple factors and the impact of the combination of different deal characteristics on performance. The hypothesis concerning the different combinations is formulated as follows:

H3e: Different configurations of deal characteristics lead to differences in performance.

Some of the previous studies suggest that there is a clear link between short-term abnormal returns and long-term operating performance. Therefore, the final hypothesis is formulated as follows:

H4: There is a positive correlation between short-term abnormal returns and long-term operating performance.

4. METHODOLOGY

This chapter introduces the data and methodologies used in this study. Consistently with prior M&A studies, I use quantitative methods when examining stock price reaction and long-term performance of acquiring companies. The hypotheses presented in the previous chapter will be tested using event and accounting study methodologies. Abnormal returns are measured by using several short-term event windows, and long-term performance will be examined through acquiring companies' financial ratios using accounting study methodology. This approach is expected to give more reliable results than by applying long-term (several years) event windows because of the statistical issues related to them.

The following subsections describe the sample of this study and the limitations made in the data gathering process. Afterwards, an explanation of applied methodologies will be given.

4.1 Sampling and data collection

The data sample consists of acquisitions that have been executed during 2013-2014 and where the acquiring company has been either Danish, Finnish, Norwegian, or Swedish publicly listed firm. The data was collected from the Zephyr database published by Bureau van Dijk (BVD). The database provides comprehensive information about the announcement and completion dates of the acquisitions, company names, SIC codes, and descriptions for both acquirers and targets, deal values, and financing methods. The classification of deals into horizontal, vertical, and conglomerate transactions is made based on acquirers and targets SIC-codes and descriptions. The daily stock data of each company for the event study was downloaded from Thomson Reuters Datastream, and MSCI Nordic All Cap index was used as a benchmark in the event study. The accounting data is gathered for each company from the Amadeus database published by Bureau van Dijk.

Typically, studies classify acquisitions only into two groups (related and unrelated), but as there are only two conglomerate acquisitions in the sample, the deals are classified into horizontal, vertical, and conglomerate transactions in order to make the analysis more comprehensive. Acquisitions, where the bidder and target had the same SIC-

code, are classified into a horizontal category. The transactions where the bidder and target have different SIC-code but the SIC description show that companies are industry-related (i.e., the target belongs to acquirer's value chain) are classified into the vertical category. Completely unrelated transactions are classified into conglomerates.

The data meet the following criteria: the acquirer was publicly listed Danish, Finnish, Norwegian, or Swedish firm, the deal is executed during 2013-2014, and it must be completed. Also, the acquirers have three years pre- and post-acquisition accounting data available and stock data at least from 250 trading days before the announcement. The value of the acquisition has to be at least 10 million (measured in Euros), and only deals where the value was available in the database were considered. The limitation to deal value is made in order to create a sample where the transactions are significant and expected to effect long-term performance. The deal value is measured in the total value paid to the target, excluding fees and expenses. Moreover, another criterion was applied in order to create a reliable sample; after the acquisition, the acquirer must own 100% of the target company's stake, and over 50% of the target company's shares have to be transferred in the transaction. Consistent with suggestions by Ghosh (2001), LBOs and MBOs were excluded.

The initial screening resulted in 112 completed transactions that met the criteria. Consistent with general suggestions, banks, insurance companies, and other financial institutions were excluded. Consistent with (Dutta & Jog 2009; Andriosopoulos et al. 2016), firms that make multiple acquisitions during the period were considered, however, observing that the announcement days are not too close to each other, in order to avoid bias in abnormal returns. In accounting study, only the first transaction of the cases where multiple transactions occurred is considered as the outcome would be the same.

The final sample consists of 76 transactions, and like expected, Sweden represents the major role in the sample; in 43 of the acquisitions, the acquirer was Swedish firm, 15 of the acquisition took place in Finland, 10 in Denmark, and 8 in Norway. The number of deals, deal values, and the distribution between cross-border and domestic acquisitions are presented for the whole sample by year and by country in Table 4.

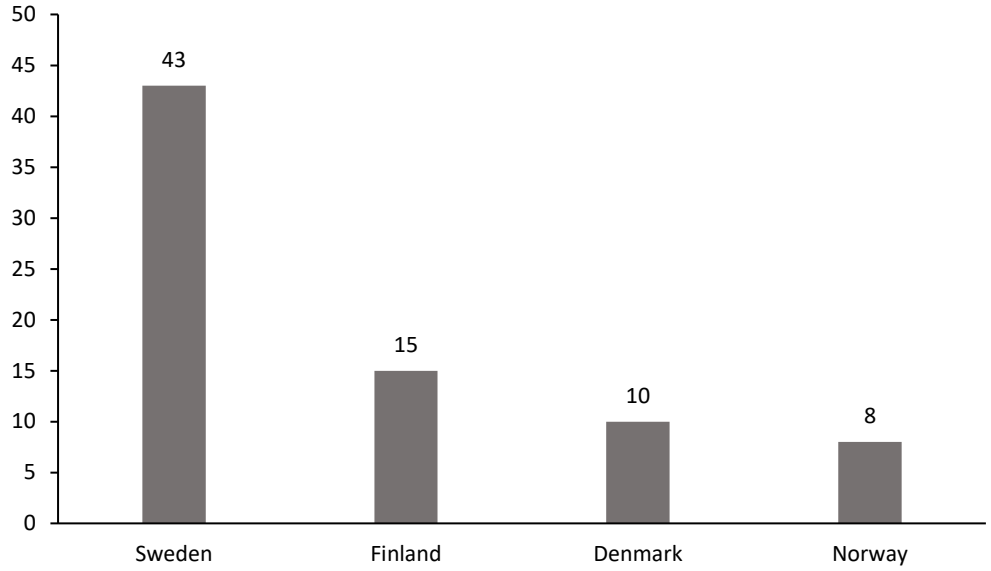

Figure 5. The Number of Deals by Country

Table 4. Summary of Transactions in the Sample

Panel A: Summary of Transaction - Whole Sample

Year	Number of deals	Total value of deals M €	Median deal value M €	Cross-border deals	Domestic deals
2014	38	6 993,02	38,51	33	5
2013	38	7 574,42	58,54	25	13
Total	76	14 567,43	44,41	58	18

Panel B: Summary of Transaction - By Country

Country	Number of deals	Total value of deals M €	Median deal value M €	Cross-border deals	Domestic deals
Sweden	43	8778,95	36,71	33	10
Finland	15	2760,82	29,90	10	5
Denmark	10	1764,73	58,54	9	1
Norway	8	1262,94	79,13	6	2

As mentioned earlier, there were only two acquisitions where the acquirer and target were completely unrelated and allowed to classify into conglomerate acquisitions. Therefore, the acquisitions were classified into three groups; horizontal, vertical, and conglomerate, as defined in the theoretical background. The classification was done based on the companies' SIC-codes.

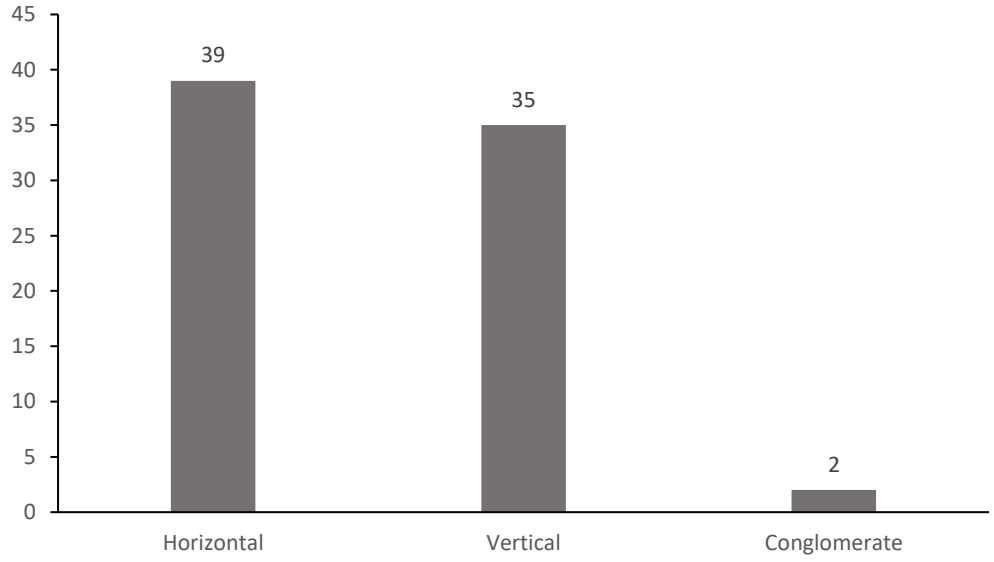

Figure 6. Type of Acquisition

Moreover, consistent with prior literature, deals are classified by the method of payment in order to analyze the signaling effects in abnormal returns. Also, theory and prior studies suggest that there is a link between the method of payment and acquiring company's long-term performance. As can be seen from figure 7, cash is the most used payment method in the transactions of the sample companies, while there are only two pure stock deals. The sub-sample based on the method of payment is smaller due to a lack of information in the database. Therefore, when analyzing this sub-sample later, those deals where the method of payment was not available are excluded.

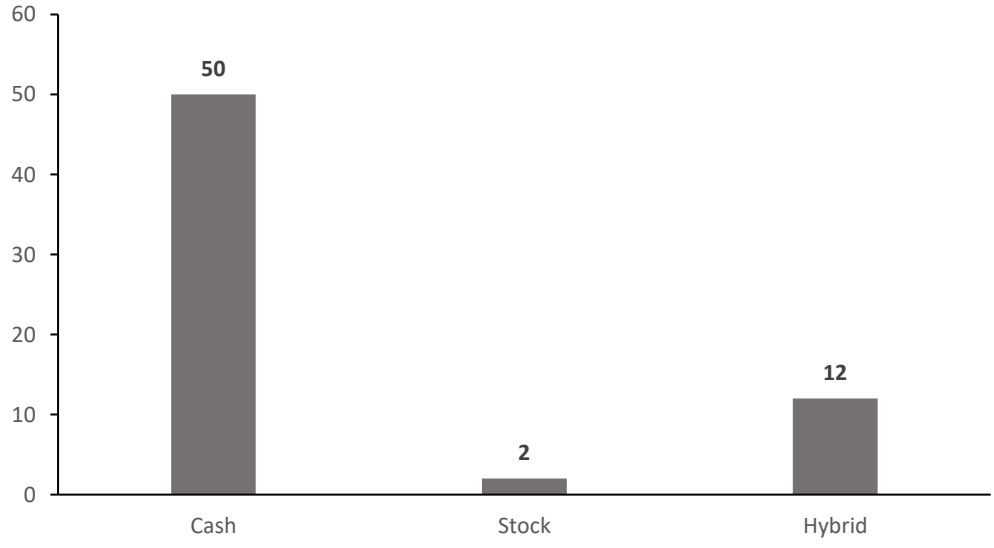

Figure 7. Method of Payment

4.2 Measurement and Analysis Methods

In the following subsections, I describe the methodologies used in this study. First, I introduce the event study methodology, then accounting study, and finally, the Qualitative Comparative Analysis (QCA). Event- and accounting studies are the most used methodologies in M&A studies when capturing stock price reaction and long-term performance. However, the best of my knowledge, not that many have applied QCA in the context of M&As. The QCA is used in this study to identify the factors that influence value creation and long-term operating performance.

4.2.1 Event Study

An event study is a methodology to empirically investigate reaction in stock prices due to some economic events. The methodology is widely used in accounting and finance studies that investigate, e.g., M&As, earnings announcements, new debt and equity issuances, and announcements concerning macroeconomic variables (MacKinley 1997), to name few of the areas. As mentioned earlier, the strength of the event study is that it is a forward-looking measure that shows directly the value created for investors (Bruner 2002). The methodology is quite thoroughly explained by Brown and Warner (1985), and by MacKinley (1997).

As discussed earlier, event study also has its weaknesses, and there is not an exact structure for the study, and for example, several applications of defining the benchmark have used in prior studies. Nevertheless, the first step in the study is to define the event that is investigated (in this study M&A announcement) as well as the period over which the returns of stock are examined. This time period is known as the event window. It is natural to define the event window being larger as the actual event in order to examine the period surrounding the event day. Before the actual event window, the estimation window takes place in order to calculate the parameters for normal returns. (MacKinley 1997) The event window T in this study is set to be 21 days [-10;+10] and the impact of the announcement will be analyzed by using several time periods; [0;1], [0,2], [-1;1], [0;5] and [0;10]. T=0 stands for the announcement day. The days before the announcement are sometimes analyzed as well in order to see whether information concerning the event has leaked. Such an observation was not found in this study, and thus, for example, the time period [-10,10] is not presented. The estimation window in this study

is 240 trading days before the announcement. The timeline is illustrated in figure 8 below.

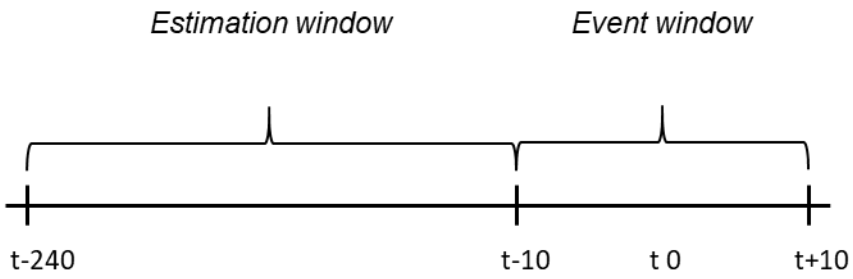

Figure 8. Timeline of the Event Study. (MacKinley 1997)

When examining the stock price reaction, it is necessary to calculate daily returns for each company and market index. For this purpose, logarithmic returns should be used in order to have normally distributed results. The calculation of logarithmic returns is presented in Equation 1.

$$R_i = ln\left(\frac{P_{it}}{P_{it-1}}\right) \quad (1)$$

R_i = logarithmic return of the stock i

P_{it} = price of the stock i at the time t

P_{it-1} = price of the stock i at the time $t-1$

To examine the impact of the M&A announcement on returns of stock, abnormal returns (AR) are calculated for each stock and event. Abnormal return is the difference between the actual return and the expected return of the stock. Expected returns are estimated by using the market model (Equation 2). The market model relates the return of the security to the return of the market portfolio, assuming the linear relationship between the returns of the market portfolio and returns of the stock. Typically, a broad-based stock index is used for the market portfolio (in this study MSCI Nordic All Cap Index). (MacKinley 1997).

$$E(R_{it}|X_t) = \propto + \beta R_m + \varepsilon \quad (2)$$

$E(R_{it}|X_t)$ = expected return of stock i at the time t

$\propto$ = alpha/intercept

β = beta coefficient

R_m = market return

ε = epsilon, error term

The market model parameters alpha and beta are estimated with linear regression. Once the expected returns are estimated for each stock, the abnormal returns are calculated by using Equation 3.

$$AR_{it} = R_{it} - E(R_{it}|X_t) \quad (3)$$

AR_{it} = Abnormal return

R_{it} = Actual return

When examining multiple days around the event window, it is necessary to calculate cumulative abnormal returns (CAR) for each stock in order to observe the total impact of the event to the share price. CARs are calculated by summarizing each day's ARs in an event window. The calculation of CAR is presented in Equation 4.

$$CAR_i = \sum_{i=1}^{N} AR_{it} \quad (4)$$

Both AR and CAR measures the returns of individual stocks, and therefore individual abnormal returns need to be aggregated (i.e., calculate average ARs and CARs) in

order to test the statistical significance of the returns. Average abnormal return (AAR) and cumulative average abnormal return (CAAR) measures daily stock returns, and total returns from the beginning to the end of the event window for the whole sample, respectively. (MacKinley 1997) The calculation of average abnormal returns and cumulative average abnormal returns are done by using equations 5 and 6.

$$\overline{AR_t} = \frac{1}{N} \times \sum_{i=1}^{N} AR_{it} \tag{5}$$

$$\overline{CAR_t} = \frac{1}{N} \times \sum_{i=1}^{N} CAR_{it} \tag{6}$$

After calculating the AARs and CAARs, the statistical significance test will be applied. Under the null hypothesis, *H0*, I examine whether the returns differences from zero. Assuming that the abnormal returns of the sample companies are not correlated with each other, J_1 statistic test (Equation 7) will be applied (Vaihekoski, 2004).

$$J_1 = \frac{CAR(t_1, t_2)}{\sqrt{\sigma^2(t_1, t_2)}} \sim N(0,1) \tag{7}$$

Where the variance $\sigma^2(t_1, t_2)$ for the whole sample can be calculated as follows:

$$\sigma^2(t_1, t_2) = \frac{1}{N^2} \sum_{i=1}^{N} (t_2 - t_1 + 1)\sigma_i^2(t_1, t_2) = (t_2 - t_1 + 1)\sigma_t^2(t_1, t_2) \tag{8}$$

4.2.2 Accounting Study

Accounting studies are typically focused on the long-term operating performance of acquiring firms. In these studies, the aim is to examine whether the acquirers' financial ratios have improved after the acquisition. Moreover, the interest should be pointed to whether acquiring companies outperform their industry peers. According to Bruner (2002), the best accounting studies are using matched-sample comparison by matching the acquiring companies with non-acquiring companies based on industry and size.

Like mentioned earlier, the financial ratios used in previous studies have varied widely, and there are no general guidelines what ratios should be used. Although the modern literature seems to quite unanimous that operating cash flow-based ratios are optimal measures for performance, as using cash flow-based ratios instead of accrual based it is possible to avoid biases related to earnings manipulation (Barber & Lyon 1996). Especially many of the early studies have used EPS to judge the performance of acquisitions. However, there are several issues when using EPS, that concern, e.g., modern accounting standards related to the treatment of goodwill, as well as the transaction financing (more accurately if the transaction is financed with new share issues). (see, e.g., the report by Dobbs, Nand and Rehm 2005).

However, as suggested by Sharma & Ho (2002), both earnings- and cash flow-based measures are used in this study. I will use return on equity (ROE) and pretax profit margin (Pretax PM) as earnings-based measures, and cash flow to sales (CF / Sales) and cash flow to assets (CF / assets) as cash flow-based ratios. ROE will be applied in order to examine the profitability of the equity holders' perspective, whereas the pretax profit margin shows profitability relative to sales. CF / Assets ratio is calculated as cash flow divided by (book value of) total assets.

Some studies have used the market value of assets, which is likely to lead to biased results. Studies using market-based measures find that acquiring companies market values decline systematically after the acquisition, which tends to increase cash flow ratios even though the cash flow itself does not increase (Ghosh 2001). Similarly to Linn & Switzer (2001), cash flow in this study is defined as after-tax income before extraordinary items plus depreciation and amortization, net interest expense, and total income taxes. It is worth to mention that the definition does not take into account

changes in working capital. However, such a definition makes my results more comparable with the other studies (see, e.g., Ghosh 2001; Linn & Switzer 2001).

The change in operating performance is measured and analyzed with the change model that is similar than in studies made by Ghosh (2001), and Sharma and Ho (2002). Three years have set to be the analyzed period, meaning that the performance ratios for each of the sample companies are calculated from three years prior and three years after the acquisition. In order to find out what the outcome would be without the acquisition, it is suggested to compare acquiring companies with their industry peers by creating a benchmark group and normalize acquiring companies' performance ratios by subtracting the industry median from the ratio.

As mentioned earlier, there is no unanimous opinion on how the benchmark group should be built (see chapter 3.1.2). Sharma & Ho (2002) used matched control firms based on pre-acquisition performance and size, Ravenscraft and Scherer (1987) used the industry adjusted benchmark, and Dutta and Jog (2009) used both. Ghosh (2001), and Powell and Stark (2005) created a benchmark based on industry, size, and pre-acquisition performance. In this study, the control group is built based on the industry and size of the acquiring firms. However, it is worth to mention that some of the firms in the sample are lacking a number of similar-sized peers from the same industry, and in such a case, the control group's median figures may not be the most optimal figures for a benchmark. The change model is presented in Equation 9 below.

$$\Delta Performance = Performance_{Post} - Performance_{Pre} \quad (9)$$

Where $Performance_{Post}$ and $Performance_{Pre}$ are the acquiring firm's performance ratio less control group's performance ratio. The change model is also illustrated in the figure 9.

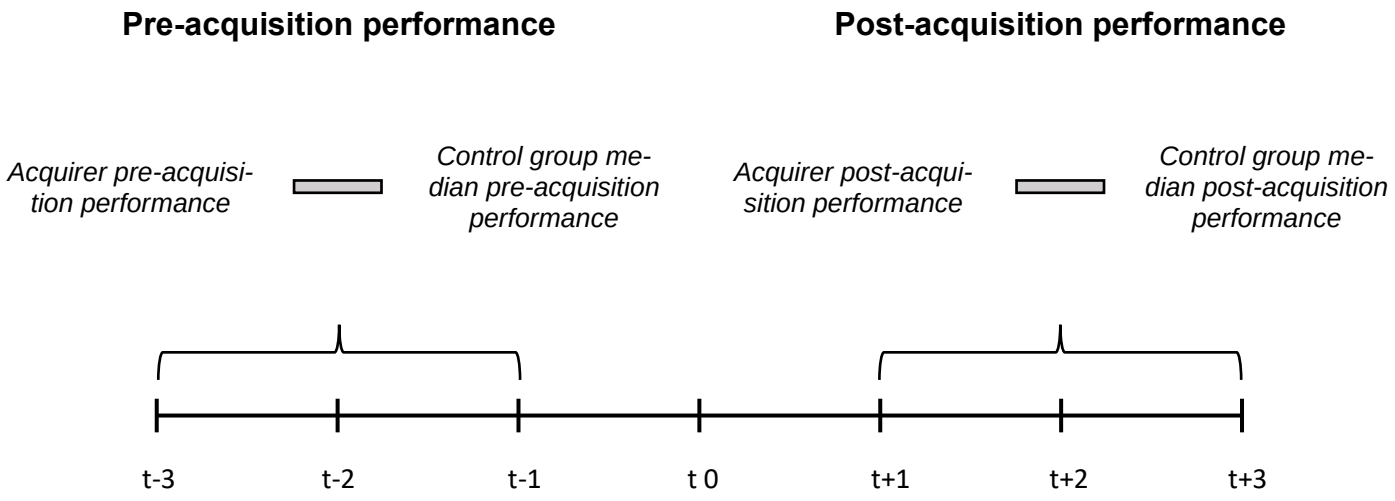

Figure 9. Calculation of Test Variables (Sharma & Ho 2002)

After computing the pre- and post-acquisition performance ratios for each company and year, the ratios are averaged into two groups: performance before the acquisition and performance after the acquisition. Therefore, the results represent mean adjusted performance ratios. By comparing the results of the groups, it is possible to examine whether the acquiring firms outperform their peer group in the long run. The statistical significance will be tested with a paired sample t-test. Also, the impact of deal characteristics on long-term performance will be analyzed by applying independent samples t-test or one-way ANOVA, depending on the number of characteristics. Both of these models can explain whether the variation of change in performance between the groups (deal characteristic) is statistically significant.

4.2.3 Qualitative Comparative Analysis

Zollo and Meier (2008) argue that the M&A performance constructs multiple factors, and there is no one single factor that could alone explain the outcome of M&A. Therefore, an examination of interactions between multiple variables should be used in the analysis. They suggest using structural equation modelling, such as PLS (partial least squares), which may be more useful to solve such complex problems. Due to the small sample size in accounting study figures, this study applies QCA analysis in order to find out whether some combination of deal characteristics lead to the successful outcome of the acquisition. Receiving reliable results of QCA does not require that large sample than traditional multivariate methods since QCA is not dependent of normally

distributed variables (Ragin 2017). In fact, the sample size of this study is actually large for QCA.

The QCA is a set-theoretic method, and its purpose is to answer what configurations of attributes (in this study: what combination of deal characteristics) are linked to the examined outcome. The strength of the analysis is that it can explain complex patterns, even if the sample is small. This study applies a crisp set QCA that is based on Boolean Algebra, which is using binary coded data. In other words, each independent variable either belongs to a set or does not belong to a set. The same also applies with the dependent variable, either the M&A is value creative, or it is not. Data analysis is done with the fsQCA software by using the “Truth Table Algorithm” (Quine-McCluskey algorithm). After coding the data, the truth table provides all logically possible combinations of factors applied in the analysis. It is possible that some combinations of factors represent a large proportion of cases while some combinations may not be represented at all. Consistency score indicates the model’s validity by capturing how consistently the combinations are connected to the outcome. (Greckhamer, Furnari, Fiss & Aguilare 2018; Ragin 2017)

The following phase in the analysis is to assess the frequency threshold and exclude the cases that do not meet the threshold (i.e., the cases are considered as irrelevant). With a small sample, the threshold is typically 1 or 2 cases that belong to a set, but large sample studies should use a higher threshold. In this study, the threshold is set to be 2 in order to find out whether there are any similar combinations that lead to same outcome. However, the number of cases that belong to the set is presented in results (as normally), and therefore the analysis of reliability is possible. It is obvious that meeting such a low threshold (two cases in the set) does not tell anything in this study. Also, setting the level of consistency exclude combinations that are poorly linked to the outcome. Typically, reliable default consistency in QCA is 0.8, indicating that at least 80 percent of the cases belonging to the set are linked to the same outcome. (Ragin 2017)

5. RESULTS

5.2 Short-term Performance

The main goal in the event study is to examine how the market reacts to M&A announcements and how the short-term returns vary between different kinds of transactions. Hypotheses *H1* and partially *H3 – H3d* are examined through the event study. Previous literature (especially the earlier one) suggests that acquiring companies do not earn significant abnormal returns in M&As, and many of the studies even report losses for acquirers. However, the way seems to be somehow changed due to more recent findings (see, e.g., Barbopoulos & Sudarsanam 2012; Andriosopoulos et al. 2016; Alexandridis et al. 2017). This study follows the modern path by indicating that the market, on average, reward acquiring companies in the short-term with small abnormal returns. The results of the event study for the whole sample are presented in Table 5. The results show that there are positive and statistically significant abnormal returns on the announcement day AR (0) and one day after the announcement AR (1). The cumulative abnormal returns are statistically significant in all presented time periods.

Table 5. Event Study Results

Stock price reaction - Whole sample *(N=76)*								
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	CAR (0,10)	AR (0)	AR (1)	AR (2)
Average	2,28%**	2,49%**	2,35%**	2,74%**	3,25%**	1,37%**	0,91%**	0,21%
Variance	0,0000	0,0000	0,0000	0,0000	0,0001	0,0009	0,0006	0,0008
Min	-3,79 %	-8,93 %	-3,59 %	-7,11 %	-9,82 %	-4,87 %	-2,56 %	-7,79 %
Max	18,87 %	18,01 %	17,78 %	22,84 %	45,51 %	12,83 %	11,27 %	15,30 %
Probability test								
J1 statistic / t Stat	5,037	4,484	4,994	4,090	3,522	3,982	3,375	0,645
p-value	0,0000	0,0000	0,0000	0,0000	0,0004	0,0001	0,0007	0,5189

**=Statistically significant at 99% confidence level
*=Statistically significant at 95% confidence level

The cumulative effect stops after two days from the announcement but continues on day four. This can be seen from in Appendix 1. The cumulative effect seems to be quite small for five days after the announcement and can be considered reliable. The average CAR (0,10) is also statistically significant, but being absolutely sure that no other

positive information by acquiring companies have disclosed during that time period is hard. If I cut off the possible outlier (i.e., the firm earned 45,51% CAR during ten days after the announcement), the average CAR (0,10) is 2,69%, and hence not higher than CAR (0,5). Also, it is worth to mention, that the company which earned such a large CAR in ten-day event window is not the same company that earned the highest AR (0) or, e.g., CAR (0,1), but instead, its announcement return was quite reasonable (approximately 2%). Therefore, assuming that there is a small cumulative effect during few days after the announcement is acceptable.

The results for the whole sample are consistent with modern M&A studies, and the positive and statistically significant price reaction confirms that the hypothesis (*H1: There is a positive and small price reaction on bidder's share price on and few days after the announcement day)* can be fully accepted. Nordic companies, on average, earn small and positive abnormal returns on the announcement day and a few days after the announcement. Similarly than Hazelkorn et al. (2004) findings, the results show variation between companies' abnormal returns, but the variation to the negative side is not that strong as they report. The maximum abnormal return on the announcement day is 12,83%, and the minimum AR is -4,87%.

Table 6 shows the results for cross-border (upper panel) and domestic (lower panel) acquirers. Moeller & Schlingemann (2005) and Andriosopoulos et al. (2016) report significantly higher abnormal returns for domestic acquirers. Also, Black et al. (2007) report higher long-term abnormal returns in domestic deals. The results of this study show that the abnormal returns are actually not very different between these groups on and two days after the announcement day. The announcement returns and two- and three-day CARs are slightly higher in cross-border acquisitions, and average CAR (0,5) in domestic acquisitions is not statistically significant. However, there appear quite large spread between the CARs after the second day from the announcement (see Appendix 2). The difference in returns between cross-border and domestic acquisitions is, however, not statistically significant in any of the time periods examined. Therefore, the first part of the *H3a is not supported.* Despite that the difference of cumulative abnormal returns after five days from the announcement is quite large, it is not statistically significant (t-stat 1,367, p-value 0,180). Although it is good to notice that there are only 18 domestic deals in the sample, whereas the corresponding amount in cross-border deals is 58. Therefore, it is hard to draw a conclusion of these

figures. However, when one examines Nordic companies, it is good to understand that the Nordic domestic markets are not that large than, for example, in the U.S., and therefore many of the Nordic companies are more dependent on internalization. Thus, it is not necessarily unexpected if the Nordic market does not reward domestic deals significantly higher.

Table 6. Event Study Results – Cross-border and Domestic Acquisitions

Stock price reaction - Cross-border acquisitions *(N=58)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	2,32%**	2,62%**	2,26%**	3,19%**	1,40%**	0,92%**	0,30%
Variance	0,0000	0,0000	0,0000	0,0001	0,0011	0,0004	0,0010
Min	-3,79 %	-8,93 %	-3,59 %	-6,44 %	-4,87 %	-2,56 %	-7,79 %
Max	18,87 %	18,01 %	17,78 %	22,84 %	12,83 %	8,03 %	15,30 %
Probality test							
J1 statistic / t Stat	4,342	3,940	4,224	3,974	3,270	3,528	0,736
p-value	0,0000	0,0001	0,0000	0,0001	0,0011	0,0004	0,4620

Stock price reaction - Domestic acquisitions *(N=18)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	2,17%**	2,08%*	2,64%**	1,30%	1,27**	0,90%	-0,09%
Variance	0,0001	0,0001	0,0001	0,0001	0,0004	0,0011	0,0003
Min	-1,76 %	-3,82 %	-2,00 %	-7,11 %	-1,49 %	-2,03 %	-2,89 %
Max	11,80 %	14,18 %	13,47 %	13,17 %	5,99 %	11,27 %	2,72 %
Probality test							
J1 statistic / t Stat	2,589	2,186	2,681	1,200	2,683	1,128	-0,228
p-value	0,0096	0,0288	0,0073	0,2302	0,0073	0,2593	0,8196

Difference of abnormal returns - Cross-border vs. Domestic							
t Stat, two-tailed	0,143	0,450	-0,331	1,367	0,195	0,026	0,695
p-value	0,887	0,656	0,743	0,180	0,846	0,980	0,490

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

Table 7 presents the results based on different payment methods. As mentioned in chapter 4.1, there are only two pure stock transactions in the sample, and therefore there is no reason to compare those two acquisitions with others. However, there is (maybe even more) interesting variable to examine, as in 14 of the transactions earnout

method was used as a part of the financing structure of the deal. Therefore, the deals per payment method are classified into three categories, as follows: cash, hybrid, and earnout. As mentioned earlier, in earnout deals, the first stage payment can be in form cash, shares, or hybrid, and usually (but not always) the second stage payment is in the form of cash (Barbopoulos & Sudarsanam 2012). Therefore, in the analysis, those deals that were defined in the database as cash plus earnout are classified into a group of cash. Furthermore, those deals where cash, stock, and earnout were used are classified into a group of hybrids. Into earnout group, are classified all deals that used earnout, no matter of the first stage payment method. Other deals are classified (into cash and hybrid categories) as usually: pure cash deals into cash group and mix of the payment methods into the hybrid group.

Table 7. Event Study Results – Method of Payment

Stock price reaction - Cash deals *(N=50)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	1,91%**	2,41%**	1,89%**	2,74%**	1,25%**	0,66%*	0,49%
Variance	0,0000	0,0000	0,0000	0,0001	0,0006	0,0003	0,0010
Min	-3,21 %	-8,93 %	-3,52 %	-5,84 %	-2,29 %	-2,56 %	-7,79 %
Max	12,11 %	18,01 %	13,76 %	18,69 %	8,44 %	8,03 %	15,30 %
Probability test							
J1 statistic / t Stat	4,350	3,721	3,857	3,530	3,636	2,512	1,096
p-value	0,0000	0,0002	0,0001	0,0004	0,0003	0,0120	0,2730

Stock price reaction - Hybrid deals *(N=12)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	6,42%**	5,88%**	7,07%**	6,01%**	3,87%**	2,55%*	-0,55%
Variance	0,0003	0,0003	0,0002	0,0005	0,0021	0,0017	0,0005
Min	-1,44 %	-2,50 %	-0,90 %	-3,84 %	-1,30 %	-2,03 %	-5,78 %
Max	18,87 %	16,17 %	17,78 %	22,84 %	12,83 %	11,27 %	2,38 %
Probability test							
J1 statistic / t Stat	3,853	3,314	4,798	2,796	2,901	2,118	-0,819
p-value	0,0001	0,0009	0,0000	0,0052	0,0037	0,0342	0,4130

Stock price reaction - Earnout deals *(N=14)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	3,43%**	3,56%**	3,36%**	3,63%*	1,41%*	2,02%**	0,13%
Variance	0,0001	0,0001	0,0001	0,0003	0,0007	0,0005	0,0006
Min	-1,21 %	-2,50 %	-1,15 %	-4,06 %	-1,43 %	-1,06 %	-5,78 %
Max	11,06 %	12,46 %	9,78 %	18,69 %	7,73 %	7,73 %	5,20 %
Probability test							
J1 statistic / t Stat	4,394	3,470	4,671	2,283	2,009	3,308	0,193
p-value	0,0000	0,0005	0,0000	0,0224	0,0445	0,0009	0,8469

Difference of abnormal returns - Cash, Hybrid and Earnout							
F Stat	0,616	2,551	9,377	1,426	4,042	3,883	0,616
p-value	0,543	0,085	0,000	0,247	0,022	0,025	0,543

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

Interestingly the results show the opposite than the majority of the previous studies. First, Hybrid deals earn relatively higher returns than cash deals on the announcement day, and the cumulative effect is substantially stronger. Both group's ARs and CARs are statistically significant except ARs on the second day after the announcement. The results are hence partially

reversed than what the signaling theory predicts (however, noticing that the hybrid structure also includes cash). Nevertheless, the finding that hybrid deals outperform cash deals is not necessarily surprising as Goergen and Renneboog (2004) reported higher returns for all equity-deals than all-cash deals. Also, when considering the findings by Martynova and Renneboog (2008) that European studies show positive returns in equity financed deals highlights the question, whether the method of payment variable in short-term returns between European and U.S. studies is comparable.

The second finding concerning the earnout mechanism is also interesting but not surprising. The results show that deals where the earnout was used, experience higher announcement returns and CARs than the cash deals. As the earnout is typically used when the valuation of the target is difficult, and the future benefits are at some level uncertain due to the target characteristics, one may hypothetically consider that the short-term price reaction would not be that positive than in cash deals due to the signaling effect related to the uncertainty of future benefits of an acquisition. However, the earnout mechanisms actually lower the valuation risk because the second stage payment would be delivered only if predefined goals are achieved. The results of this study are partially similar to the results of Barbopoulos and Sudarsanam (2012), who report that earnout deals outperform the non-earnout deals. Overall, the results are inconsistent with the first part of *H3b,* indicating that cash financed deals do not experience higher abnormal returns.

As mentioned above, the deals were classified so that the sample of cash deals and hybrid deals also include the deals where the earnout was used as a part of the financing structure. It is worth to mention that the conclusion of this paper does not change if earnout deals are excluded from cash and hybrid categories. By doing so, there are 41 pure cash deals, 7 hybrid deals, and 14 deals where the earnout was applied in addition to other payment methods, and the differences of returns are still statistically significant. After all it is, however, good to notice that the sample is heavily biased towards cash deals.

In Table 8, the results of horizontal and vertical transactions are presented. The classification of deals into industry-related and unrelated transactions was not possible as there were only two unrelated (conglomerate) transactions. The abnormal returns on the announcement day and average CARs (0,1) between horizontal and vertical

transactions are not that different from each other. Although the cumulative effect seems to be stronger in vertical transactions measured with two- and five-day event windows. However, the difference in returns between horizontal and vertical transactions is not statistically significant in any of the time periods examined. Based on these results, drawing a clear conclusion, which transactions (acquisition of totally related firm or acquisition of part of the value chain) are rewarded higher by the market in the short-term is not possible, and hence the first part of the *H3c* is not supported.

Table 8. Event Study Results – Horizontal and Vertical Transactions

Stock price reaction - Horizontal transactions *(N=39)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	2,26%**	2,16%**	2,39%**	2,28%**	1,41%**	0,86%*	-0,10%
Variance	0,0000	0,0000	0,0000	0,0001	0,0009	0,0005	0,0006
Min	-2,57 %	-8,93 %	-3,52 %	-7,11 %	-2,29 %	-2,56 %	-7,79 %
Max	12,11 %	12,42 %	13,76 %	18,69 %	11,38 %	8,03 %	5,20 %
Probability test							
J1 statistic / t Stat	4,113	3,167	3,955	2,761	2,988	2,372	-0,273
p-value	0,0000	0,0015	0,0001	0,0058	0,0028	0,0177	0,7849
Stock price reaction - Vertical transactions *(N=35)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	2,35%**	2,97%**	2,36%**	3,54%**	1,37%**	0,98%*	0,61%
Variance	0,0001	0,0001	0,0001	0,0001	0,0008	0,0007	0,0011
Min	-3,21 %	-2,50 %	-3,34 %	-4,20 %	-1,66 %	-1,89 %	-2,70 %
Max	18,87 %	18,01 %	17,78 %	22,84 %	12,83 %	11,27 %	15,30 %
Probability test							
J1 statistic / t Stat	3,186	3,373	3,183	3,266	2,807	2,273	1,099
p-value	0,0014	0,0007	0,0015	0,0011	0,0050	0,0230	0,2718
Difference of abnormal returns - Horizontal vs. Vertical							
t Stat, two-tailed	-0,098	-0,715	0,031	-0,911	0,051	-0,224	-1,064
p-value	0,922	0,477	0,975	0,366	0,959	0,824	0,292

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

Finally, the acquiring companies were classified into growth and value bidders. The classification was done consistent with Sudarsanam and Mahate (2003) based on acquiring companies P/E ratios by creating three P/E portfolios (High, Medium and Low).

To avoid any bias, the P/E ratios were screened for each company by computing three- and six-month average P/E ratios on a daily basis before the acquisition. The P/E ratios in high and low P/E portfolios varied widely, and the median P/E ratio in High portfolio is 1,38 and 2,24 times higher than the median P/E in Medium and Low portfolios, respectively. Hence indicating similar distribution than in the portfolios created by Sudarsanam and Mahate (2003).

The results are presented in Table 9. Interestingly the market reacts more positively to low P/E firms' M&A announcements. The average AR (0) for low P/E firms is 2,42%, whereas the corresponding returns for medium and high P/E firms are 0,91% and 0,80%, respectively, and the difference in returns between the groups is statistically significant at 10% level. Also, the CARs are higher for low P/E bidders while the high P/E bidders' returns start to decline (i.e., negative ARs starts to occur) after the first day from the announcement. The plotted CARs of each portfolio can be found in Appendix 5. The results are partially consistent with Freund et al. (2007) and Andriosopoulos et al. (2016), indicating that more recent findings show that the market reacts more positively to value bidders' M&A announcements. However, the differences between the returns are not that significant than in the previous studies, and hence the first part of *H3d* cannot be fully supported.

Table 9. Event Study Results – Growth and Value Bidders

Stock price reaction - High P/E bidders *(N=25)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	2,08%**	1,48%*	2,17%**	0,96%	0,80%*	1,28%**	-0,60%*
Variance	0,0000	0,0001	0,0001	0,0001	0,0006	0,0006	0,0003
Min	-3,79 %	-6,70 %	-3,59 %	-7,11 %	-4,87 %	-1,87 %	-5,78 %
Max	12,11 %	10,70 %	13,76 %	9,84 %	5,99 %	8,03 %	1,83 %
Probability test							
J1 statistic / t Stat	3,107	2,018	2,821	1,161	1,643	2,607	-1,664
p-value	0,0009	0,0218	0,0024	0,1228	0,0502	0,0046	0,0480

Stock price reaction - Medium P/E bidders *(N=26)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	1,20%**	1,30%	1,42%**	1,88%**	0,91%*	0,29%	0,10%
Variance	0,0000	0,0001	0,0000	0,0001	0,0004	0,0002	0,0009
Min	-1,76 %	-8,93 %	-2,00 %	-5,84 %	-1,49 %	-1,89 %	-7,79 %
Max	9,06 %	10,45 %	10,78 %	18,69 %	8,10 %	3,68 %	10,44 %
Probability test							
J1 statistic / t Stat	2,418	1,591	2,485	1,574	2,244	1,153	0,168
p-value	0,0078	0,0558	0,0065	0,0577	0,0124	0,1244	0,4332

Stock price reaction - Low P/E bidders *(N=25)*							
	CAR (0,1)	CAR (0,2)	CAR (-1,1)	CAR (0,5)	AR (0)	AR (1)	AR (2)
Average	3,61%**	4,74%**	3,50%**	5,41%**	2,42%**	1,19%*	1,13%*
Variance	0,0001	0,0001	0,0001	0,0001	0,0016	0,0009	0,0010
Min	-3,21 %	-2,50 %	-3,34 %	-4,20 %	-2,29 %	-2,56 %	-2,70 %
Max	18,87 %	18,01 %	17,78 %	22,84 %	12,83 %	11,27 %	15,30 %
Probability test							
J1 statistic / t Stat	3,505	4,173	3,476	4,454	3,040	1,996	1,771
p-value	0,0002	0,0000	0,0003	0,0000	0,0012	0,0230	0,0382

Difference of abnormal returns - High, Medium and Low							
F Stat	2,498	4,330	1,673	4,365	2,395	1,404	2,442
p-value	0,089	0,017	0,195	0,016	0,098	0,252	0,094

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

5.3 Long-term Performance

The object of accounting study was to analyze how the acquiring companies' performance evolve after the transaction, hence does the operating performance improves and whether the acquiring companies outperform their industry peers. Improvements in operating performance are examined by applying the change model similar to previous studies. As mentioned earlier, the sample sizes in the accounting study vary and are smaller than in the event study. This is due to the lack of information in the databases, and because some firms had executed multiple transactions during the analyzed period.

The results of the accounting study for the whole sample are presented in Table 10. The upper panel presents an average yearly performance and pre- and post-acquisition mean performance per measure. The performance measures are industry and size adjusted, i.e., normalized by subtracting the benchmark group's yearly median performance ratio from acquirer's ratios. By examining the performance ratios, it is obvious that the acquiring companies outperform their industry peers before the acquisition, and thus the results of this study are in line with the arguments by Ghosh (2001). The acquirers also outperform the benchmark group after the acquisition, but the actual change in pre- and post-acquisition performance ratios can be seen only in ROE and CF / Sales. There seems to be almost no change in Pretax PM, and CF / Assets decline slightly. Also, the change in ROE and CF / Sales is relatively small. However, any of the results are not statistically different from zero.

Based on the results of accounting study, hypothesis *H2: "Acquiring companies' operating performance improves due to the acquisition"* can be partially rejected since the evidence show no statistically significant results on improvement. However, the evidence does not show a decline in performance either (except the slight decline in CF / Assets), and therefore it is not appropriate to state that the acquisitions deteriorate operating performance. When interpreting the results, it should be noticed that, on average, the acquiring companies break even, and as stated by Bruner (2002), the investment can be considered as successful if it does not destroy value. Nevertheless, the findings of this study appear to be similar than what most of the previous studies report. As shown by Bruner (2002), usually, accounting studies do not find statistically significant changes in performance.

Table 10. Accounting Study Results for a Whole Sample (Change Model)

Industry and time adjusted financial ratios					
Pre- and post-acquisition mean		ROE	Pretax PM	CF / Sales	CF / Assets
	-3	1,78 %	4,20 %	5,81 %	4,40 %
	-2	1,04 %	4,07 %	5,31 %	3,97 %
	-1	1,41 %	5,03 %	4,93 %	3,75 %
Mean pre-acquisition performance (-3 to -1)		**1,41 %**	**4,43 %**	**5,35 %**	**4,04 %**
	+1	2,56 %	4,99 %	6,04 %	4,43 %
	+2	2,37 %	4,30 %	5,57 %	3,61 %
	+3	1,29 %	4,27 %	5,97 %	3,58 %
Mean post-acquisition performance (+1 to +3)		**2,07 %**	**4,52 %**	**5,86 %**	**3,87 %**

Change Model				
	ROE	Pretax PM	CF / Sales	CF / Assets
Mean performance (-3 to -1)	1,41 %	4,43 %	5,35 %	4,04 %
Variance	0,0123	0,0050	0,0071	0,0059
Min	-26,54 %	-10,83 %	-10,91 %	-7,96 %
Max	31,44 %	21,95 %	27,22 %	35,85 %
N	59	57	58	58
Mean performance (+1 to +3)	2,07 %	4,52 %	5,86 %	3,87 %
Variance	0,0157	0,0067	0,0102	0,0075
Min	-43,10 %	-16,57 %	-8,93 %	-9,96 %
Max	49,17 %	27,28 %	33,79 %	38,39 %
N	59	57	58	58
Difference of means test				
ΔPerformance	0,66 %	0,09 %	0,51 %	-0,16 %
t Stat, two-tailed	-0,483	-0,129	-0,741	0,254
p-value	0,631	0,898	0,462	0,800

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

When examining the results, cash flow-based measures indicate that acquiring firms' cash flows increases after the acquisition. This can be inferred from both cash flow-based measures, as typically acquiring firms' asset base grows due to the acquisition, and CF / Assets has remained almost stable, whereas CF / Sales shows small increasing. In order to experience significant positive changes in CF / Assets, the cash flows of a company need to improve quite much. As ROE and CF / Sales show changes at some level, the measures are examined more closely in order to find out whether they vary between different transactions based on deal characteristics. Table 11 shows the results of domestic and cross-border acquisitions.

Table 11. Accounting Study Results - Cross-border and Domestic Acquisitions

Cross-border and Domestic Acquisitions - Independent Samples t-test				
			Difference of means	
	Cross-border	Domestic	t Stat	p-value
ROE				
ΔPerformance	**0,66 %**	**2,36 %**	-0,4466	0,6593
Variance	0,0109	0,0200		
N	42	17		
Pretax PM				
ΔPerformance	**0,10 %**	**0,99 %**	-0,5019	0,6215
Variance	0,0024	0,0036		
N	43	14		
CF / Sales				
ΔPerformance	**0,39 %**	**0,90 %**	-0,3016	0,7659
Variance	0,0028	0,0030		
N	44	14		
CF / Assets				
ΔPerformance	**-0,60 %**	**1,19 %**	-1,0041	0,3286
Variance	0,0020	0,0038		
N	44	14		

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

The results show that domestic acquisitions outperform cross-border acquisitions in all performance measures. This finding is consistent with many of the previous studies. However, the findings of this study are not completely consistent with the findings of Moeller & Schlingemann (2005), who report that domestic acquisitions earn higher short-term abnormal returns and greater improvements in operating performance. Instead, the findings of this study suggest that the short-term abnormal returns are quite similar for domestic and cross-border acquisitions on the announcement day, and there is no statistically significant difference in post-acquisition operating performance between these two groups. Hence the hypothesis *H3a* (*Domestic acquisitions earn higher short-term abnormal returns than cross-border acquisitions, and outperform in the long run*) can be rejected. Although it is again good to notice that the sample does not represent domestic acquisitions quite well, and there are some signs that domestic acquisitions have greater improvements in post-acquisition performance.

The results of the operating performance on payment methods (Table 12) are somewhat mixed. Cash deals appear to outperform in terms of ROE, whereas the deals where hybrid has used as a method payment experience relatively greater improvement in terms of CF / Sales. Also, the earnout deals outperform cash and hybrid deals in terms of CF / Sales, and hence the results of this study are partially consistent with the findings of Barbopoulos and Sudarsanam (2012).

However, these findings highlight the difficultness when comparing the groups by using earnings and cash flow-based measures. It is essential to understand that low ROE does not necessarily always indicate that the company would be a bad investment in the long run. The company may have low ROE, even if it has healthy cash flows. This is the case when, e.g., the company records significant impairments of property, plant and equipment, and intangible assets that affect negatively on the income statement but are eliminated when considering cash flows. Also, in business combinations, when firms record significant restructuring costs, ROE declines. The same naturally applies to profit margins. Thus, the ROE is not necessarily the best measurement when individual firms have undertaken multiple transactions during the analyzed period (which is the case also in this study).

Moreover, as the ROE in this study is computed using net income, changes in the ratio may be biased in the case of some companies. If the firm has recorded losses from discontinued operations before the transaction or profits after the transaction, and vice versa, the change in the ratio is affected. This may be the case in the cash sub-sample, as the ROE has increased quite heavily, but the change in pretax PM is negligible. Therefore, the cash flow-based ratios can be considered a more reliable measure if the ratios show contrary results. Although interestingly hybrid and earnout deals outperform in terms of CF / Sales, while cash deals show higher change in CF / Assets. This may be explained by looking into companies in these groups. Hybrid and earnout groups are relatively smaller comparing to the cash group, and there are quite many large industrial firms within hybrid and earnout groups. Typically, in such transactions the asset base can grow quite heavily, which declines CF / Assets if there do not occur asset divestitures or if the change in cash flows is not remarkable.

Table 12. Accounting Study Results – Method of Payment

Method of payment - One-way ANOVA					
				Difference of means	
	Cash	Hybrid	Earnout	F-stat	p-value
ROE					
ΔPerformance	**3,97 %**	**0,24 %**	**-1,05 %**	1,0915	0,3430
Variance	0,0120	0,0141	0,0133		
N	35	10	12		
Pretax PM					
ΔPerformance	**0,34 %**	**2,35 %**	**1,45 %**	0,4772	0,6232
Variance	0,0021	0,0060	0,0052		
N	35	8	12		
CF / Sales					
ΔPerformance	**0,87 %**	**2,45 %**	**2,67 %**	0,7088	0,4968
Variance	0,0019	0,0051	0,0039		
N	37	8	12		
CF / Assets					
ΔPerformance	**0,73 %**	**-0,86 %**	**-0,30 %**	0,4669	0,6294
Variance	0,0025	0,0025	0,0019		
N	37	8	12		

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

After all, the results are not statistically significant, and thus there is no evidence that one payment method outperforms the others in post-acquisition performance. These results support the findings of Sharma & Ho (2002) and Powell & Stark (2005). As mentioned before, it is however, good to notice that the sample is heavily biased towards cash deals, and it is not possible to draw a clear conclusion of which deals outperform in the long run. The event study showed that acquirers' using hybrid as a payment method earned higher abnormal returns, and thus, the hypothesis *H3b* formulated as follows: *"Cash financed deals earn higher short-term abnormal returns than stock and hybrid deals, and outperform in the long run"* can be fully rejected.

In Table 13, the results are presented for horizontal and vertical acquisitions. Horizontal acquisitions seem to outperform vertical ones in all of the measures. The change in ROE in horizontal transactions is 4,34 percentage points positive, whereas the corresponding change in vertical transactions is -1,50 percentage points. Also, horizontal acquirers appear to earn higher improvements in CF / Sales and CF / Assets during

the post-acquisition period. The difference between the groups' ROE and CF / Sales is statistically significant at the 10% level, and the difference between CF / Assets is statistically significant at 5% level. When one interpreting the results, it is good to notice that this sub-sample do not compare industry-related and unrelated transactions (as typically done in M&A research) since the vertical acquisitions are also considered as related transactions. Unrelated transactions were excluded from the analysis as there were only two pure conglomerate acquisitions in the sample. However, the results of this study support the findings of earlier studies as there seem to occur signs that the more the target and acquirer businesses are overlapped, the higher are acquirer's improvements in operating performance (see, e.g., Healy et al. 1997). The horizontal transactions in this study are identified as the acquisitions to totally related businesses, whereas the vertical transactions represent acquisitions from the acquirer's value chain.

Table 13. Accounting Study Results – Horizontal and Vertical transactions

Horizontal and Vertical Transactions - Independent Samples t-test				
			Difference of means	
	Horizontal	Vertical	t Stat	p-value
ROE				
ΔPerformance	**4,34 %**	**-1,50 %**	1,9312	0,0586
Variance	0,0127	0,0133		
N	28	29		
Pretax PM				
ΔPerformance	**1,34 %**	**-0,73 %**	1,4873	0,1433
Variance	0,0033	0,0020		
N	27	28		
CF / Sales				
ΔPerformance	**1,95 %**	**-0,67 %**	1,9122	0,0613
Variance	0,0030	0,0022		
N	28	28		
CF / Assets				
ΔPerformance	**1,08 %**	**-1,73 %**	2,0657	0,0438
Variance	0,0029	0,0023		
N	28	28		

***=Statistically significant at 99% confidence level

**=Statistically significant at 95% confidence level

Despite the findings on accounting study, the event study showed that vertical transactions earned higher cumulative abnormal returns while the announcement returns showed almost no difference, and therefore the hypothesis *H3c* (*The more the target is related, the higher are short-term abnormal returns and improvements in long-term operating performance*) can be only partially accepted.

Table 14 compares the results between high, medium, and low P/E bidders. In terms of ROE, high P/E bidders underperform the benchmark group before and after the acquisition. Medium P/E bidders clearly outperform their benchmark group before the acquisition and experience positive change in the ratio, but the change is not that strong than with low P/E bidders. However, CF / Sales ratios show an interesting pattern between these three portfolios. High P/E companies show the highest outperformance relative to their benchmark groups before the acquisition, while their change in CF / Sales is lowest during the post-acquisition period. Similar results are reported to medium P/E firms. The low P/E portfolio instead shows the greatest improvements on ROE, Pretax PM and CF / Sales. The event study showed that low P/E companies earn higher abnormal returns than the medium and high P/E firms, and hence, one may say that the results are quite close to what hypothesized. Although, as the difference between the groups' long-term performance is not statistically significant in any of the performance measures, hypothesis *H3d* (*Value bidders earn higher short-term returns than growth bidders, and outperform in the long run*) can be only partially accepted.

Table 14. Accounting Study Results - Growth and Value Bidders

Growth and Value Bidders - One-way ANOVA					
				Difference of means	
ROE	High PE	Medium PE	Low PE	F-stat	p-value
Mean performance (-3 to -1)	-0,97 %	5,07 %	0,43 %	0,2911	0,7486
Mean performance (+1 to +3)	-1,13 %	6,24 %	3,01 %		
ΔPerformance	**-0,17 %**	**1,17 %**	**2,59 %**		
Variance	0,0104	0,0141	0,0169		
N	22	17	20		
Pretax PM					
ΔPerformance	**0,11 %**	**-0,69 %**	**0,80 %**	0,3511	0,7055
Variance	0,0036	0,0021	0,0023		
N	0,22	0,17	0		
CF / Sales					
Mean performance (-3 to -1)	7,40 %	5,86 %	2,25 %	0,5358	0,5882
Mean performance (+1 to +3)	7,26 %	6,16 %	3,80 %		
ΔPerformance	**-0,14 %**	**0,30 %**	**1,56 %**		
Variance	0,0036	0,0027	0,0019		
N	23	17	18		
CF / Assets					
ΔPerformance	**-0,83 %**	**0,40 %**	**0,15 %**	0,3501	0,7062
Variance	0,0021	0,0037	0,0018		
N	23	17	18		

**=Statistically significant at 99% confidence level

*=Statistically significant at 95% confidence level

The hypothesis *H3* was formulated as follows: *"Deal characteristics have an impact on short-term returns and long-term operating performance."* When interpreting the results, one may say that the market reacts differently between different kinds of deals. The most substantial gap in announcement returns and few day CARs appears between the acquirers that use different payment methods as well as the acquirers that belong to different P/E portfolios. The returns close to the announcement between cross-border and domestic acquisitions and horizontal and vertical transactions are not very different from each other. The accounting study indicates that the long-term performance is, at some level, affected by deal characteristics, but mainly the results are not statistically significant. Based on the accounting study, we can only say that at a 90% confidence level, horizontal acquirers are able to improve in ROE and CF / Sales levels better than vertical acquirers. Overall, the results of the event- and accounting study suggest that the *H3* can be only partially accepted.

5.4 Configurations of Success

QCA analysis aimed to examine the interactions of multiple factors and find out whether some combination of deal characteristics can explain the outcome of M&A performance and abnormal returns. Even though the mean change in financial ratios for the whole sample was small, there appears a quite significant variation in companies' performance ratios. For example, 22 firms experienced over 2% improvement in CF / Sales, and 20 firms experienced less than -2% change in CF / Sales. Ten of the firms were able to increase CF / Sales over 5% while eight of the firms had more than -5% decrease in the ratio. Companies' improvements in the CF / Sales ratio are plotted in figure 10. The QCA was applied in order to examine whether there are any patterns explaining this variation.

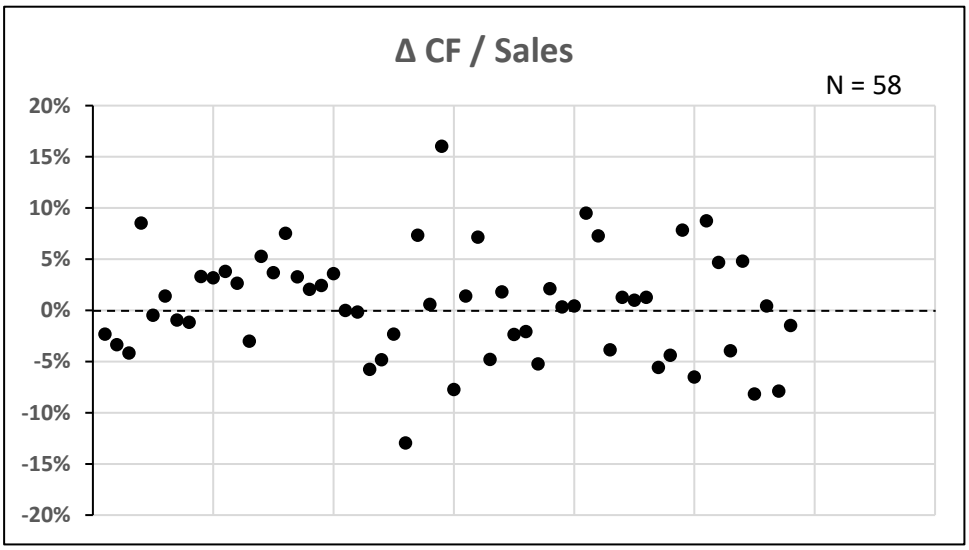

Figure 10. Change in CF / Sales ratio - Whole Sample.

Table 15 is the truth table for dependent variable CF / Sales, that show occurred frequencies of each possible combinations of deal characteristics that met the frequency threshold of 2. As mentioned earlier in chapter 4.3, the algorithm provides all logically possible combinations of factors applied in the analysis.

Table 15. Truth Table for CF / Sales Ratio

#	Cross-border	Horizontal	Cash	Hybrid	Earnout	P/E High	P/E Med	P/E Low	N	Consistency Level
1	1	1	1	0	0	0	1	0	8	0,50
2	1	0	1	0	0	0	1	0	7	0,57
3	1	0	1	0	0	0	0	1	6	0,50
4	1	1	1	0	0	1	0	0	5	0,20
5	0	1	1	0	0	0	0	1	4	0,75
6	1	0	1	0	0	1	0	0	4	0,5
7	1	1	1	0	1	1	0	0	3	0,67
8	0	1	1	0	0	0	1	0	3	1
9	1	1	1	0	0	0	0	1	3	0,33
10	1	1	0	1	1	1	0	0	2	0,50
11	1	0	1	0	1	0	1	0	2	0,50
12	0	0	0	1	0	0	0	1	2	0

Despite the number of possible combinations, there are 12 combinations of factors that met the frequency threshold of 2. The overall number of cases is 49 retaining to the analysis after setting the frequency threshold. The most popular combination can be seen in the first row of the truth table, where 8 cases belong to the set. The data was first coded in a way that all firms that experienced higher than zero change in CF / Sales were considered as successful and the rest of the firms as unsuccessful. Table 16 presents the results for combinations with the highest and lowest consistency scores. By looking at the consistency levels and number of cases in the sets, it is hard to find any significant patterns that lead to a successful outcome. While the set *domestic, horizontal, cash, and P/E medium* have the highest consistency score (1), indicating that such combination is likely to lead successful outcome, there are only three firms in the set, thus too little observations to draw any conclusions. The second last row of Table 16 shows that the combination *cross-border, horizontal, cash, and P/E high* is more likely to lead unsuccessful outcome as only 1 out of 5 cases that belong to the set experienced positive change in the ratio. The results are somewhat in line with the theory and results of previous studies, indicating that domestic acquisitions and firms with lower P/E outperform cross-border acquisitions and high P/E firms in the long run. However, the representativeness in each of the sets is relatively small. Also, it should be noticed that the set in the last row includes variables *domestic* and *P/E low,* but the deal financing and transaction type are different, and neither of the cases resulted in the successful outcome.

Table 16. Results of Truth Table – CF / Sales

Δ Cash flow to sales ratio > 0% or <0%			
Combination of deal characteristics	**N**	**Consistency CF / Sales > 0%**	**Number of successful cases**
Domestic, Horizontal, Cash, P/E Medium	3	1	3
Domestic, Horizontal, Cash, P/E Low	4	0,75	3
Horizontal, Hybrid, Earnout, P/E High	3	0,67	2
Cross-border, Horizontal, Cash, Earnout, P/E High	3	0,33	1
Cross-border, Horizontal, Cash, P/E High	5	0,20	1
Domestic, Vertical, Hybrid, P/E Low	2	0	0

The analysis was also done for the sample that experienced over 4% and less than -4% change in the ratio. The results were similar, indicating that no combination lead significantly to higher cash flow returns. This was also tested by excluding variables *cross-border and domestic* in order to lower the requirements of some firms to belong in one particular set. The highest consistency level was 0.75 for the combination *horizontal, cash, and P/E medium* (N=4). Hence the consistency score does not meet the suggested level (0.8), and again, there were only a few observations. The results indicate that it is hard to find any combinations of deal characteristics that are more likely to lead the successful outcome of M&A. This is primarily due to a lack of a large number of observations in one particular set that leads to the same outcome. Although the case could be different if one has a larger sample. It should be noticed that the results do make sense and are in line with the theory and previous studies, and if the set sizes would be larger, the results can be considered reliable. However, in this study, the QCA results should be considered only as indicative.

The analysis for short-term cumulative abnormal returns was also done by using CAR [0,1] as the dependent variable. Initial screening resulted in poor results as the model did not show any sets that are more likely linked to a positive outcome. This was due to low consistency levels in all sets. Therefore, the variables *cross-border* and *domestic* were excluded from the analysis in order to lower the requirements of the transactions to belong to the sets. Also, when testing the interactions of multiple different combinations, the above-mentioned variables were the only ones that did not show any significant differences in the chosen event window. Also, another limitation was set, as CAR [0,1] needs to be over +2% or below -2% in order that the transaction was considered in the analysis. Table 17 shows eight combinations that met the frequency threshold of 2. Retained total number of cases in the analysis is 28.

Table 17. Truth Table for CAR [0,1]

#	Hori.	Cash	Hybrid	Earnout	P/E High	P/E Med	P/E Low	N	Consistency Level
1	1	1	0	0	0	0	1	6	0,83
2	1	1	0	0	0	1	0	5	0,80
3	0	1	0	0	0	1	0	4	1
4	0	1	0	0	1	0	0	3	1
5	1	0	1	1	1	0	0	3	1
6	0	1	0	0	0	0	1	3	0,67
7	1	1	0	1	1	0	0	2	1
8	0	0	1	0	0	0	1	2	1

Table 18 presents the results of the truth table. Consistency scores are computed for both CAR [0,1] and ΔCF / Sales variables in order to examine whether some combinations that lead to positive abnormal returns also have a positive outcome in the long run. The results reveal an interesting pattern, but it is again good to notice that the set sizes are relatively small. Almost every combination that is likely to experience over 2% CAR in a two-day event window show quite low likelihood to lead improvements in CF / Sales. Only exception is the combination *horizontal, cash, P/E medium* that is likely to earn over 2% CAR and very likely to improve over 2% at CF / Sales level. This finding may be considered as a potential combination leading to a successful outcome, and it is somewhat in line with the theory and previous studies. Several researchers have made findings that more related and cash financed acquisitions experience higher short-term returns and more substantial improvements in post-acquisition performance (see, e.g., Jensen 1986; Berger & Ofek 1995; Yook 2000; Linn & Switzer 2001; Ghosh 2002; Hazelkorn et al. 2004; Alexandridis et al. 2017). However, the set sizes for CARs are also relatively small, and thus too straightforward conclusions should not be made.

Table 18. Results of Truth Table – CAR [0,1] and CF / Sales

CAR [0,1] >= +2%, Δ CF / Sales >0% and Δ CF / Sales >= +2%				
Combination of deal characteristics	**N**	**Consistency CAR [0,1] >= +2%**	**Consistency Δ CF / Sales > 0%**	**Consistency Δ CF / Sales >= +2%**
Vertical, Cash, P/E Medium	4	1	0,75	0,50
Vertical, Cash, P/E High	3	1	0,33	0
Horizontal, Hybrid, Earnout, P/E High	3	1	0,67	0,33
Horizontal, Cash, Earnout, P/E High	2	1	0,50	0,50
Horizontal, Cash, P/E Low	6	0,83	0,50	0,33
Horizontal, Cash, P/E Medium	5	0,80	1	1
Vertical, Cash, P/E Low	3	0,67	0,33	0

Also, a robustness check was done by applying the analysis for other performance metrics and several sub-samples. The results are somewhat similar, indicating that there is no specific combination that would be more likely to lead a positive outcome. After cutting off several independent variables and testing the combinations against other performance measures, I still find no significant combinations that are more likely to lead a successful outcome of M&A. Some combinations that indicate so include only a small piece of cases of the total sample, hence signifying low coverage (as in the results above). The results concerning the other performance measures are presented in appendices. Two explanations of why the model cannot capture the complex interactions on underlying outcomes should be considered. First, the sample is biased towards cash deals and cross-border acquisitions, and in general, the overall sample size may be considered as small. The results in Table 16 indicate that domestic and horizontal acquisitions financed with cash might be a set that has some explanatory power in successful outcomes, but there are only a few observations. The second explanation is that the combinations built up using the independent variables of this study simply do not explain the outcome of M&A, and there are some unidentified factors that have higher explanatory power. After all, the results of this study indicate that we cannot be sure whether different combinations of deal characteristics lead to differences in performance, and hence the *H3e* will be rejected.

Table 19 shows the correlation of short- and long-term returns for the whole sample. The results show that there is no statistically significant correlation between the short- and long-term returns when considering *Pretax PM, CF / Sales, and CF / Assets.* Interestingly, the results show a statistically significant negative correlation between short-term returns and *ROE.* One explanation for this anomaly might be the *Low* P/E firms. While the *Low* P/E portfolio experienced significantly the highest short-term abnormal returns, they were not able to increase *ROE* significantly after the transactions. Another explanation may be that the hybrid deals experienced significantly higher short-term abnormal returns than cash deals, but were not able to increase *ROE* almost at all. This might be due to a reason that the specific financing method can affect the denominator of *ROE.* However, too straightforward conclusions should not be made based on these figures as the correlation is quite weak. Appendix 12 shows the correlation between CAR (0,2) and ROE. Nevertheless, the results indicate that the individual short- and long-term returns are not linked to each other, and therefore *H4:* "*There is a positive correlation between short-term abnormal returns and long-term operating performance*" can be rejected.

Table 19. Correlation Matrix of Short- and Long-term Returns

	ROE *(N=59)*				Pretax PM *(N=57)*				CF / Sales *(N=58)*				CF / Assets *(N=58)*			
	r	R^2	p one-tail	p two-tail	r	R^2	p one-tail	p two-tail	r	R^2	p one-tail	p two-tail	r	R^2	p one-tail	p two-tail
AR (0)	-0,2186	4,78 %	0,0481	0,0962	0,0554	0,31 %	0,3410	0,6821	0,1109	1,23 %	0,2036	0,4073	0,0372	0,14 %	0,3909	0,7818
AR (1)	-0,1659	2,75 %	0,1046	0,2093	0,1826	3,34 %	0,0870	0,1739	0,0221	0,05 %	0,4346	0,8691	-0,0193	0,04 %	0,4429	0,8859
CAR (0,1)	-0,2661	7,08 %	0,0208	0,0416	0,1444	2,08 %	0,1420	0,2840	0,0989	0,98 %	0,2302	0,4603	0,0184	0,03 %	0,4456	0,8911
CAR (0,2)	**-0,3527**	**12,44 %**	**0,0031**	**0,0061**	0,0150	0,02 %	0,4560	0,9119	0,0215	0,05 %	0,4364	0,8728	0,0257	0,07 %	0,4240	0,8481
CAR (0,5)	-0,3261	10,63 %	0,0059	0,0117	0,1099	1,21 %	0,2079	0,4158	0,1255	1,58 %	0,1739	0,3477	0,0848	0,72 %	0,2635	0,5270
CAR (0,10)	-0,2774	7,70 %	0,0167	0,0334	0,0577	0,33 %	0,3350	0,6701	0,0120	0,01 %	0,4643	0,9285	-0,0674	0,45 %	0,3077	0,6153

6. CONCLUSIONS

6.1 Discussion of Key Findings

The objective of this study was to analyze the impact of M&A to share pricing and long-term operating performance of acquiring firms in Nordic markets. A great focus was also given to deal characteristics in order to examine determinants of value creation and find out whether it is possible to forecast the outcome of M&A with deal-specific factors. The transactions analyzed in this study were executed during 2013-2014. The theoretical background was constructed by combining behavioral and neoclassical theories by taking a more profound view of the topic. Neoclassical theory suggests that M&As are driven by industry shocks that force asset reallocation and results in value creation through business combinations. Behavioral theory instead identifies other motives behind the transactions and explain the impact of deal characteristics. Two of the widely used methodologies were applied in the analysis. Market model-based event study was used in the examination of the short-term abnormal returns, while the change model-based accounting study analyzed the long-term operating performance of acquiring companies. The study aims to answer four research questions that were formulated as follows:

1. To what extent do mergers and acquisitions create value in Nordic countries?
2. How the market reacts to acquisitions with different deal-specific factors?
3. What are the deal-specific factors that affect long-term operating performance?
4. Are the stock market returns after the M&A announcement linked to long-term performance?

The study tested several hypotheses that were formed based on the theory and existing literature in order to answer the research questions. The findings are summarized in Table 20 below.

Table 20. Summary of Findings

Hypothesis	**Conclusion**	**Evidence**
H1: "There is a positive and small price reaction on the bidder's share price on and a few days after the announcement day"	Accepted	On average the Nordic acquirers earn small and positive abnormal returns on the announcement day, and a few days after the announcement.
H2: "Acquiring companies' operating performance improves due to the acquisition"	Partially rejected	The change in operating performance is not statistically different from zero. On average, the acquiring firms break even, and the change is slightly positive. The acquirers outperform their industry peers also in the post-acquisition period.
H3: "Deal characteristics have an impact on short-term returns and long-term operating performance"	Partially accepted	The market reacts differently between different kinds of deals. Also, the results indicate that horizontal transactions outperform the vertical ones in the long run.
H3a: "Domestic acquisitions earn higher short-term abnormal returns than cross-border acquisitions, and outperform in the long run"	Rejected	No statistically significant evidence that domestic acquirers earn higher abnormal returns nor outperform in the long run.
H3b: "Cash financed deals earn higher short-term abnormal returns than stock and hybrid deals, and outperform in the long run"	Rejected	Hybrid deals experience higher short-term abnormal returns than cash deals. No statistically significant difference in long-term operating performance between different payment methods.
H3c: "The more the target is related, the higher are short-term abnormal returns and improvements in long-term operating performance"	Partially accepted	The difference in short-term returns between horizontal and vertical transactions is not statistically significant. However, horizontal acquirers outperform in the long run.
H3d: "Value bidders earn higher short-term returns than growth bidders, and outperform in the long run"	Partially accepted	The low P/E portfolio experience significantly higher short-term abnormal returns. However, the difference in long-term performance is not statistically significant.
*H3e: "*Different configurations of deal characteristics lead to differences in performance"	Rejected	The study finds no significant results that different combinations of deal characteristics lead to differences in performance.
H4: "There is a positive correlation between short-term abnormal returns and long-term operating performance"	Rejected	No statistically significant positive correlation was found between short-term abnormal returns and any of the long-term performance measures.

Based on the results, the answer to the first research question is that some M&As are highly profitable by generating substantially higher cash flows and improvements in ROE in the post-acquisition period, while some of the M&As seems to destroy value. On average, shareholders' wealth effects are positive in the short-term, and there is evidence of small value creation in the long run, but it is not statistically different from zero. Also, on average, the acquiring firms outperform their industry peers in the pre- and post-acquisition period. These findings are in line with the modern M&A literature and neoclassical theory, suggesting that M&As are executed in the means of value maximization derived from synergistic gains. Also, the fact that the sample included only two conglomerate transactions support the view that acquiring firms seek related targets, and the goal of the transaction is to aim synergies between the acquirer and target.

The results of the event study suggest that the market reacts differently between different types of transactions. The most notable differences in share pricing can be viewed within different payment methods and different P/E portfolios. The results on growth and value bidders are in line with more previous studies indicating that the market view low P/E bidders more favorably. However, the results suggest that cash deals do not dominate in abnormal returns in Nordic equity markets, as in the U.S., but instead, shareholders seem to prefer hybrid deals. The results of earnout deals are somewhat similar to in previous studies. This study finds no significant differences in abnormal returns between cross-border and domestic deals, but it is important to notice that the domestic deals are not very well represented in this study. Also, the returns for horizontal and vertical transactions are somewhat similar, which is no surprise as both of them can be considered as industry-related transactions.

Answering to the third research question is not that simple. The results are in line with the previous studies indicating that domestic deals outperform cross-border deals in the long run, and low P/E bidders outperform the median and high P/E bidders. The results concerning the method of payment sub-sample are mixed, and hence it is hard to draw a clear conclusion of it. If judging based on cash flow ratios, hybrid and earnout deals outperform cash deals. However, what is common in all these sub-samples is that none of the results are statistically significant. Based on the accounting study results, at a 90% confidence level, horizontal transactions outperform the vertical ones. Therefore, assuming that the more the target is related, the higher should be expected

gains in the long run, and hence industry relatedness is a factor that affects long-term performance. This finding supports the suggestions of synergistic theories.

The study also analyzed different combinations of deal characteristics aiming to examine the interactions of multiple deal-specific factors and find out whether some combinations are likely to lead a positive outcome of M&A. One combination stood out that can be considered reliable, and it is highly supported by previous studies and the theory behind M&As. The QCA analysis suggests that domestic horizontal transactions financed with cash and executed by either low or medium P/E bidders are more likely to lead a positive outcome of M&A in the long run. First of all, such a deal is less likely to suffer difficulties caused by cultural and other differences (see Bower 2001; Koerniadi et al. 2015), and the value of the target's business may be easier to assess. Second, the evidence support that the deals financed with cash outperform in the long run (Ghosh 2001; Linn & Switzer 2001), and one reason for this, is that cash financed deals often require large debt issuance, and therefore may decrease agency costs (Jensen 1986; Harris & Raviv 1990; Hazelkorn et al. 2004). Although, if considering only the method of payment, the results of this study show the opposite. Third, such transactions may be less likely to suffer managerial overconfidence and hubris (Rau & Vermaelen 1998), as well as initially overvalued stock (Rau & Vermaelen; Sudarsanam & Mahate 2003).

The answer to the fourth question is not that simple either. Zollo & Meier (2008) argue that: *"Apparently, the financial market does not have sufficient information, or foresight, to predict systematically the fate of an acquisition on the basis of the common knowledge available at the time of the announcement"*. The argument is very likely true, and it should be noticed that as complex transactions the M&As are, it is sometimes as hard for corporate finance professionals with great experience to valuate the projects. Even though when examining the 'on average figures', the market seems to reward acquiring companies with small and positive abnormal returns, and the improvement on performance, in the long run, is also small and positive. Whether the abnormal returns and improvements in long-term performance are completely in line is another matter, and quite hard to confirm by using only three years post-acquisition data, as the share price should reflect all discounted future cash flows. However, the case is different when looking at some individual transactions in the sample, and as it is obvious, the market cannot predict the outcome of all transactions. There were few

transactions experiencing significantly positive announcement returns, while the change in their performance ratios was highly negative. Also, there were some firms experiencing significantly low or even negative abnormal returns while they were able to increase the post-acquisition performance quite greatly. The analysis of this study suggests that there is no positive correlation between short-term abnormal returns and long-term operating performance.

6.2 Theoretical and Managerial Implications

After all, what it comes to forecasting the outcome of M&A with these widely studied deal characteristics, I find it very difficult or even impossible. These factors give some signals of the motives of executed M&As and are somewhat linked to the outcome. However, it should be considered that there are several 'unidentified' (or not that studied) factors that may have more explanatory power on long-term performance. These factors are more related to the target's characteristics, such as the target's pre-acquisition performance and expected future cash flows and earnings power. Also, the overall value of the synergies, i.e., the component that affect the takeover premiums significantly, as well as success in an integration process, have a crucial impact on the NPV of the project. Although these factors are not that easy to measure.

Also, when examining acquirer specific characteristics, some issues arise. One of the issues is related to P/E portfolios (or whatever the measure is in assessing pre-acquisition valuation). Previous literature does not consider why the acquirer's stock is traded at high levels before the acquisition. Take an example, if the firm is classical "compounder" with a solid track record of capital allocation and returns on capital, it has a sustainable competitive advantage, and therefore reaches to the medium or high P/E portfolio in the analysis. It is a completely different case when comparing to its counterpart in the same portfolio that has significant medium-term future expectations but no sustainable competitive advantage. Hypothetically, which of the firms is more likely to create value in the long run? The message is that we cannot observe these P/E portfolios, without focusing on what they keep inside. Also, in this study, the greatest improvements in cash flow and ROE levels were created in medium and high P/E portfolios, but also the greatest losses were made in these portfolios. The low P/E portfolio instead represented mostly slightly positive returns, and fewer of the firms

ended up negative returns than in the other two portfolios. Hence the volatility of the returns was lowest in *Low* P/E portfolio.

6.3 Limitations and Further Research

The results of this study may also be affected by several potential biases. First, the sample is smaller than in the previous studies that have investigated hundreds or even thousands of acquisitions, and therefore the size in some of the sub-samples is inadequate. In other words, a poor number of observations in domestic deals and other financing methods, except cash, may bias the results on deal characteristics. The second potential bias is related to control groups in accounting study as some of the firms lacked multiple similar-sized peers from the same industry. However, the results for the whole sample are in line with the previous studies. The third issue relates to the time-period in accounting study. Even if most companies state that it takes two to three years achieving the gains from synergies (Kengelbach et al. 2018), the three-year time-period after the transactions may be too short of capturing the benefits on highly strategic acquisitions.

M&As have been a popular topic of research for decades, generating a substantial number of studies, but still, the results are controversial. Some studies report positive short-term abnormal returns for acquiring companies, while others show the opposite. In the long-term profitability, the case is the same. Also, the results on deal characteristics are mixed. These issues come up with several reasons that are related to applied performance measures, underlying market, and in some cases, methodological issues. Also, more recent evidence shows quite different results than earlier studies. This indicates that M&A research has not saturated, but instead, more evidence of performance and factors affecting value creation is needed.

When considering future research, several thoughts come to mind. This study could be extended by taking a broader time-period under analysis in order to have some bulk into the sample. This would allow a better basis to examine the impact of different deal characteristics on value creation, e.g., in case of domestic deals and other payment methods. On the other hand, one may add new characteristics into the analysis, such as takeover premiums, and factors related to targets. Also, one can reconsider some

of the long-term performance measures. Cash flow-based ratios work quite efficiently, but some adjustments on the typically used earnings-based ratios could bring new exciting insights into the analysis. For example, normalizing the ROE with cost of equity, or ROIC with WACC would show whether returns exceed the cost of capital and may capture the benefits or losses that the normal change model cannot. For instance, if the change model shows no difference in the ratio between pre- and post-acquisition periods, but the cost of capital decreases after the acquisition due to financial synergies (see. chapter 2.4.2), the value of the company increases.

Also, one may work with a smaller sample or apply case studies of individual M&As to develop a more in-depth analysis of executed transactions. Another interesting view would be to examine acquiring firms' M&A strategies by considering multiple undertaken transactions by one particular firm. One great paper to read for this purpose is provided by Rudnicki, Siegel & West (2019). Finally, concentrating on one specific industry or comparing the transactions between industries can yield valuable information about the motives and achieved benefits of M&As.

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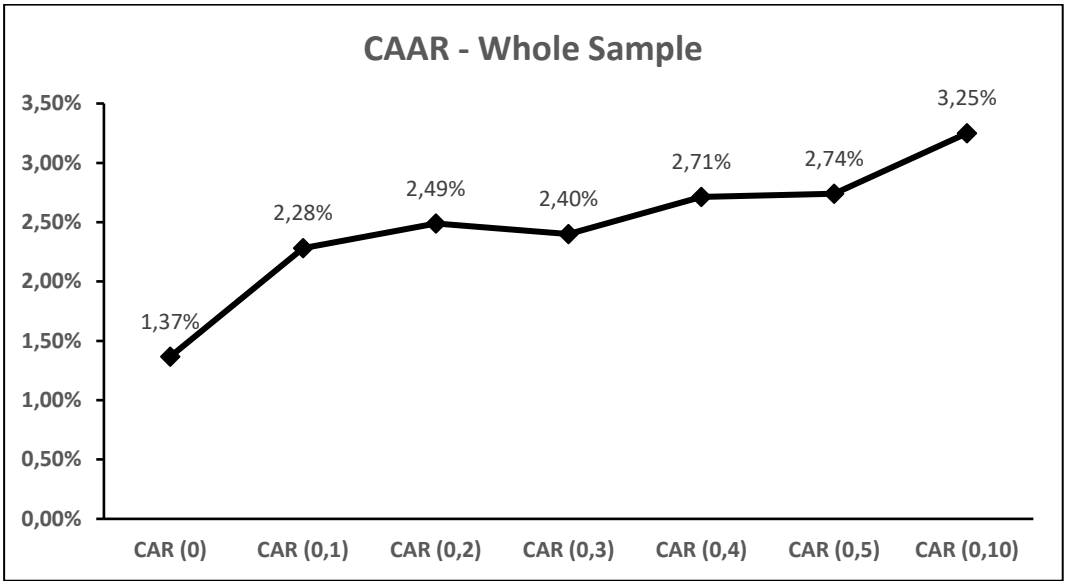
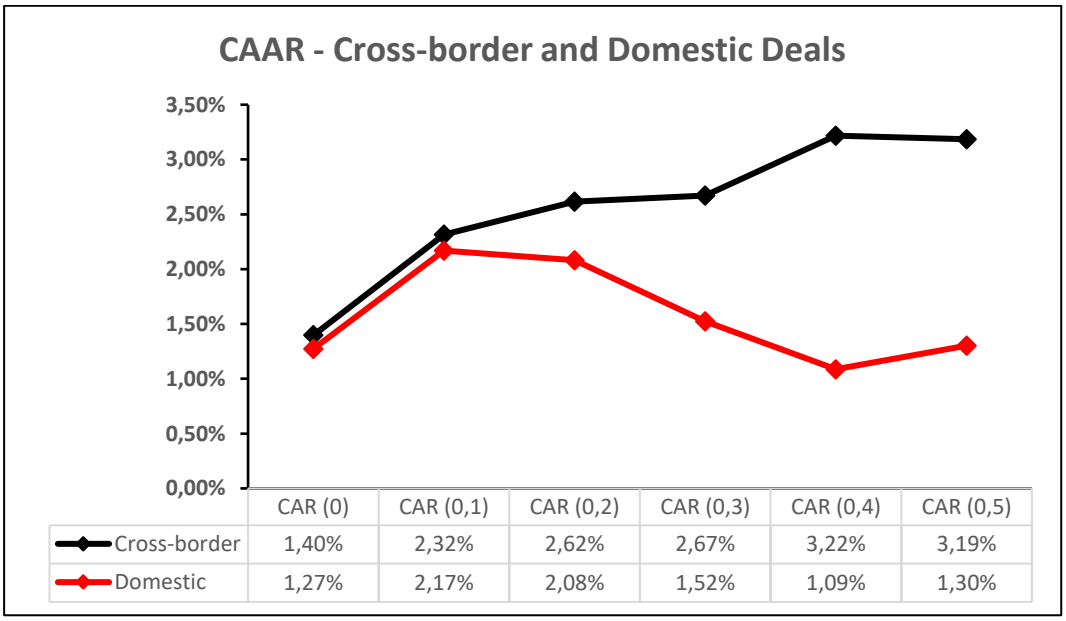
APPENDICES

Appendix 1. Average CAR – Whole Sample

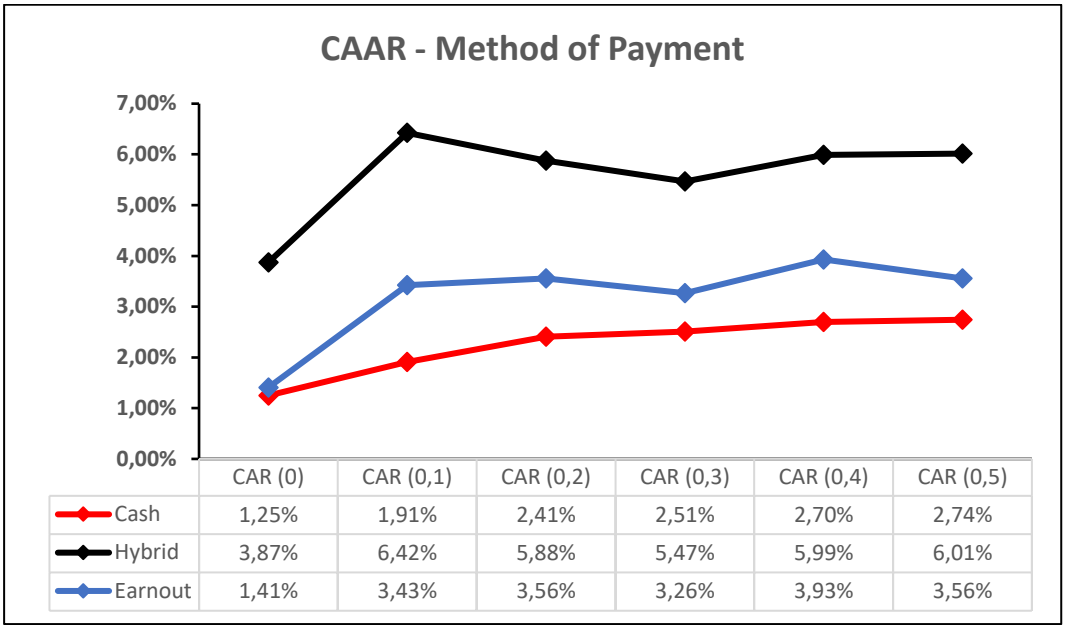


Appendix 2. Average CAR – Domestic and Cross-border Acquisitions



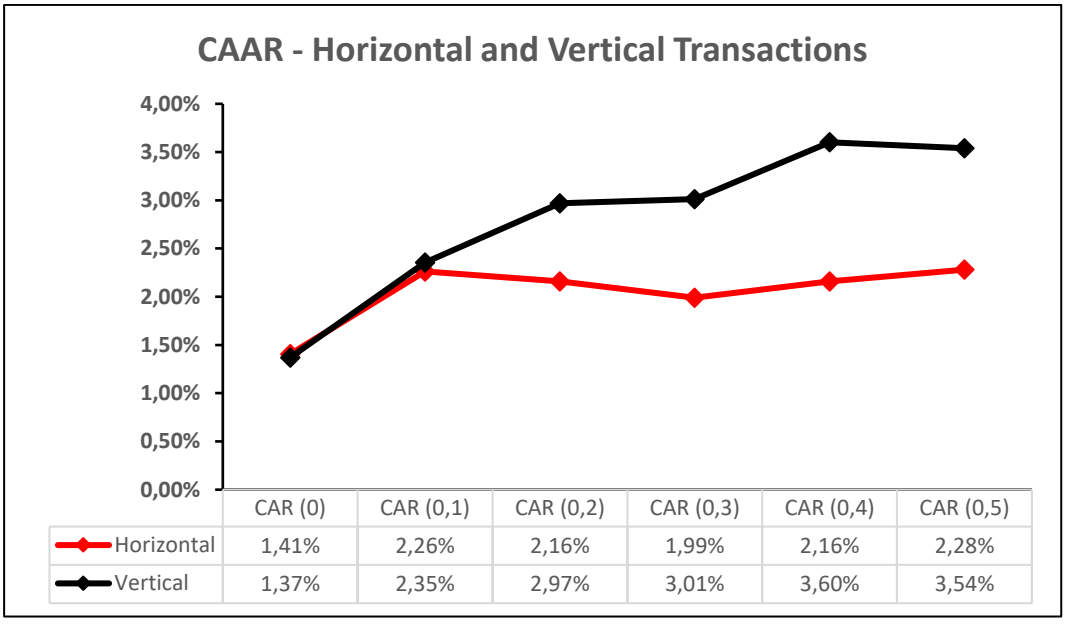
	CAR (0)	CAR (0,1)	CAR (0,2)	CAR (0,3)	CAR (0,4)	CAR (0,5)
Cross-border	1,40%	2,32%	2,62%	2,67%	3,22%	3,19%
Domestic	1,27%	2,17%	2,08%	1,52%	1,09%	1,30%

Appendix 3. Average CAR – Method of Payment



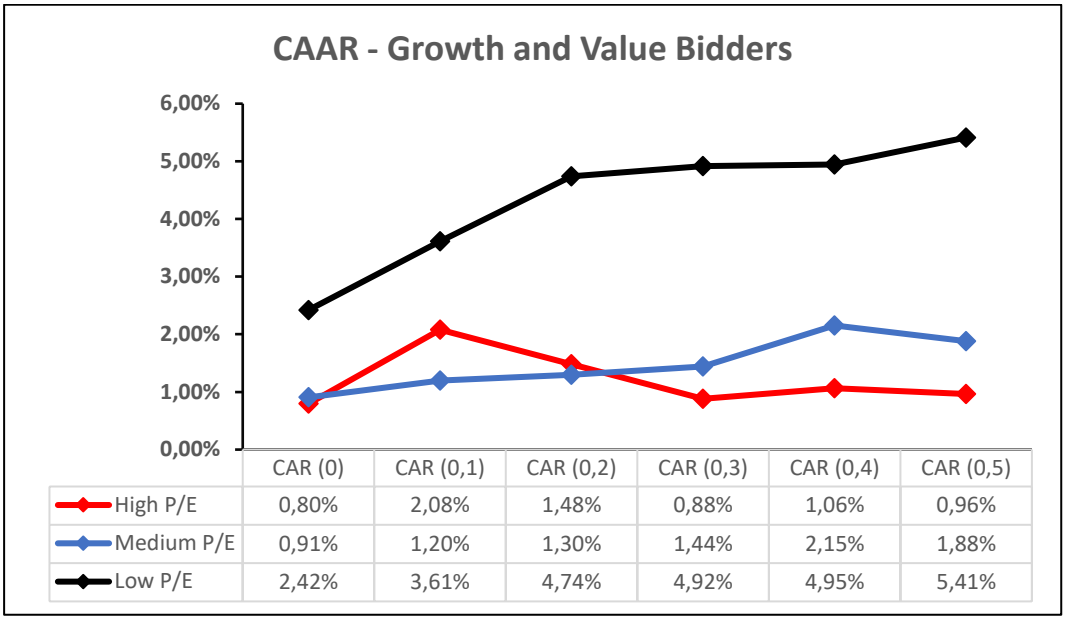
	CAR (0)	CAR (0,1)	CAR (0,2)	CAR (0,3)	CAR (0,4)	CAR (0,5)
Cash	1,25%	1,91%	2,41%	2,51%	2,70%	2,74%
Hybrid	3,87%	6,42%	5,88%	5,47%	5,99%	6,01%
Earnout	1,41%	3,43%	3,56%	3,26%	3,93%	3,56%

Appendix 4. Average CAR – Horizontal and Vertical Transactions



	CAR (0)	CAR (0,1)	CAR (0,2)	CAR (0,3)	CAR (0,4)	CAR (0,5)
Horizontal	1,41%	2,26%	2,16%	1,99%	2,16%	2,28%
Vertical	1,37%	2,35%	2,97%	3,01%	3,60%	3,54%

Appendix 5. Average CAR – Growth and Value Bidders



Appendix 6. Truth Table for Pretax PM

#	Cross-border	Horiz.	Cash	Hybrid	Earnout	P/E High	P/E Med	P/E Low	N	Consistency Level
1	1	1	1	0	0	0	1	0	8	0,50
2	1	0	1	0	0	0	1	0	7	0,14
3	1	0	1	0	0	0	0	1	6	0,50
4	1	1	1	0	0	1	0	0	4	0,50
5	1	0	1	0	0	1	0	0	4	0,25
6	0	1	1	0	0	0	0	1	4	0,75
7	0	1	1	0	0	0	1	0	3	0,67
8	1	1	1	0	1	1	0	0	2	1
9	1	1	0	1	1	1	0	0	2	0,5
10	1	1	1	0	0	0	0	1	2	0
11	0	0	0	1	0	0	0	1	2	0
12	1	0	1	0	1	0	1	0	2	0
13	0	1	0	1	0	1	0	0	1	0
14	0	0	1	0	0	1	0	0	1	0
15	0	0	1	0	0	1	0	0	1	0
16	0	0	1	0	1	1	0	0	1	1
17	0	1	0	1	1	1	0	0	1	0
18	0	1	0	1	0	0	0	1	1	1
19	1	1	0	1	0	0	0	1	1	1
20	1	1	1	0	1	0	0	1	1	1
21	1	1	0	1	1	0	0	1	1	0
22	1	0	0	1	1	0	0	1	1	1
23	1	0	0	1	0	0	1	0	1	1

Appendix 7. Truth Table Results – Pretax PM

Δ Pretax PM > 0% or <0%			
Combination of deal characteristics	**N**	**Consistency CF / Sales > 0%**	**Number of successful cases**
Cross-border, Horizontal, Cash, Earnout, P/E High	2	1	2
Domestic, Horizontal, Cash, P/E Low	4	0,75	3
Domestic, Horizontal, Cash, P/E Medium	3	0,67	2
Cross-border, Horizontal, Cash, P/E Medium	8	0,50	4
Cross-border, Vertical, Cash, P/E Low	6	0,50	3
Cross-border, Vertical, Cash, P/E Low	4	0,50	2
Cross-border, Vertical, Cash, P/E High	4	0,25	1
Cross-border, Vertical, Cash, P/E Medium	7	0,14	1

Appendix 8. Truth Table for ROE

#	Cross-border	Horiz.	Cash	Hybrid	Earnout	P/E High	P/E Med	P/E Low	N	Consistency Level
1	1	1	1	0	0	0	1	0	8	0,63
2	1	0	1	0	0	0	1	0	7	0,43
3	1	0	1	0	0	0	0	1	6	0,67
4	1	1	1	0	0	1	0	0	4	0,50
5	1	0	1	0	0	1	0	0	4	0,50
6	0	1	1	0	0	0	0	1	4	0,50
7	0	1	1	0	0	0	1	0	3	0,67
8	1	1	1	0	1	1	0	0	2	0,50
9	1	1	0	1	1	1	0	0	2	0,50
10	1	1	1	0	0	0	0	1	2	0
11	0	0	0	1	0	0	0	1	2	1
12	1	0	1	0	1	0	1	0	2	0
13	0	1	0	1	0	1	0	0	1	1
14	0	0	1	0	0	1	0	0	1	0
15	0	0	1	0	0	1	0	0	1	0
16	0	0	1	0	1	1	0	0	1	1
17	0	1	0	1	1	1	0	0	1	0
18	0	1	0	1	0	0	0	1	1	1
19	1	1	0	1	0	0	0	1	1	1
20	0	1	0	1	0	0	0	1	1	0
21	1	1	1	0	1	0	0	1	1	1
22	1	1	0	1	1	0	0	1	1	0
23	1	0	0	1	1	0	0	1	1	1

24	1	0	0	1	0	0	1	0	1	1
25	1	1	1	0	1	0	1	0	1	0

Appendix 9. Truth Table Results – ROE

Δ ROE > 0% or <0%			
Combination of deal characteristics	**N**	**Consistency CF / Sales > 0%**	**Number of successful cases**
Domestic, Vertical, Hybrid, P/E Low	2	1	2
Cross-border, Vertical, Cash, P/E Low	6	0,67	4
Domestic, Horizontal, Cash, P/E Medium	3	0,67	2
Cross-border, Horizontal, Cash, P/E Medium	8	0,63	5
Cross-border, Horizontal, Cash, P/E High	4	0,50	2
Cross-border, Vertical, Cash, P/E High	4	0,50	2
Domestic, Horizontal, Cash, P/E Low	4	0,50	2
Cross-border, Vertical, Cash, P/E Medium	7	0,43	3
Cross-border, Horizontal, Cash, P/E Low	2	0	0
Cross-border, Vertical, Cash, Earnout, P/E Medium	2	0	0

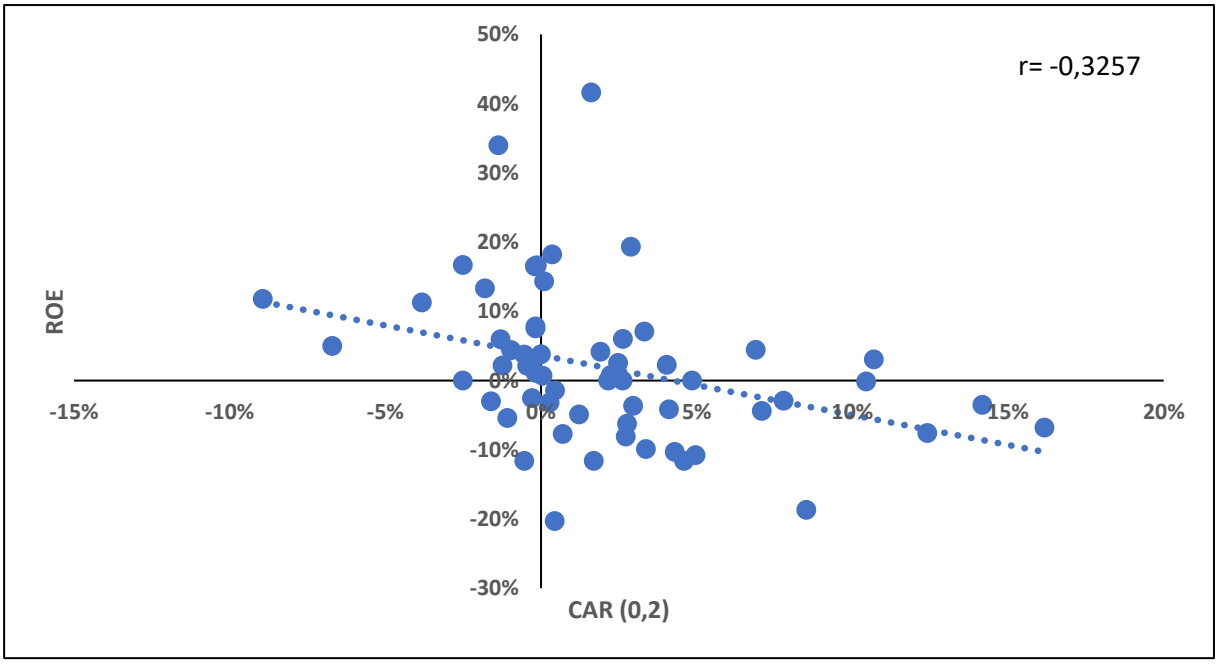
Appendix 10. Truth Table for CF / Assets

#	Cross-border	Horiz.	Cash	Hybrid	Earnout	P/E High	P/E Med	P/E Low	N	Consistency Level
1	1	1	1	0	0	0	1	0	8	0,38
2	1	0	1	0	0	0	1	0	7	0,57
3	1	0	1	0	0	0	0	1	6	0,33
4	1	1	1	0	0	1	0	0	4	0,40
5	1	0	1	0	0	1	0	0	4	0,25
6	0	1	1	0	0	0	0	1	4	0,50
7	0	1	1	0	0	0	1	0	3	1
8	1	1	1	0	1	1	0	0	2	1
9	1	1	0	1	1	1	0	0	2	0,5
10	1	1	1	0	0	0	0	1	2	0
11	0	0	0	1	0	0	0	1	2	0
12	1	0	1	0	1	0	1	0	2	0
13	0	1	0	1	0	1	0	0	1	0
14	0	0	1	0	0	1	0	0	1	0
15	0	0	1	0	0	1	0	0	1	0
16	0	0	1	0	1	1	0	0	1	1
17	0	1	0	1	1	1	0	0	1	0
18	0	1	0	1	0	0	0	1	1	1
19	1	1	0	1	0	0	0	1	1	1
20	1	1	1	0	1	0	0	1	1	1
21	1	1	0	1	1	0	0	1	1	0
22	1	0	0	1	1	0	0	1	1	0
23	1	0	0	1	0	0	1	0	1	1
24	1	1	1	0	1	0	1	0	1	0

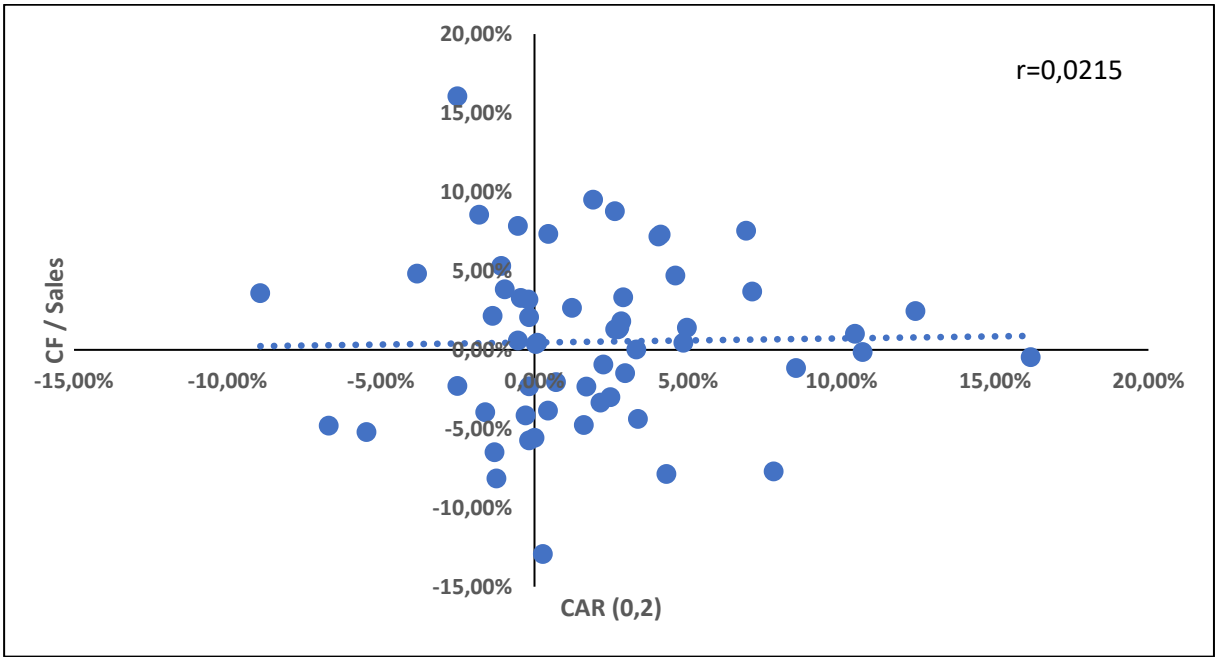
Appendix 11. Truth Table Results – CF / Assets

Δ CF / Assets > 0% or <0%			
Combination of deal characteristics	**N**	**Consistency CF / Sales > 0%**	**Number of successful cases**
Domestic, Horizontal, Cash, P/E Medium	3	1	3
Cross-border, Horizontal, Cash, Earnout, P/E High	2	1	2
Cross-border, Vertical, Cash, P/E Medium	7	0,57	4
Cross-border, Horizontal, Cash, P/E Medium	8	0,38	3
Cross-border, Vertical, Cash, P/E Low	6	0,33	2
Cross-border, Vertical, Cash, P/E High	4	0,25	1
Cross-border, Horizontal, Cash, P/E Low	2	0	0
Domestic, Vertical, Hybrid, P/E Low	2	0	0
Cross-border, Vertical, Cash, Earnout, P/E Medium	2	0	0

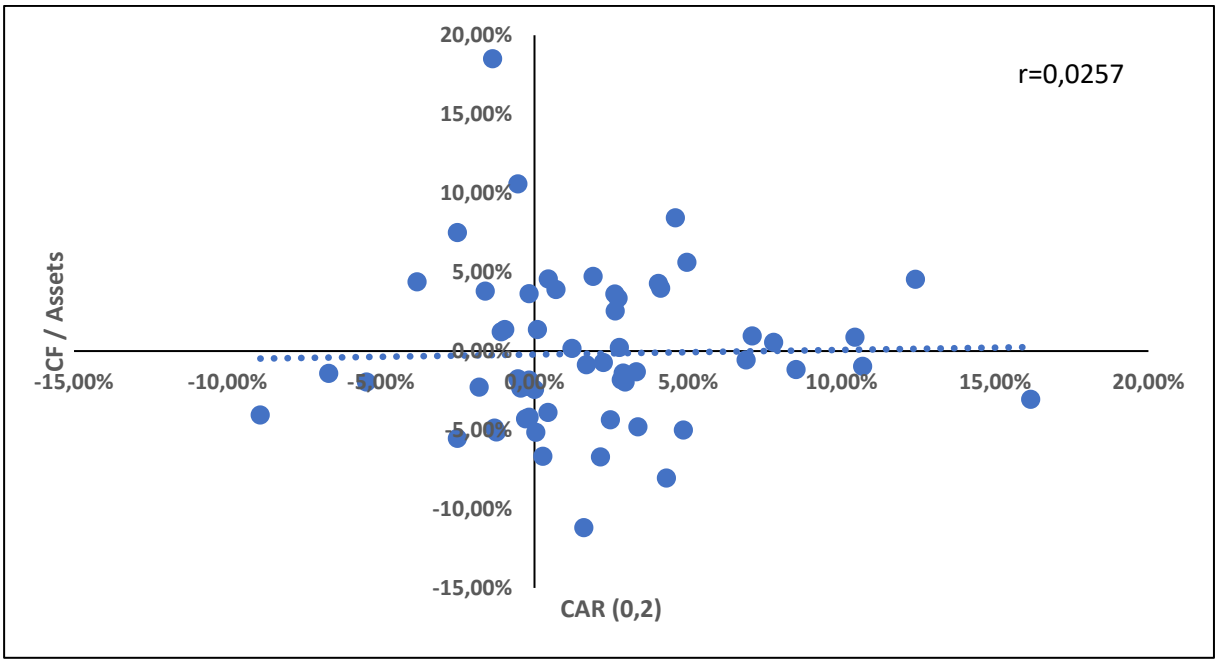
Appendix 12. Negative Correlation between Short-term Returns and ROE



Appendix 13. Correlation between Short-term Returns and CF / Sales



Appendix 14. Correlation between Short-term Returns and CF / Assets



Appendix 15. Correlation between Short-term Returns and Pretax PM