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Deal or No Deal

A study on how stock market reactions, unregulated exchanges, serial acquirers and M&A advisors affect M&A deal completion probability

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Summary

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Five key words: "M&A deal completion", "Manager learning", "Unregulated stock exchanges", "Serial acquirers", "M&A advisors".

Purpose: The purpose of the thesis is to investigate if deal completion probability is associated with the stock market's initial reaction to the M&A announcement. Furthermore, the study aims to explore if other characteristics have a relationship with deal completion, and if they have a moderating effect on the relationship with deal completion and the stock market's reaction.

Methodology: We use a probit model to estimate how the dependent variables affect the probability of deal completion. We also conduct a series of robustness tests and univariate analysis to substantiate our results.

Theoretical perspectives: To make sense of our results, we use the theories of shareholder value perspective, efficient market hypothesis, manager learning, hubris and information asymmetry.

Empirical foundation: Using the SDC's Refinitiv EIKON database, we collect a sample of 589 Nordic M&A deals between 2010 and 2023.

Conclusions: We find no evidence that the stock market's initial reaction to the M&A announcement, targets on unregulated stock exchanges, or the experience of M&A advisors affect M&A deal completion probability. However, serial acquirers have a significant negative relationship with deal completion. Additionally, we find no evidence that any of these characteristics have any moderating effect on the relationship between deal completion and the stock market's reaction. These results are robust using 9 different robustness tests.

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Lund, 24th of May, 2023

Alexander Serrano and Lucas Fevre

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1. Introduction

1.1 Background

M&As are a way for companies to grow, improve competitive position or exit from investments. For some companies, it is even a central part of their competitive strategy. The decision to go through with a deal is an important decision in the company's life cycle. Understanding what affects the decision to go through with the deal is therefore important, especially when a company decides to pull back on an announced deal.

A famous example of this was Coca-Cola's proposed acquisition of Quaker in November of 2000 (Kau, Linck and Rubin, 2008). Coca-Cola confirmed rumors that they were looking to acquire Quaker, at which point their share price fell 10% over two days. That next day, the board of Coca-Cola announced that they rejected the proposed acquisition, at which point the share price rose 8%. Some investors had been concerned that the bid was overpaid, that the company would not be capable of efficiently integrating, and that it was a desperation move to prevent rivals Pepsi and Danone from acquiring Quaker (Bachman, 2000; Winter and Sorkin, 2000). Executives did not disclose why they withdrew from the deal, but they released a statement saying that their "current strategic course" was the best means for enhancing shareholder value (Bachman, 2000). The executives appear to have taken a shareholder value perspective and were influenced by the shareholders' opinions on the acquisition when deciding on completing the deal or not.

1.2. Problem Discussion

Part of the M&A literature is focused on things that are contingent on the deal actually going through (Gaughan, 2011). For example, some topics that are well studied are the shareholder wealth effects post-deal, bid premiums, and the long-term performance of the target, buyer or merged entity. But for these results to be realized, the deal actually has to go through, and it is therefore important to understand what goes into the manager's decision of completing a deal.

This topic is difficult to study because deals that have not yet been announced cannot be observed. Before an announcement, we simply cannot know which acquisitions a company has considered but decided not to pursue. However, when a deal has been announced, but before it has been completed, we are able to study what goes into deal completion. This is

why this setting is suitable to study. An announced deal is not forced to be completed, so the topic becomes about studying what affects the *probability* of the deal completion.

However, after the announcement, managers have presumably already collected enough information to make the assessment that the deal should go through, otherwise they would not have made the announcement. This is unless new information comes out post-announcement, which can of course affect the manager's decision making. What is next is the market's reaction to the announcement, the outsiders are allowed to assess the announced deal, and this is something that could potentially affect the decision to complete the deal, like in the example of Coca-Cola and Quaker. Therefore, the research question becomes how the market's reaction to the M&A announcement might affect the probability of the deal completing.

This connection between the market's initial reaction to the announcement and the probability of that deal completing has been studied. However, there are a few reasons why this topic needs to be studied further. Firstly, previous studies in this topic have found contradicting results. Luo (2005) and Kau, Linck and Rubin (2008) observe that the market's reaction, proxied by the cumulative abnormal return (CAR), during an M&A announcement is positively associated with deal completion probability, and they also show that this is because the managers involved learn from the market's reaction. On the contrary, neither Jennings and Mazzeo (1991) nor Tanna, Yousef and Nnadi (2021) find any significant relationship. More research in this area is therefore justified since previous studies have no consistent results.

Secondly, most of these studies are old and did not use the most recent data. The studies used data between 1977 and 2012. These years contain M&A waves with other characteristics than what takeovers have today (Gaughan, 2011). For example, in the 70s and 80s, hostile takeovers and aggressive LBOs were more frequent. Therefore, results using data from these periods might not be as relevant today. In contrast, the last decade has seen a wave of M&As characterized by high valuations and volumes due to low interest rates, and companies are facing more regulation now following the accounting scandals of the early 2000s and the global financial crisis. More information is available to managers due to regulations that forces companies to be more transparent (Fung, 2014). This gives managers different circumstances when structuring and deciding on whether to complete the deal or not. This

topic is therefore time sensitive and using more recent data could give different results than previous studies, and those results would be more relevant today.

Thirdly, these studies have had different model specifications. There are many company and deal characteristics that can affect deal completion probability. The different studies did neither study nor control for the same characteristics. This could be the reason why their results are mixed. For example, Luo (2005) investigated if deals where both the target and buyer are in the tech industry has an effect on the probability, the other studies did not. Luo (2005) also only included U.S. deals with public targets in the study. On the other hand, Tanna, Yousef and Nnadi (2021) use a global sample to investigate if the deal being cross-border or cross-industry has any effect, as well as the target being public or private. The studies are therefore not entirely comparable and no conclusions can be made, which suggests that more research should be made with the knowledge from the previous studies in mind.

Fourthly, these studies investigated what characteristics affect the deal completion probability, but they don't study the interaction between these characteristics and the deal's sensitivity to the market's reaction to the M&A announcement. The former is a result of the deal characteristic's effect *in isolation*. The latter is a result of the *interaction* between the characteristic and the market's opinion, meaning that the announcement CAR has a moderating effect.

Fifth, some of the previous studies have omitted some characteristics that could affect deal completion probability. For example, if the target is listed on an unregulated stock exchange it means that the target is facing different regulations than a target that is listed on a regulated exchange, which could affect the probability of deal completion. No other studies have researched this. Additionally, the deal advisor might affect deal completion if we assume that different advisors are not as competent and experienced. Previous studies have not taken this into consideration either. Also, the acquirer being a serial acquirer might affect the probability if their experience makes them more certain in their dealmaking. Only Tanna, Yousef and Nnadi (2021) investigated this. The main purpose of Luo (2005) was to test the causal relationship if managers *learn* from the market's initial reaction, and thus did not extensively investigate which different characteristics affected the deal completion probability *itself*. Therefore, since previous studies have left these perspectives out, there is more to learn in this field.

In this thesis, we tackle the limitations from previous studies. Firstly, we use a more recent sample. Secondly, we introduce new characteristics that can have an effect on deal completion, namely unregulated markets, serial acquirers, and the experience of the M&A advisor. Thirdly, we investigate if these characteristics have a moderating effect on the relationship between the stock market's reaction to the M&A announcement and the deal completion probability, which is new to the literature. With this, we hope to bring clarity to the literature where the results so far are mixed.

1.3. Purpose and Research Questions

The purpose of this thesis is to investigate if deal completion probability is associated with the stock market's initial reaction to the M&A announcement. Furthermore, the study aims to explore if other characteristics have a relationship with deal completion, and if they have a moderating effect on the relationship with deal completion and the stock market's reaction. To fulfill the purpose of this study, we pose the following research questions:

> Research question 1: Does the stock market's initial reaction to an M&A announcement affect the probability of the deal completing? If yes, is the relationship positive or negative, and how large is the magnitude?

> Research question 2: Are there other company or deal characteristics that affect the probability of the deal completing? Do these characteristics make the relationship between the stock market's initial reaction and the deal completion probability stronger or weaker? If yes, are these effects positive or negative, and how large is the magnitude?

1.4. Main Findings

We use a probit model to estimate the relationship between the deal completion probability and the stock market's reaction to the announcement, unregulated stock exchanges, serial acquirers and M&A advisors. We find no evidence that these characteristics affect deal completion, except for serial acquirers that have a significant negative relationship with deal completion. Additionally, we find no evidence that any of these characteristics have any moderating effect on the relationship between deal completion and the stock market's reaction. These results are robust using 9 different robustness tests.

1.5. Contribution

The contribution of this thesis comes from using a more fresh dataset than previous studies, studying new characteristics that can affect deal completion, and investigating if these characteristics have a moderating effect on the relationship between deal completion and the stock market's reaction to the M&A announcement, which is a new perspective on the topic. The thesis also adds evidence to the relationship between stock market reactions and deal completion since previous research results are mixed. We find no compelling evidence that managerial learning, hubris and empire building matters in the deal completion decision. Instead, it is possible that new post-announcement information affects deal completion.

1.6. Outline

The paper is structured as follows. Section 2 is a literature review of theoretical and empirical literature. We critically reflect on these and then develop our hypotheses. In section 3 we explain the data collection process, define our variables, and describe our sample . In section 4 we explain the methodology and tests that will help us achieve the purpose of this thesis. In section 5 we analyze the results and do robustness tests. Section 6 concludes the paper by summarizing our findings, recommending future research and discussing shortcomings.

2. Literature Review and Hypothesis Development

2.1. Theoretical Literature

2.1.1. M&As and the M&A Announcement

Mergers and acquisitions (M&As) are transactions where two companies consolidate, either because the acquiring firm assumes all assets and liabilities of the acquired firm which is then dissolved (a *merger*), or because the acquiring firm purchases part of or all of the assets or stock in the target firm (an *acquisition*) (Arzac, 2008). The motives behind these transactions can be to improve the firms' growth, expand to new markets, diversify operations, enjoy valuable synergies, or be driven by manager self-interest (Gaughan, 2011).

Gaughan (2011) has a thorough explanation of the entire M&A process from target screening to deal completion. After negotiations are done and an agreement is reached, the parties tend to publicly announce to the financial markets that a deal has been, or is intended to be, closed. If one or both parties are publicly traded companies, the timing of the announcement is critical. If the deal is announced before it is closed, the market is effectively presented with the opportunity to make their own assessment of the deal. If managers have shareholders' interest in mind, they can listen to this assessment. We discuss this shareholder perspective next.

2.1.2. The Shareholder Value Perspective

The shareholder value perspective is a prevalent theory on why M&As are pursued. The theory says that the company is tasked to maximize the value it generates for its shareholders (Gaughan, 2011). This means that the company undertakes acquisitions that yield net positive synergies and that the bidder is not overpaying for the acquisitions. Apart from the shareholder value perspective, managers also have a fiduciary duty to act in the interest of shareholders and strive towards long-term value creation.

In M&A literature, shareholder value is often measured by studying stock price developments or the company's long-term performance. When studying M&A announcements specifically, it is common to study stock price reactions around the announcements. One well substantiated finding is that the stock price of the target tends to rise following the announcement, while the bidder's tends to fall, and the net effect tends to be negative

(Gaughan, 2011). If managers act in shareholders' interest, the theory predicts that a positive reaction should incentivize the manager to complete the deal, and after a negative response the manager should either attempt to revise the deal or even abandon it altogether.

This argument assumes that the market's assessment of the deal is both timely and correct. We therefore discuss the theory of market efficiency next.

2.1.3. The Efficient Market Hypothesis in M&As

If financial markets incorporate and reflect all available information in market prices, the markets are efficient according to the Efficient market hypothesis (EMH) (Fama, 1970). There are different degrees of efficiency depending on what information is reflected in the prices. It could reflect either all historic information (*weak efficiency*), all public information (*semi-strong efficiency*) or all information (*strong efficiency*).

In the case of M&As, the EMH is sometimes used as a theoretical background in event studies on M&A announcements (Haleblian and Finkelstein, 1999). These event studies assume that markets are efficient and immediately incorporate the new information provided in the M&A announcement. When stock prices change surrounding an M&A announcement, it is because the market is reacting, assessing the new information and how it can affect the firm's value, and incorporates that into the stock price. As such, the new price then reflects the market's assessment of the announced deal. There is plenty of evidence supporting the EMH in event studies, making it a well established methodology in M&A literature (Haleblian and Finkelstein, 1999; Elton, Gruber, Brown and Goetzmann, 1987; Jensen, 1988).

If the EMH holds and the manager has a shareholder value perspective, they should pursue deals that prompt a positive reaction from the market, and abandon those where the market reacts negatively. However, this is not always the case, because we know that the bidder's stock often reacts negatively to M&A announcements and managers still consummate the deal. It is puzzling that companies tend to pursue deals that are value destroying from the market's point of view (Gaughan, 2011). Therefore, another theory that is specific to M&A announcements has been developed to explain this; the *manager leaning hypothesis*.

2.1.4. The Manager Learning Hypothesis

If the market's assessment differs from the manager's, it could be because of two reasons. Either the markets have incorporated additional information that the managers did not, or both used the same information but reached different conclusions. According to EMH, the market's assessment would be more accurate. Luo (2005) argues that the market is better suited to appraise some matters related to the deal, for example its macroeconomic, international and industry implications, management's ability to integrate the companies, and the likelihood of deal closing. Luo (2005) also highlights the market's ability to expose managerial errors and missing information. This opens up the possibility for managers to learn.

The manager learning hypothesis says that managers can extract information from the market's initial reaction and incorporate it to make better informed decisions, for example whether to complete the deal or not (Luo, 2005; Aktas, de Bodt and Roll, 2005; Aktas, de Bodt and Roll, 2009). The theory implies that information flows in two stages. The first flow is from the company to the market when the company makes the announcement. The market then assesses the information and incorporates it into the stock prices. The second flow is from the market back to the company if the managers choose to learn from the market, and thus might affect the deal closing decision.

Information flows to the manager through, for example, direct communication with institutional investors, analysts, or media. Additionally, management can also gauge the market's sentiment towards the deal by observing changes in stock prices if the firm is publicly listed.

However, although the market might *supply* managers with additional information to make more informed decisions, it does not mean that managers take that information into *consideration* when deciding to close a deal. Information asymmetry and moral hazard problems can make managers take ill-advised decisions or decisions that benefit themselves due to *management hubris* or the pursuit of *empire building* (Gaughan, 2011). We discuss these theories in the following.

2.1.5. Hubris and Empire Building

Hubris theory is often seen as the antithesis of manager learning and the shareholder value perspective. Roll (1986) first posed the theory that hubris can explain M&A decisions. The author argues that managers' overconfidence in their own ability to strike good deals makes them pursue deals that the market does not agree with, or that their pride makes them reluctant to withdraw from deals that have already been set in motion. Managers think they can obtain a higher return than what the market thinks. In other words, managers are "trigger happy" and can't accept that they might *not* be onto something. This theory for example explains why the bidding firm pays a premium above market value (Gaughan, 2011).

In the context of deal completion, hubris can explain why managers choose to not learn from the market and pursue deals even though the market has reacted negatively towards the announcement. Learning is therefore also seen as the cure to hubris (Aktas, de Bodt and Roll, 2005). Learning from the markets' presumably better assessment can discipline their overconfidence, leading to managers withdrawing from deals once they realize that they were being overconfident.

Empire building is another explanation to why managers might choose to not learn. Empire building is the theory that managers want to undertake acquisitions, whether they are value-adding for the firm or not, because it benefits themselves (Gaughan, 2011). Managers put shareholder interests aside and build a large corporate empire because that tends to reward the individual manager with for example higher compensations, status and a larger network. This is another theory that explains why managers might act opposite to shareholders' interests.

2.1.6. Agency Theoretical Arguments about M&A Announcements

From an agency theoretical perspective, takeovers can be used as something that benefits the managers instead of the shareholders. In the end, the manager's decision to either learn from the market or not, to put shareholder value first or not, is an agency problem (Eisenhardt, 1989; Jensen and Meckling, 1976). On one hand, managers are agents with a fiduciary duty to maximize shareholder value (Gaughan, 2011). On the other hand, managers can pursue deals for their own personal interest.

A reason why these agency problems occur is partly due to information asymmetry. By construction, information asymmetry is almost inevitable in M&As because managers cannot possibly correctly assess all available information and incorporate that into the deal. There are many asymmetries between the different parties involved. Firstly, in M&As, there is asymmetry between the managers of the two firms involved in the deal. The target managers have better information on what the true value of their company actually is. This can cause managers to pursue deals that they do not fully understand.

Secondly, there is also asymmetry between insiders (managers) and outsiders (the market), and this can cause moral hazard problems. Managers spend a lot of effort assessing the deal and have access to confidential information about the firm, information that markets don't have access to (Gaughan, 2011). This asymmetry can cause managers to have an advantage over outsiders. This further explains the empire building theory that managers don't act in the interest of their principals. Indeed, Kanniainen (2000) finds that empire building is more prominent when uncertainty is high. Lastly, there can also be asymmetry in the other direction, where the market might have access to other information that managers don't.

These arguments suggest that the more information asymmetry present in the deal, the more opportunity there is for the managers to learn from the market. However, uncertainty for the managers can mean that there is also uncertainty for the market. Therefore, it is not clear if information asymmetry theory predicts that more uncertainty in the deal makes managers more or less susceptible to the stock market's reaction. Uncertainty might impair both the managers and market equally, and that would mean that uncertainty *per se* does not make for a better opportunity to learn from the market.

2.2. Empirical and Other Literature

2.2.1. Deal Completion Probability and Manager Learning

Deal completion probability and stock market reactions have been studied before, and in different markets. Luo (2005) studies 2,114 deals in the US market between 1990 and 1999. Using a probit model, the author finds that a positive value-weighted CAR of the bidding and target firm increases the probability of the deal going through, supporting the theory that managers act in the interest of shareholders. This result is significant and consistent across the three different deal and company characteristics that the author studies; deals that have a

pre-announcement agreement in place, high-tech deals, and deals where the bidder is a small- or mid-cap company. Luo (2005) also tests the bidder's and target's CARs separately and finds that only the bidder's CAR is significant.

Why does the market's reaction affect the deal completion? Luo (2005) investigates causal effects by proxying managerial learning with a self-created variable, and shows that managers *do* learn from the market. Luo (2005) also investigates this relationship across the different deal characteristics and finds that companies have more incentive to learn from the market when there is no pre-announcement agreement in place. Therefore, when it is easier to cancel the deal, managers are more willing to listen to the market.

Regarding high-tech deals and small- or medium-sized bidders, the author argues that these are two characteristics that affect deal uncertainty and information asymmetry (Luo, 2005). High-tech deals are less transparent to the markets, and therefore they are less susceptible to the market's reaction because the market can not provide as much information. As expected, the author finds that managers learn more from the market during non-high-tech deals. Small- and medium-sized bidders are assumed to put less work into valuing the deal, and therefore the market should be more informative in these deals, which the author finds. In general, the author finds evidence that managers are more likely to learn when information asymmetry is present (Luo, 2005).

Kau, Linck and Rubin (2008) also study the relationship between M&A announcement CARs and deal completion in the U.S. market. Using a sample period between 1990 and 2003 with 4,228 observations, they also find that managers are more likely to cancel a deal if the markets react negatively. This effect is also larger when monitoring is high, as proxied by shares held by large blockholders, and when the CEO's pay is tied more to performance. The authors relate these characteristics to the theory of agency costs and corporate governance.

Tanna, Yousef and Nnadi (2021) study deal completion in the global markets. The authors use a sample with 46,758 observations from 180 countries between 1977 and 2012. The authors find no significant relationship between the CAR and probability of deal completion, contrary to previous studies, which means that this relationship is still uncertain in the empirical literature. The authors also study if the method of payment, public and private targets, cross-border and cross-industry deals, and the bidder's prior bidding experience affect deal

completion (Tanna, Yousef and Nnadi, 2021). We discuss their findings on prior bidding experience separately in section 2.2.3.

They find that cash payment deals and deals with private targets are more likely to complete, compared to stock payment deals and deals with public targets. They reason that private targets tend to have more concentrated ownership and that this improves their negotiating position and their ability to make sure that deals are completed (Tanna, Yousef and Nnadi, 2021). They also find that domestic deals within the same industry are more likely to be completed. As expected, the authors relate this finding to the uncertainty associated with deals that are cross-border and cross-industry.

Jennings and Mazzeo (1991) also study stock market reactions and deal completion probability on the US market between 1979 to 1987. With a sample size of 472, they find no statistically significant relationship between the two, but they still argue that there can be managerial behavior explanations to the deal completion decision.

Lastly, none of the above mentioned authors distinguished between regulated and unregulated stock exchanges, but they are different. They also don't consider the M&A advisors' effect on deal completion. We explain unregulated stock exchanges next.

2.2.2. Unregulated Stock Exchanges

Unregulated stock exchanges are exchanges that impose less regulation on the companies that are traded than regulated stock exchanges. In Europe, these exchanges are called Multilateral Trading Facilities (MTFs). The equivalent on the U.S. market are called Alternative Trading Systems (ATS), but they don't work in the same way as MTFs (SEC, 2023a; SEC, 2023b).

ATSs, or "dark pools", is a system where a middleman matches buyers and sellers without them having to disclose the size and price of their bids (SEC, 2023a; SEC, 2023b). Financial institutions can make large transactions on an ATS without affecting the liquidity and pricing on the regular exchanges (Petrescu and Wedow, 2017; Zhu, 2014). However, unlike MTFs, an ATS is not a separate stock exchange like the NYSE or the Nasdaq where companies can be listed. This means that in countries with MTFs, such as the Nordics, there is another context to take into consideration when studying public companies, for example when studying

M&As between public companies. For companies on unregulated exchanges, there is less information available and that makes the deal more uncertain.

In this study, we focus on the Nordic stock markets because they are one of the region's with the MTF-type of unregulated exchanges. We elaborate on this choice further in the sample description section. There are several unregulated exchanges on the Nordic market, like for example First North, Spotlight Stock Market and Nordic Growth Market (Nasdaq, 2023a). Compared to regulated exchanges, these exchanges impose looser regulation on, for example, how long the company has to have been operating, financial reporting frequency, how many historical financial reports that need to be available, and disclosing inside information (Nasdaq, 2023b). There is less regulation on the MTFs in order to provide more companies with access to public capital markets, especially smaller companies that have not been operating for long.

Looser regulation reduces governance, monitoring, reporting, and overall information availability. This, along with the fact that smaller and younger companies tend to be listed on unregulated exchanges, makes the companies on unregulated exchanges more opaque than companies on regulated exchanges. This is evident when reading on Nasdaq's own website: "The fewer rules, the more responsibility is you as an investor." (Nasdaq OMX Nordic, 2023).

There is little literature on MTFs and ATSs, especially in M&As. The literature has mainly focused on their effects on price discovery, liquidity, which types of investors tend to use these exchanges and the impact of regulatory changes (Buti, Rindi and Werner, 2022; Petrescu and Wedow, 2017; Zhu, 2014).

2.2.3. Serial Acquirers

Serial acquirers are companies that made acquisitions a central part of their competitive strategy (Gaughan, 2011). Studies on serial acquirers usually relate to the performance of the acquisitions and less so to learning, hubris and market reactions to their M&A announcements. Haleblian and Finkelstein (1999) study performance of serial acquisitions and find that the serial acquirer's experience can both have a negative and positive effect on the performance of their acquisitions. The positive effect can be explained by the managers

learning from their past experiences to improve their investment policies going forward, but the negative effect is not as obvious to explain.

Aktas, de Bodt and Roll (2006) study M&A announcements for companies in M&A programs. They find that the announcement CARs decline as the acquirer is making more acquisitions. This negative trend suggests that the serial acquirer is pursuing less and less valuable deals. Some empirical works have explained this by saying that the managers are experiencing hubris or building empires (Gaughan, 2011). However, Aktas, de Bodt and Roll (2006) argue that the serial acquirer is choosing from a smaller and smaller pool of profitable investments as they make more acquisitions. This would suggest that serial acquirers in fact are learning and utilizing their previous knowledge. This means that the literature is not conclusive when it comes to whether serial acquirers are learning or suffering from hubris and building empires.

Lastly, Tanna, Yousef and Nnadi (2021) find that the effect of prior bidding experience on deal completion probability is sometimes positive and sometimes negative depending on model specification, meaning that their results are inconclusive. They argue that this is because the serial acquirer's expertise can make them better at ensuring deal closure. Meanwhile, they refer to Roll (1986) and argue that the negative effect can be because hubris and overconfidence in serial acquirers can make them act in their own interest and not in that of shareholders.

This means that the authors briefly consider that the serial acquirer status might be associated with the market's opinion on the deal, but they don't investigate this. Note that they, unlike us, do not study if this company characteristic makes the deal more sensitive to the market's reaction or not, which is a different topic.

2.2.4. M&A Advisors

Both the target and bidding company can hire M&A advisors to assist with for example valuations, performing due diligence and coordinating negotiations. Therefore, the advisor's knowledge is important for the companies involved in the deal, and this has been studied (Aktas, de Bodt and Roll, 2009; Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016; Kolasinski and Kothari, 2008; Louis, 2005).

Literature has focused on the decision of selecting a specific advisor, the advisor's value-addition and information leakage (Aktas, de Bodt and Roll, 2009; Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016; Kolasinski and Kothari, 2008; Louis, 2005), but not how this relates to deal completion. Bao and Edmans (2007) show that firms tend to stick with the same advisor they have had before. They also show that the average announcement CAR is related to which advisor has advised in the deal, suggesting that choosing the right advisor can be value-adding. They relate this to different advisors having different amounts of expertise and specializations.

The difference in value-added between different advisors comes from their experience and knowledge from previous deals, and some advisors specialize in certain types of deals, specific industries or cross-border deals (Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016). Chang, Shekhar, Tam and Yao (2016) show that industry expertise increases the probability that an advisor will be chosen, and this effect is amplified during complicated deals and when the hiring firm has less information about the other party. They show that advisors can help in uncertain situations and that the hiring company can learn from their advisor and reduce uncertainty.

2.3. Literature Summary

Table 1 summarizes the theories and empirical findings that we have presented in this section.

2.4. Limitations of Previous Literature

The main papers used in this thesis, Luo (2005), Tanna, Yousef and Nnadi (2021), Jennings and Mazzeo (1991), and Kau, Linck and Rubin (2008), all suffer in their relevance. Most of these papers are many years old, use data from different time periods and different geographies, have used different control variables, and even different methodologies. For example, Jennings and Mazzeo (1991) don't use the CAR in their study. Therefore, we can question how comparable their results are, which in turn becomes problematic for us when we rely on their results to design our own study.

Luo (2005) and Kau, Linck and Rubin (2008) are published in four-star ranked journals according to the CABS Academic Journal Guide (CABS, 2021). Jennings and Mazzeo (1991) is published in Journal of Business which ceased to exist in 2006, but was prominent in the

field of business (JSTOR, 2023). Only Tanna, Yousef and Nnadi (2021) is published in a one-star ranked journal, the Journal of Financial Economic Policy. The other papers referenced in this thesis have rankings ranging from four starts down to only being working papers. Aktas, de Bodt and Roll are other authors that we reference several times (2005; 2006; 2009), and they have also published in four-star ranked Journal of Corporate Finance.

Management learning theory can be criticized because it is difficult to test if managers are actually implementing new information from the markets in their decisions. There are two other explanations to why there might be a relationship between market reactions and deal completion. Firstly, the market inherently incorporates the probability of the deal completing into the pricing. If the market thinks deal completion is unlikely, then the price reaction will be lower than if it thinks deal completion is likely. Luo (2005) calls this "probability-feedback". Secondly, market reactions tend to be stronger for good deals, which inherently have a higher completion probability. Market reactions and deal completion might then have a positive relationship even though managers are not learning from the market. Therefore, there might not be a causal relationship. Luo (2005) calls this the "common-information" effect.

However, this is not problematic for us since our purpose is not to explain *why* there is a relationship, but just to investigate *if* there is one. Indeed, other literature in the topic of deal completion does not control for these effects since their purpose is not to, for example, test the manager learning hypothesis (Tanna, Yousef and Nnadi, 2021; Jennings and Mazzeo, 1991; Kau, Linck and Rubin, 2008). Additionally, probability-feedback and common-information effects only affect the interpretation of the relationship between *CAR* and deal completion, but not the relationship between deal completion and other characteristics.

Lastly, the results of manager learning, hubris and empire building studies can also be diluted by the fact that managers' compensations can be tied to the share price (Bond, Edmans and Goldstein, 2012). A positive relationship between deal completion and the market reaction could be because shareholder and manager interests are aligned. Managers might not listen to the market and act in the *shareholders'* interest, but their *own*. However, the same arguments from before apply here, that this is not problematic unless the purpose of the study is to explain a causal relationship.

2.5. Hypothesis Development

2.5.1. The Stock Market's Reaction and Deal Completion

As mentioned, managers are expected to act in the interest of shareholders according to the shareholder value perspective, and because they have a fiduciary duty to do so. Since markets are assumed to incorporate new information into security prices, the CAR at the time of the M&A announcement should reflect the market's assessment of the deal. Additionally, if managers are prone to learning from the markets, then there should be a positive relationship between the CAR and the deal completion probability. Contrarily, if managers suffer from hubris or indulge in empire building, they might ignore the market. This, along with the fact that previous studies in this field have found no conclusive evidence of this relationship, motivates why it is interesting to study the relationship between the announcement CAR and the probability of deal completion. Therefore, we present the following hypothesis:

> H1: There is no relationship between announcement CAR and deal completion probability on the Nordic stock market.

2.5.2. Unregulated Stock Exchanges and Deal Completion

From information asymmetry theory, we know that uncertainty opens up the opportunity for managers to learn from the market. Therefore, it is interesting to study different deal and company characteristics that can cause uncertainty and see if they cause managers to be more sensitive to the market's opinion.

Unregulated stock exchanges are an example of this. The company is not private, but it is also facing looser regulations than other public companies. Therefore, it is reasonable to assume that being listed on an unregulated exchange might have other effects on the deal than the other two alternatives.

Secondly, the looser regulation reduces transparency for outsiders and puts lower demands on the target's reporting and monitoring. This should increase the uncertainty that goes into the deal from the perspective of the bidder and therefore open up the opportunity to learn from the market. It is therefore reasonable to think that these deals are more sensitive to the stock market's reaction to the M&A announcement. However, the stock market is also affected by

this uncertainty. This makes it unclear if this uncertainty really makes the deal more sensitive or not. Therefore, we present the following hypotheses:

> H2a: There is no relationship between the status of the target being listed on an unregulated stock exchange and deal completion probability on the Nordic stock market.

> H2b: The deal completion probability is not more sensitive to the stock market's reaction to the M&A announcement when the target company is listed on an unregulated stock exchange.

2.5.3. Serial Acquirers and Deal Completion

If the bidder is a serial acquirer it can also affect deal uncertainty. On one hand, serial acquirers are experienced in takeovers and that might make them more sure of their own assessments of the deal, and therefore less sensitive to the market's opinion. On the other hand, previous research has shown that there is a negative trend in CAR among serial acquirers (Aktas, de Bodt and Roll, 2006). This might mean that they pursue acquisitions despite them being less and less valuable to shareholders. It could also be seen as evidence of increasing hubris, and those suffering from hubris should also be less susceptible to the market's opinion. Therefore, we present hypotheses 3:

> H3a: There is no relationship between the status of the acquirer being a serial acquirer and deal completion probability on the Nordic stock market.

> H3b: The deal completion probability is not more sensitive to the stock market's reaction to the M&A announcement when the bidding company is a serial acquirer.

2.5.4. M&A Advisors and Deal Completion

M&A advisors can also learn from their previous experiences. More experienced advisors can therefore give better advice to the hiring firm and reduce uncertainty, as shown by Chang, Shekhar, Tam and Yao (2016). Using the arguments from previous sections, a firm should be less susceptible to the market's opinion if they have been advised by an experienced advisor because that makes them more sure of their own assessments. However, uncertainty for the

managers can also be uncertainty for the advisor. This makes it unclear if an experienced advisor makes any difference. Therefore, we present the following hypothesis:

H4a: There is no relationship between the M&A advisor's experience and deal completion probability on the Nordic stock market.

H4b: The deal completion probability is not more sensitive to the stock market's reaction to the M&A announcement when the deal has been advised by an experienced advisor.

3. Data and Sample Description

3.1. Sample Description

We use the SDC's Refinitiv EIKON database to collect data on M&A deals (Refinitiv, 2023) according to Luo (2005) and Tanna, Yousef and Nnadi (2021). Firstly, we filter for deals that are either mergers, acquisitions, institutional buy-outs or management buy-outs. Secondly, we filter for public acquirers, and both private and public targets because this gives us more observations.

Thirdly, we filter for acquirers and targets that are Swedish, Danish, Finnish, Norwegian or Icelandic. This means that we allow cross-border deals within these countries. Finally, we filter for deals with a disclosed deal value, and where the acquirer goes from having an ownership below 50% before the deal to above 50% after the deal. This is because the acquirer is forced by law to consolidate financial statements with the target if they have a majority interest (PwC, 2020). Also, if we did not have this threshold our sample could be diluted by small deals that attract little interest from the stock market. With these criteria, we gather 2,755 observations. Table 2 shows the sample collection process.

Using Refinitiv we collect data on the deal status (whether it is completed, withdrawn, pending, etc.), the acquirer's total assets, the deal value, the payment method, the deal announcement date, the acquirer and target industries, the acquirer founded date, the deal attitude (i.e. whether it was friendly or hostile), the target public or private status, the target and bidder stock exchanges, the nation of the target and the acquirer, the bidder's financial advisors and daily stock prices of the acquirer (Refinitiv, 2023).

As explained later on, in order to calculate the CAR, we need to calculate the market return. Therefore, we collect daily index prices for the local stock indices for each acquirer. For Swedish, Danish, Finnish and Icelandic acquirers, we use the OMXS30, OMXC20, OMXH25 and OMXI10 indices respectively from Nasdaq (2023c). For Norwegian acquirers, we collect Euronext's OSEBX index from Capital IQ (2023). The indices track the market performance of the largest companies in each country. We use a local stock index because we believe this is a better representation of the stock market that the bidder is in.

We also want a different method of calculating the CAR to make sure that our results are robust. Therefore, we also download data for the MSCI Nordic Countries index using Capital IQ (2023). It is an index that tracks the performance of large- and mid-cap companies in Sweden, Denmark, Norway and Finland (MSCI, 2023).

Table 3 shows a summary of dropped observations. From the 2,755 observations we exclude 1,407 observations that occurred before 2010 because we want to avoid the global financial crisis and only want the most fresh data. Next, we exclude financial institutions because this is standard practice. Financial institutions have different assets than other companies, and face special regulation because of their importance for society (Foerster and Sapp, 2005). 24 observations drop in this step. We keep utilities companies because Tanna, Yousef and Nnadi (2021) and Kau, Linck and Rubin (2008) do so. Lastly, we omit 735 observations with missing deal or company characteristics, or with insufficient stock data. With this filtering we arrive at our final sample containing 589 observations between 2010 and 2023, and is in a cross-sectional format.

Tables 4-7 shows the distribution of our final sample. Table 4 shows the number of completed and withdrawn deals per year. Fewer deals were announced in the years following the financial crisis, but the number of deals picked up in 2016. In the years 2014-2019, withdrawals were more common compared to the other years in the period.

Table 5 shows the number of completed and withdrawn deals per bidder industry. The High Technology, Industrials and Real Estate industries have announced the most deals in the period with 82, 89 and 139 respectively. The Media and Entertainment industry announced the fewest deals with 14.

Table 6 shows the distribution per bidder country. Swedish bidders announced the most deals with 413, followed by Norway (85), Finland (74) and Denmark (17). Swedish deals were also more commonly withdrawn. Even though Sweden is the largest country among the four, Sweden is overrepresented. This could be because Sweden is overrepresented in the industries that made many deal announcements. For example, out of the 139 real estate deals, 123 were Swedish. For industrials, 59 out of 89 were Swedish. However, we can not tell if this is a cause or effect.

Table 7 shows the frequency of deals that were made by one acquirer. 193 companies announced only 1 deal, 64 companies announced 2 deals, and so forth. 54.5% of the deals were announced by companies that announced two or fewer deals during the period. Overall, the table shows that we both have large serial acquirers and companies that have made only a few deals.

There are several reasons for studying the Nordic market. Firstly, it is justified since the previous studies did not. Secondly, we wanted to make geographical limitations, and we picked the Nordics because these countries are similar and have the MTF-type of unregulated exchanges. We could pick the entire world or Europe as the geographical limitation if we are just picking any region that has unregulated markets or MTFs. That would give us a larger sample size. But when we study too big of a region it becomes difficult with controlling for the many country effects and there is an increased risk for omitted variable bias. For example, there are different legislations, stock exchanges that work differently, financial markets are not developed the same, year effects are not the same in all countries, etc. Therefore, we think it is necessary to limit the sample to a smaller region.

3.2. Variable Definition

A variable definition table summarizing this section can be found in the appendix.

3.2.1. Main Variables

Our dependent variable is *Completion*. It is a dummy variable and we use the Refinitiv EIKON "Deal status" category to define it (Luo, 2005; Kau, Linck and Rubin, 2008; Tanna, Yousef and Nnadi, 2021). *Completion* takes the value 1 when the "Deal status" category is "Completed", and 0 when the status is "Withdrawn", or if the deal has had the status "Pending" since before 2020. We assume that deals that have been pending for over three years are unsuccessful. We perform a robustness test on this assumption later. Deals with some other status, for example "Rumour", are dropped.

CAR is one main explanatory variable. It is the cumulative abnormal return on the acquirer's stock around the M&A announcement. In the literature, CARs are widely used because they measure the market's reaction and opinion on the M&A announcement. Therefore, *CAR* is the variable of interest for hypothesis 1. CAR is used because it separates the normal return from the effect of new information being incorporated.

The CAR method is used in event studies (MacKinlay, 1997). It assumes that the company's stock usually sees a base level return, called the normal return. The normal return is estimated over a time period prior to the event of interest, called the estimation window. We estimate the normal return using the market model, which assumes that the company's normal return is a linear function of the market's return. To calculate the abnormal return, the normal return is deducted from the realized return over the time period of the event, called the event window. The sum of these abnormal returns is called the cumulative abnormal return.

We calculate the CAR using the market model (Luo, 2005; Tanna, Yousef and Nnadi, 2021; Kau, Linck and Rubin (2008), and the local stock indices represent the market. The day of the event, day 0, is the date when the deal was announced. Different authors use different length estimation windows and event windows, but we follow Luo (2005) and use an estimation window between day -250 and day -50 and an event window between day -1 and day +7. We leave a gap between the end of the estimation window and the beginning of the event window so that the windows don't affect each other. We cover several days after the event because it might take time for the market to absorb the new information and incorporate it into the prices, depending on how efficient the market is. The event window starts one day before the announcement in case there is information leakage. Luo (2005) also argues that this is necessary in case there are delays when communicating the news and the announcement is not instant.

Unregulated target is a dummy variable taking the value 1 if the target is listed on an unregulated stock exchange, and 0 otherwise. The unregulated exchanges present in our sample are First North, Spotlight Stock Market, and Nordic Growth Market. Unregulated targets are neither regular public targets, nor private targets, which warrants a separate dummy variable that captures the effects for these companies. *Unregulated target* measures how being listed on an unregulated exchange directly impacts the deal completion probability. This is used for hypothesis H2a.

For hypothesis H2b, we are interested in the additional partial effect that *CAR* has on *Complete* when the target is listed on an unregulated exchange. Therefore, we introduce an interaction term between *Unregulated target* and *CAR*. This interaction term is the variable of interest for hypothesis H2b.

Interaction terms allows us to find the partial effect that an explanatory variable has on the dependent variable given the value of another explanatory variable (Bailey, 2019). Using our own setting as an example:

$$Complete = \beta_0 + \beta_1 CAR + \beta_2 Unregulated\ target + \beta_3 CAR * Unregulated\ target + \varepsilon \quad (1)$$

The partial effect of *CAR* on *Complete* becomes:

$$\frac{\delta Complete}{\delta CAR} = \beta_1 + \beta_3 Unregulated\ target \quad (2)$$

When *Unregulated target* takes the value 1, there is an additional partial effect. If this effect is significant, it means that being part of an unregulated exchange makes the deal completion probability more or less sensitive to the market's reaction to the M&A announcement, depending on the sign of β_3. This is the effect we are interested in for hypothesis H2b. Usually with interaction terms you have to decide at which level of the interacting term you evaluate the partial effect. We don't need to do this since *Unregulated target* can only take on the values 1 and 0. β_3 then represents the additional effect that comes from the status of being listed on an unregulated exchange.

Serial acquirer is a dummy variable taking the value 1 if the acquirer is a serial acquirer, and 0 otherwise. We define a serial acquirer as a company that has made 5 or more deals throughout the period. As mentioned, table 7 shows the frequency of the number of deals made by a single company in the sample. 23.26% of the deals in our sample are made by companies that have made 5 deals or more in our sample period, and therefore we see this definition as fitting for a serial acquirer.

Just as with hypothesis 2, we create an interaction term between *CAR* and *Serial acquirer* to understand if deal completion is particularly sensitive to the market's reaction when a serial acquirer has placed the bid. This interaction term is the variable of interest for hypothesis H3b while *Serial acquirer* is the variable of interest for hypothesis H3a.

We create the dummy variable *Experienced advisor* that takes on the value 1 if the bidder was advised by an experienced advisor, and 0 otherwise. 0 can also be because there was no bidder advisor in the deal, or that they are undisclosed. We define an experienced advisor as either a Big 4 company, a Bulge Bracket bank, or one of the big Nordic banks. The Big 4 companies are Deloitte, Ernst & Young, KPMG, and PricewaterhouseCoopers. The Bulge Bracket banks are Bank of America, Barclays, Citigroup, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Morgan Stanley, and UBS (CFI, 2023). The big Nordic banks are Nordea, Danske Bank, Handelsbanken, SEB, DnB, Swedbank, Nykredit, and OP Group (BearingPoint, 2023). We use the bidder's advisor since the CAR is calculated using the bidder's stock, and the bidder presumably learns from their own advisor and not the target's advisor. *Experienced advisor* is the variable of interest for H4a. We create an interaction term between *Experienced advisor* and *CAR*, and this is the variable of interest for hypothesis H4b.

This definition of an experienced advisor relates to their position in the market and their service offerings. These firms have a large market share, in terms of, for example, deal values, number of deals, and assets (BearingPoint, 2023; CFI, 2023; PwC, 2023). The deal sizes suggest that the advisor is more experienced because these deals are more complex. We also assume that companies hire the most experienced advisors for these types of deals because of their importance and complexity. The number of deals also suggest that the advising firm has gained more experience after advising in many transactions. Additionally, we assume that these firms have more expertise to offer since they are big organizations with many different service lines and a long history of knowledge in the industry.

Table 8 presents all different advisors in our final sample and how they are categorized. The advisors in the left panel are large, international and well known companies, while the advisors in the right panel are less so. Therefore, we believe our definition has captured some effect of experience and expertise.

The literature on M&A advisors categorizes them differently depending on the topic. Some focus on investment banks (Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016; Kolasinski and Kothari, 2008;), and others on Big 4 advisors (Du and Huang, 2015; Louis, 2005). This is another reason why we have chosen the definition we have. However, previous studies on deal completion have not taken the advisor into consideration.

3.2.2. Control Variables

We use control variables that are common in M&A and corporate financial literature, and control variables from previous studies on deal completion (Luo, 2005; Tanna, Yousef and Nnadi, 2021; Jennings and Mazzeo, 1991; Kau, Linck and Rubin, 2008).

Bidder total assets, *Deal value*, and *DV-to-TA* (Deal value-to-total assets) control for size effects, both in absolute and relative terms. *Pure cash*, *Cross-industry*, *Cross-border*, *Bidder firm age* and *Hostile* are standard control variables in the M&A literature. Additionally, previous studies show that they affect deal completion (Luo, 2005; Tanna, Yousef and Nnadi, 2021; Jennings and Mazzeo, 1991; Kau, Linck and Rubin, 2008).

We also create the control variable *Public target*, which is a dummy variable taking the value 1 if the target is public, and 0 otherwise. Choosing between acquiring listed and unlisted firms has an impact on deal completion (Tanna, Yousef and Nnadi, 2021; Kau, Linck and Rubin, 2008). When the target is public there is more information available to investors because of disclosure and reporting regulations. Therefore, public targets should be easier to value and assess than private targets. We also include *Unregulated bidder* to control for the bidder's stock exchange status.

Pre-announcement return controls for information leakage (Kau, Linck and Rubin, 2008; Luo, 2005; Tanna, Yousef and Nnadi, 2021). Information leakage can dampen the market's reaction to the announcement, which would dilute our results if it is not controlled for. *Pre-announcement return* is the CAR on the bidder's stock between day -50 and -10, using the same normal return as before.

Lastly, we control for bidder country, target country, bidder nation, target nation and for year effects, especially since our sample period contains the pandemic.

3.3. Summary Statistics

Table 9 presents the summary statistics for our variables. *Completion* has a mean of 0.83, meaning that 83% of the deals completed. This is in between what previous studies found, Luo (2005) had 91.9%, Tanna, Yousef and Nnadi (2021) had 78%, Jennings and Mazzeo

(1991) had 74.4%, and Kau, Linck and Rubin (2008) had 88.3% in their sample. The differences can come from the fact that all studies investigate different time periods with different characteristics. For example, during the 70s and 80s, hostile bids and LBOs were more common.

CAR has a mean of 0.03 and a median of 0.009. This means that the average cumulative abnormal return is 3%. In terms of magnitude, this is in line with the previous studies who find CARs ranging between approximately 0.8% and 3.5% (Luo, 2005; Kau, Linck and Rubin, 2008; Tanna, Yousef and Nnadi, 2021). The standard deviation is 0.15, which suggests that we have a wide span of *CARs* in our sample. In fact, the minimum *CAR* is -50% and the maximum is 119%.

The average *Bidder's total assets* is USD 3,3 bn and the median is USD 754 mn, which means that the variable is heavily positively skewed. The same goes for *Deal value* that has a mean of USD 224 mn and median of USD 28 mn. The standard deviations, minimum and maximum values also suggest that there is a wide range of bidder and deal sizes.

The average *DV-to-TA* ratio is 0.98 and the median is 0.057, which means that in an average deal the bidder and target are about the same size, but the target is usually a lot smaller. Again, the distribution is positively skewed, and the range of ratios is also wide for this variable. The largest ratio has a deal value of 224 times the bidders total assets. This transaction was a reverse merger of a large private company and a small public company, where the bidder, the smaller company, was the surviving entity.

51% of the deals in the sample were made with pure cash, 38% were cross-industry deals, 25% were cross-border, and the average firm age is 36 years. No deals in our sample were hostile bids, which means that this variable will drop from our model. 11% of the targets were public, 3% were listed on unregulated exchanges. 24% of the bidders were listed on unregulated exchanges, 23% of bidders are serial acquirers, and 16.5% of the deals were advised by an experienced advisor. Lastly, the average pre-announcement return is 0, which is expected unless there is information leakage. However, one bidder saw a price run-up of 119% prior to their announcement, and one saw a 81% drop.

Table 10 shows the pairwise correlations of our variables. The dependent variable *Completion* is positively correlated with the variables of interest *CAR*, *Unregulated target*, and *Experienced advisor*, but none of this is statistically significant and the magnitudes are low. *Completion* is negatively correlated with *Serial Acquirer*, and this correlation is significant at the 1% level. From the control variables, *Cross-border* and *Bidder firm age* are weakly significant and positively correlated with *Completion*. We don't have problems with multicollinearity because no variables are perfectly correlated. Lastly, the *Hostile* variable is omitted because there are no hostile bids in our sample.

4. Methodology

4.1. Univariate Analysis

We do differences in means-tests as our univariate analysis. First, we split the sample into two subsamples, one subsample containings deals with a positive CAR, and one with negative CAR. Then we test the differences in average deal completion between the two subsamples. If the deals with a positive CAR have a higher average deal completion, then that suggests that the market's reaction has an effect on the deal completion probability. We set the cut-off at 0 because, from the shareholder value perspective, deals with a positive reaction should be completed since they are value-adding according to the market (Luo, 2005). We relate these results to hypothesis 1. For robustness, we also split the sample into one subsample containing deals that have a below median CAR, and one subsample with an above median CAR.

For hypotheses 2-4, we conduct the same test but split the sample according to the status of unregulated target, serial acquirer and experienced advisor.

4.2. Multivariate Analysis

4.2.1. Probit Models

We are estimating a probit model because our dependent variable has a binary outcome. In a probit model, the error term is assumed to be normally distributed, compared to in an OLS model where the coefficients are normally distributed no matter the distribution of the error terms, as long as the sample size is large enough (Bailey, 2019). A probit model produces estimates that predict the dependent variable to fall into one of the two categories:

$$Pr(Y_i = 1) = \phi(\beta_0 + \sum_{k=1}^{K} \beta_k x_{k,i}) \tag{3}$$

where ϕ is the standard normal cumulative density function. This means that the interpretation for the estimated coefficients is less intuitive in a probit model. The estimated coefficients give the marginal change in probability that the dependent variable takes the value 1 when all other independent variables are held at a certain level (Bailey, 2019):

$$\frac{\delta Pr(Y_i=1 \mid X_{1,i},\dots,X_{K,i};\beta_o,\dots,\beta_K)}{\delta X_{k,i}} = \beta_k \phi(\beta_0 + \sum_{k=1}^{K} \beta_k x_{k,i}) \tag{4}$$

Consequently, the marginal effect of an independent variable depends on *at what level* you evaluate the other independent variables, so the probit model does not have the same *ceteris paribus* interpretation as an OLS model (Bailey, 2019). Therefore, you have to decide two things when interpreting the coefficient: at what level you evaluate all independent variables, and by how much you change the explanatory variable.

One method is to first run the probit model to get the estimated coefficients. Then you run the probit model in two iterations, once using either the real values for each observation or their means, and once using the same values but increased with one unit or one standard deviation. The marginal effect is the difference in fitted values from the two interactions. This is the method we use. In the first iteration, we evaluate all values at their respective means, and in the second iteration we increase the independent variable with one standard deviation. The interpretation then becomes: the change in probability of the dependent variable taking the value 1 given a one standard deviation increase in the independent variable from its mean, keeping all other independent variables at their respective means (Bailey, 2019).

4.2.2. Main Model

Equation 5 shows our main model:

$$
\begin{aligned}
Completion\ &= \beta_0 + \beta_1 CAR + \beta_2 Bidder\ total\ assets + \beta_3 Deal\ value \\
&+ \beta_4 DV - to - TA + \beta_5 Pure\ cash + \beta_6 Cross - industry \\
&+ \beta_7 Cross - border + \beta_8 Bidder\ firm\ age + \beta_9 Hostile + \beta_{10} Public\ target \\
&+ \beta_{11} Unregulated\ target + \beta_{12} Unregulated\ bidder \\
&+ \beta_{13} Unregulated\ target \times CAR + \beta_{14} Serial\ acquirer \\
&+ \beta_{15} Serial\ acquirer \times CAR + \beta_{16} Experienced\ advisor \\
&+ \beta_{17} Experienced\ advisor \times CAR + \beta_{18} Pre- announcement\ return \\
&+ \gamma\ Industry\ controls + \boldsymbol{\lambda}\ Country\ controls + \theta Year\ controls + \varepsilon
\end{aligned}
\tag{5}
$$

We use many controls to avoid endogeneity from omitted variable bias. In our case we are unable to use fixed effects to combat endogeneity because our data is cross-sectional. We discuss endogeneity further in section 6.

4.3. Modeling Decisions

We use the natural logarithm of the bidder's total assets and the deal value to make the variables more normally distributed, because these variables are positively skewed. This is also done to reduce the impact of the outliers that we know are present from the summary statistics.

We use clustered standard errors clustered by acquirers to account for heteroskedasticity. We discuss this more in section 4.4. Clustered standard errors are used when observations in a sample are not identical nor independently distributed, and when we observe clusters amongst the observations (Bailey, 2019). In our case, clusters are deals made by the same firm. We assume that the management team is unlikely to change a lot between deals by the same firm. Each management team has their own risk appetites, traits, personalities and other attributes that make it reasonable to assume that different firms have different error terms, and correlated error terms within the same firm. If we were to not use clustered standard errors, it would lead to biased estimates of standard errors (Bailey, 2019).

4.4. Pre-regression Diagnostics and Statistical Tests

Since our dependent variable is non-linear, heteroskedasticity is treated differently. It is possible to estimate a model that is consistent even under heteroskedasticity using the Hetprobit command in Stata (Stata, n.d.). When using Hetprobit, we fail to reach a result. The command requires the user to define which variables are assumed to be heteroskedastic. If we include all of our independent variables, since we want to test for them which is the root of the problem, the model does not converge and no results are found. This can happen when the model is complicated or when there is not enough variability in the data. This means that if we were to use the Hetprobit command we would need to simplify our model and drop some of our control variables, which we are unwilling to do because then our model would be incorrectly specified.

Additionally, some research has suggested that correcting for heteroskedasticity in probit models might neither be possible nor beneficial (Bailey, 2019) because "estimates in heterogeneous choice models tend to be biased in all but ideal conditions and can often lead to incorrect inferences" (Keele and Park, 2005). In this case, ideal conditions means for example no misspecification or measurement errors.

Therefore, we were unable to use the Hetprobit command in Stata and had good reason not to. Instead, we resort to the regular probit model. This is also because we find no sign that previous studies used heteroskedastic probit models. We also use clustered robust standard errors to account for heteroskedasticity. Since this is a more conservative approach, we also conduct a robustness test where we use regular standard errors in our main model.

Since *CAR* is the main explanatory variable, we want to know if it does capture the effect of the stock market reaction during the M&A announcement. For this, we test if the average CAR, the CAAR, is statistically significant from 0. We create a regular OLS regression with CAAR as the dependent variable and no explanatory variables apart from a constant. The constant is the OLS estimation of the average CAR and its significance is decided using an F-test, which allows us to use robust standard errors. Table 11 presents the results and shows that the average CAR in our sample is 0.030 and this is statistically different from 0 at the 1% level, which suggests that the stock market, on average, has a significant positive reaction to M&A announcements.

4.5. Robustness Tests

In our robustness test we focus on how we calculate *CAR* and *Completion* since this is the main explanatory variable and involved in all four hypotheses. The first robustness control is that we gradually add control variables until we arrive at our model. After that we conduct robustness tests on our main model. In test 1-3 we calculate CAR using a different estimation window, market index and event window. Test 4 uses a different *Completion*, we drop deals that have deal status "Pending". Test 5-6 we drop deals that have *Deal value* below USD 10 mn and *DV-to-TA* below 0.05. In test 7 we winsorize *Deal value*, *DV-to-TA*, and *Bidder's total assets*. In test 8 we run the main model but with regular standard errors. In test 9 we drop bidders from the utilities industry.

5. Empirical Results and Analysis

5.1. Univariate Analysis

Table 13 shows the results of the tests of differences in average deal completion. Firstly, we can see that deals with a positive CAR are slightly more common to complete than deals with negative CARs, with 83.3% of deals completing versus 83.1%. For robustness, the second test shows that the average deal completion is also higher for deals with an above median CAR, 83.8%, compared to those with a below median CAR, 82.7%. These results are as expected from the shareholder value perspective and manager learning theory. It suggests that deals with a positive stock market reaction are more likely to complete. This is in line with results from Luo (2005), Tanna, Yousef and Nnadi (2021), and Kau, Linck and Rubin (2008). However, compared to previous studies, our results are far from statistically significant with p-values of 0.95 and 0.73 respectively, and the differences are very small in terms of magnitude.

The third test in table 13 shows that the average deal completion is higher when the target is listed on an unregulated exchange. 90% of those deals complete, compared to 83% in the remaining sample. This difference is big, but not statistically significant. This could be because the number of observations is low, only 20 deals in the sample have unregulated targets.

The fourth test shows that deals with a serial acquirer have an average deal completion of 73.7%, while non-serial acquirers complete 86.1% of their announced deals. This difference is significant with a p-value of 0.001. This result is surprising because it suggests that serial acquirers, although they have more experience in deal-making, are more likely to withdraw deals that they have already announced.

Lastly, the fifth test shows that deals with experienced advisors complete 87.7% of the time, while deals with less experienced advisors complete 82.3% of the time. The difference makes sense since we know from information asymmetry theory and previous studies that the acquirer can reduce uncertainty in deals (Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016). This difference is not significant however since the p-value is 0.20.

5.2. Multivariate Analysis

5.2.1. Deal Completion and CAR

Table 14 shows the results of our probit models. We gradually add control variables until we arrive at our main model from equation 5 in the last column. The main explanatory variable *CAR* has a positive sign but insignificant. This is as expected from the correlation analysis and univariate analysis. The positive sign means that a higher *CAR* leads to a higher probability of deal completion. Although they are insignificant, we can still try to make sense of the results.

The sign can be explained by the efficient market hypothesis and the manager learning theory. The manager tends to pursue deals that the market also thinks are value-adding. It could also be a sign that the manager has a shareholder value perspective and completes deals that shareholders agree with. The shareholders vote with their feet and the manager listens to this. It could also be that managers learn from the market and follow their assessments. A negative sign would instead indicate that managers have hubris or build empires.

Although the sign is the same across the different model specifications, the size of the coefficient is unstable and *CAR* is never statistically significant. This means that we have no compelling argument for the analysis above. Therefore, we can not reject null hypothesis 1.

To understand the economic significance, we present the marginal effects of the main model in table 15. Table 15 shows the marginal effects only for the main model (the last column in table 14). Since the marginal effect of an explanatory variable depends on the value of all other independent variables, we have to decide at what level to assess them. We are holding all continuous variables at their respective means, all dummy and interaction variables at 0, and country, industry and year controls at their observed values. We believe this gives the most representative setting to assess marginal effects. The marginal effect of the continuous variables is the change in probability of deal completion when the variable is increased with one standard deviation from its mean, keeping all other independent variables fixed. The marginal effect of the dummy variables is when the variable goes from 0 to 1 (Wooldridge, 2015). The marginal effect of the interaction terms is the additional marginal effect of *CAR* on *Completion* when the interacting dummy variable goes from 0 to 1. Previous literature

does not report the marginal effects, and therefore we are unable to compare the magnitudes of our results with previous research.

When *CAR* is increased with one standard deviation from its mean, the probability of deal completion increases with 2.2%. The average CAR is 3% and the standard deviation is 14.8%, so one standard deviation increase is a strong market reaction, but the increase in deal completion probability is small. Again, this is as expected given our previous results and further cements the idea that we can not reject our null hypothesis 1.

Compared to previous research, our results are in line with Tanna, Yousef and Nnadi (2021) and Jennings and Mazzeo (2021) since we find no significant relationship between announcement return and deal completion, while Luo (2005) and Kau, Linck and Rubin (2008) do. It appears that studies centered around the U.S. find a significant relationship, while studies that use a global or non-U.S. sample don't. This could be related to market efficiency, assuming that the U.S. market is the most efficient and therefore more informative for management, and might therefore affect deal completion more than elsewhere.

It is reasonable to expect that the Nordic setting gives different results compared to previous studies for three reasons. Firstly, the Nordic financial markets are smaller and might not be efficient (Chang, Marcucci, Metghalchi, 2008; Shaker, 2013), and that can affect the relationship between deal completion and the market reaction. Secondly, the different industries that constitute the Nordic stock market might not be the same as in other countries, and this can affect the results because the industry affects the relationship with deal completion. Thirdly, there is an institutional difference in ownership in the Nordic market because there are many large ownership spheres and family owned firms (Carlsson, 2007; Milne, 2013; Strand and Freeman, 2015). For example, the Kirk Kristiansen family of the LEGO Group (Kirkbi, 2023), and the Wallenberg family who owns a large part of the Stockholm Stock exchange and holds a controlling interest in many of the largest Swedish companies (Almgren, 2021; Milne, 2015).

It is possible that we find no significant results because the theories that we use to interpret the results, such as managerial learning, hubris and empire building, do not matter in the deal completion decision. For example, managers don't announce a deal, then leave it to the market and then base their decision on that. They are also not being overconfident or driven

by self-interest. Instead, it is possible that new information that appears post-announcement might be something that affects the manager's decision. However, since new information is difficult to account for in our model, and is unaccounted for, this might be a reason why we get insignificant results.

5.2.2. Deal Completion and Unregulated Stock Exchanges

In table 14 we can see that *Unregulated target* has a positive sign but this effect is insignificant in our main model. In earlier model specifications, the effect is weakly statistically significant, and the magnitude is stable across earlier specifications. *Unregulated target* should be evaluated against regulated and private targets to better understand the result, and we do that next.

Deals with private targets are the most likely to complete, followed by unregulated targets, and lastly regulated targets. This is because both *Public target* and *Unregulated target* have to take the value 1 at the same time, and *Public target* has a negative sign while *Unregulated target* has a positive sign. The negative effect of buying a public target is highly significant, but it doesn't seem to matter which type of stock exchange this target is listed on. This suggests that the market might have some effect on deal completion because shareholders may get to vote with their feet more in public deals, but between regulated and unregulated targets there is no difference.

We can also use the same argument as Tanna, Yousef and Nnadi (2021). Shareholders of public targets tend to free-ride and just accept the bidder's offer. Additionally, buying a private target increases deal completion probability because they tend to have higher concentrated ownership, and therefore better negotiating power and ability to make sure the deal completes. This could also be true for the unregulated targets. Their ownership might not be as diluted as the regulated targets because they are on a smaller exchange and they tend to be smaller, younger companies. This would explain both why the coefficient on *Public target* is negative and why *Unregulated target* is positive. Lastly, public regulated deals are more complicated, there is more regulation to consider, and probably more shareholders to please. This is less so for unregulated targets, and the least so for private targets.

The marginal effect of *Unregulated target* is that the unregulated status increases the probability of deal completion with 13.7%, keeping everything else constant, which is a large

impact. However, since the result of *Unregulated target* is insignificant, we can not reject null hypothesis 2a.

Unregulated target x CAR has a negative sign but the effect is insignificant. The sign, magnitude and statistical significance is stable across all previous specifications, except one where the effect is weakly significant.

The sign suggests that the deal completion probability is less sensitive to the stock market's reaction when the target is listed in an unregulated exchange. This could be because the ownership is diluted and their negotiating power is worse. It could also be that the due diligence work might be more revealing and informative to the management when buying an unregulated target because these companies are less transparent. Managers get a bigger information advantage over the market from their due diligence work on unregulated targets compared to other targets. Therefore, they are more likely to "go against" the market in these kinds of deals. It could also be a sign of hubris or empire building. It can also be explained by these exchanges being smaller, and therefore markets are less attentive to what happens there. Lastly, the result could be because unregulated markets might be less efficient than regulated markets.

The additional marginal effect of *CAR* on *Completion* when the target is unregulated is -6.7%. The marginal effect of *CAR* on *Completion* was 2.2% when the target was private. Therefore, when the target is unregulated, the net effect of *CAR* on *Completion* becomes -4.5% completion probability (2.2%-6.7%). However, since the effect is insignificant, we can not reject null hypothesis 2b.

5.2.3. Deal Completion and Serial Acquirers

Serial acquirer is statistically significant at the 5% level in our main model and the sign is negative. The sign and magnitude is stable across model specifications, but the significance was higher in previous models. This suggests that the serial acquirer status reduces the probability of deal completion. With this, we can reject null hypothesis 3a.

The experience of serial acquirers could make them less "trigger happy", less susceptible to hubris, and more cautious in their deal-making. Non-serial acquirers on the other hand might be more reluctant to "kill their darlings". This is all in line with the theory of manager

learning, the experience of serial acquirers make them behave differently than non-serial acquirers.

The marginal effect of *Serial acquirer* is -9.7%. This magnitude is quite large compared to the other marginal effects in table 15. This could be because M&As are a large part of the serial acquirers competitive strategy.

Serial acquirer x CAR has a positive sign but this effect is insignificant. The sign and significance is stable, but the magnitude is unstable. The positive sign might be explained by the fact that serial acquirers know that the market's opinion can be informative and therefore are willing to learn from the market. Serial acquirers want to ensure that their deals are value-adding since they are a central part of their competitive strategy.

The additional marginal effect of *CAR* on *Completion* that comes from being a serial acquirer is 3%. The net marginal effect of CAR on Completion becomes 5.2% (2.2%+3%). However, because of the insignificance, we can not reject null hypothesis 3b.

All in all, our results go against the previous studies of for example Aktas, de Bodt and Roll (2006) that serial acquirers are more prone to hubris and empire building because we find that they are less likely to complete deals, and their deal completion is more sensitive to the market's opinion on the deal, although the latter effect is insignificant. Our results are more in line with Tanna, Yousef and Nnadi (2021) because they find a negative relationship between serial acquirers and deal completion probability, although their result is unstable across model specifications.

5.2.4. Deal Completion and M&A Advisors

In table 14, *Experienced advisor* has a positive sign but is insignificant. This is the same across all model specifications, but the magnitude of the coefficient varies. The sign shows that deals are more likely to complete when the bidder has a more experienced advisor. This suggests that advisors might be able to reduce some uncertainty in the deal, as previous research has suggested. A more experienced advisor might help the parties in negotiations, in the due diligence and valuation work to the degree that the manager is more sure of their assessment and therefore complete more deals.

The marginal effect is 8.3%, which is quite large compared to other variables. However, since the effect is not significant, we can not reject null hypothesis 4a.

Experienced advisor x CAR has a negative sign but is insignificant. The sign and significance is stable across specifications, but the magnitude varies greatly. The negative sign suggests that the deal completion probability is less susceptible to the market's reaction when the bidder had an experienced advisor. This can again be explained by the fact that the experienced advisors are better at lowering the uncertainty in the deal, and therefore managers have less to learn and are less influenced by the market because they are more certain of their own assessments.

The additional marginal effect of *CAR* on *Completion* that comes from the experienced advisor is -2%. The net marginal effect of *CAR* on *Completion* becomes 0.2% (2.2%-2%). However, this effect was not significant, and therefore we can not reject null hypothesis 4b.

5.3. Analysis of Control Variables

Bidder total assets is significant at the 10% level in the main model and has a positive sign, but this result is not stable across specifications. The marginal effect is a 10.2% increase in completion probability. The positive sign could be because bidder firms have more experience and better negotiating power to ensure the deal completes, or because larger bidders have more synergy potential than smaller bidders.

Deal value and *DV-to-TA* are not significant, and *Deal value* is unstable across specifications. Their marginal effects are both close to 0. This suggests that deal size matters in deal completion, neither in absolute nor relative terms.

There are arguments to be made for both positive and negative signs on *Deal value* and *DV-to-TA*, which might be why we find no significant relationships. A positive sign might suggest empire building or hubris. A negative sign can be explained by the fact that there is more at stake in larger deals. A manager that takes a shareholder value perspective will then be less likely to complete these deals since they are more risky. On the contrary, there is less at stake in smaller deals so managers think that they might as well complete the deal once it has already been announced.

Pure cash has a positive sign but is insignificant. The positive sign could be because, as Tanna, Yousef and Nnadi argues (2021), a pure cash offer signals that the bidder is of high quality and has positive private information about the deal, and therefore it reduces agency and information asymmetry problems. However, the sign and magnitude varies across models and is always insignificant, so we can not say that the method of payment has any effect on deal completion.

Cross-industry and cross-border deals are more likely to be completed. This effect is insignificant but stable across specifications. This means that diversifying deals are more likely to be completed, which is the opposite of what Tanna, Yousef and Nnadi (2021) found. It is also unexpected from an information asymmetry perspective, because higher deal uncertainty should be associated with lower likelihood of completion.

Bidder firm age is insignificant. The sign is positive and significant at the 10% level in some early specifications, which could be explained by older firms having more experience and therefore ability to ensure deal closure.

Lastly, *Pre-announcement return* has a positive sign but is insignificant across all specifications. This is as expected because new information prior to the announcement should influence managers' decision-making before the announcement, but should not affect the deal-closing decision after post-announcement (Kau, Linck and Rubin, 2008).

5.4. Robustness Tests

Table 16 presents the results of the robustness tests. The results from our main model are robust in almost all tests. *Experienced advisor x CAR* is not robust, but this only further shows that we can not reject null hypothesis 4b. *CAR* also switches sign when we drop observations with the "Pending" status, but the standard error also increases greatly. This suggests that we might be wrong when we assume that deals that have been pending for over 3 years can be assumed to be withdrawn. Overall, we believe we are able to reject the same hypotheses that we already rejected, and we fail to reject the same hypotheses as we failed to reject in the main model. Lastly, the results for the control variables also appear to be robust.

6. Conclusion

6.1. Summary and Main Contribution

In this thesis we study the relationship between M&A deal completion probability and the stock market's reaction to the announcement, unregulated stock exchanges, serial acquirers and M&A advisors. We use theories of shareholder value, the efficient market hypothesis, manager learning, hubris, empire building, and information asymmetry to make sense of our results. With this, we find no significant relationship between deal completion probability and any of these characteristics, except for serial acquirers who have a significant negative association with deal completion. Additionally, we find no evidence that any of these characteristics have any moderating effect on the deal completion probability's sensitivity to the stock market's reaction. We also find that public targets have a highly statistically significant negative relationship with deal completion. These results are robust across 9 different robustness tests. Since the results are statistically insignificant, the theoretical contribution is that we find no compelling evidence that managerial learning, hubris or empire building matters in the deal completion decision. Instead, it is possible that new, post-announcement information affects the deal completion decision.

Our results are in line with Jennings and Mazzeo (1991) and Tanna, Yousef and Nnadi (2021) in that the stock market's reaction has a positive but insignificant relationship with deal completion, unlike Luo (2005) and Kau, Linck and Rubin (2008) who both found significance.

Compared to previous literature, our contribution is the added perspective of studying unregulated stock markets, serial acquirers and experienced advisors, and also if these characteristics have a moderating effect on the relationship between the stock market's reaction and deal completion. We also contribute by using more recent data that is relevant today, while previous studies are old and used outdated data. Lastly, we contribute by adding further evidence of the relationship between the stock market's reaction and deal completion since previous studies found mixed results.

6.2. Recommended Future Research

Future research could study if there are structural breaks in deal completion probabilities following different crises and if any characteristics have a larger impact on deal completion during these times.

It is also interesting to study if other characteristics have an impact on deal completion, for example governance structure. If the company has large blockholders, managers are less inclined to act in their own interest. This would also help establish a causal relationship. However, we already control for private, regulated and unregulated targets, and since their ownership structure is usually different, we believe these controls capture some of this concentrated ownership effect. It is also interesting to study regulatory changes, bid premium size and CEO compensation. Another contribution could be to try and establish a causal relationship between deal completion and different characteristics, instead of just studying if they are associated.

The same methodology from this thesis can also be applied to study other corporate decisions, for example seasoned equity offerings, CEO appointments and other large investments.

More control variables could be added to address endogeneity. For example, leverage is a common control variable, but we believe that *Pure cash* implicitly captures the effect of leverage through the method of payment since highly levered firms are less likely to offer pure care, if they even do M&As. The post-announcement return could control for new information post-announcement. However, this would only capture new public information and not new private information. Including the target CAR takes into consideration the target shareholders, since both parties have to agree before a deal can complete. However, for this we would have to study only public targets, and the sample size would then be very small, but this could be mitigated by using a global sample.

Lastly, it is possible to make more distinctions between the types of deal being studied. We classify the two parties in the deal as the bidder and the target. However, our sample includes mergers, which begs the question: Who is the bidder in a merger? In our case the bidder is the surviving entity and the target is the merging entity, but this classification might not be fitting in a merger, especially in a merger of equals. However, we believe the CAR still reflects the

market's opinion in these deals. And if we tried to solve this issue we could either exclude mergers from our sample, in which case we would lose many observations, or add additional control variables that would make the model more complicated. Since none of the previous studies have made the distinction between a merger and other deal types, we chose to not do that either.

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Tables

Table 1. Summary of theoretical and empirical literature related to M&A announcements, deal completion and other subjects presented in this section that are central to this thesis.

Literature	Field	Findings
Gaughan, 2011	Shareholder value perspective	Managers are supposed to act to maximize the gain for shareholders. In M&As, this is done by pursuing deals with net positive synergies. In the literature, this is sometimes measured by the CAR around the M&A announcement.
Fama, 1970; Haleblian and Finkelstein, 1999; Elton, Gruber, Brown and Goetzmann, 1987; Jensen, 1988	Efficient market hypothesis in M&As	An efficient market incorporates all information in security prices. In M&A announcement literature, this is seen in stock price movements around the M&A announcement. This reflects the stock market's assessment of the deal. The literature uses the announcement CAR to measure this.
Luo, 2005; Aktas, de Bodt and Roll, 2005; Aktas, de Bodt and Roll, 2009; Gaughan, 2011	Manager learning theory	Managers can learn from the stock market during M&As. When a deal has been announced, the stock market gets the opportunity to assess the deal, incorporate information that management has missed, or detect errors management has made. Their assessment can be reflected in the announcement CAR. Managers can use this information to either revise, withdraw or complete the deal.
Roll, 1986; Aktas, de Bodt and Roll, 2005; Gaughan, 2011	Hubris and empire building theory	Hubris can make managers overconfident and pursue deals that are not value-adding even though markets disagree. Empire building means that managers pursue deals for their own individual gain. These theories explain why managers might not follow the market's opinion and why there might be a negative relationship between CAR and deal completion probability.
Eisenhardt, 1989; Jensen and Meckling, 1976; Gaughan, 2011; Aktas, de Bodt and Roll, 2005	Agency theory in M&As	Explains why hubris and empire building can be present. Uncertainty in the deal causes information asymmetry. That might or might not affect the manager's ability to learn from the market, and in extension the deal completion probability.

Luo, 2005	Deal completion probability in the U.S.	Announcement CAR is positively associated with deal completion probability. This is because managers learn from the market. Managers are more likely to learn when information asymmetry between management and the market is high: deal with pre-announcement agreements, non-high-tech deals, and small- and mid-cap deals have more incentives to learn from the market.
Tanna, Yousef and Nnadi, 2021; Jennings and Mazzeo, 1991	Deal completion probability in the global market	Announcement CAR has no significant relationship with deal completion probability. Cash deals, deals with private targets, and domestic same-industry deals are more likely to go through. Results are mixed on whether serial acquirer deals are more likely to complete.
Nasdaq, 2023a; Nasdaq, 2023b; SEC, 2023a; SEC, 2023b; Nasdaq OMX Nordic, 2023; Buti, Rindi and Werner, 2022; Petrescu and Wedow, 2017; Zhu, 2014	Unregulated stock exchanges	Companies on unregulated stock exchanges face less regulation than companies on regulated stock exchanges. This can cause more uncertainty in deals where the target is listed on an unregulated exchange. There is a research gap on unregulated stock exchanges and deal completion probability.
Aktas, de Bodt and Roll, 2006; Gaughan, 2011; Haleblian and Finkelstein, 1999; Tanna, Yousef and Nnadi, 2021	Serial acquirers	Serial acquirers see a negative trend in announcement CAR. This might be because they are affected by hubris, or because fewer and fewer valuable deals remain after they strike more deals. Little research is done on the relationship between serial acquirers and deal completion probability, the relationship is unclear. There is a research gap on serial acquirers and the deal's sensitivity to the market reaction.
Aktas, de Bodt and Roll, 2009; Bao and Edmans, 2007; Chang, Shekhar, Tam and Yao, 2016	M&A advisors	Research focuses on the advisor selection decision. The advisor can help with reducing uncertainty in the deal thanks to their expertise and specializations. There is a research gap on M&A advisors and deal completion probability.

Table 2. Sample collection criteria in the Refinitiv EIKON database.

Step	Criteria	Step result
1.	Deal type: Acquisition, Institutional buy-out, Management buy-out, Merger.	853,413
2.	Public/private status: Public acquirer, public and private target.	246,441
3.	Acquirer and target nations: Sweden, Denmark, Finland, Norway or Iceland.	5,992
4.	Stake and deal value: Initial stake ≤50%, final stake ≥50 %, deal value disclosed.	2,755
	TOTAL	**2,755**

Table 3. Summary of dropped observations to arrive at final sample.

Step	Criteria	Step result	Cumulative result
1.	Collected observations.	2,755	2,755
2.	Announcement before 2010.	-1,407	1348
3.	Financial institutions.	-24	1324
4.	Missing deal characteristics, company characteristics or insufficient stock data.	-735	589
	TOTAL		**589**

Table 4. Number of deals per year.

Deal completion	No	Yes	Grand Total
2010	3	33	36
2011	4	32	36
2012	1	18	19
2013	5	22	27
2014	12	18	30
2015	12	22	34
2016	11	44	55
2017	19	39	58
2018	10	35	45
2019	10	45	55
2020	7	54	61
2021	2	70	72
2022	3	56	59
2023	0	2	2
Grand Total	**99**	**490**	**589**
%	16,81%	83,19%	100,00%

Table 5. Number of deals per industry.

Deal completion	No	Yes	Grand Total
Consumer Products and Services	6	31	37
Consumer Staples	6	29	35
Energy and Power	4	20	24
Financials	3	48	51
Healthcare	5	45	50
High Technology	8	74	82
Industrials	13	76	89
Materials	4	14	18
Media and Entertainment	3	11	14
Real Estate	41	98	139
Retail	1	17	18
Telecommunications	5	27	32
Grand Total	**99**	**490**	**589**
%	16,81%	83,19%	100,00%

Table 6. Number of deals per bidder country.

Deal completion	No	Yes	Grand Total
Denmark	1	16	17
Finland	11	63	74
Norway	9	76	85
Sweden	78	335	413
Grand Total	**99**	**490**	**589**
%	16,81%	83,19%	100,00%

Table 7. Frequency of deals made by a single bidder. 193 companies in the sample made 1 deal, 64 companies made 2 deals, etc. The cumulative percentage column shows that 23,26% of all deals were made by companies that made 5 or more deals in the period.

# of deals by one bidder	Frequency	Total deals	Cumulative total deals	Cumulative (%)
1	193	193	193	32,77%
2	64	128	321	54,50%
3	25	75	396	67,23%
4	14	56	452	76,74%
5	7	35	487	82,68%
6	3	18	505	85,74%
7	1	7	512	86,93%
8	1	8	520	88,29%
9	1	9	529	89,81%
10	2	20	549	93,21%
11	1	11	560	95,08%
14	1	14	574	97,45%
15	1	15	589	100,00%
	Sum	**589**		100,00%

Table 8. List of the advisors present in our final sample, categorized into experienced and less experienced.

Experienced advisors			**Less experienced advisors**		
Big 4 companies	*Bulge Bracket banks*	*Big Nordic banks*			
Deloitte	Bank of America	Danske Bank	ABG Sundal Collier	Credit Suisse	Mangold Fondkommision
Ernst & Young	Barclays	DnB	Access Partners	Erik Penser	Moelis & Co
KPMG	Citigroup	Handelsbanken	Advium Corporate Finance	Erneholm & Haskel AB	Ondra Partners
Pricewaterhouse Coopers	Deutsche Bank	Nordea	Arctic Securities ASA	Evli Oy	Pangea Property Partners AB
	Goldman Sachs	SEB	Avane Ab	Fearnley Securities Inc	Pareto Securities
	JP Morgan	Swedbank	Avanza Bank Holding AB	GCA Altium Ltd	Procorp AS
	Morgan Stanley		BDO	HDR Partners	Rothschild & Co
			BNP Paribas SA	HLP Corporate Finance Oy	SpareBank 1 Markets AS
			Bridgehead AS	Investment AB Carnegie	Stella EOC Ltd
			Carnegie AS	Jefferies & Co Inc	Stockholm Corporate Finance
			Carnegie Investment Bank AB	Lazard	Strata Advisory AB
			Clairfield Partners	Lenner & Partners	Summa Capital Oy
			Clarksons Platou Securities AS	LionTree Advisors LLC	Translink Corporate Finance
			Clearwater International	Livingstone Partners	

Table 9. Summary statistics.

Variable	N	Mean	Median	SD	Min	Max
Completion	589	0.832	1.000	0.374	0.000	1.000
CAR	589	0.030	0.009	0.148	-0.497	1.194
Bidder total assets (USD mn)	589	3,299.728	754.014	9,340.083	0.363	132,569.639
Deal value (USD mn)	589	223.502	28.065	706.708	0.050	10,990.040
DV-to-TA	589	0.985	0.057	9.955	0.000	224.265
Pure cash	589	0.513	1.000	0.500	0.000	1.000
Cross-industry	589	0.379	0.000	0.485	0.000	1.000
Cross-border	589	0.251	0.000	0.434	0.000	1.000
Bidder firm age	589	35.959	20.000	38.834	0.000	250.000
Hostile	589	0.000	0.000	0.000	0.000	0.000
Public target	589	0.112	0.000	0.316	0.000	1.000
Unregulated target	589	0.034	0.000	0.181	0.000	1.000
Unregulated bidder	589	0.243	0.000	0.429	0.000	1.000
Unregulated target x CAR	589	0.000	0.000	0.033	-0.225	0.587
Serial acquirer	589	0.233	0.000	0.423	0.000	1.000
Serial acquirer x CAR	589	0.005	0.000	0.060	-0.174	0.883
Experienced advisor	589	0.165	0.000	0.371	0.000	1.000
Experienced advisor x CAR	589	0.007	0.000	0.062	-0.258	1.037
Pre-announcement return	589	-0.000	-0.010	0.191	-0.810	1.191

Table 10. Matrix of pairwise correlations.

Pairwise correlations

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**	**(19)**
(1) Completion	1																		
(2) CAR	0.046	1																	
(3) log(Bidder total assets)	-0.01	-0.174***	1																
(4) log(Deal value)	0.031	0.042	0.601***	1															
(5) DV-to-TA	0.019	0.102**	-0.173***	0.077*	1														
(6) Pure cash	-0.02	-0.15***	0.486***	0.149***	-0.091**	1													
(7) Cross-industry	0.061	0.066	-0.123***	-0.124***	0.075*	-0.086**	1												
(8) Cross-border	0.072*	-0.026	0.157***	0.145***	-0.014	0.142***	0.097**	1											
(9) Bidder firm age	0.078*	-0.05	0.382***	0.26***	-0.045	0.152***	0.053	0.151***	1										
(10) Hostile	-	-	-	-	-	-	-	-	-										
(11) Public target	-0.027	-0.085**	0.104**	0.303***	-0.006	-0.171***	-0.089**	-0.044	0.073*	-	1								
(12) Unregulated target	0.034	-0.034	-0.067	0.055	0.017	-0.099**	-0.011	-0.109***	-0.015	-	0.528***	1							
(13) Unregulated bidder	0.022	0.104**	-0.621***	-0.388***	0.132***	-0.296***	0.105**	-0.136***	-0.288***	-	-0.038	0.069*	1						
(14) Unregulated target x CAR	-0.017	0.222***	0.131***	0.099**	-0.02	0.025	0.051	-0.002	0.147***	-	0.009	0.018	-0.099**	1					
(15) Serial acquirer	-0.139***	-0.028	0.295***	0.136***	0.055	0.159***	-0.098**	0.042	0.011	-	-0.004	-0.014	-0.199***	0.008	1				
(16) Serial acquirer x CAR	0.033	0.39***	-0.084**	-0.018	0.133***	-0.04	0.049	-0.036	-0.041	-	-0.042	-0.004	0.072*	0.003	0.162***	1			
(17) Experienced advisor	0.053	0.031	0.233***	0.462***	-0.017	-0.007	-0.063	0.112***	0.233***	-	0.278***	0.094**	-0.198***	0.086**	-0.039	-0.042	1		
(18) Experienced advisor x CAR	0.026	0.399***	0.011	0.102**	-0.008	-0.086**	0.039	-0.009	0.05	-	0.001	0.075*	0.023	0.332***	-0.062	0.011	0.245***	1	
(19) Pre-announcement return	0.002	0.153***	-0.058	0.005	-0.057	-0.061	0.015	-0.067	-0.029	-	0.046	0.099**	0.024	0.012	0.07*	0.215***	0.055	0.141***	1

*** p<.01, ** p<.05, * p<.1

Table 11. F-test of the null hypothesis that CAAR is not different from 0.

Linear regression

CAR	**Coef.**	**St.Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**	**Sig**
Constant	.030	.006	4.99	0	.018	.042	***
Mean dependent var			0.030	SD dependent var			0.148
R-squared			0.000	Number of obs			589
F-test			0.000	Prob > F			0
Akaike crit. (AIC)			-580.335	Bayesian crit. (BIC)			-575.957

*** p<.01, ** p<.05, * p<.1

Table 12. Description of robustness tests.

Robustness Test	**Method**
Main model robustness check	Gradually add controls until we arrive at the main model. This is necessary to see how contingent our results are on the model specification, we want the results to be stable across the different specifications. For example Tanna, Yousef and Nnadi (2021) did not have results that were robust over different specifications when studying the effect of prior bidding experience on deal completion probability.
Test 1	*CAR* is calculated using an estimation window between day -150 and -50 instead of the regular -250 to -50. Everything else is the same as in the main model. This is to see if our results are contingent on how we decided to calculate the main explanatory variable.
Test 2	*CAR* is calculated using the MSCI Nordic Countries index as the market index for all bidders instead of using a local stock market index, but keeps the same estimation and event window as in the main model.
Test 3	*CAR* is calculated using an event window between day -3 to +3 instead of the regular -1 to +7, but keeps the same estimation window and market indices as the main model.
Test 4	Robustness test for *Completion*. In the main model, we counted deals that have been "Pending" since before 2020 as withdrawn. In this robustness test, we relax this assumption and only study deals that have the status "Withdrawn". This also causes observations to drop.
Test 5 and 6	We perform robustness tests for *Deal value* and *DV-to-TA*. In our sample collection process, we did not set a threshold for deal sizes, only for the size of the stake. Our results in the main model could be diluted by small deals, because they warrant no reaction from the stock markets. Therefore, we drop observations with a deal value below USD 10 mn (200 observations) and run the same regression. This is test 5. We also run another regression where we instead drop observations where the *DV-to-TA* ratio is less than 5% (286 observations), since the deal size in absolute terms is not only interesting, but you also have to put it in relation to the size of the bidder. This is test 6.
Test 7	We winsorize *Bidder's total assets*, *Deal value* and *DV-to-TA* to further address the fact that these variables are heavily positively skewed because of outliers. We winsorize with 2.5% in each end, so that values above the 97.5th percentile take the value of the 97.5th percentile, and values below the 2.5th percentile take the value of the 2.5th percentile.
Test 8	We run the main model using regular standard errors to see how our assumption that there is heteroskedasticity in the model impacts the results.
Test 9	We drop deals where the bidder is part of the utilities industry, classified as "Energy and Power" in Refinitiv EIKON. This is because it is common practice in corporate financial literature, but we did not do this for our main model because previous literature on deal completion did not do so (Tanna, Yousef and Nnadi, 2021; Kau, Linck and Rubin, 2008).

Table 13. Two-sample t-test of differences in average deal completion for our variables of interest.

t-test for CAR above and below 0

	CAR < 0	CAR > 0	Mean for CAR < 0	Mean for CAR > 0	dif	St Err	t-value	p-value
Deal completion = 1	260	329	0.831	0.833	-0.002	0.031	-0.05	0.947

t-test for CAR above and below median CAR

	CAR < Median	CAR > Median	Mean for CAR < Median	Mean for CAR > Median	dif	St Err	t-value	p-value
Deal completion = 1	294	295	0.827	0.838	-0.011	0.031	-0.35	0.728

t-test for unregulated targets

	Regulated/private target	Unregulated target	Mean for Regulated/private target	Mean for Unregulated target	dif	St Err	t-value	p-value
Deal completion = 1	569	20	0.830	0.9	-0.071	0.085	-0.85	0.409

t-test for serial acquirers

	Non-serial acquirer	Serial acquirer	Mean for Non-serial acquirer	Mean for Serial acquirer	dif	St Err	t-value	p-value
Deal completion = 1	452	137	0.861	0.737	0.123	0.036	3.4	0.001

t-test for experienced advisors

	Non-experienced advisor	Experienced advisor	Mean for Non-experienced advisor	Mean for Experienced advisor	dif	St Err	t-value	p-value
Deal completion = 1	492	97	0.823	0.877	-0.053	0.042	-1.3	0.202

Table 14. Regression results of probit models. We gradually add control variables until we arrive at the main model (last column).

Variable	Completion	Completion	Completion	Completion	Completion	Completion	Completion	Completion	Completion	Completion	Completion	Completion
CAR	0.380	0.381	0.396	0.504	0.535	0.328	0.317	0.335	0.336	0.636	0.518	0.673
	(0.425)	(0.425)	(0.429)	(0.453)	(0.455)	(0.510)	(0.511)	(0.545)	(0.547)	(0.594)	(0.585)	(0.668)
ln(Bidder total assets)	-0.041	-0.036	-0.023	-0.019	0.014	0.014	0.015	0.015	0.016	0.088	0.102*	0.102*
	(0.045)	(0.046)	(0.048)	(0.049)	(0.053)	(0.053)	(0.054)	(0.054)	(0.053)	(0.057)	(0.057)	(0.061)
ln(Deal value)	0.043	0.045	0.045	0.046	0.039	0.040	0.032	0.032	0.031	0.044	0.019	-0.004
	(0.044)	(0.044)	(0.044)	(0.044)	(0.045)	(0.045)	(0.048)	(0.048)	(0.048)	(0.049)	(0.049)	(0.055)
DV-to-TA	0.001	0.000	0.000	0.000	0.003	0.003	0.003	0.003	0.003	0.002	0.001	0.004
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.005)	(0.004)
Pure cash	-0.043	-0.062	-0.064	-0.067	-0.063	-0.067	-0.063	-0.064	-0.064	0.008	0.007	0.113
	(0.161)	(0.162)	(0.162)	(0.162)	(0.164)	(0.165)	(0.165)	(0.165)	(0.165)	(0.175)	(0.174)	(0.190)
Cross-industry	0.132	0.129	0.125	0.130	0.098	0.093	0.095	0.096	0.096	0.270	0.256	0.226
	(0.164)	(0.165)	(0.165)	(0.167)	(0.170)	(0.170)	(0.170)	(0.170)	(0.170)	(0.190)	(0.190)	(0.208)
Cross-border	0.225*	0.247*	0.251*	0.249*	0.259*	0.261*	0.251*	0.251*	0.252*	0.130	0.177	0.333
	(0.135)	(0.136)	(0.136)	(0.136)	(0.140)	(0.141)	(0.141)	(0.140)	(0.140)	(0.151)	(0.206)	(0.234)
Bidder firm age	0.004*	0.004*	0.004*	0.004*	0.003	0.003	0.003	0.003	0.003	0.001	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Hostile (omitted)	-	-	-	-	-	-	-	-	-	-	-	-
Public target	-0.205	-0.395*	-0.400*	-0.404*	-0.435*	-0.437*	-0.469**	-0.472**	-0.472**	-0.604***	-0.673***	-0.800***
	(0.209)	(0.216)	(0.217)	(0.217)	(0.224)	(0.225)	(0.223)	(0.220)	(0.221)	(0.217)	(0.222)	(0.250)
Unregulated target		0.672	0.668	0.708*	0.772*	0.769*	0.760*	0.764*	0.759*	0.658	0.758*	0.634
		(0.423)	(0.422)	(0.405)	(0.405)	(0.405)	(0.402)	(0.401)	(0.402)	(0.420)	(0.419)	(0.427)
Unregulated bidder			0.129	0.128	0.104	0.098	0.104	0.105	0.107	0.177	0.292	0.209
			(0.177)	(0.178)	(0.197)	(0.196)	(0.196)	(0.196)	(0.196)	(0.206)	(0.219)	(0.222)
Unregulated target x CAR				-2.450	-2.725*	-2.532	-2.595*	-2.513	-2.513	-2.806	-2.860	-2.855
				(1.510)	(1.532)	(1.556)	(1.570)	(1.675)	(1.677)	(1.832)	(1.755)	(1.786)
Serial acquirer					-0.479***	-0.498***	-0.490***	-0.491***	-0.494***	-0.400**	-0.369*	-0.449**
					(0.172)	(0.175)	(0.175)	(0.174)	(0.173)	(0.187)	(0.191)	(0.199)
Serial acquirer x CAR						1.176	1.210	1.199	1.188	0.779	1.083	0.612
						(1.117)	(1.129)	(1.138)	(1.165)	(1.192)	(1.201)	(1.307)
Experienced advisor							0.148	0.153	0.151	0.174	0.220	0.383
							(0.212)	(0.217)	(0.218)	(0.216)	(0.216)	(0.237)
Experienced advisor x CAR								-0.147	-0.175	-0.036	-0.212	-0.607
								(1.174)	(1.180)	(1.080)	(0.985)	(1.093)
Pre-announcement return									0.066	0.038	0.056	0.108
									(0.300)	(0.311)	(0.324)	(0.355)
Constant	0.886***	0.854***	0.741***	0.715***	0.695**	0.705**	0.705**	0.703**	0.700**	0.615	-0.167	3.485***
	(0.205)	(0.209)	(0.261)	(0.264)	(0.280)	(0.283)	(0.283)	(0.281)	(0.281)	(0.949)	(1.103)	(1.173)
Observations	589	589	589	589	589	589	589	589	589	589	589	589
Pseudo R-squared	0.023	0.027	0.028	0.030	0.049	0.051	0.052	0.052	0.052	0.132	0.146	0.236
Number of unique firms	314	314	314	314	314	314	314	314	314	314	314	314
Industry controls	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Country controls	No	No	No	No	No	No	No	No	No	No	Yes	Yes
Year controls	No	No	No	No	No	No	No	No	No	No	No	Yes
Standard errors	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)	Cluster (bidder)

*** p<.01, ** p<.05, * p<.1

Table 15. Marginal effects of explanatory variables in the main model. The marginal effect is the change in probability of the deal completing given an increase in the explanatory variable from its mean, holding every other variable constant. Continuous variables are increased with one standard deviation, dummy variables go from 0 to 1. Continuous variables are held constant at their means, dummy variables are held constant at 0. The marginal effect of the interaction terms is the additional effect of a one standard deviation increase in CAR when the interacting term goes from 0 to 1.

Variable	**Marginal effect**	**Note**
CAR	0,022	[1]
log(Bidder total assets)	0,055	[1]
log(Deal value)	-0,002	[1]
Dv-to-TA	0,001	[1]
Pure cash	0,024	[2]
Cross-industry	0,049	[2]
Cross-border	0,072	[2]
Bidder firm age	0.000	[1]
Hostile	0.000	[2]
Public target	-0.173	[2]
Unregulated target	0.137	[2]
Unregulated bidder	0.045	[2]
Unregulated target x CAR	-0.067	[3]
Serial acquirer	-0.097	[2]
Serial acquirer x CAR	0.030	[3]
Experienced advisor	0.083	[2]
Experienced advisor x CAR	-0.020	[3]
Pre-announcement return	0.023	[1]

[1] = Effect of one standard deviation increase from mean.

[2] = Effect of going from 0 to 1.

[3] = Additional marginal effect of a one standard deviation increase of *CAR* on *Completion* from mean when interacting variable = 1.

Table 16. Results of robustness tests. Test 1 = Using an estimation window from -150 to -50 to calculate CAR. Test 2 = Using MSCI Nordic countries index to calculate CAR. Test 3 = Using an event window from -3 to +3 to calculate CAR. Test 4 = Drop deal with status "Pending". Test 5 = Drop deals with deal values below USD 10 mn. Test 6 = Drop deals with DV-to-TA ratios below 0.05. Test 7 = Winsorized Bidder total assets*,* Deal value*, and* DV-to-TA *variables. Test 8 = Using regular standard errors. Test 9 = Dropping bidders from the utilities industry.*

Variables	Robustness test 1 Completion	Robustness test 2 Completion	Robustness test 3 Completion	Robustness test 4 Completion	Robustness test 5 Completion	Robustness test 6 Completion	Robustness test 7 Completion	Robustness test 8 Completion	Robustness test 9 Completion
CAR	0.486	0.718	0.598	-0.083	0.575	0.652	0.736	0.673	0.676
	(0.658)	(0.684)	(0.844)	(1.073)	(0.964)	(0.957)	(0.679)	(0.705)	(0.695)
ln(Bidder total assets)	0.100*	0.103*	0.100	0.490***	0.041	0.068	0.072	0.102*	0.097
	(0.060)	(0.061)	(0.061)	(0.163)	(0.088)	(0.124)	(0.068)	(0.061)	(0.065)
ln(Deal value)	-0.001	-0.004	-0.000	-0.488**	-0.013	-0.006	0.024	-0.004	0.007
	(0.054)	(0.055)	(0.055)	(0.190)	(0.093)	(0.134)	(0.061)	(0.052)	(0.057)
DV-to-TA	0.005	0.004	0.006	0.141	-0.002	0.000	-0.093	0.004	0.002
	(0.004)	(0.004)	(0.005)	(0.115)	(0.005)	(0.005)	(0.137)	(0.012)	(0.004)
Pure cash	0.108	0.112	0.117	-0.598	0.171	-0.007	0.119	0.113	0.010
	(0.190)	(0.190)	(0.190)	(0.374)	(0.278)	(0.341)	(0.194)	(0.183)	(0.200)
Cross-industry	0.230	0.227	0.234	-0.507	1.019**	-0.049	0.252	0.226	0.398*
	(0.208)	(0.208)	(0.207)	(0.387)	(0.403)	(0.344)	(0.205)	(0.203)	(0.221)
Cross-border	0.327	0.333	0.310	-0.236	0.301	0.421	0.327	0.333	0.516**
	(0.234)	(0.234)	(0.232)	(0.390)	(0.283)	(0.383)	(0.236)	(0.272)	(0.256)
Bidder firm age	0.002	0.002	0.002	0.004	0.004	0.006	0.002	0.002	0.001
	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)
Hostile (omitted)	-	-	-	-	-	-	-	-	-
Public target	-0.814***	-0.794***	-0.761***	-2.125***	-1.006***	-1.491***	-0.822***	-0.800***	-0.819***
	(0.251)	(0.249)	(0.248)	(0.419)	(0.339)	(0.505)	(0.245)	(0.308)	(0.273)
Unregulated target	0.641	0.628	0.700	0.249	0.330	0.845	0.659	0.634	0.604
	(0.427)	(0.427)	(0.460)	(0.508)	(0.477)	(0.612)	(0.429)	(0.504)	(0.441)
Unregulated bidder	0.206	0.209	0.201	-1.125*	0.169	-0.027	0.218	0.209	0.251
	(0.223)	(0.222)	(0.226)	(0.631)	(0.272)	(0.367)	(0.226)	(0.249)	(0.220)
Unregulated target x CAR	-2.583	-3.125*	-6.077**	0.254	-0.230	-3.353	-3.027*	-2.855	-6.529*
	(1.691)	(1.897)	(2.547)	(2.649)	(2.578)	(2.329)	(1.821)	(2.629)	(3.765)
Serial acquirer	-0.444**	-0.447**	-0.429**	-1.582**	-0.288	-0.724*	-0.419**	-0.449**	-0.458**
	(0.199)	(0.198)	(0.203)	(0.654)	(0.250)	(0.402)	(0.200)	(0.206)	(0.195)
Serialacquirer x CAR	0.242	0.835	-0.213	1.092	-2.061	0.430	0.739	0.612	0.470
	(1.183)	(1.383)	(1.355)	(1.412)	(3.272)	(1.193)	(1.404)	(1.747)	(1.268)
Experienced advisor	0.381	0.379	0.327	0.265	0.428	0.938**	0.378	0.383	0.335
	(0.235)	(0.237)	(0.246)	(0.440)	(0.286)	(0.404)	(0.236)	(0.256)	(0.239)
Experienced advisor x CAR	-0.652	-0.487	2.131	0.284	-0.744	0.479	-0.653	-0.607	-1.100
	(1.013)	(1.154)	(2.537)	(1.991)	(1.258)	(1.754)	(1.109)	(1.650)	(1.077)
Pre-announcement return	0.129	0.093	0.137	0.948	-0.076	0.257	0.078	0.108	0.000
	(0.357)	(0.357)	(0.370)	(0.582)	(0.769)	(0.438)	(0.354)	(0.426)	(0.376)
Constant	3.481***	3.495***	3.875***	10.134***	1.968	10.604***	3.968***	3.485	3.637***
	(1.170)	(1.171)	(1.174)	(1.427)	(1.818)	(1.772)	(1.181)	(118.154)	(1.265)
Observations	589	589	589	512	389	303	589	589	565
Pseudo R-squared	0.234	0.237	0.238	0.523	0.319	0.374	0.236	0.236	0.240
Number of unique firms	314	314	314	290	208	213	314	314	297
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard errors	Cluster (acquirer)	Cluster (acquirer)	Cluster (acquirer)	Cluster (acquirer)	Cluster (acquirer)	Cluster (acquirer)	Cluster (acquirer)	Regular	Cluster (acquirer)

*** p<.01, ** p<.05, * p<.1

Appendix

Variable definition table.

Variable	Definition	Variable of interest
Completion	Dummy variable taking the value 1 if the deal completed, and 0 if it was withdrawn or has been pending since before 2020.	Dependent variable.
CAR	Main explanatory variable. Cumulative abnormal return on the bidder's stock between days -1 and +7 surrounding the M&A announcement.	Main explanatory variable for hypotheses 1-4.
Bidder total assets	The bidder's latest reported total assets, in USD bn.	
Deal value	The total value of the bid, in USD mn.	
DV-to-TA.	The deal value divided by the bidder's total assets.	
Pure cash	Dummy variable taking the value 1 if the bidder is offering pure cash as payment method, and 0 if any other method of payment is used.	
Cross-industry	Dummy variable taking the value 1 if the bidder and target are from different countries, and 0 if they are from the same country.	
Cross-border	Dummy variable taking the value 1 if the bidder and target are from different industries, and 0 if they are from the same industry	
Bidder firm age	The bidder's firm age at the time of announcement.	
Hostile	Dummy variable taking the value 1 if the announced deal is a hostile bid, and 0 otherwise.	
Public target	Dummy variable taking the value 1 if the target is publicly traded in the Nordics, and 0 otherwise.	
Unregulated target	Dummy variable taking the value 1 if the public target is listed on an unregulated stock exchange in the Nordics, and 0 otherwise.	Variable of interest for hypothesis 2a.
Unregulated bidder	Dummy variable taking the value 1 if the bidder is listed on an unregulated stock exchange in the Nordics, and 0 otherwise.	
Unregulated target x CAR	The *Unregulated target* variable multiplied with *CAR*.	Variable of interest for hypothesis 2b.
Serial acquirer	Dummy variable taking the value 1 if the bidder is a serial acquirer, and 0 otherwise. Serial acquirer is defined as having made 5 or more deals in our sample period.	Variable of interest for hypothesis 3a.
Serial acquirer x CAR	The *Serial acquirer* variable multiplied with *CAR*.	Variable of interest for hypothesis 3b.
Experienced advisor	Dummy variable taking the value 1 if the bidder's deal advisor is a Big 4 company, a Bulge Bracket bank or a big Nordic bank, and 0 otherwise.	Variable of interest for hypothesis 4a.
Experienced advisor x CAR	The *Experienced advisors* variable multiplied with *CAR*.	Variable of interest for hypothesis 4b.
Pre-announcement return	Cumulative abnormal return on the bidder's stock between day -50 and -10 before the deal announcement.	