Success Determinants of Nordic Tender Offers

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Abstract:

The study of 180 tender offers occurred between 2009 and 2023 tests how a set of specific factors affects the probability of the successful completion of the tender offer and compares the results with the industry views on the topic. The study shows that the probability of success of the tender offer is increased with bid premium size and irrevocable commitments, while factors like due diligence condition and entering the process as an interloper negatively affect the probability of success of the bid. Conflicting evidence was found in support of toehold, sponsor involvement, block shareholders, financing condition, cash offer, and raised offer, while insider ownership is found to be unimportant. The implications of the results are discussed, with the main differences from the academic consensus outlined.

Keywords:

Tender Offer, Takeover, M&A, Bid, Premium, Nordic

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1. Introduction

Public takeovers are a common type of Merger and Acquisitions (M&A) activity, both among the corporates and financial sponsors. Takeovers of publicly held companies are often executed via a tender offer. In a tender offer, the acquirer proposes a share price, expressed in cash, securities, or a mix of both, to the shareholders of the target, who then vote on whether to approve the proposal (Mayston, Copeland and Weston, 1982). This M&A mechanic is different from a merger, where the consideration is agreed between the acquirer and the target's board of directors. The offer price typically includes a premium over the prevailing stock price to persuade shareholders to sell. Tender offers tend to have significantly higher execution speed than mergers due to fewer regulatory and administrative obstacles. Tender offers also tend to require higher premia than mergers. Deals in more competitive environments are more likely to be structured as tender offers (Offenberg and Pirinsky, 2015).

Importantly, not all tender offers succeed. One such example of a failed tender offer is the cash offer made by Lunar for Instabank in March 2022. The acquisition did not take place as the offer was withdrawn following the failure in obtaining regulatory approval. More specifically, Lunar failed to secure binding commitment on the necessary additional financing to meet the Norwegian and Danish FSA capital requirements. Tender offers generally require the bidder to spend a considerable amount of time and money on mapping out targets, planning and executing the transaction, often with the help from advisory firms. Given the costly nature of tender offers are successful while others fail. The research in the area is quite limited despite the abundance of evidence that circa 10-20% of all takeover bids end up being withdrawn (Taffler and Holl, 1991), (Flanagan, D'Mello, O'Shaughnessy, 1998).

This paper focuses on the Nordic public market environment, namely Swedish, Finnish, Norwegian and Danish transactions, and extends previously published literature on the tender offer activity. We develop a model to predict the probability of the tender offer success in order to identify and examine the factors that affect the outcome. This model is intended to help firms initiate tender offers where the likelihood of success is high.

While this paper is building on existing research, we aim to present an up-to-date view on the public tender offers in the Nordics by using a more current dataset. This paper is also distinct as the analysis intentionally treats board recommendation factor as exogenous to the model. The justification for doing so will be provided in the relevant section. We further test novel factors, such as due diligence and financing conditions embedded in the offer, and sponsor involvement on the specific side of the deal.

When designing the model for predicting tender offer success, we had a practical application perspective in mind. More specifically, when researching the factors, we paid

special attention to certain features and contractual conditions an offer may or may not have as opposed to circumstantial or so-called consequential factors. In particular, we were more interested in verifying whether the process features voluntarily chosen / pursued by the acquirer had any effect on the deal success probability rather than scrutinizing reactionary accidental characteristics of the deal. This in no way reflects our bias, but instead hints at the intention behind this thesis. Prior to running the regressions on a set of selected determinants, we hypothesised to obtain support for features that acquiring firms may and, in our opinion, should consider but do not always do so.

Importantly, when holding the steering wheel of the company, managers should make use of the combination of takeaways from academic quantitative and qualitative studies, practical tender offer execution guidelines, and detailed case studies on successful and unsuccessful deals. This paper strives to be one of such sources for acquiring companies' managers to help them maximise their probability of success. We think that having upto-date geography-specific empirical evidence is imperative especially with the rapidly changing economic environment. By referring to a study covering the latest sample of Nordic tender offers and practitioners' inputs, management may receive most applicable information for their decision-making.

We develop a model for predicting probability of tender offer success, based on selection of factors stemming from the existing literature and geography-specific legal framework. Additionally, we conduct a survey among the senior Nordic investment banking professionals. We find that factors like toehold, irrevocable commitments, due diligence conditionality, bid premium size, and entering the bidding process as an interloper have the highest explanatory value according to the model. Survey respondents perceive board recommendation and bid premium size as the most important parameters, while irrevocable commitments, solicitation, presence of block shareholders, and cash offer are also deemed significant for the tender offer success. We conclude that bid premium size and irrevocable commitments increase the probability of success of the tender offer supported by both the model and the industry questionnaire. Both the model output and the survey results point to insider ownership being unimportant. The evidence on the rest of the tested factors is mixed.

The rest of the paper is structured as follows: 1) overview of the existing literature on public tender offers is presented and discussed in the context of the paper's geographical and temporal setting; 2) data sources are listed and hypothesized factors are defined, where the reasoning behind the choice of variables is presented; 3) the selection of the regression model and survey design is explained with references to previous studies and data specifications; 4) industry survey conducted for this study is described; 5) hypotheses are tested, results are discussed and reflected upon.

2. Literature Overview

For the purposes of this paper, "success" of a tender offer is defined as an acquisition of the full control of the target if such was intended. The deal is treated as a failure if it is withdrawn or does not reach the intended full control threshold. For example, in line with Swedish takeover regulations, an acquirer succeeds if it reaches control of 90% of both shares and votes of the target. This level gives the bidder for a Swedish public company the right and obligation to initiate a squeeze-out of minority shareholders. As implied by our definition, all partial offers are excluded from the analysis.

2.1. Global Empirical Evidence on Success Determinants

There is plenty of global research coverage of M&A, where potential factors affecting the success, are discussed, together with the phenomena negatively affecting the probability of the successful outcome. The body of knowledge on this topic is, however, nothing less than controversial, even in regard to the major well-researched factors: size of bid premium, management resistance to the bid and toehold (acquirer's pre-bid ownership of the target). It is important to note that when the papers, especially written based on the US data, refer to the target management, the board of directors and management are usually treated as one party. For example, when the study states that the management expressed the opinion that the bid was insufficient, we assume the paper refers to the board's recommendation.

Ebeid (1975), using a sample of 119 tender offers for the period from 1956 through 1972, attempted to determine a set of factors, which could be combined into a model and used to predict the outcome of the bid. Surprisingly and against the conventional economic theory, his findings supported the conclusion that no variable apart from 'target management reaction to the bid' is significant in determining the outcome of the offer, implying that the magnitude of the bid premium is not a deterministic factor in the success of tender offers. This result was not sensational but largely in line with other prominent works at the time. Hayes and Taussig (1967) found that the size of the bid premium did not have any relation to the probability of success of cash tender offers, but premia were significantly higher when the management of the target company opposed the deal. The findings by Hayes and Taussig are fully supported by Pelligrino (1972) and hold for both ordinary least squares and multiple discriminant analysis methodologies.

On the other hand, the work by Quirin and Bower from 1971, looking at the period between 1958 and 1969 on factors affecting responses to cash takeover bids found that the size of the bid premium and solicitation efforts by the bidder positively affect the investor response, hence the success of the deal. The temporal characteristic of the data sets examined is important to notice as the evidence on the explanatory power of the size of bid premium as a factor was inconclusive even in overlapping time intervals.

Another academic attempt to determine the most important drivers of success of tender offers was made by Hoffmeister and Dyl (1981), who ran a discriminant model on a range of 17 independent variables, with a relatively limited sample size of 84 cash tender offers made during 1976-1977. Their model demonstrated that target management reaction to takeover attempt is decisive in determining success. Despite the use of a limited sample, the authors set a precedent for predicting tender offer outcomes by beginning with a long tail of factors and narrowing down the scope of the determinants.

Walkling (1985) developed a model to predict tender offer outcomes, based on the US data for 158 tender offers in 1972-1977. His paper showed that higher bid premia, higher bidder's pre-ownership of the target and payment of solicitation fees increase the probability of success. On the other hand, presence of competing bids and target management opposition to the deal decrease the probability. Interestingly, Walkling attributed the cardinal differences in bid premia results versus the previous findings to specification errors in earlier works. More specifically, according to him, the bid premia were calculated using inaccurate announcement dates, which did not allow the authors to capture the stock price increases between the SEC filing and the corresponding announcement. Hence, according to Walkling, the undisturbed share price preannouncement would have been lower and bid premia higher. In line with the results obtained by Walkling (1985), a recent study by Bessler and Schneck (2015) on excess premia and bidder success in Europe concludes that deal completion is more likely when offering an excess premium. When looking into the sources of takeover premia, Dimopoulos and Saccheto (2014) found that pre-emptive bidding and target resistance are the two largest ones, with target resistance explaining the whole magnitude of the premium in 74% of the single-bidder contests.

Pickering (1978, 1983) conducted a qualitative study looking for reasons for failed mergers in the UK occurring between 1965 and 1975. These papers are rather unique as they approach the subject from an unconventional perspective and aim to come up with novel factors, not previously identified. The author found four major reasons for 'abandoned mergers': 1) second thoughts; 2) successful defence; 3) regulatory block; 4) multiple bidders. Please note that the wording used for these reasons is paraphrased and subject to interpretation. Pickering's observations on abandoned mergers are helpful directionally for other researchers and the conclusions are transferable for other types of M&A.

Flanagan, D'Mello and O'Shaughnessy (1998) studied a sample of 991 tender offers that took place between 1985 and 1994 and included a US target. The data showed that the probability of tender offer success rises with acquirer's pre-bid ownership of the target stock and implemented break-up fees. Moreover, perhaps surprisingly, the cross-border transactions were more likely to be completed than within-country deals. Additionally, the authors found that two-tier transactions were less likely to be completed than one-tier, hostile bids were less likely to result in a successful transaction and deals with competing bidders were more likely to fail in line with Walkling (1985). Notably, the structure and purpose of the paper by Flanagan et al. are tailored to the acquiring side of the transaction. The work contains explicitly stated implications for the management of the acquiring firms and is presented in a practical playbook-like format.

More recently, papers such as Betton, Eckbo, and Thorburn (2009) and Aktas, de Bodt, and Roll (2009) dive into derivations of bid optimization models for specific takeover scenarios. The authors develop bidding strategies based on the game theory concepts, solving for expected profit maximization. Such research incorporates the available takeover techniques (e.g., toeholds, termination agreements) and regulatory environment to come up with a rational strategic bidding behaviour.

Safieddine and Titman (1999) examined a sample of 573 unsuccessful takeover attempts in the US during the 1982-1991 period and found that for 47/573 cases the reason was explicitly stated as "the price is too low or inadequate". This paper emphasises the importance of the board recommendation but also hints at the direction of the shareholder value maximizing theories around the bid premium and its relation to the success probability. The work by Levit (2017) is worth mentioning as a recent piece dedicated to studying the advisory role of the board of directors in takeovers. His research shows that the target shareholder value is maximised only when the board is biased against the takeover and target shareholder value generally decreases with the expertise of the board – the conclusions which may seem surprising or even counterintuitive and undermining the essential nature of 'board recommendation' as one of the main factors.

When it comes to the consideration method, both Hansen (1985) and DeMarzo, Kremer and Skrzypacz (2005) predicted that acquirers using stock are more aggressive than those using cash. However, such predictions are robustly disputed by Betton, Eckbo, and Thorburn (2009), who find empirical evidence that premia are higher when the method of payment is cash rather than equity. Vladimirov (2015) finds that stock bids tend to have lower premia than cash bids, backed by competitive financing. Interestingly, Vladimirov (2015) finds that buyers that have access to competitive financing use debt and eventually overbid, while the buyers who do not have access to competitive financing finance their cash bids with equity, which subsequently leads to underbidding and lower premia.

Bargeron (2005) investigates Shareholder Tender Agreements (STAs) in tender offers. Based on the US sample, STAs occur in 60% of the tender offers between 1995 and 2001. The relevance of this paper lies in the similarities between STAs in the US and irrevocable commitments (ICs) in Europe. While STAs are legally binding commitment letters that upon signing forsake shareholder's right to any subsequent competing bids, irrevocables are more contractually customary and usually allow for some optionality: soft, semi-soft and hard. Fyrqvist, Rantapuska and Torstila (2020) wrote an academic article on irrevocable commitments and related tender offer outcomes. Taking a long-reaching time period from 1985 to 2016 to analyse the UK tender offers, they found that 24% of all shares were irrevocably committed. The value of irrevocably committed shares exceeds 250 billion US dollars (total market value of targets analysed was above 1.1 trillion US dollars). Moreover, the % of tender offers having at least some shares tendered under irrevocable commitment agreements increased from 15% in 1986 to 94% in 2016. The authors found that transactions with >20% of irrevocably committed shares have a 7-16% higher probability of tender offer completion and a lower bid duration.

A fundamental work by Betton, Eckbo and Thorburn, published in 2009, studied a sample of 13,896 control bids for the U.S. publicly traded firms from 1980 through 2002. The authors defined a control bid as a bid made by the bidder ex-ante owning <50% of the target shares seeking to own at least 50% of the target shares upon the completion of the transaction. The paper hypothesised that the substantial control premium observed in takeovers would incentivise the bidder to acquire target shares (a toehold) in the market prior to launching a bid. The authors also linked the hypothesis to the theoretical foundations on auction theory. Surprisingly, the research has shown that the toehold bidding is extremely rare and has declined steadily since 1980s. The results show that when the toehold is present, it is rather substantial (circa 20%), and the toeholds are more common in hostile takeovers. To explain the so-called 'toehold puzzle', Betton et al. ran takeover models, assuming optimal bidding, and found out that optimal toeholds are either zero or above a certain threshold (circa 9%) given the associated rejection costs and market liquidity costs.

Touching upon the impact of institutional shareholder base on M&A, it is worth mentioning that most of the research covers the UK and the US – countries with, on average, lower ownership concentration, which we find less relevant for our study of the Nordic market. Bajo, Barbi, Bigelli and Hillier (2013) examined a sample of tender offers on the Italian Stock Exchange launched between 1998 and 2012. We find the Italian market a decent comparable for the Nordic environment thanks to a highly concentrated ownership structure and common presence of a majority shareholder. (Faccio and Lang, 2002). Bajo et al. (2013) finds that the presence of the institutional shareholders in the ownership structure decreases the probability of success of tender offers. The authors emphasise the ability of institutional shareholders to protect minority owners. On another note, their paper also highlighted the role of shareholder agreements (resembling irrevocable commitments) in facilitating tender offers.

Given that the focus of our thesis is on the tenders offers that took place in the Nordic market, we allocated a separate section to it that follows.

2.2. Success determinants in the Nordic markets

It is worth noting that the quantity of academic papers that examine the characteristics of tender offers in the Nordics is considerably lower than in the markets like the US or the

UK. Part of this phenomenon might be attributed to data availability and ease of access. For example, the authors of Fyrqvist et al. (2020), based in Finland, explicitly state that their choice of data can be explained by the obtained access to original offer documents.

When interpreting results, it is also worth keeping in mind the idiosyncrasy of the Nordic market, in particular, Swedish. For example, Franks and Mayer (2001) highlighted that hostile takeovers occur much less frequently in the Swedish market compared to the U.S. This can be partly explained by the feature of the concentrated ownership, common in civil law countries as opposed to common law countries such as the U.S. and the UK (Högfeldt and Högholm, 2000). Such ownership market characteristic is coupled with the above-average control of the voting rights. Bergström and Carlson (1995) found that top 5 shareholders of the public companies on the Stockholm Stock Exchange on average exercise control over 56% of the total votes. Additionally, Sundin and Sundqvist (1990) reveals that 68% of the listed companies on Stockholm Stock Exchange have 2+ share classes. Holmen and Nivorozhkin (2007) use a data set of 200 large non-financial Swedish firms listed on the Stockholm Stock Exchange between 1985 and 2001 and find that 79% of the firms hold dual class shares. Jarrell and Poulsen (1988) provided a strong argument for the use of dual class shares as takeover defence. We hypothesise the findings on the ownership and voting structures in the Swedish setting to be applicable for the rest of the Nordic countries in the sample as presented and argued by Pajuste (2005), a paper targeting dual-share structures in various European countries.

Another notable difference in the Nordic landscape is the absence of two-tier offers, as opposed to the U.S. In a two-tier tender offer, acquirer can offer a better price to a few shareholders, from whom he / she wishes to purchase their stake and make a worse offer for the rest of the shares. Such offer structure allows the bidder to gain control of the target company by incentivising the shareholders to tender their shares early on, otherwise they are risking being forced to accept the lower offer in the future. Two-tier offers are prohibited in the Nordics. This regulatory nuance may have significant implications on the differences in the relative factor importance between the U.S. and the Nordics. Högfeldt and Högholm (2000) argues that the bid premium in Sweden is more important than in countries where two-tier offer structure is permitted.

Using the Swedish setting, Forsberg and Nilsson (2000) find support for board recommendation and payment method in being significant factors for explaining tender offer success probability. While the work by Forsberg and Nilsson does not find statistical significance for the bid premium's impact on deal success, they provide several convincing arguments as to why bid premium should be of relatively higher importance in the Nordic context compared to the U.S. and the UK environment.

Koch and Sjöström (2003) used a sample of 281 tender offers that took place between 1985 and 2002 in Sweden. The thesis develops a model for predicting the probability of tender offer success. The analysis identified board recommendation, payment method and

size of the largest shareholder in the target company as the most important factors influencing the outcome. Interestingly, the authors find that both positive and neutral board reactions to the tender offer announcement have a positive effect on the likelihood of success.

Grinups and Normunds (2002) developed a model to identify the factors that affect the board recommendation. The study is different from the previous literature as board's decision is treated as a dependent variable, a decision we largely concur with, given how the tender offer process is structured. The sample consisted of 271 Swedish M&A deals that took place between 1985 and 2002 and had official board recommendation issued. The paper found that the probability of the board accepting a tender offer rises with the size of the bid premium, higher insider ownership, higher number of blockholders and larger toehold accompanied by the higher premium, while the probability decreases with cash offer as opposed to stock offer and higher size of the target.

Nyren and Skoglund (2012) studied the bidding process in the buyout of Munters in 2010. The authors concluded that the behaviour of the strategic buyer (Alfa Laval) and the financial buyer (Nordic Capital) differed significantly as did their target valuation approaches. This work prompted us to test the significance of financial sponsor participation in the tender offer processes on the either side of the table.

More recently, Eriksson and Skålberg (2017) examined a sample of 534 M&A deals from Sweden, Denmark, Norway, Finland, and Iceland for the period between 2000 and 2016. The authors found that time to completion, target size, percentage sought, deal attitude, sponsor role and competing bids have a significant impact on the probability of a takeover. Despite the initially perceived similarities in the sample geography and several of the factors examined, we have stumbled upon several fundamental differences in our assumptions and interpretations of past findings. Therefore, while acknowledging the existence of the study by Eriksson and Skålberg, our paper does not treat our expected findings as comparable or complementary.

Having acknowledged the previous literature and gained a deeper understanding of the key success factors, we would like to describe the data and methodology to be used in our study. We will then define each variable and hypothesise the directional effect on the tender offer success probability.

3. Data and Methodology

3.1. Selection of Transaction Sample and Sources

The tender offer data being examined were taken from the Eikon database provided by Refinitiv. The data were subsequently cross-checked with Capital IQ and individual press releases (PRs) to ensure the accuracy.

The basis for selection of transactions are the data availability, reliability, and comparability. The sample includes tender offers that took place in Sweden, Finland, Norway, and Denmark. A few datapoints were aligned and classified uniformly by us across the selected countries despite the differences in regulatory and market landscapes.

When filtering the dataset, the following criteria were applied:

- Target enterprise value of more than €100 million at the final offer consideration due to data availability and reliability as for smaller transactions the data were partially unavailable on the aforementioned platforms
- The time horizon was chosen to be 2009 through March 2023 and is restricted at the commencement in 2009 as the pre-GFC tender offers were affected by a different set of regulations and market drivers, hence are not seen as relevant in the context of the current market environment. Moreover, some previous studies have been covering the time periods pre-GFC
- The bidder's stated intention to acquire full control of the target as defined by the tender offer document. Hence, the acquisitions of partial interest when the full control was not sought by the bidder were excluded on purpose as these transactions would not require control premium and are simpler to execute given the wider possible set of parties to deal with
- Transactions, where creditors or a third party gained control over the company as part of the financial restructuring process were excluded, as in these cases it is not the shareholders of the target, who are the main party deciding the outcome, but rather the creditors, resulting in a different set of factors determining the success of the transaction, with the recovery rate possibly being the main driver
- Merger of equal transactions, defined as the transactions with the stock consideration, in which the target shareholders gain more than 30% of the combined entity, were excluded, as the dynamics are further complicated by, among others, the following nuances: bidder shareholder voting process, presence of a merger plan and likely longer deal completion due to a typically more extensive regulatory approval process (Offenberg and Pirinsky, 2015)

• Reverse mergers were also excluded as the purpose of those transactions differs from the traditional M&A and they are typically used as a cheaper alternative to IPOs, hence the drivers of reverse mergers are deemed to be different (Sjöström, 2007).

Given all of the above, we arrived at a dataset of 204 transactions. The crucial data used for some of the factors were unavailable for 24 transactions out of 204, hence the final dataset for the regressions comprised 180 transactions.

3.2. Defining Deal Success and Its Potential Determinants

In this section, we will describe the factors used in the regression as dependent variables. We will also discuss the hypothesis behind each of these based on the theoretical foundations and previous empirical findings. Furthermore, we will justify the de-selection criteria for certain factors to highlight the emphasis of this paper.

3.2.1. Deal Success (Dependent Variable)

The deal completion is defined as the bidder acquiring enough shares to fulfil full control criterion given the previously mentioned transaction selection criterion. There have been instances where the bidder intentionally stated the minimum tender requirement condition on a lower level due to the risk of deal not going through due to the block shareholders being resistant or when the bidder lowered the threshold during the course of the deal, but we strictly kept the success as full control given the intention. Even though Walkling (1985) points out that sensitivity tests on the research do not find the choice of the success definition to materially affect the results, we would like to stress the fact that the choice of a strict line between success and failure applied in this study fits the purpose of the collected sample and our assumptions.

3.2.2. Bid Premium Size

Theoretical foundations suggest that the size of the bid premium should have a direct effect on the probability of tender offer success. Paying a premium is imperative for the board to consider the offer and fulfil their fiduciary duty by acting in the interests of the shareholders. Shareholders, assuming rational value-maximization goals, would be willing to tender more shares for higher bid premia, therefore, increasing the probability of the success of the deal. This result, however, does not always hold in literature. Hayes and Taussig (1967), Pelligrino (1972) and Ebeid (1975) found no relationship between the size of the bid premium and the probability of success of a tender offer, whereas Quirin (1971) and Walkling (1985) found a positive correlation between the two variables.

We define the bid premium as the premium of the offered price over the 1-week pre-offer share price to exclude the effects of potential information leakage and achieve an undisturbed share price metric. In the cases of the competing bids, all competing offers are compared to the share price 1 week before the announcement of the first offer. When arriving at the premium size metric, we consulted previous research and industry practices. It is necessary to acknowledge that deriving a coherent framework for explaining premium size differences is challenging as there are substantial differences between industries and over time (Bessler and Schneck, 2015). Further in the thesis, the factor is referred to as: '*1 Week Premium*'. We hypothesise the bid premium to have a positive statistically significant effect on the tender offer success probability. We further include this factor in the survey.

3.2.3. Board Recommendation

Board of Directors has a fiduciary responsibility to act in the interests of shareholders. Upon receiving a bid from the acquiring company, the target shareholders are advised by the board on whether the offer is deemed adequate. In line with that, the board issues a recommendation on whether to endorse a particular tender offer. Both empirically and theoretically, the board's decision is a significant factor in success of the tender offer. As discussed in Section 2.1, the BoD and the management of the target are often treated as one stakeholder, given the alignment of the interests and the common dual CEO-Chairman role in the U.S. Hence, the empirical evidence unanimously highlights the negative impact of lack of board recommendation, equivalently to management resistance, on the success of a tender offer. See Pellegrino (1972), Ebeid (1975), Hoffmeister and Dyl (1981) and more recent Safieddine and Titman (1999).

While board recommendation carries a lot of weight, it is highly correlated with the other variables in the proposed model. We see board recommendation more as an independent variable on its own as the recommendation is a response to a certain bid level, with such items as irrevocable undertakings already in place prior to the bid is being considered by the board. For instance, board of directors often partly consists of executive management representatives, hence the bid recommendation correlates with management's attitude towards the bid. Similar logic applies to solicitation. To sum up our argument for deselecting the 'board recommendation' variable, it is perceived as either a group of already included dependent variables or an independent variable, closely resembling our proxy for success. Upon assessment, we have excluded the factor from the model but included it in the survey to grasp practitioners' view on its relative importance.

3.2.4. Managerial Resistance

Management teams are able to express their dissatisfaction with the offer through a variety of ways. They may or may not have insider ownership, which directly reduces the available pool of shares for the bidder in case the management disagrees with the

takeover. Alternatively, management may have a strong influence on shareholders, pursuing those to make use of takeover defence tactics. While existing academic papers, such as Pellegrino (1972), Ebeid (1975), Hoffmeister and Dyl (1981) and North (2001) robustly point out the importance of target management's opposition to the deal as a factor, our model does not take it into account. This is done for two reasons. Firstly, the data being analysed focus on the Nordics, where hostile deals are rare, and the successful hostile deals are rather unique, which makes our sample insufficiently large to make reasonable conclusions. Secondly, the data quality limits the usefulness of such a factor. The databases used contain so-called 'false positives', where a hostile bid is marked as 'friendly' with a high likelihood, partly since the initially hostile bids tend to be reclassified as friendly over time as the management change their attitude towards a takeover. This recognition issue is further complicated by the fact that, for example, the Norwegian law does not distinguish between friendly and hostile takeovers, which implies that deal-specific insider insights are required to make the right classification judgement. Upon assessment, we have excluded the factor from the model but included it in the survey to grasp practitioners' view on its relative importance.

3.2.5. Irrevocable Commitments

Irrevocable commitments are undertakings by the block shareholders of the target company to accept an upcoming bid prior to its announcement. Irrevocables have been gaining in popularity. Such undertakings solidify the acquirer's position and can ensure that the desired control level is achieved. Irrevocable commitments limit the probability of a single blockholder exercising significant bargaining power to block the deal. Technically, irrevocables are often signed simultaneously with the announcement to avoid triggering stake disclosure requirements. Theoretically, the presence of such written agreements is supposed to positively affect the probability of success of the deal as fewer shares remain to be tendered while the bidder's potential stake increases. The caveat is that irrevocable arrangements can be soft, semi-soft and hard, with the distinction coming into play if there emerges a competing bid. For the purposes of this analysis, we treated all irrevocables as a homogenous group. We have included the factor in both the survey and the model.

The '*Irrevocable Commitments*' variable is defined as a % of the total share capital being committed by the existing shareholders. It includes both soft and hard irrevocable undertakings. We hypothesise the irrevocable commitments to have a positive statistically significant effect on the tender offer success probability.

3.2.6. Toehold

Toehold is defined as a bidder having ownership interest in the target prior to initiating a tender offer. Hypothetically, we expect the toehold to be a logical mechanism for acquiring target shares to strengthen one's position as a bidder. As the eventual goal of

the bidder is to reach 90% of the share capital, purchasing toehold may be viewed as a helpful first step. The recent study by Betton, Eckbo and Thorburn (2009), however, does not find the backing for such expectation. The 'toehold puzzle' states the toehold's reduction in popularity despite the anticipated success probability increase likely due to the costly nature of such open market purchases and perhaps stake disclosure requirements being triggered. The decreasing popularity may seem even more unexpected when we find that Flanagan et al. (1998), Bessler et al. (2015) and Betton et al. (2009) provide robust evidence for toeholds to increase the deal success probability. Nordic advisers cited in 4.2. concur with the recent academic evidence on decreasing popularity of toeholds and highlight the rising popularity of irrevocable commitments. Nevertheless, we have included the factor in the final version of the model and the survey.

The *'Toehold'* variable is examined as a % share ownership before the bid announcement. It is worth noting that we did not include the purchases in the open market during the tender offer as a part of the toehold or any other offer as such are rare and rely on other deal-specific factors, such as prior access to material non-public information, and stock performance post-bid, although we acknowledge that such may potentially have effect on the tender offer success probability.

We hypothesise toehold to have a positive statistically significant effect on the tender offer success probability.

3.2.7. Block Shareholders

The factor is introduced to test the effect of the presence and number of block shareholders (with >10% stake) on the probability of success. On a theoretical level, it is difficult to make compelling generalizations about the effect of the number of block shareholders on the deal success. While it may be easier to negotiate with a small number of large shareholders, it may be more difficult to convince them to tender their shares if they oppose the deal, especially given the amount of 'skin in the game' they have. Bagnoli and Lipman (1988) indeed found that the presence of block shareholders may make the decision of a few shareholders instrumental to the outcome of the deal. This observation on its own, however, does not give a sense of the hypothesised direction of the effect of the variable, hence we see this factor as a purely empirical phenomenon. Mikkelson and Partch (1990) finds that a higher number of block shareholders on the board increases the probability of the change of control. Bajo et al. (2013) finds that tender offers that have institutional investors in their ownership structure are less likely to succeed. Van der Goes (2018) concludes that a less concentrated shareholder base positively affects the deal success rate, while the number of block shareholders itself does not significantly affect the outcome of a tender offer.

The variable is designed in two ways: as the number of block shareholders excluding the bidder – '*Block Shareholders*', hence as a numerical value, and as binary, '*Presence of*

Block Shareholders' to reflect the presence of at least one block shareholder excluding the bidder.

We included the variable in our model to see if the block shareholders are easier for the bidder to deal with during the tender offer given the concentrated nature of the ownership and their ability to influence the decision of smaller holders or the opposite, if they are an obstacle for the bidder. We have also included the factor in the survey to grasp general practitioners' view on its relative importance. Given that there are arguments for it to both have a positive and a negative beta, we do not state expectation on the possible effect of the variable on the tender offer success probability.

3.2.8. Due Diligence Condition

Inclusion of such a condition in the voluntary tender offer documentation is an exception rather than a rule as targets tend to be reluctant to accept conditionality based on the satisfactory due diligence review. Furthermore, in mandatory offers such conditions are not permitted. Nevertheless, we have included this factor in both the model and the survey as we suspect that it may carry a strong weight if such condition is included.

The '*Due Diligence Condition*' variable is defined as binary with '1' representing the presence of such, and '0' representing the absence. We hypothesise due diligence condition to have a negative statistically significant effect on the tender offer success probability. We have further included the factor in the survey to see the industry professionals' view of it.

3.2.9. Financing Condition

While in Sweden, Denmark, and Finland, not having committed financing in place prior to announcing a tender offer is not permitted, there are exceptions. For instance, there are no legal requirements to have committed funding before announcing a voluntary offer in Norway. However, the board tends to expect some form of confirmation of funding before recommending the offer to the shareholders. Moreover, in a mandatory offer, the bidder is required to provide a bank guarantee covering settlement of the offered consideration. Furthermore, we classified the offer being conditional upon the successful equity issuance to fund the transaction and creditor / lender approval as being conditional upon financing. We have included a factor related to such conditionality as theoretically having funding in place can serve as evidence of the bidder's intentions. We have included this factor in both the model and the survey as we suspect that if such condition is included, it may carry a strong message to the market.

The *'Financing Condition'* variable is defined as binary with '1' representing the presence of such, and '0' representing the absence. We hypothesise financing condition to have a negative statistically significant effect on the tender offer success probability.

3.2.10. Target Insider Ownership

As previously mentioned in 3.2.5., target management and board may have an equity stake in the company. Logically, if they oppose the deal and are not willing to tender own shares, this reduces the available share pool and is supposed to decrease the probability of success. Such expectation is, however, conditional on the insiders' opposition to the deal. Otherwise, in case of the target's friendly predisposition to be taken over, larger insider ownership should facilitate the transaction. Jensen and Meckling (1976) found that with the increase in the management's stake, the alignment of interests between the management and the shareholders improves. Walkling and Long (1984) found that management with higher ownership stake is less likely to oppose the tender offer. In line with the value-creating M&A theories, Mikkelson and Partch (1990) found the positive correlation between the level of management's holdings and the probability of takeover success. We have included this factor in both the model and the survey.

The '*Insider Ownership*' variable is expressed as a % of the total target's shares. We hypothesise the target insider ownership factor in our sample to have a positive effect on the tender offer success probability, partly due to the prevailing nature of the friendly deals in the Nordic markets.

3.2.11. Buy-side or Sell-side Sponsor Involvement

By isolating and measuring 'sponsor involvement' we aim to investigate the effect of presence of financial firms on the either side of the tender offer process. The academic literature on this factor is not far-reaching for obvious reasons that the phenomenon of leveraged buyouts a.k.a. leveraged 'bootstrap acquisitions' is fairly recent and emerged in 1980s (Müller and Panunzi, 2004).

Theoretically, we expect the presence of private equity and investment companies to affect the deal process for three reasons. First, given the sole goal of the PE firm to take the public company private (so-called P2P), no other outcome than reaching the 90% ownership is deemed satisfactory. Second, the volumes of P2P transactions being executed in recent years allow private equity firms to develop superior transaction expertise, which we hypothesise could enable them to run the process more smoothly and efficiently. Third, an argument can be made that the strategic bidder valuation models are different from those of financial bidders, as showcased by Nyren and Skoglund (2012), a detailed case study on the approach differences between Nordic Capital and Alfa Laval in the tender offer process for Munters. We have included two distinct factors to both the model and the survey.

We have two separate binary variables, '*Buy-side Sponsor*' and '*Sell-side Sponsor*' and a combined factor of the sponsor involvement on either side, called '*Sponsor*', and expect them to have a positive statistically significant effect on the tender offer success probability.

3.2.12. Consideration Form

Theoretically, there are trade-offs faced by the buyer when deciding whether to pay in equity or cash for the acquisition. Paying in cash on the balance sheet, assuming it is not tied up, seems like the most attractive option. However, companies rarely purposelessly hoard cash, hence when considering an M&A transaction, the buyer is considering whether to use equity or debt financing. On the one hand, debt financing is attractive as it is typically cheaper than equity and offers tax advantages due to tax deductibility. Furthermore, by issuing debt the bidder avoids issuing extra shares and subsequent ownership dilution. On the other hand, too much debt can hurt the company's credit rating, increase its cost of debt, or can even be limited by the company's existing covenants. Equity financing in that case may be more appropriate, which despite a higher cost provides more flexibility to the issuer. While the choice of the consideration form for the acquirer is an academic subject on its own, we have focused on the target shareholders' attitude towards the payment method. Theoretical foundations do not give us an unambiguous response. Some local practitioners are still convinced that "cash is king" (see Section 4.2), implying an expectation that targets would see the cash payment more favourably. However, Klitzka, He and Schiereck (2021) highlight that both acquirers and targets are being rational when choosing M&A methods. This conclusion would argue against the relevance of behavioural theories, such as those on the role of asymmetric information in stock-financed M&A at targets' disadvantage. Furthermore, such pro-rationality results support theories on informational efficiency, according to which payment methods should be seen as irrelevant as stock market supposedly correctly reflects companies' intrinsic value, assuming efficient market hypothesis holds. From the empirical standpoint, recent findings by Vladimirov (2015), Betton, Eckbo, and Thorburn (2009) highlight the positive effect of the cash payment on the size of the bid premium. However, this does not necessarily transmit the effect to success of the deal as mentioned in Section 3.2.2. Huang et al. (2016) explicitly finds that cash deals are more likely to be successful. Officer (2003) and Kale et al. (2003) find no effect of the method of payment on the deal completion, while Bates and Lemmon (2003) found that stock offers increase the deal completion probability.

The '*Cash Offer*' variable is structured as binary. If the transaction was paid for fully in cash, the transaction is marked with "1". If the consideration consisted of a combination of cash and equity, the transaction is marked with "0". Therefore, the factor is included to verify whether pure cash payment has a significant positive effect on the probability of success of the tender offer. We have also included the factor in the survey to grasp the practitioners' view on its relative importance.

We hypothesise consideration form to have a positive statistically significant effect on the tender offer success probability.

3.2.13. Solicitation

As the term suggests, solicited offers are those explicitly sought by or invited via an adviser or similarly. Theoretically, if the target is actively looking for ways to be taken over, e.g., mandating a bank on the buyer search, the probability of the success of the bid should be higher as certain acceptances are obtained a priori. Empirically, Quirin (1971) finds that solicitation efforts increase the probability of success of a tender offer, while Walkling (1985) finds evidence for the payment of solicitation fees to have a positive effect on the success factor.

We designed *'Solicitation'* variable as binary, with solicited offers having "1" and unsolicited "0". However, our dataset included only 8 solicited offers with a few to our knowledge marked as 'false negative'. Given the common confidentiality surrounding offer solicitation and public sale processes and unavailability of data, we have excluded the variable from the model but added it to the survey to grasp the practitioners' view on its relative importance.

3.2.14. Raised Offer – With the Respect to the Bidder

While the circumstances of the bid increase by the initial bidder and the logic behind such are largely deal-specific, we have included this variable in both the model and the survey, deliberately defining it separately from the bid increase occurring in a contested offer with an interloper. The raised offer is often a product of the negotiations between the parties involved in the offer, and, hence, the second improved offer can potentially signal that a 'fair' price for the target agreed by the counterparties, contributing to the deal success.

The '*Raised Offer*' variable is binary and indicates that the bidder placed a higher bid over its own previous bid in a contest. We hypothesise the raised offer to have a positive but possibly statistically insignificant effect on the tender offer success probability due to the possible correlation with premium. We have further included the variable in the survey.

3.2.15. Contested Offer - Interloper

As by initiating a tender offer, the bidder makes an offer to the shareholders to purchase their shares, the mechanism itself creates an opportunity for potential auction-like nature of the process. As noted by Eckbo (2009), a takeover is much like an auction since the target's board of directors has a fiduciary duty to accept the highest offer. Consequently, a competitive bidding process may arise. A bidding war may push the price up to a level, where a winner will be forced to pay too high of a premium. The so-called "winner's curse" theory points to managers' reluctance to engage in competitive bidding processes. Moreover, economic theory suggests that in a situation with multiple offers, the probability of any one bidder winning the auction decreases. The evidence from the literature on tender offers, Walkling (1985), Flanagan et. al. (1998) and Officer (2003), is pointing towards the same result, showing that the presence of an interloper potentially decreases the probability of the deal success. We have included the factor in both the model and the survey.

The '*Contested Offer - Interloper*' variable is binary and indicates that the bid was made by an interloper. We hypothesise this variable to have a negative statistically significant effect on the tender offer success probability.

3.2.16. Other Factors Found in the Literature or Initially Hypothesised, but Excluded

Over the course of the literature review and hypothesizing about potential factors, data on other factors were gathered, which later were not included in the model for various reasons. A few factors, such as the offer being conditional on antitrust or regulatory approval and on board or shareholder approvals were excluded as these conditions are highly customary. Further, the minimum tender condition was excluded due to our definition of the success of the tender offer and because this condition is also highly customary. Factors such as the offer being conditional upon divestments, company charter changes, or being unconditional were excluded as well because those are rare and very specific instances of the offers. We further excluded the factor of offer being mandatory as those, in all but one instance, are being treated in our dataset as voluntary given the simultaneous launch of the tender offer and the purchase of stake triggering a mandatory offer requirement (e.g., >30% for Sweden), making an offer technically mandatory, while being voluntary by intention.

Furthermore, the 'fairness opinion' was first considered by us but later excluded for three reasons. First, existing literature did not find this factor to be significant, e.g., Bajo et al. (2013). Second, as the external validation of the offer price is provided to the board, who then takes it into account, there are very few instances when the board's decision goes against the advice by the fairness opinion provider. Finally, the fairness opinion is also a consequential factor, which usually cannot be determined at the date of the offer launch. Following the same logic as applied by us to the board recommendation, we decided to exclude it.

While industrial relatedness of the acquirer and the target had some empirical support by, for instance, Flanagan et al. (1998), we decided to leave the factor as exogenous to the model as the industrial classification of our data set heavily relies on the judgement exercised by the data providers, which at times can be overly generalising and vague.

Break-up fees are explored extensively in the previous literature. In particular, Flanagan et al. (1998) finds the positive correlation between the existence of termination fees and the probability of tender offer success. Bates and Lemmon (2013) demonstrated that deals with termination fees had higher bid premia and completion rates. The authors also showed that termination fees are more common in deals with high expected costs of bid failure. However, this factor was excluded by us due to the limited data availability.

When introducing a factor to account for block shareholders, we used the number of block shareholders, excluding the bidder. Other research works also made use of the % of total shares attributed to the block shareholders, e.g., van der Goes (2018). We, however, are of the opinion that the number gives a better picture as it represents the number of parties to negotiate with given their blocking potential or full control potential. The number of the block shareholders can be used as a proxy for the % of shares. Moreover, Burkart and Panunzi (2006) finds that the significance of block shareholders in affecting the takeover outcome depends on their voting rights in relation to the rest of the shareholders, hence the % of shareholdings is not the major determinant.

Reputation of advisers empirically plays a statistically significant role in the transaction success, which is perhaps not surprising. Rau (2000), Kale et al. (2003) and Bessler et al. (2015) report that presence of reputable investment banks advising the bidder positively impacts the deal completion probability. We, however, ignored this factor as the underlying data can be perceived as subjective and not tangible.

Duration of the deal process was hypothesised by several researchers to be a reliable predictor of the tender offer success. The duration is defined as the number of days between the announcement and its completion / withdrawal. The empirical data showed ambiguous results, with Branch and Yang (2003) finding that shorter processes are likely to be more successful, while Jetley and Ji (2010) concluded that longer duration is associated with successful tender offer completion. We have preferred to ignore the length factor as it seems rather random and non-theoretical, highly correlates with deal complexity, and is largely affected by the regulatory environment.

3.3. Research Design

3.3.1. Overview of the Sample

Our sample includes 180 transactions in total, filtered by the criteria mentioned in section 3.1. Table 1 shows the split of the deals on a country basis. It is worth noting that the dataset is tilted towards Sweden and against Denmark simply because of the underlying deal activity in the respective countries.

Table 1: Public Tender Dataset Offer Statistics by Country

This table presents a summary of deal count and equity value of all 180 transactions between 2009 and 2023 in the data sample split by country and outcome of the offer. The source is Refinitiv, edited as per the methodology given in Sections 3.1 and 3.2.1.

		Deal Count	Equity Value at Announcement, €m			
Country	Successful	Unsuccessful	Total	Successful	Unsuccessful	Total
Sweden	55	19	74	79 887	19 332	99 219
Norway	35	18	53	22 190	11 597	33 787
Finland	29	5	34	30 526	4 528	35 054
Denmark	15	4	19	19 411	912	20 323
Total	134	46	180	152 014	36 368	188 382

The public tender offer distributions over time are shown in Figure 1. The 2022 and 2023 numbers are still preliminary as 11 deals are still pending various approvals and/or are currently in the market with no defined outcome. Even though the tender offer has been completed for some of them, the takeover itself is still dependent on the various approvals post-offer.

Figure 1: Public Tender Dataset Offer Statistics by Year

This figure presents a summary of deal count of all 180 transactions between 2009 and 2023 in the data sample split by year of the announcement and outcome of the offer. The source is Refinitiv, edited as per the methodology described in Sections 3.1 and 3.2.1.



The binary sample factors distributions are shown in Figure 2. As already mentioned in section 3.2.13, the Solicitation factor was not used in further research due to the lack of datapoints and low data reliability.

Figure 2: Binary Factors Distribution

This figure presents a summary of deal count of all 180 transactions between 2009 and 2023 in the data sample split by the value of the binary variable, with the green marking "Yes" and red marking "No". The source is Refinitiv and S&P Capital IQ, edited as per the methodology described in Sections 3.1 and 3.2.2 - 3.2.16.



Table 2 below shows the descriptive statistics of the non-binary variables.

Table 2: Non-binary Factors Statistics

This table presents a summary of non-binary factors statistics of all 180 transactions between 2009 and 2023. For all variables except 1 Week Premium, only the values above 0 were included in the descriptive statistics calculation. The source is Refinitiv and S&P Capital IQ, edited as per the methodology described in Sections 3.1 and 3.2.2 - 3.2.16.

Variable	Ν	Mean	Median	Std. Dev	Min	Max
1 Week Premium	180	40.8%	33.6%	37.2%	(20.7%)	226.4%
Target Insider Ownership	156	6.9%	1.4%	12.8%	0.001%	91.0%
Block Shareholders	111	1.6	1.0	0.9	1.0	4.0
Toehold	54	38.3%	32.7%	21.8%	4.7%	92.6%
Irrevocable Commitments	88	39.6%	35.4%	19.6%	5.4%	86.8%

The non-binary sample factors distributions are shown in Figure 3. It is worth noting that there are some instances with the negative bid premium (potential outliers). These instances account for, amongst others, stock swap transactions, majority shareholders

pursuing the full control over the target, or events strongly affecting price happening shortly before the announcement date.

Figure 3: Non-binary Factors Distribution

This figure presents a summary of value distributions of non-binary variables of all 180 transactions between 2009 and 2023. The source is Refinitiv, edited as per the methodology described in Sections 3.1 and 3.2.2 - 3.2.16.



3.3.2. Choice of the Model

Since our dependent variable is dichotomous in nature, the categorical model needs to be used. The binary categorization model was chosen as it predicts the outcome within the meaningful 0-1 range. Given that our dataset potentially has many outliers and given the binary nature of most of the independent variables, the use of linear models can cause heteroskedasticity, as the tails will not be normally distributed. The distribution of the probit and the discriminant analysis are normal, rather than logistic. Hence, the logistic regression was chosen instead.

3.3.2.1. Logit Model

The Logit model predicts the probability P of a certain outcome based on the set of independent variables. P_i is the probability of Y_i being 1 (deal successful) conditioned on X_i . The logistic regression function is defined below.

$$P_i = E(Y_i = 1|X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_i)}}$$

The probability of the offer being unsuccessful can then be defined as:

$$1 - P_i = \frac{1}{1 + e^{(\beta_0 + \beta_1 x_i)}}$$

The odds of the offer being successful can further be defined as:

$$\frac{P_i}{1-P_i} = \frac{1+e^{-(\beta_0+\beta_1x_i)}}{1+e^{(\beta_0+\beta_1x_i)}} = e^{(\beta_0+\beta_1x_i)}$$

The natural logarithm of the odds of the offer being successful is then:

$$L_i = \log\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 x_i$$

where L_i is called the Logit.

3.3.2.2. Interaction Effects

Interaction effects arise when the combination of 2 variables increases their effect on the outcome of the offer. We test for the interaction effects adding the combinations of any two variables into the model, as in the following example for logit with 2 variables:

$$L_{i} = \log\left(\frac{P_{i}}{1 - P_{i}}\right) = \beta_{0} + \beta_{1}x_{1i} + \beta_{2}x_{2i} + \beta_{3}x_{1i}x_{2i}$$

3.3.2.3. Interpreting Results

The results of the model should be interpreted based on the factor significance and signs but not on the coefficient size, as the binary independent variables together with the continuous ones were used in the model. Hence, the coefficient is illustrative rather than actually meaningful. The magnitude of the intercept also has little material significance.

The predicted results of the model will be presented using a classification plot and a confusion matrix, as those are customary methods of presenting logistic regression results. The classification plot depicts the probabilities of the predicted outcomes, while the matrix highlights the true and false classifications at a given cut-off point of P_i . Customary, the cut-off point is set at 0.5, but it is possible to set it differently depending on the regression results.

There is no consensus on how to measure the quality of the logistic model according to Menard (1995). We would be referring to the accuracy based on the classification tables and confusion matrix. The accuracy is defined as per below:

$$Accuracy = \frac{TP + TN}{TP + TN + FP + FN}$$

where TP stands for true positives, TN for true negatives, FP for false positives, and FN for false negatives.

3.3.3. Industry Survey

As part of the analysis, we have conducted a short survey among senior Nordic M&A bankers to get practitioners' perspective and compare their views to empirical results. The questionnaire form can be found in the Appendix I. When designing the survey, the universe was limited to investment banking professionals of certain seniority, VP (Vice President) level and above. The banks were selected based on their past participation in the Nordic public tender offers. More specifically, we picked the banks that have participated in at least 3 public tender offers as a financial advisor from the dataset that was used for this thesis. We left an option to provide the name of the firm, but also to keep it undisclosed. To obtain informed opinions only, we filtered participants based on their response to the question: "Have you ever acted as an adviser for a public tender offer process?". While the main body of the questionnaire focuses on the evaluation of the already known and well-researched factors described in section 3.2, the participants were provided with an opportunity to add any other potentially useful factors. The respondents were asked to assess the importance of each factor in the range from 1 to 5, where 1 was "the factor does not affect" and 5 was "affects strongly" the probability of the success (completion) of the public tender offer. It is worth noting that some of the respondents left 0 in some of the fields – we treated such answers as equal to 1. The reference to the definition of success was made as "90%+ post-offer ownership" (corresponding to full control and squeeze-out requirements).

We reached out to 107 people in 30 firms in total and received 22 responses from 13 different identified banks. Among the respondents, there were current executives from the Nordic teams of, amongst others, Morgan Stanley, Bank of America, JP Morgan,

Rothschild & Co., Evli, Access Partners, Swedbank, PJT Partners, Danske Bank, Advium, Carnegie, Arctic Securities, and DNB Markets. A few of the bankers were kind to suggest providing additional insights and explain their reasoning when assessing the significance of each factor. The follow-up interviews were conducted which will be cited alongside the results in Section 4.2.2.

4. Results

4.1. Results of the Logistic Regression Analysis

4.1.1. Identifying Meaningful Factors

The starting variables for the model as identified in section 3.2 were: Toehold, Irrevocable Commitments, Due Diligence Condition, Financing Condition, Insider Ownership, 1 Week Premium, Buy-side and Sell-side Sponsor Involvement, Cash Offer, Raised Offer, Block Shareholders, and Contested Offer – Interloper. Given the 2 possible sets of variables for testing the Sponsor Involvement hypothesis (either 2 variables: Sell-side and Buy-side or 1: Sponsor on either side) and the Block Shareholders (either as an integer representing the total number of such or binary), we tested for 4 models initially.

None of the variables in the models had meaningful correlation, so none were removed due to multicollinearity. After developing the initial models with all variables being endogenous, the backward sequential feature selection algorithm aimed at maximizing the accuracy of the model (as defined in the previous section) was utilised. The variables were excluded until any possible combinations of further exclusions could not improve the accuracy of the model. We further removed the variables that were statistically insignificant although slightly affecting accuracy. Eventually, we ended up with variables that are significant and add to the explanatory power of the model.

As can be observed from the 4 sequential feature selections shown in Table 3 the models 1 and 4, and models 2 and 3 are identical. The only differences between the model 1 and 2 are the inclusion of the Sell-side Sponsor into the first one. The models with the best accuracy score are 1 and 4. All the variables in the models are significant at the conventional 5% level, except for the Sell-side Sponsor factor, which is significant at the 10% level. The models themselves are also significant as the log-likelihood ratio p-value is below the conventional 5% level at the X-1 degrees of freedom (4 and 5 respectively). Pseudo R-squared for the models is not meaningful or comparable given the nature of the model. Although the model with the 0.2 to 0.4 Pseudo R-squared is generally considered a very good fit, in our case the values are below that range. Sample size for all models is 180 observations.

Table 3: Results of the Sequential Feature Selection for Logistic Regression

This table shows the variables that were chosen as the output of the Sequential Feature Selection. The expected sign is shown in line with Section 3.2. The 'x' in the table means that the factor was not included in the initial set of factors for sequential selection. The top number shows the coefficient (beta) and the bottom number in brackets shows the p-value of the variable. If both are marked with '-', the variable was not selected into the model due to it being statistically insignificant or not improving the accuracy of the model.

Factors sign Model 1 Model 2 Model 3 Model 4 Toehold + 2.874 3.039 2.874 Toehold + 0.004 3.039 2.874 Irrevocable Commitments + 0.000 0.002 (0.004) Due Diligence Condition - -2.268 -2.143 -2.143 -2.268 Financing Condition - - - - - Insider Ownership + - - - - 1 Week Premium + 0.910 0.973 0.973 0.910 1 Week Premium + 0.910 0.973 0.910 (0.042) (0.028) (0.042) Buy-side Sponsor + - x x - - - Sell-side Sponsor + 1.849 x 1.849 - - - - Sell-side Sponsor + x - - - - - <td< th=""><th></th><th>Expected</th><th></th><th></th><th></th><th></th></td<>		Expected				
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Financing Condition -		-	(0.006)	(0.006)	(0.006)	(0.006)
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1 week Heinhah 1 (0.042) (0.028) (0.028) (0.042) Buy-side Sponsor + 1.849 x x 1.849 Sell-side Sponsor + 1.849 x x 1.849 Sell-side Sponsor + 1.849 x x 1.849 Sponsor + x - - x Cash Offer + - - - - Raised Offer + - - - - Block Shareholders +- - - - - Presence of Block Shareholders +- - - - - Contested Offer – Interloper - - - - - - Contested Offer – Interloper -	1 Week Premium	+	0.910	0.973	0.973	0.910
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Sponsor + x - - x Cash Offer + - - - - - Raised Offer + - - - - - - Block Shareholders +- - - - - - - - Block Shareholders +- -	Sell-side Sponsor		(0.090)	~	~	(0.090)
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Raised Offer + - <t< td=""><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td></t<>			-	-	-	-
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Presence of Block Shareholders +- x x x I <thi< th=""> I I <</thi<>	Block Shareholders	+-	-	-	x	x
Presence of Block Shareholders +- x x x 1 Contested Offer – Interloper - -1.514 -1.615 -1.615 -1.514 Contested Offer – Interloper - - -1.514 -1.615 -1.615 -1.514 Accuracy (at 50% cut-off) 0.82 0.81 0.81 0.82 Pseudo R-squared 0.143 0.121 0.121 0.143 Log-Likelihood (87.696) (89.927) (89.927) (87.696) LLR P-value 0.00002 0.00006 0.00006 0.00002 Sample Size 180 180 180 180		-	-	-		
Contested Offer – Interloper - -1.514 -1.615 -1.615 -1.514 Contested Offer – Interloper - - - - - - - - - - 1.615 - - 1.514 - 0.009) (0.005) (0.009) (0.009) (0.009) (0.009) (0.009) 0.009 0.009 0.009) 0.009 0.0143 0.121 0.143 0.121 0.143 0.121 0.143 0.121 0.143 0.0002 0.00006 0.00002 0.00006 0.00002 0.00006 0.00002 0.00006 0.00002 0.80 180	Presence of Block Shareholders	+-	x	x	-	-
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Accuracy (at 50% cut-off) 0.82 0.81 0.81 0.82 Pseudo R-squared 0.143 0.121 0.121 0.143 Log-Likelihood (87.696) (89.927) (89.927) (87.696) LLR P-value 0.00002 0.00006 0.00006 0.00002 Sample Size 180 180 180 180	Contested Offer – Interloper	-	-1.514	-1.615	-1.615	-1.514
Accuracy (at 50% cut-off)0.820.810.810.82Pseudo R-squared0.1430.1210.1210.143Log-Likelihood(87.696)(89.927)(89.927)(87.696)LLR P-value0.000020.000060.000060.00002Sample Size180180180180	F		(0.009)	(0.005)	(0.005)	(0.009)
Pseudo R-squared0.1430.1210.1210.143Log-Likelihood(87.696)(89.927)(89.927)(87.696)LLR P-value0.000020.000060.000060.00002Sample Size180180180180	Accuracy (at 50% cut-off)		0.82	0.81	0.81	0.82
Log-Likelihood(87.696)(89.927)(89.927)(87.696)LLR P-value0.000020.000060.000060.00002Sample Size180180180180	Pseudo R-squared		0.143	0.121	0.121	0.143
LLR P-value 0.00002 0.00006 0.00006 0.00002 Sample Size 180 180 180 180	Log-Likelihood		(87.696)	(89.927)	(89.927)	(87.696)
Sample Size 180 180 180 180	LLR P-value		0.00002	0.00006	0.00006	0.00002
	Sample Size		180	180	180	180

4.1.2. Model Results

Given that the only meaningful score for the model to our belief is the accuracy score (as stated in Section 3.3.2.3), we proceeded with the models 1 and 4, which are identical.

The best-performing factors are Toehold, Irrevocable Commitments, Due Diligence Condition, 1 Week Premium, and Contested Offer – Interloper. The coefficients of all variables have the sign as expected by us. Interestingly, only the Sell-side Sponsor variable yields meaningful results, but this can be explained by the main drivers behind the sponsors' decision, described further in Section 5. Financing Condition was not included in any models by the algorithm possibly given its perception in the Nordics, resulting in very few offers having this condition, as previously shown in Figure 2. Moreover, in many cases with the offer being conditional upon equity issue to finance the offer, the bidder has a bridge facility in place, which can be used as a back-up in case the issue is not successful. Interestingly, the Cash Offer and the Raised Offer variables were not included, but possibly due to their correlation with premium, although weak. Block shareholders in either form did not yield any meaningful results, so it can be interpreted as a more case-by-case factor rather than a generally meaningful one.

The confusion matrix (at 0.5 cut-off point) and the classification plot (Figure 4) show a lot of false positives, which is mostly due to the fact that the dataset itself contains only 25.6% of the negative transactions. The random guess would then classify 25.6% of the true negatives correctly, while our model succeeds in 34.8% of the cases, which is an improvement. For the positives, it classifies them correctly in 97.8% of the cases compared to the 75.4% random guess. Overall, the model is correct in 81.7% of the cases, which we deem a reasonably fair result, given the limitations of the dataset.

Figure 4: Confusion Matrix and Classification Plot of the Final Model

This figure presents the confusion matrix highlighting the accuracy of the model as well as the number of errors and correct predictions. It further presents the classification plot with the count of observations in each bucket of predicted probabilities.



4.1.3. Interaction Effects

Given that the interaction effects between binary and non-binary variables as well as interactions within non-binary variables cannot have real explanatory power, we only proceeded with checking for potential interactions within the binary variables from all variables from Table 3. This yields 36 potential combinations, adding 36 potential factors to the model. We further ran the sequential feature selection on all initial and newly produced variables. But the features selected by the algorithm were the same as in the previous iteration without newly produced features. We further attempted to change the formula for interactions from:

$$L_{i} = \log\left(\frac{P_{i}}{1 - P_{i}}\right) = \beta_{0} + \beta_{1}x_{1i} + \beta_{2}x_{2i} + \beta_{3}x_{1i}x_{2i}$$

to:

$$L_{i} = \log\left(\frac{P_{i}}{1 - P_{i}}\right) = \beta_{0} + \beta_{1}x_{1i} + \beta_{2}x_{2i} + \beta_{3}(x_{1i} + x_{2i})$$

but the result of the sequential feature selection remained the same.

4.2. Survey Results

4.2.1. Aggregated Survey Results

From 107 people whom we initially reached out to, we received 22 responses from 13 different identified banks (there were instances where multiple people from a single bank responded) and 5 undisclosed banks. The results, sorted by the average from high to low, are presented in Figure 5, while the detailed responses are reported in Appendix II.

As can be seen from the aggregated results, the most significant factors, as perceived by the senior bankers, are Board Recommendation and Bid Premium Size. Irrevocable Commitments, Solicitation, Block Shareholders and Raised Offer were also important in the opinion of the respondents. Factors like Cash Offer, Financing Condition, Managerial Resistance, Due Diligence Condition, and Contested Offer - Interloper were deemed as somewhat important, while the Insider Ownership, Sponsor Involvement, and Toehold were ranked as not affecting the success. One of the factors suggested by the respondents was the prevalent type of ownership in the target (institutional as opposed to insider or strategic). We agree that this factor affects the possible outcome, possibly separating the dataset into 2, given the different drivers (e.g., investment horizon, emotional attachment to the firm) behind the decision of the institutional owner as compared to a strategic one. We, however, note that this factor is potentially covered in block shareholders as the strategic owners usually have concentrated stakes. Another suggested factor is the market environment. We agree that such can be interesting to add to the model. If the overall market is low, the shares of the target may be trading lower as well. Hence, the target shareholders tend to require a higher premium than in other circumstances. However, such analysis would be a time-series study and can be a thesis of its own. 2 respondents left comments that the offer cannot be conditioned on financing, while 1 noted that no additional due diligence can be done after the offer launch, hence these factors are redundant. We agree that in some countries the offer cannot be conditioned on financing, while in some it is possible as noted in 3.2.9. We do not have a strong opinion on the additional DD after the offer launch, but note that the offer can be done to get access to due diligence (e.g. Playtika – Rovio, January 2023), while the tender process itself starts upon its completion.

Figure 5: Average Score Assigned to Each Survey Variable

This figure presents the average score assigned to each factor by all survey respondents. The factors that were included in the final model (as shown in 4.1.2) are highlighted with the blue box. The number of respondents was 22, all of them are working as a Vice President or above at an investment bank with a strong Nordic Presence.



The results are generally in line with the previous research and our model, with 2 important factors like Bid Premium Size and Irrevocable Commitments, and 2 somewhat important like Due Diligence Condition and Contested Offer – Interloper included in the model as well. However, two not important, in the opinion of respondents, factors like Sell-side Sponsor and Toehold also yielded significant results. We excluded Board Recommendation on purpose as noted in section 3.2.3, while Solicitation and Managerial Resistance factors have unreliable data in our dataset. Other factors, which were ranked as important, like Block Shareholders, Raised Offer, Cash Offer, and Financing Condition did not yield any results from the model.

We further divided the respondents into 2 subgroups: bankers from Nordic banks (e.g. Carnegie, Danske Bank, etc.) and International banks (e.g. JP Morgan, Rothschild & Co., etc.). The further analysis of the responses split between Nordic / International banks (Appendix III), shows that Nordic bankers generally deem Managerial Resistance more important than International bankers, while putting less emphasis on Block Shareholders. The difference in value assigned to each of the mentioned factors is more than 0.5 on

average. It is worth noting that the differences in regard to other factors are marginal. Hence, we can conclude that the participants from Nordic and International banks generally agree on the factors that affect the success of a public tender offer.

In Table 4 on the next page, we provide an example of the model built to include all factors that received an average of 2.5 or higher in the survey in comparison to our final model. Financing Condition, 1 Week Premium, Raised Offer, and Block Shareholder or Presence of Block Shareholders are all statistically insignificant factors at 10% level, while the accuracy of the model is lower than the final model from our regression. We want to note that the sole fact that the results of the survey do not match the regression analysis results does not mean that either is wrong, as we believe that data discrepancies and deal-by-deal specific factors can affect both, resulting in the difference between the industry perception of the key factors and the academic analysis of such.

Table 4: Results of the Logistic Regression Model Based on the Survey

This table shows the performance of the model designed to include all factors deemed important by survey respondents. The expected sign is shown as stated in Section 3.2. The 'x' in the table means that the factor was not included in the model. The top number shows the coefficient (beta) and the bottom number in brackets shows the p-value of the variable.

	Final	Survey	Survey	
Factors	Model	Model 1	Model 2	
Taskald	2.874		-	
Toenoid	(0.004)	х	х	
Immer and the Commitments	3.009	2.152	2.120	
intevocable Communents	(0.000)	(0.018)	(0.018)	
Due Diligence Condition	-2.268	-2.614	-2.615	
Due Diligence Condition	(0.006)	(0.002)	(0.002)	
Eineneing Condition		0.626	0.620	
Filancing Conduon	х	(0.419)	(0.422)	
Insider Ownership	х	х	х	
	0.910	0.523	0.510	
1 Week Premum	(0.042)	(0.354)	(0.373)	
Buy-side Sponsor	X	X	x	
C # '1 C	1.849			
Sell-side Sponsor	(0.090)	х	A	
Sponsor	Х	х	х	
C-1 OF-		1.066	1.059	
Cash Oller	х	(0.001)	(0.001)	
Beised Offer		-0.455	-0.451	
Raised Oller	х	(0.316)	(0.321)	
Plasts Sharahaldara		-0.050		
Block Shareholders	A	(0.782)	A	
Presence of Block Shareholders	v	v	-0.051	
Fresence of Block Shareholders	A	•	(0.882)	
Contested Offer - Interloper	-1.514	-1.628	-1.623	
	(0.009)	(0.005)	(0.005)	
Accuracy (at 50% cut-off)	0.82	0.79	0.78	
Pseudo R-squared	0.143	0.118	0.118	
Log-Likelihood	(87.696)	(90.207)	(90.234)	
LLR P-value	0.00002	0.00105	0.00108	
Sample Size	180	180	180	

The Survey Model 1 performs slightly better, so we continued with comparison of it versus our final model. From Figure 6 it can be observed that the main reason behind decrease in the overall accuracy is the rise in false positives.

Figure 6: Confusion Matrix of the Model Based on the Survey

This figure presents the confusion matrix highlighting the accuracy of the model based on the survey responses as well as the number of errors and correct predictions.

		Pred	Percent	
		Unsuccessful	Successful	Correct
rved	Unsuccessful	11	35 (Type I Error)	23.9%
Obse	Successful	3 (Type 2 Error)	131	97.8%
			0 11	70 00/

Overall 78.9%

4.2.2. Takeaways from the Interviews with some of the Respondents

The first interviewee is a Managing Director at a Nordic bank with 30 years of experience in corporate finance at the moment of this thesis being produced (May 2023). He has done several dozens of public tender offers over the course of his career.

In his opinion, all of the parameters we listed in the survey were important, but he highlighted Bid Premium, Irrevocable Undertakings and Board Recommendation as the most important ones. He stated that the Bid Premium does not say much by itself, but rather should be put into perspective against the company's underlying value. He mentions that he generally used 30% premium as a starting point. For Irrevocable Commitments, he argues that small shareholders tend to follow larger ones due to the latter having a lot of skin in the game, hence their decision having a strong signaling effect. He further adds that irrevocable commitments add deal certainty and keep the momentum. The majority of such undertakings tend to be soft in his experience. However, in the interviewee's opinion, irrevocables can be hard to obtain given the fiduciary duty of the institutional investors and their reluctance to be approached given that they receive material non-public information at the moment of getting the knowledge of a potential offer (wall-crossing). As for the Board Recommendation, he explains that it is the key for confirming the deal, as many companies do not have a dominating owner, while the diverse shareholder base relies on the board opinion for such matters.

As for the management resistance, the interviewee mentioned that the management cannot unduly jeopardize the environment for the bidder, so extraordinary defences as well as hostile offers are rare. He believes that cash is generally more appreciated as consideration than shares but notes that sometimes individual major shareholders prefer shares and do not mind being diluted as they wish continued financial exposure to the company's potential value development. Another reason to prefer shares according to him is due to tax reasons. He believes that insider ownership is not that important and that in his experience bidders like to make irrevocable agreements with insiders in order to have a friendly approach. To his belief, competing offers are rare as the majority of the negotiations are done behind closed curtains and the first bidder generally has a momentum advantage over the interloper, as soon as the offer is announced, everything else preceding the offer is done, which is a substantial amount of work. As for the Sponsor Involvement, he thinks that shareholders are generally cautious and perceive such bidders as less reliable compared to strategics. Hence, it may be harder for a sponsor to complete a tender offer compared to a corporate buyer. A raised offer in his opinion restarts the timeline for deal completion, exposing the bidder to the market risk, and damaging the momentum of the transaction. Therefore a raised offer should come with a benefit for the bidder such as a board recommendation or an irrevocable acceptance from a major shareholder. He also mentioned that the banks always want to see the buyer achieve 90% control over the target as only then the bidder can control the cash flows between the bidding company and the target, which is necessary to service debt.

The second interviewee was a Managing Director at an International bank with 15+ years of experience in corporate finance at the moment of this thesis being produced (May 2023). He highlighted Board Recommendation, Irrevocable Commitments, Block Shareholders, Sponsor Involvement and DD and Financing Conditions as the most important factors, while emphasizing that Toehold and Contested Offer – Interloper can be decisive at times while are largely case-specific.

He has participated in dozens of public tender offers and was kind enough to share a detailed justification for his responses. He sees Board Recommendation as an important and complex phenomenon, the degree of calibration of which is often underestimated. In his experience the BoD is usually approached before announcement and the discussions can often take months before the transaction is actually announced. He compares the board negotiation with dancing as it is a lot of back and forth with the BoD. The BoD should often make it clear whether "they want to dance with you or not, and if they do, then how".

In his opinion, when it comes to Management Resistance, the majority of the tender offers in the Nordics are friendly by nature. However, in practice, if management resists, the buyer often walks away, circa 75% of the times. He stated that unless management is a majority shareholder, Insider Ownership is not an issue. Hence, in his view 'insider' in this variable means management and not the active shareholder. The banker also stated that insider ownership is rarely explicitly mentioned as a concern and is correlated with other factors.

In regard to Bid Premium, the interviewee stressed the fact that the discussion of the fair valuation comes out from the negotiation with the parties ("the dancing"). It is important and often comes down to beliefs, not just percentage points, so attempting to apply an average, e.g. 30-40% premium, would be just pointing the company to an indication. He said that recently it has been especially difficult to estimate bid premium when compared to VWAP as there is often no liquidity in the market.

Toehold, while rare, is deemed to be very effective. He gave an example of Triton – Caverion situation, where the buyer has accumulated a substantial toehold, forcing the first bidder to quit and the board to change their recommendation. Irrevocable Commitments are considered very important by him. He thinks that the popularity of their usage is growing, especially that of the hard irrevocables, which are binding. He also pointed out that getting institutional investors to sign such undertakings has been becoming more and more challenging as many of them are willing to see how the situation plays out.

The interviewee graded the importance of Sponsor Involvement on both buy-side and sell-side as critical. Cash Offer is something he also sees as more appealing these days as compared to 2 years ago, when the sale in shares was particularly popular. The respondent stated that bidding wars are quite rare in the Nordics, where Scandinavians tend to show their hand and have a more conservative bidding headroom in comparison to the US. Interestingly, he did not see Contested Offer when coming in as interloper always disadvantaging, especially given that the interloper in many instances is a party who entered the discussion process earlier but was outpaced by a competitor.

When it comes to Financing Condition, he and his bank usually advise the buyer not to pursue if the financing is not in place. He highlighted that Due Diligence Condition can be misjudged by industry professionals as people often see DD as something purely quantitative, such as business plan analysis, excel models, etc., while the condition may exist and refer to softer things like tech stack, legal framework, intellectual property, employment – something that would not be considered material non-public information (MNPI).

As an additional input to the model, he suggested considering who the advisor for the transaction was. He claims that there is a significant difference in the quality that is very tangible for the company.

5. Implications, Limitations, and Further Research

5.1. Empirical Results and Implications

Our study shows that *Irrevocable Commitments* and *Bid Premium Size* (1 Week Premium used in logistic regression analysis) are the most important factors for the success of the tender offer as both are performing strongly in the logistic regression analysis and are amongst the highest ranked in the survey. We find these results expected as the first factor serves as a way for the bidder to secure acceptance threshold of the tender offer and gives a strong signal to the minority shareholders to sell, while the second one is arguably the most important from the economic perspective, as it serves as the main economic decision driver for the board. As previous studies found that the board decision is the single most important factor for the tender offer success, the board should recommend the offer if its value is substantially higher than the standalone value of the company, as it is bound by the fiduciary duty to the shareholders.

We find support for our hypothesis on factors like *Due Diligence Condition*, and *Contested Offer – Interloper*, as they are meaningful in the model, while also gaining a median score above 3 in the survey. The first factor adds uncertainty to the deal as due diligence can be defined broadly by the bidder and the successful due diligence is further arguable as the board may deny giving certain data to the bidder due to, amongst others, the potential information leakage. Entering the process as a second/third/fourth bidder also adds a lot of uncertainty for the buyer as it faces competition.

Toehold and Sell-side Sponsor are the factors that perform well in the model but are not important according to the survey. We believe that *Toehold* serves as a hard irrevocable as these shares already belong to the bidder. As the number of shares the buyer needs to purchase is reduced, the deal certainty rises. However, senior bankers believe that although this may help, it does not give a strong market signal as an irrevocable does. Moreover, arguably the bidder without a toehold practically finds itself in a similar position as the bidder with e.g. 50% stake in the target. If calculated with respect to the independent shareholders, the first bidder needs to convince 90% of the independent shareholders in order to succeed, while in the second instance, the bidder needs to convince $\frac{100\% - Bidder's \ stake}{200\%}$ independent shareholders in order to succeed. Moreover, 90% this method is not practical due to the costs connected to it. We believe that the Sell-side Sponsor may increase the deal probability due to the sponsor maximizing the value for its LPs, and due to him / her potentially having a lot of deal experience. The sponsor decision can also be perceived as a strong signal by other shareholders. We, however, acknowledge that in the process of trying to maximise value, the sponsor may be reluctant to sell until a certain premium is achieved.

We believe that *Block Shareholders* presence or number is an important factor to the deal, as also highlighted by the survey. However, the model fails to capture its effect, which is further discussed in limitations. The block shareholders are arguably the second or first most important party on the target side (after or before the board) and as such are treated by the bidder as the main decision-makers. Apart from having a large stake, their decision may serve as a strong signal to other shareholders. Hence, the deal is often struck with them before the announcement of the tender offer. Potentially, if the deal with block shareholders fails, the bidder may not pursue the tender offer even before such is announced. Since the data do not account for such instances, the model can be biased to treat the block shareholders factor more positively.

The *Raised Offer* factor is often a product of negotiations, hence it could be perceived by the bankers as an important factor. The model, however, fails to fit it because the premium already captures part of this factor. We believe that the Raised Offer can be a somewhat important factor, although, as previously mentioned, it is a deal-specific one rather than general. For the same reason we believe that the *Cash Offer* factor is not captured by the model. Further, although the 'cash is king', on a deal-specific basis, the shareholders may prefer stock for various reasons, such as willingness to further participate in the growth story or tax implications.

The *Financing Condition* factor has mixed performance, but we believe that it generally adds deal uncertainty, hence can be a negative factor. However, given the customary preparation of the financing package by the bidder beforehand, it is rare to see one in the market. Hence, it has a mediocre ranking and does not find support in the model.

The *Target Insider Ownership* factor does not get support in our study. We believe that this could be due to the low shareholding of the insiders in most of the targets, as only 19% of the targets had insiders controlling more than a 10% stake. Potentially, this factor can be correlated with the *Block Shareholder* factor. Further, management legally cannot create material obstacles to the bidder as discovered during the interviews. The board members who have significant stakes in the target usually recuse themselves from the recommendation on the bid, and the special bid committee is then created. Hence, the poor performance of the *Target Insider Ownership* factor can potentially be explained by the above.

Buy-side Sponsor involvement also did not get enough evidence as a significant factor. We believe that financial sponsors, although having more transaction experience, can often be perceived as hostile. Moreover, in a few cases they find themselves outbid by a strategic buyer if one arises. The free-rider problem may also arise for the financial bidder, as the target minority shareholders recognise that there is a value to be created in the target and may opt in to capitalise on the opportunity. There have been instances where the financial sponsors proceeded with the takeover without having full control,

while the minority shareholders achieved better than market returns simply by free riding (e.g. EQT – Karo Healthcare AB).

We also think that *Board Recommendation* and *Solicitation* are strong factors affecting the deal success. But, as previously mentioned, we excluded the first one on purpose as the bidder cannot predict it before the offer launch and since it is rather an aggregated factor or a dependent variable on its own. As for Solicitation, there is a lack of quality data. Management resistance is scarce in the Nordic environment as hostile offers are not common and rarely successful. However, on a deal-specific basis, this factor may affect the deal success.

5.2. Limitations

The accuracy of the analysis could be further enhanced through obtainment and utilization of the deal-specific insights around the management resistance to the deal. The raw data used neglects the dynamic nature of the board recommendation and management attitude, meaning that the "friendly" outcome might have been "hostile" at the outset. Hence, we expect the number of hostile bids to be larger than identified in our sample.

Compared to the research based on the US data, the data for the Nordic countries were less easily accessible. This is partly due to the fact that in the US the data on bid premium size, share ownership and managerial resistance can be obtained directly from 13D and 14D SEC statements filed by bidding and target firms, respectively. As a result, the gathered data sample was incomplete. The small deals (below 100m EUR in deal value) were filtered out due inferior data quality. The inclusion of such, however, can improve the model results due to the bigger sample.

A few of the tender offers that we have classified as "failed" are likely to be seen as successful, post-factum, by the public and presented as such by the media. For instance, if a buyout fund via a holding company made a voluntary tender offer for a public company and did not reach acceptance threshold, but still proceeded with a deal, we, for the research purposes, have treated the first bid to be a failure. In a few instances the bidder later posted another tender offer and succeeded. If the second offer reached the full control threshold, we treated the latter as successful, but still kept the first one as unsuccessful.

The data on irrevocable commitments are incomplete. First, all the data points that indicate that there is 0% of share capital being committed are prone to error as such a data point is recorded due to the lack of proof in favour of the opposite. A few of these "zeros" might be non-material but still above zero. Moreover, all irrevocables are treated as a homogenous group, with soft, semi-soft and hard irrevocables grouped together. This was done due to the lack of available information and generally accepted difficulty to

distinguish among the three types. Determining the right type may require insider dealspecific knowledge.

The dataset itself is tilted towards successful offers, resulting in the model bias towards such and high false positives number. Undersampling is not an option given the small size of the negatives sample, but oversampling partially solves the problem by synthetically creating new observations with the aim to achieve balance in the classes. For example, we tried the SMOTE (Synthetic Minority Oversampling TEchnique) for our sample but the resulting accuracy went down to 66.7%. Although the false positives went down significantly, the false negatives did so as well.

The industry questionnaire was sent out to a limited number of professionals. Moreover, only a limited number of responses was submitted due to lack of engagement from the counterparties. The sample size used for the survey can therefore be improved to make meaningful general deductions. In a scenario with more information available, the survey could have been conducted more extensively and cover the whole universe of advisers, including legal experts and bidders and targets themselves.

5.3. Further Research

Due to the nature of the data, it would be valuable to find a way to reduce the false positive ratio in the model in further research potentially using unconventional methods or other non-linear models.

While the paper touches upon the type of payment method, it could be useful to investigate whether financing has any impact on the deal success probability. More specifically, if the tender offer is made in cash, how does the acquirer finance its cash bid? The financing method could be important as a signal of whether the bidder has access to competitive debt financing or has to finance the purchase with equity.

Despite using the number of block shareholders as an explanatory variable, our thesis did not take into account the number of institutional shareholders, which could yield meaningful results, especially in the Nordic context. Moreover, the effect of the presence of dual class shares with higher voting rights on the tender offer success probability may be worth investigating.

This paper provided a cross-sectional data overview, without acknowledging differences in the market environment, M&A cycles. An additional time-series study could explain the anomalies.

Furthermore, this study does not classify bidders and targets based on their industry, which could identify additional patterns, such as typical industry-specific bid premia size.

The research can be further developed by broadening the spectrum of the covered markets to other markets with typically concentrated shareholdings such as Germany, Italy or

Switzerland. An international comparative study can then be performed to compare the ownership structures and role of institutional investors.

The reasons for ambiguity around the bid premia's effect on the tender offer probability of success can be further investigated as despite the robustness of economic theory, the data often reveal puzzling results.

Similar Logit predictive models can be designed for other types of M&A activity, for example, mergers, where the drivers differ. The results can then be used to explain and predict the differences between mergers and tender offers, such as completion rates, anti-trust regulator reviews, termination fees. The obtained models may be helpful in deciding what M&A to pursue and when.

6. Conclusion

Our study shows that it is possible to predict the outcome of the tender offer with satisfactory accuracy. This is one of the first studies conducted on the Nordic data sample and the first to contain a survey of the local industry professionals.

Premium and Irrevocable Commitments are the most important factors positively affecting the outcome, while Due Diligence and Contested Offer – Interloper (entering the process as a second bidder) are important factors negatively affecting the outcome. There are conflicting signals regarding Toehold, Sponsor Involvement, as those are supported by the data, but not by the survey. The opposite is true for Block Shareholders, Financing Condition, Cash Offer, and Raised Offer factors. Insider Ownership is interestingly not supported by either the survey or the logistic regression analysis.

While the evidence on the importance of bid premia remains inconclusive, this paper contributes to the positive effect of the bid premium on tender offer success probability. The findings on irrevocables are in line with the previous literature. The regression results on toeholds are also confirming the existing consensus on their potential usefulness, while the practitioners' view is largely aligned with the decreasing popularity of toeholds, also documented in literature. As opposed to the works reviewed on the method of payment, the regression analysis revealed no evidence of cash payment being positive for the deal completion, even though survey respondents deemed it so. The past empirical data on the effect of the number of block shareholders did not show any particular significance, but the number of institutional investors in the ownership structure may be pointing to the lower success probability, whereas our data did not show any support for block shareholders' significance. The survey results ranked the potential importance of the number of block shareholders quite highly.

We did not find any past papers utilizing Due Diligence or Financing conditions as factors, which is perhaps not surprising, hence our attempt in using these contractual terms in tender offer agreements as explanatory variables is quite novel, with Due Diligence condition having a strong negative correlation with the deal success.

The lack of papers using the sponsor vs strategic distinction as a predictive variable surprised us given the recently emerged abundance of studies on the differing characteristics of sponsor-led transactions. Our attempt to segregate two factors: Sell-Side Sponsor and Buy-Side Sponsor can hence be seen as innovative. Interestingly, only the tests with Sell-Side Sponsor variable yield meaningful results.

The effect of the tender offer being contested has been widely examined on both theoretical and empirical levels, with such contests robustly predicting the lower probability of success. Our paper, however, attempts to split the variable onto two, which we see as more informative, namely, Raised Offer and Contested Offer – Interloper,

which still yields a statistically significant negative correlation between Contested Offer – Interloper and success, in line with past research. Raised Offer, on the other hand, comes out as insignificant from the regression model, while the survey participants treat it as essential. The survey response results, however, may be overstated due to the vague variable definition as the respondents might have associated Raised Offer with Premium, which could have reminded of the fundamentals of the economic theory.

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8. Appendix I: Survey Form

Have you ever acted as an adviser for a public tender offer process?

Yes

No

What is the name of your employer?

Which of the	following factors of	do affect the probabili	ty of success (comp	letion) of a public ten	der offer,
in your opinio	on?				
1 = Does not	affect				
5 = Affects st	rongly				
Note: We define	e success as 90%+ po	st-offer ownership			
0	1	2	3	4	5
Target Board	Recommendation	ı			
•					
Management	t Resistance				
•					
Solicited / Ur	nsolicited Offer				
Bid Premium					
•					
Toehold (Sta	ke owned by the E	Bidder in the Target p	re-bid)		
•					
Irrevocable a	rrangements with	target shareholders ((soft and hard)		
•					
Presence an	d number of block	shareholders (with 1	0%+ stake)		

Significant Insider Ownership

Buyside Sponsor Involvement

Sellside Sponsor Involvement

Liquidity of the bid consideration (more cash, fewer shares in the offer)

Bidder increasing its Initial Offer

Entering the Process as an Interloper (2nd bidder) (please consider this only from the interloper perspective)

Offer being Conditional on Financing

Offer being Conditional on Due Diligence

If there are any other factors that affect the probability of a public tender offer success, in your opinion, please list them below:

9. App	endix l	II:	Survey	Res	por	ises
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#	Respondent	Board Recommendation	Managerial Resistance	Solicitation	Bid Premium Size	Toehold	Irrevocable Commitments	Block Shareholders
1	Undisclosed Bank	4	3	4	5	1	4	4
2	2 Nordic Bank	5	4	1	5	1	5	3
3	International Bank	4	2	1	5	1	4	2
4	l Nordic Bank	4	2	4	5	1	5	4
5	Nordic Bank	4	3	3	5	1	5	1
6	o International Bank	5	3	5	4	1	4	5
7	International Bank	5	2	4	4	4	4	5
8	8 Nordic Bank	5	1	2	4	2	4	3
9	Undisclosed Bank	5	4	3	3	1	3	2
10) Nordic Bank	4	3	5	5	4	5	5
11	Undisclosed Bank	5	2	2	5	1	3	3
12	2 International Bank	5	1	3	4	1	4	4
13	8 Nordic Bank	4	3	4	4	3	4	3
14	I Nordic Bank	5	4	5	4	3	4	3
15	Nordic Bank	5	3	3	5	1	4	4
16	j International Bank	5	3	3	5	3	4	1
17	International Bank	5	2	5	5	1	4	4
18	8 Nordic Bank	5	4	5	5	4	4	5
19	International Bank	5	3	5	5	1	4	5
20) Undisclosed Bank	5	5	1	5	3	5	3
21	Nordic Bank	5	3	4	4	3	4	3
22	2 International Bank	5	3	1	3	3	5	5
Me	ean	4.7	2.9	3.3	4.5	2.0	4.2	3.5
Me	edian	5.0	3.0	3.5	5.0	1.0	4.0	3.5
St.	. Dev.	0.5	1.0	1.5	0.7	1.2	0.6	1.3

#	Respondent	Target Insider Ownership	Buy-side Sponsor	Sell-side Sponsor	Cash Offer	Raised Offer	Contested Offer - Interloper	Financing Condition	Due Diligence Condition
1	Undisclosed Bank	4	1	1	3	3	4	5	4
2	Nordic Bank	1	2	1	2	3	3	5	5
3	International Bank	1	1	1	1	1	1	4	4
4	Nordic Bank	3	1	1	4	4	2	5	5
5	Nordic Bank	1	1	1	1	1	1	1	1
6	International Bank	4	1	4	2	4	3	5	3
7	International Bank	5	4	4	4	5	4	1	1
8	Nordic Bank	2	2	3	5	4	2	4	2
9	Undisclosed Bank	2	2	2	2	5	2	4	4
10	Nordic Bank	3	1	1	4	5	3	4	3
11	Undisclosed Bank	1	2	2	4	1	4	4	4
12	International Bank	2	1	1	2	1	1	2	2
13	Nordic Bank	1	2	2	3	4	4	2	2
14	Nordic Bank	2	4	3	4	4	3	1	1
15	Nordic Bank	2	1	3	3	1	3	1	1
16	International Bank	2	1	1	3	4	1	1	2
17	International Bank	1	1	1	3	4	3	1	1
18	Nordic Bank	5	5	4	4	5	3	4	4
19	International Bank	3	4	4	4	5	4	1	3
20	Undisclosed Bank	3	2	2	4	4	3	4	5
21	Nordic Bank	3	3	3	3	4	2	1	1
22	International Bank	1	5	5	4	1	3	5	5
Me	an	2.4	2.1	2.3	3.1	3.3	2.7	3.0	2.9
Me	dian	2.0	2.0	2.0	3.0	4.0	3.0	4.0	3.0
St.	Dev.	1.3	1.4	1.3	1.1	1.6	1.0	1.7	1.5

Comments in the "If there are any other factors that affect the probability of a public tender offer success, in your opinion, please list them below:" field

Respondent #3

"Re: financing and due diligence conditionality; offers with this attached affects the success probability negatively."

Respondent #4

"Strategic owner in target company vs only institutional ownership in target company"

Respondent #7:

"A public offer can't be conditioned on financing"

Respondent #14

Bid premium needs to be sufficient, with healthy premium you can make things work even with other parts do not work. Some owners though look at the asset over long-term - a high premium might not be accepted if the share price has recently dropped. Owners interest & long-term view of the case has a strong impact. Also, current owner roll-over opportunity for certain shareholders could be needed in order to complete the deal"

Respondent #15:

"The two last questions are not relevant, a bid cannot be conditional on financing nor can any additional DD be conducted after bid launch."

Respondent #17:

"Market environment"

Respondent #19:

"Swedish public offers cannot be conditional on financing"

Respondent #22:

"Good Advisor"

10. Appendix III: Survey Response Breakdown by Bank Focus (Nordic vs International)



Nordic -10 respondents, International -8, Undisclosed -4. Worth noting that 1 undisclosed responded noted that he was from an "Undisclosed Nordic Bank".