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The Role of Initiating Party in Corporate Takeovers: an Information Asymmetry Argument

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Abstract

This paper analyzes the role of initiating party in estimating takeover performance. We show that there are significant differences in bid-premiums and cumulative abnormal returns (CAR) depending on deal initiator. All else being equal, targets tend to receive higher premiums and demonstrate higher CARs when takeovers are initiated by acquirers. Adverse selection risk theory was used to explain such variation. By using a sample of 3316 publicly announced corporate takeovers in the US, we also show that exposure to adverse selection risk is moderated by industry concentration level and merger type. The Herfindahl–Hirschman Index was used to measure industry concentration and showed positive and statistically significant effect on CARs in the manufacturing industry, yet other concentration measures in other industries did not show these effects. Furthermore, drawing on our model we found that the level of information asymmetry was relatively higher in conglomerate mergers which, once again, witnessed the important role of initiating party in estimating takeover performance.

Acknowledgment

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Note that this thesis is based on a data sample provided by Øyvind Norli, Espen Eckbo and Karin Thorburn. They have gathered the sample with the purpose of answering many of the questions that are raised in this paper.

Content

ABSTRACT	I
ACKNOWLEDGMENT	II
CONTENT	III
INTRODUCTION: MOTIVATION AND PURPOSE OF STUDY	1
BACKGROUND AND LITERATURE REVIEW	3
DEAL INITIATION – EMERGING VARIABLE	4
INFORMATION ASYMMETRY – EXPLANATORY FACTOR.....	7
MARKET CONCENTRATION, TYPE OF MERGER AND INFORMATION ASYMMETRY	9
HYPOTHESES	13
DATA AND METHODS	14
SAMPLE AND DATA COLLECTION.....	14
DATA DESCRIPTIVE	18
STATISTICAL MODEL	21
RESULTS	23
TARGET WEALTH EFFECTS OF DEAL INITIATION	23
INTERACTION EFFECT OF MERGER TYPE AND DEAL INITIATION.....	25
INTERACTION EFFECT OF DEAL INITIATION AND INDUSTRY CONCENTRATION	27
ROBUSTNESS CHECK.....	31
CONCLUSION	32
REFERENCES	33
PRELIMINARY THESIS REPORT	36

Introduction: Motivation and Purpose of Study

This thesis is about corporate takeovers¹. The very term of “corporate takeover” implies an action performed by the one who is “taking over”, i.e. the buyer. The use of this term in previous literature also witnesses an underlying assumption that takeover deals are, first and foremost, initiated by the bidders. However, most recent publications (see, for example, Simsir (2008) and Xie (2010)) distinguished between the actual transaction flow and deal initiation, and questioned an overestimated buyer’s perspective in M&A research that considers an acquirer as decision maker of importance. In fact, researchers have shown that in many cases the sellers are actively pursuing a takeover (Simsir 2008; Anilowski Cain, Macias, and Sanchez 2010).

Questions surrounding deal initiation mark a relatively new area of research that point to one common conclusion: cumulative abnormal returns and bid premiums are higher in bidder-initiated deals than target-initiated deals (Simsir 2008; Xie 2010). Since these conclusions were made on small data samples, it triggered us to investigate whether the initiating party hypothesis holds in large samples and search for better explanation of deal initiation phenomenon in economic theory. In previous studies various theories were used to explain this variation, such as liquidity (Officer 2007), bargaining power (Xie 2010) and adverse selection risk (Simsir 2008) theories. Following Simsir (2008), we take a deeper look into adverse selection risk theory, arguing that variation in target wealth effects can be explained by different degrees of information asymmetry across bidder-initiated and target-initiated deals. *This* brings us to the second research question which we aim to investigate – i.e. how market structure and merger type moderate a causal relationship between the initiating party and target wealth effects in corporate takeovers. We assume that different market concentration levels and merger types (conglomerates *versus* non-conglomerates) inherent different degrees of asymmetric information between merger deal participants and, consequently, drive variation in market reaction towards merger announcement.

¹ We consider a corporate takeover as any type of transaction leading to purchase of one company (the target) by another (the acquirer) regardless of whether it is a tender offer or a solicited agreement. Related to that, we use the terms of ‘mergers and acquisitions’ (M&A), ‘takeovers’ and ‘transaction deals’ interchangeably.

Our findings show that, on average, target shareholders earn 3.4 percentage points higher cumulative abnormal return around the day of announcement and a 6.6 percentage points higher four week bid premium when the transaction is initiated by the bidder. When using a merger type as a proxy of information asymmetry, we observe that, on average, targets earn a 14 percentage point higher four week bid premium in bidder-initiated conglomerate deals than in target-initiated conglomerate deals. Furthermore, our study finds support for moderating effects of industry concentration and sets the ground to investigate these effects further. More specifically, due to data limitations, we used the Herfindahl–Hirschman index as a proxy of industry concentration in a subsample of transactions where target firms operated in manufacturing industry. Other concentration measures in other industries did not show similar effects and, therefore, could be further investigated. Overall, our study results support the initial hypotheses about deal initiation effects and moderating effects of information asymmetry, and give credit to adverse selection risk theory when explaining variation in target wealth effects in bidder-initiated and target-initiated takeovers.

Although our study builds heavily on Simsir's (2008) work, it also differs from it in several ways and contributes to better understanding of deal initiation in corporate takeovers. *First*, we test our deal initiation hypothesis on, to our best knowledge, the largest data sample that has ever been used in similar analyses. *Second*, we proxy different magnitudes of information asymmetry by using industry concentration and merger type dummies, and examine whether and how they moderate the effects of initiating party on target wealth in corporate takeovers.

The remaining of this study is organized as follows: *first*, we review current literature on deal initiation and information asymmetry and justify the use of our information asymmetry proxies in current theory. Based on our literature review, we develop two sets of hypotheses and discuss them in the *second* part of the thesis. Further, we describe how the initial data sample was collected and what additional actions it took to build a final data set and test our hypotheses. In the *forth* part, we explain the methodology used and comment on our findings. *Finally*, we provide the conclusions and recommendations for further research.

Background and Literature Review

Since the late seventies the academic literature within the field of corporate takeovers has mostly been focusing on pre- and post-acquisition companies' performance. They have measured cumulative abnormal returns, bid-premiums and wealth transfer, to name a few, as an outcome of such activity (Franks, Broyles, and Hecht 1977; Gaughan 2005, 131). By relying mostly on publicly available data, researchers have tested many hypotheses to explain the drivers behind variation in performance outcomes. However, only recently has this focus shifted to the private part of the takeover process which started to pull academia's attention as it helped to explain better the many puzzling findings on pre- and post-acquisition performance². Given a relatively recent quest for investigation of the initial (private) stages of the takeover process, the role of deal initiating party and its effect on merger outcomes remains underexplored and the underlying assumption of acquirer as initiator and decision-maker of importance is prevailing (Graebner and Eisenhardt 2004).

We firstly review the literature that investigates interaction between initiating party and M&A deal outcomes. The aim of such a review is to increase our understanding about how deal initiation relates to wealth effects of target shareholders and learn major explanations of this interaction as suggested by theory. Our thorough examination of the literature shows that adverse selection hypothesis and information asymmetry argument stand among the most commonly used explanations of variation in merger outcomes. Therefore, as a next step in our literature review, we concentrate on studies that investigate the role of information asymmetry in takeover deals. This gives us a deeper knowledge and understanding about how asymmetric information relates to transaction outcomes. Since our intended contribution is to show moderating effects of information asymmetry on relationship between deal initiation and

² Nihat Aktas and Eric De Bodt (2011) broke down the takeover process into private and public parts. The private component starts with initiation of contacts among possible merger parties and lasts until the merger announcement. The second component starts with public announcement and lasts until it is consummated, *see* Kiyamaz, Halil, and H. Kent Baker. 2011. *The art of capital restructuring : creating shareholder value through mergers and acquisitions, The Robert W. Kolb series in finance*. Hoboken, N.J.: Wiley., p. 261-279.

target wealth effects, we present studies supporting our view that industry concentration and merger type are relevant measures of information asymmetry.

Deal initiation – emerging variable

The research attention on pre-public stage of the takeover process started to grow rapidly after Boone and Mulherin published their paper in 2007 (Boone and Mulherin 2007). The main discovery of this publication was an opening of Pandora's Box in the pre-public takeover process, showing how much of the action was, in fact, taking place before the takeover was publicly announced. The paper also contradicted previously drawn conclusions on competition in takeover markets, stating that it was more competitive than the evidence from the public part of the takeover process has revealed. Boone and Mulherin (2007) also concluded that wealth effects to target shareholders are similar from auctions and single-bidder negotiations and suggested further exploring and giving better explanations of dispersed target wealth effects. Our thesis is also built on this quest as we use deal initiation as explanatory variable of target wealth effects in corporate takeovers. Following this line of thought, in the following sections we provide a critical review of a number of studies that examined the role of deal initiation in takeovers.

Among the first ones, Anilowski Cain, Macias, and Sanchez (2010) challenged recent inference about comparable wealth effects resulting from different sales methods (Boone and Mulherin 2007). Anilowski *et al* (2010) argue that the analysis of the method of sale and wealth effects used to draw such conclusions is a case of self-selection bias. Their underlying assumption is that the private information possessed by target company managers and adverse selection risk together with uncertainty of future cash flows are among the main drivers affecting the choice of the selling method. The authors found that the probability of choosing an auction was increasing when targets took the deal initiative. Furthermore, researchers used initiating party as a proxy for adverse selection risk and came to the conclusion that returns to target shareholders in an auction were higher if the transaction was not initiated by the seller. These study results imply that in seller-initiated deals targets are more likely to expect lower returns because of the asymmetric information that they hold.

Another publication that is also worth of attention was written by Aktas, de Bodt, and Roll (2010). The authors use the initiation variable to proxy target's willingness to sell which, in turn, shows a signal to the acquirer. Such a signal gives acquirer a hint to its bidding strategy considerations and elevates its bargaining power. Researchers conclude that target's eagerness to sell reduces premiums in negotiation deals since bidders are likely to anticipate the costs that targets are facing when choosing an auction. In addition, Aktas *et al* (2010) argue that due to the target's temptation to stimulate competition and increase bids they tend to choose auctions as a method of sale in their initiated deals. Although these authors explain return differences by anticipated auction cost and bargaining power arguments we believe they are also subject (or product) of asymmetric information that the sellers are holding. High willingness to reduce negative effects of information asymmetry might explain why sellers strive for a more competitive environment in takeover bids. The latter point is in line with the arguments of Povel and Singh (2006) who suggested that targets should exploit information asymmetry by increasing competition among bidders if exclusive negotiations with only one bidder fail. Hansen (2001) also emphasizes that a seller may prefer an auction in order to employ a rational excuse in retaining sensitive information from potential rivals, suppliers and/or customers, thereby creating adverse selection effects. These findings witness that target-initiated deals involve a larger portion of asymmetric information and take the auction form which helps to offset the negative effects of information asymmetry on target returns. This insight is consistent with what Boone and Mulherin (2007) reported about non-significant effects of different selling methods on takeover results.

In contrast to some previously mentioned studies, Xie (2010) ran his analysis primarily on deal initiation by taking into account the selling method. He reported supportive evidence on comparable target returns which was originally presented by Boone and Mulherin (2007). Xie (2010) used 598 observations, covered the period of 2000 – 2004 and reduced a threshold for deal value up to 10\$ million (Boone and Mulherin used a threshold of 100\$ million). Xie (2010) documented that the majority (i.e. 84.8%) of target-initiated deals were done by employing the auction method. After comparing returns with the ones in negotiated mergers the author found no significant difference. Yet, when regressing returns on deal initiation Xie reported 8.2% higher excess returns to target shareholders when the

deal was initiated by acquirer. He explained this discrepancy by arguing that when targets initiated transactions it weakened their bargaining power positions, and thereby reduced chances to receive a greater premium. Such a discount was also explained by the liquidity hypothesis. Officer (2007) discussed this in the context of unlisted target acquisitions and showed that discounts were even greater when information asymmetry was present.

Oler and Smith (2008) carried a different type of analysis. They investigated 400 companies that were publicly announced and were willing to be taken over (labeled as TMO)³. Although their sample represented only ‘one side of the coin’ (i.e. target-initiated deals) and does not include targets that sold themselves within pre-public takeover stage, their study findings are worth of mentioning. It appears that in a longer run, the market, on average, perceives TMO announcements as a bad news signal that triggers a drop in stock prices despite a short lasting positive reaction. This research is in line with what other scholars have concluded about the importance of deal initiating party in estimating target returns.

Notwithstanding various explanations of why targets suffer from self-initiation discounts, it seems that the role of information content and perceptions of it have been underestimated. We could intuitively guess that the bargaining power asymmetry, as such, is unlikely to affect the market reaction. Similarly, liquidity search is more likely to act as a trigger that could later result into action surrounded with asymmetric information. Last but not the least, questions about whether initiating party effects on target returns can be moderated by any other variable remain not answered.

One of the most recent working papers by De Bodt, Cousin, and Demidova De Bruyne (2011) has touched upon this issue. Researchers argued that target’s willingness to sell (WTS) is unobservable, and therefore a latent variable was created. By using a process research methodology, they observed and labeled targets with low, medium and high WTS and found support for all their hypotheses. More specifically, De Bodt *et al* (2011) concluded that: (1) WTS has a negative effect on bid-premium, 2) increase in WTS fuel the probability of deal

³ „Take-me-over“- TMO (Oler and Smith 2008)

to be completed, and 3) a WTS-driven negative effect could be reduced by stimulating competition among bidders. The latter point also implies that lower willingness to sell on behalf of the target may signify higher target resistance and, thereby, force bidders to bid more aggressively.

What was important about De Bodt *et al* (2011) paper was that it inspired us to think of and explore other potential moderating variables, in particular, the level of information asymmetry. Simsir (2008) gave us more confidence in using the adverse selection risk argument to explain variation in target returns. With a sample of 947 observations over the period of 1997-2006 Simsir (2008) documented similar results as did Xie (2010) and De Bodt *et al* (2011) and brought us to conclusion that variation in target returns across bidder-initiated and target-initiated transactions is likely to exist because of unequally informed deal participants. In order to understand better how asymmetric information creates adverse selection risk⁴ and, in turn, determines the M&A outcomes we will continue exploring these issues in the following section.

Information asymmetry – explanatory factor

Following the widely used “lemon’s”⁵ framework, Simsir (2008) argues that in the presence of information asymmetry the signals that merger parties produce by taking the first initiative create adverse selection risk, thereby, inducing suspicion about the hidden information among deal participants. *This*, in turn, leads to bidding discounts (premiums). To ground his hypothesis better, Simsir (2008) also uses argumentation provided by Myers and Majluf (1984) who discussed the pecking order theory under investment decision procedure. Simsir (2008) draws a parallel between the investment decision procedure and target’s decision to sell, and argues that companies that put themselves on the counter desk tend to be treated as “lemons”.

Yook, Gangopadhyay, and McCabe (1999) argue that information asymmetry exists in the takeover market and it influences a choice of payment method. Their main research interest is on a different information asymmetry set, however. The

⁴ Adverse selection risk arises from information asymmetry and in this context will be used interchangeably.

⁵ Akerlof, George A. 1970. "The Market for "lemons": Quality Uncertainty and the Market Mechanism." *Quarterly Journal of Economics*, 84 (3): 488-500.

authors found strong relationship between insiders' trading (used as proxy of information asymmetry) and decision on the method of payment on behalf of the acquiring firm. They documented that bidders using stock-offerings had higher insider trading than bidders using cash-offerings. A market reaction to bidders featuring more insiders' trading was reported to be more severe. Similarly, the acquiring firm's perspective was used by Moeller, Schlingemann, and Stulz (2007). Although different proxies for information asymmetry were used in this study, the authors reported higher acquirer's announcement returns for users of cash-offerings when information asymmetry was high. The latter could be explained by the fact that stock markets usually perceive companies using cash-offerings more favorably than stock-offering users since idiosyncratic volatility (used as a proxy of information asymmetry) of the latter is high (Moeller *et al* 2007).

Following this line of thought, a proxy of divergence of investors' opinion (on potential targets) was built in the study of Chatterjee, John, and Yan (2012) where researchers examined a relationship between total takeover premium and divergence of investor's opinion. Chatterjee *et al* (2012) found that the higher opinion divergence on the potential target was, the lower the probability of it to become acquired was. At the same time, the authors reported that the higher the divergence of opinions was, the greater the total takeover returns were. One of the potential explanations of these rather puzzling findings might be attributed to the fact that Chatterjee *et al* (2012) did not control for deal initiation in their model.

A novel measure of information asymmetry was developed by Cheng, Li, and Tong (2008). The authors constructed the index consisting of financial analyst coverage, forecast errors and dispersion, and bid-ask spread. Although these scholars interpret a bid price differently from a bid-premium, CAR measures are also investigated. Their study results echo previously reviewed articles that emphasize an important explanatory role of information asymmetry in estimating takeover outcomes. One of their suggested explanations is that the merger announcement forces market to re-evaluate more opaque targets assuming that acquirer has an information advantage over the market. However, this paper does not take deal initiation into account which, consequently, lifts information asymmetry consideration at a firm/market level, and not at the firm/firm level.

From the literature review provided above, we observe that researchers emphasize an important explanatory role of information asymmetry in estimating M&A outcomes. With the aim to capture different degrees of adverse selection effects, they use a variety of proxies. We draw our research on the quest given by Halpern (1982) who defined the need to do additional research on concentration ratios and merger types in corporate takeover studies. A critical review of the literature that associates information asymmetry with different levels of industry concentration and merger types is given in the following section.

Market concentration, type of merger and information asymmetry

Since late 1980s researchers have shown their attempts to draw a line between concentration and information asymmetry at a firm level of analysis. For example, Chiang R. and Venkatesh (1988) used a proxy of concentration of insider holdings to measure the level of information asymmetry faced by the dealers. Their underlying assumption was that a company with higher concentration in ownership structure and higher insiders' ownership hold larger proportion of shares that could be traded among informed traders and, consequently, leave dealers with higher information costs. Chiang R. and Venkatesh (1988) found that higher concentration led to a wider bid-ask spread among the dealers. Researchers also discussed a small-firm anomaly in that respect. They argued that a small-firm tends to have a smaller number of insiders, and consequently, retains more inside information which poses greater adverse selection risk to the dealers. Similarly, in the analysis of Malaysian manufacturing industry Ei Yet and Saw Imm (2010) documented that insiders with more than 41 per cent of holdings cause high information asymmetry in a low competitive market.

The above mentioned statements about the informed trading at the firm level of analysis makes us assume and test whether the same hypothesis holds at the industry level. Following this line of thought, our assumption is that firms in markets of high concentration are more likely to involve in the informed transactions among themselves as there are relatively fewer uninformed participants when compared with dispersed ones in markets of low concentration. Another, albeit not direct, link between market concentration and information asymmetry could be drawn from the study of Kewei and Robinson (2006). The

researchers studied the relationship between industry concentration and average stock returns and found that in more concentrated markets the average stock returns were lower comparing to more competitive industries. One of the explanations that these authors made was that different risk magnitudes command for different stock returns. Drawing on Kewei and Robinson (2006), we assume that information asymmetry accounts for the total risk that is perceived by the market which we expect to be relatively lower in more concentrated industries. In other words, we assume that in more concentrated markets the adverse selection risk which is triggered by asymmetric information between merger participants is less severe. The common value auction approach supports our view. Researchers argue that a greater concentration, or “allocation”, of information among bidders leads to more precise valuation, yet it reduces competition which forces bidding prices to go down (Mares and Shor 2006). When keeping the competition factor constant, high market concentration leads to more precise valuation as it reduces a magnitude of adverse selection risk among bidders which, in turn, moderates the effect of deal initiating party on target returns (ibid).

Beyond market concentration, different merger types could also signify different levels of information asymmetry and, therefore, could moderate a relationship between initiating party and takeover outcomes. To start with, mergers are often categorized as ‘horizontal’, ‘vertical’ and ‘conglomerate’ mergers (Gaughan 2011, 13-14). Mergers between competitors in the same market are referred to as *horizontal* mergers, whereas *vertical* mergers are the ones where companies had buyer-seller relationships previously before the deal was initiated. The prior buyer-seller relationships make us assume that the companies know each others’ products, processes and routines rather well, despite the fact that entering new business areas might sometimes reveal unanticipated clashes with new competitors at different supply chain levels. A high degree of inter-competition inherent in horizontal mergers may also signify good information allocation among rivals, albeit incidents of non-perfect (e.g. noisy, delayed) signals may be reported. Following the information allocation argument, we treat horizontal and vertical mergers more alike than different and, thus, define them as a non-conglomerate group of mergers in the remaining parts of the thesis.

In contrast to horizontal and vertical mergers, conglomerates are mergers where companies are neither competitors nor alliance parties through buyer-seller relationships but operate in unrelated industries. The biggest incentives to execute such deals are business diversification goals and pursue of the above-average returns. However, studies show that executing such deals is challenging because of higher market entry barriers and high probability of mistakes due to lack of knowledge and high information costs about the relevant industry. Moreover, there is an evidence showing that poorly performing companies find themselves more frequently in the midst of diversification strategy (Gaughan 2011, 153).

After running a cross-sectional regression on mergers over the period of 1950-2006 Akbulut and Matsusaka (2010) questioned a long-lasting paradigm of diversification-discount as they did not report lower combined (acquirer plus target) returns in conglomerate mergers, when compared to non-conglomerate mergers. To explain such a result, they used internal capital market hypothesis which lost its support after external capital markets became more developed in late 1980s. Consequently, in their sample of transactions that were concluded after the 1980's Akbulut and Matsusaka (2010) found less positive returns in diversification mergers that could be explained by agency cost hypothesis and the shift in market attitude towards conglomerates. Since Akbulut and Matsusaka (2010) did not look at the target CARs exclusively, we cannot draw any conclusions in terms of market reaction towards the targets. However, a change in market attitude towards conglomerates gives us a good incentive to investigate market reaction against the targets solely in our recent data sample.

The 'synergy' perspective seems to be very relevant in understanding the role of different types of mergers in corporate takeovers. It is well known that a number of synergies could be derived from mergers, such as cost-reduction and revenue enhancing, tax-based, debt-capacity, internalization, etc. Horizontal mergers, according to Gaughan (2005), have highest potential for such synergistic effects as companies operating in the same market tend to realize synergies easier because of better understanding of the industry they operate in. We would expect the same tendencies to appear in vertical mergers due to relatively low information asymmetry costs. Interestingly, empirical evidence suggests that returns to seller shareholders are larger in conglomerate mergers than in non-

conglomerates (Gaughan 2005). However, after controlling for a method of payment in such analyses, a merger type loses its explanatory power, and cash payments appear to be responsible for these higher returns (Lane and Yang 1983). In turn, it remains unclear whether a type of merger matters in estimating target wealth returns. Drawing on this limitation in prior research, we argue that the price a buyer considers paying for a target consists of two major components – equity's market value (1) and potential synergy benefit (2) – that are both subject to negative information asymmetry effects. While asymmetric information in estimating a “real” equity value can be shaved away by executing “heavy” due diligence, the assessment of potential synergy benefits requires a deep knowledge of the target firm and the industry in which it operates (Halpern 1982). Due to relatively low information asymmetry costs in vertical and horizontal mergers, we expect that this competence is mastered more effectively in non-conglomerate mergers.

Faccio and Masulis (2005) paper supports our view. In their investigation of European mergers, researchers document significant differences in choices of payment methods across different types of mergers. Their analysis suggests that bidders tend to use cash payment more often in related industries (horizontal and vertical mergers) than in unrelated (conglomerate) mergers. Given that stock-offerings feature contingent-pricing characteristics (Hansen 1987), our assumption that these offerings are preferred in cases of higher asymmetric information seems to be plausible. It is also in line with Eckbo (2007) who names information asymmetry as one of the key determinants of payment choices. The above-given findings and explanations allow us to state that non-conglomerate mergers are more likely to incorporate less asymmetric information.

To conclude, researchers reported conclusive evidence that deal initiation matters in M&A deals and affects their outcomes. It seems there is a common agreement among scholars that target wealth effects are higher in bidder-initiated deals than in target-initiated deals. The *adverse selection risk theory* and, more specifically, the *information asymmetry* argument have been used to explain such variation. Prior research also made us believe that deal partners may be unequally exposed to adverse selection risk under different levels of *market concentration* and in

deals of different *merger types*. In order to test these relationships, we develop two sets of hypotheses and explain them in more detail in the following section.

Hypotheses

The main goal of this study is to test *whether* and *how* deal initiation matters in takeover markets, i.e. whether and how it affects bid-premiums and cumulative abnormal returns to target shareholders. In this manner, our investigation draws heavily on Simsir (2008) work and aims to reaffirm his findings on a bigger sample that also involves “clean” initiation dummy variables. Following Simsir (2008), we raise our first set of hypotheses as follows:

H₀: There is no difference between wealth effects to target shareholders depending on who initiates the deal, buyer or seller.

H₁: There is a difference in wealth effects to target shareholders depending on who initiates the deal, buyer or seller.

Differently from Simsir (2008) but similar to De Bodt, Cousin, and Demidova De Bruyne (2011) we assume that the effect of initiating party on takeover outcomes is moderated by different degrees of information asymmetry. Drawing on our literature review, we hypothesize that the magnitude of adverse selection risk (a result of information asymmetry) is different under different market concentration levels and across different merger types. Consequently, we assume that market concentration and merger type alter the slope of initiation variable effect. To test our hypotheses, we introduce two interaction terms, respectively: 1) an interaction term between market concentration and initiation variable, and 2) an interaction term between a merger type (conglomerate *versus* non-conglomerate) and initiation. As a result, our second set of hypotheses is as follows:

H₀: There is no significant effect of interaction term on wealth effects to target shareholders ($\beta_3 = 0$)

H₁: There is a significant effect of interaction term on wealth effects to target shareholders ($\beta_3 \neq 0$)

Our interaction term presents either the level of market concentration or a merger type, and we run these regressions separately. Thus, a second set of our hypotheses involves testing of four different regressions. Two separate regressions will be run for bid-premiums and cumulative abnormal returns, including initiation on the market concentration variable. The other two will incorporate a merger type as the interaction term, instead.

Data and methods

Sample and data collection

Our data sample derives from two different sources. The main dataset was provided to us by our supervisor Øyvind Norli whom, together with Eckbo and Thorburn, has compiled the data. In order to examine interaction effects of deal initiation, merger type and market concentration on target premiums, we have extended the sample with data from the US Census Bureau.

Eckbo, Norli & Thorburn dataset

The sample consists of 3316 publicly announced US corporate transactions over the period of 5.6.1996 – 12.31.2009 and collected from Thompson SDC's Merger and Acquisition database. The data set was constructed using the following criteria:

- *Deal Code: M (Merger) or AM (Acquisition of majority interests)*
- *Merger status: reported*
- *Deal: completed or withdrawn*

In order to classify the initiating party, the SEC-EDGAR⁶ database was used to search for SEC filings by target and the bidder in a 12 month window after the announcement date of the transaction. SEC filings of forms, such as DEFM14A (definitive proxy statement for M&A), PREM14A (preliminary proxy statement for M&A), schedule TO-T (third party tender offer), 14D9 (management tender offer recommendation) were studied in order to explore the background of the merger, and in particular to determine the initiating party. The authors were

⁶ All US companies that are required to file statements with the Securities and Exchange Commission do this electronically in the SEC-EDGAR database.

particularly concerned with identifying the parties that took the initial approach or even the strategic action that led to a merger. The less complicated story is when a target firm A directly approaches a firm B with the intention to negotiate a merger deal that consequently leads to a merger AB. However, most of the transactions are of a more complicated nature. A merger is categorized as the target-initiated deal when it is initiated by the target board or a target shareholder activist. We create a dummy variable *deal initiation* taking the value of ‘1’ if it is a bidder-initiated deal and ‘0’ if it is otherwise.

To obtain financial data and merger-associated ratios concerning the targets, they were combined with target information from CRSP and Compustat. From the data set we use the following abnormal return (AR)⁷ variables in our regressions: cumulative abnormal return to the target 3 days around the merger announcement (*CAR3*) and bid premiums calculated using the stock price 4 weeks and 1 day before the announcement (*Premium4w* and *Premium1d*). In addition, we add the variable *Runup* which is the target CAR in the window of (-40, +1) to capture potential increase in the target stock price due to information leakage to the public about the forthcoming merger.

Extended dataset: industry concentration and merger type

Drawing on our literature review and developed hypotheses, we have extended the *Eckbo, Norli and Thorburn* dataset with two variables: 1) Industry Concentration, and 2) Merger Type.

Industry Concentration

This variable was extracted from the US Census Bureau’s (UCB)⁸ Economic Census Survey. The available years for the survey were 1997, 2002 and 2007. The mining and construction industries were not reported by UCB. Consequently, observations where the target was from one of these industries were not sampled.

⁷ The abnormal return is defined as excess return above the expected return calculated using the market model (Brooks, Chris. 2008a. *Introductory econometrics for finance*. 2nd ed. Cambridge: Cambridge University Press.).

⁸ US Census Bureau is an underlying entity of the US department of commerce. They provide national surveys within economics and other areas. The database is accessible at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

Possible implications of this are discussed in the final part of the thesis where we comment on the robustness of our findings.

Market concentration measures reported were the ratio of turnover to the total industry for the 4, 8, 20 and 50 largest firms. As for the manufacturing industry, the report also gave the Herfindal-Hirschman Index (HHI) which indicated the market shares of the 50 largest firms in a respective industry.

It is worth of mentioning that in 1997 the US industry classification system changed from the Standard Industrial Classification (SIC) to the North American Industry Classification System (NAICS). This change has also been implemented in UCB surveys which meant that market concentration measures were reported in the new system. Given that the Eckbo Norli and Thorburn dataset provided the SIC codes only, we have manually converted between the classification systems. However, there was no direct way of converting between the systems since the old and new codes did not match one another. A solution to this could have been a UCB published concordance table which created a mapping between the old and new system. However, as criticized by Beekman (1992)⁹, concordance coefficients do not constitute a real continuation of time series but only approximations and, therefore, should be treated with caution. In order to keep the quality and comparability of the time series, we used a set of selection rules. We did not match SIC codes with NAICS codes where one SIC (NAICS) code linked to more than one NAICS (SIC) code. Neither did we match codes where the link could not be fully explained by USB. We used market concentration ratios reported on the 3 digit NAICS codes. Higher digit levels (e.g. 6 digits) significantly reduced the total sample as they were more often in conflict with the selection rules.

Industry concentration ratios were reported differently in the manufacturing industry compared to other industries. We took this point into account when creating the variables: *Conc4* reports the concentration ratio for the 4 largest firms in the industry subsectors (3 digit NAICS), except manufacturing; *Manuf_va4* reports the concentration ratio for the manufacturing subsectors measured by

⁹ In UCB Issue Paper NO.5 The Impact of Classification Revisions on Time Series

value added. *Manuf_pos4* is equal to the latter but measures concentration by percentage of shipments. Furthermore, we created the same variables for each measure of concentration, i.e. 8, 20 and 50 firm. These variables are introduced in the methodology part where we conduct several robustness checks. *HHI_va* and *HHI_pos* reports the HHI for subsectors in the manufacturing industry.

In constructing these variables we effectively reduced the total sample size from 2413 to 1652 in the first case, and had 973 observations in the manufacturing sample.

Since the survey was not undertaken annually we used 1997 ratios for the transactions between 1996 and 2001, while 2002 was matched with 2002 – 2006 and 2007 ratios were used for 2007 – 2009. In total, we matched 2413 transactions with measures of industry concentration. The remaining 903 of the full sample were in violation of selection rules or did not have a match. A detailed description of the data screening can be viewed below, in *Table 1*.

Table 1

<i>Concentration Measure</i>	<i>N</i>	1996-2009			
		<i>All</i>	<i>t_conc</i>	<i>t_manuf</i>	<i>t_HHI</i>
<i>Initial Sample</i>	<i>N</i>	3316	2343	973	973
<i>Excluded because of selection rules</i>	<i>N</i>	381	280	101	101
<i>Not reported</i>	<i>N</i>	522	411	111	111
<i>Matched observations</i>	<i>N</i>	2413	1652	761	761

Merger types

We coded takeover transactions as either non-conglomerate (horizontal or vertical) or conglomerate deals. Although we treated horizontal and vertical transactions as non-conglomerate mergers, we still distinguished between the two. We did this in order to use the ‘horizontal merger’ variable as a control variable in our regressions, capturing the effect of asset relatedness. Since merger types were not reported in our data, we used proxies to determine them. Mergers were treated as horizontal in cases when the merging firms shared the same 4 digit SIC codes. Vertical mergers had 4 different digit SIC codes but were from the same industry

group (2 digit SIC). We determined conglomerate deals when the merging firms were from different industry groups. To separate those different merger types, we used dummy variables. *Horizontal* marked horizontal mergers with the value of ‘1’ and we coded ‘0’ if it was otherwise. The variables *Vertical* and *Conglomerate* were coded, respectively. As footherwiser the merger type, a full sample was kept and all transactions were coded. Overall, there were 1340 (41%) vertical, 1032 (31%) horizontal and 944 (28%) conglomerate transactions in our data sample.

Data descriptive

The size of our sample and a number of variables that we use calls for an in-depth analysis of sample distribution. In the following section we present what we deem to be the most interesting findings in descriptive statistics.

As shown in *Figure 1* (see below), our sample is somewhat different from the one of Simsir (2008). He reports that buyer-initiated deals outweigh target-initiated deals in most of the years covering his sample. Our sample shows that 52% of the mergers are target-initiated deals. However, this number is not consistent over the years. The years of 1998 and 1999, two most active years for the mergers in our sample, show that 60% of the transactions were initiated by targets. Data from 2001 and 2006 show that 54% and 56% of deals are bidder-initiated mergers, while the remaining years display no large differences.

Figure 1

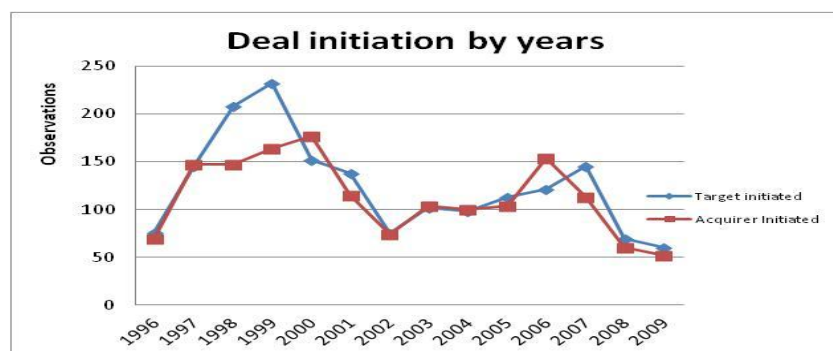


Table 2 (see below) shows the total number of transactions in each year split between target- and bidder-initiated deals. We compare the means for each group

Table 2-Mean differences in CAR 3 days year by year 1996-2009

<i>Year</i>		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
<i>Full Sample</i>	N	146	292	355	396	329	253	149	206	198	217	275	258	130	112	3316
<i>Target Initiated</i>	N	76	145	208	232	152	138	75	102	98	113	121	145	70	60	1735
<i>Acquirer Initiated</i>	N	70	147	147	164	177	115	74	104	100	104	154	113	60	52	1581
<i>Mean Target CAR in acquirer initiated deals</i>	%	15,4 %	15,0 %	18,1 %	14,9 %	18,0 %	22,9 %	22,8 %	19,7 %	17,4 %	18,3 %	18,4 %	18,9 %	28,3 %	29,2 %	18,9 %
<i>Mean Target CAR in target initiated deals</i>	%	14,0 %	8,8 %	14,7 %	16,1 %	18,5 %	18,7 %	20,0 %	15,2 %	12,8 %	10,3 %	15,7 %	16,4 %	29,8 %	20,1 %	15,8 %
<i>Difference in means</i>	A-I	1,4 %	6,1%***	3,3%*	-1,2 %	-0,5 %	4,2%*	2,8 %	4,4%*	4,6%**	7,9%***	2,6%*	2,5 %	-1,5 %	9,1%**	3,0***
<i>t-value</i>		0,54	2,96	1,58	-0,59	-0,21	1,37	0,73	1,58	2,08	3,62	1,44	1,22	-0,26	1,76	4,26

of initiators and test the one-sided hypothesis that the 3 day CAR means in bidder-initiated deals are higher than those of the target-initiated deals. Our findings show that the differences in means are positive in 11 out of 14 years covering our sample, and 8 of them being significantly different from zero. Years of 1999 and 2000 leading up until the recession in 2001 and ending with the turbulence around 9/11 show a negative but insignificant difference in CAR means. The same is true for 2008 which is the period around the subprime mortgage crisis. What is more interesting is the fact that the highest positive differences in means were in years following financial turmoil. There might be many plausible explanations of this observed pattern. One of those might be attributed to the target returns that are affected by volatility differences in the sample period (Simsir, 2008). A more detailed discussion about how we controlled for that potential effect is introduced in the methodology section of this thesis.

In *Table 3* (see below) we compare firm, deal and financial characteristics for targets as well as for bidders in different merger types. By introducing different types of the merger we show that targets tend to take initiative more often in conglomerate and vertical mergers, yet there is no such difference in horizontal deals. Among all types we observe that the size of the average bidder is 4 times the one of the target. We also observe that the number of completed non-conglomerate deals is higher than conglomerate deals (80% of the conglomerate deals are completed while in vertical and horizontal mergers this number reaches 90%.) Targets that initiate conglomerate deals are higher book to market firms than targets that take initiative in horizontal and vertical deals. There is no specific difference in leverage between the groups (an average leverage is about 22%).

Table 3

Variable		Conglomerate		Horizontal		Vertical	
		Target Initiated	Bidder Initiated	Target Initiated	Bidder Initiated	Target Initiated	Bidder Initiated
		<u>525</u>	<u>419</u>	<u>515</u>	<u>517</u>	<u>695</u>	<u>645</u>
<i>Completed Percentage of stock</i>	N	426	340	468	471	630	590
	Mean %	19 %	22 %	44 %	48 %	47 %	42 %
Relative size	Mean%	31 %	21 %	29 %	29 %	24 %	23 %
Book to market	Mean	90 %	75 %	73 %	66 %	68 %	65 %
Leverage		21 %	19 %	22 %	19 %	25 %	21 %

Statistical Model

In line with the conventional thought in statistical handbooks (Brooks 2008b; Wooldridge 2009), we use a cross-sectional event study methodology to measure wealth effects to target shareholders in the period around the announcement of a corporate takeover. This method will enable us capturing the impact of the announcement on returns, depending on deal initiation and the relevant set of control variables.

The section consists of three parts. *First*, we develop and explain a statistical model used to test our first hypothesis whether the gap between target- and bidder-initiated deals are different from zero. If we are to reject the null hypothesis, our results are consistent with the findings of Simsir (2008). *Secondly*, we introduce the variables of ***concentration*** and ***merger type*** to test moderating effects of ***deal initiation*** on returns to target shareholders. *Last but not the least*, we present a number of variables that we use to control for other known effects on target returns in the setting of corporate takeover announcements.

We run a cross-sectional regression model which was first developed by Simsir (2008) by applying a standard OLS procedure. This allows us to test the hypothesis that there is a significant difference in wealth effects (WE) to the target depending on who initiates the deal, buyer or seller. We measure WE using three different dependent variables: 1) Car3, 2) Premium1d and 3) Premium4w. The first variable measures the cumulative abnormal return to target shareholders 3 days around the announcement (-1, +1). The second and third variable measures target wealth effects by comparing the difference between the stock prices 1 day and 4 weeks prior to the announcement with the price offered by the acquirer.

$$(1) WE_i = \alpha_0 + \beta_1 * Initiation_i + \beta_n * Controls_n + \varepsilon_i$$

Our econometric model regress WE on the deal initiation variable and the relevant set of controls. In this case, deal initiation is a dummy variable with the value of ‘1’ if it is a bidder-initiated deal and ‘0’ if it is otherwise. Given the significance of β_1 , an interpretation is that the average WE to the target differs when the transaction is initiated by the bidder. Holding all other variables equal to zero, the

intercept measures WE in the base case where the transaction is initiated by the target.

As we have seen from the literature review, many scholars agree that variation in target wealth effects in bidder- and target-initiated deals exist and could be explained by the information asymmetry argument. We hypothesize that a merger type and market concentration proxy for different levels of information asymmetry that, in turn, moderate the effects of deal initiation on target wealth. To measure these moderating effects, Wooldridge (2009) suggests adding interaction terms. Following that, we specify two econometric models: the first taking into account a merger type, and the second one – market concentration. We distinguish between conglomerate and non-conglomerate transactions where horizontal and vertical mergers collapse into the category of the latter (see, Equation (2) below). As mentioned above in the data section, we created two different samples of market concentration data and, therefore, run the regressions on both samples (see, Equation (3) below) generating in total 6 regressions for the model.

$$(2) WE_i = \alpha_0 + \beta_1 \text{Initiation}_i + \beta_2 \text{Conglomerate}_i + \beta_3 (\text{Init}_i * \text{Congl}_i) + \beta_n \text{Controls}_n + \varepsilon_i$$

$$(3) WE_i = \alpha_0 + \beta_1 \text{Initiation}_i + \beta_2 \text{Concentration}_i + \beta_3 (\text{Init}_i * \text{Conc}_i) + \beta_n \text{Controls}_n + \varepsilon_i$$

Our interpretation of the two equations differs, to some extent. Equation (2) involves interaction terms between the two dummy variables that allow us to estimate the percentage point difference in wealth effects across all four groups:

- Bidder-initiated conglomerate transactions
- Bidder-initiated non-conglomerate transactions
- Target-initiated conglomerate transactions
- Target-initiated non-conglomerate transactions

Equation (3) allows us to test whether there is a significant difference in target WE across different levels of market concentration in the target industry. By holding the variation in WE in bidder- and target-initiated deals constant, we would expect the WE to converge as market concentration level increases.

We also add a set of control variables in our model in order not to omit the effects of other potential explanatory variables. We select control variables and respective measures from Simsir (2008) and De Bodt et al's (2011) studies, in particular, *deal completion ('1' if completed, '0' if otherwise), percentage of cash, log of relative sizes, R&D, enterprise value, book to market, asset relatedness and capital expenditures*. In addition, we control for the *volatility of the stock market* in the transaction period. This is proxied by using the S&P 500 Volatility Index (VIX) which is an implied market expectation of the movement on the index the next 30 days.¹⁰

RESULTS

Target Wealth Effects of Deal Initiation

In our first econometric model we tested the null hypothesis implying no significant difference in wealth effects to target shareholders irrespective of who initiated the deal – the buyer or the seller. However, as shown in *Table 4* (see below), deal initiation has a significant effect on target returns at .01 level. With this, we reject the null hypothesis and firmly state that the targets earn, on average, more when the takeover deal is initiated by the bidders. A short-term investor (-1 day) earns 3.4 percentage points more by buying the stock before the announcement and selling it after, while a long-term investor (-4 weeks) gains an offer premium of 6.6 percentage points compared to the cost price of the stock.

¹⁰ The CBOE Volatility Index (VIX) is a key measure of market expectations of near-term volatility conveyed by S&P stock index option prices- Chicago Board Options Exchange <http://www.cboe.com/micro/VIX/vixintro.aspx>

Table 4

Coefficient Sample	(1) CAR3	(2) Premium 1d	(3) Premium 4w
	<u>Full sample</u>	<u>Full sample</u>	<u>Full sample</u>
<i>C</i>	0,0272	0,1433	0,1570
<i>Deal initiation</i>	0,0347*** (5,4852)	0,0644*** (3,7951)	0,0665*** (2,778)
<i>Percentage of stock</i>	-0,000*** (4,454)	-0,000 (-0,792)	-0,000 (-0,308)
<i>Deal Completed</i>	0,0444*** (4,4889)	-0,073** (-2,772)	-0,038 (-1,017)
<i>Asset relatedness</i>	-0,002 (-0,316)	0,0104 (0,5668)	0,0099 (0,3802)
<i>Book to market</i>	0,0088*** (3,0905)	0,0180** (2,3461)	0,0256** (2,3577)
<i>Capex</i>	0,0263 (0,5930)	-0,135 (-1,138)	-0,359* (-2,139)
<i>Enterprise value</i>	0,00001 (0,9529)	-0,000 (-1,914)*	-0,000 (-2,228)**
<i>Leverage</i>	0,0861*** (6,5092)	0,0249 (0,7021)	-0,024 (-0,490)
<i>Log of the relative sizes</i>	-0,047*** (-5,399)	-0,049** (-2,091)	-0,054 (-1,634)
<i>R&D</i>	0,1802*** (7,2587)	0,3434*** (5,1598)	0,2789*** (2,9719)
<i>Runup</i>	-0,066*** (-4,958)		
<i>Volatility(VIX)</i>	0,0026*** 5,9965	0,0086 7,4106	0,0107 6,4963
<i>R-Squared</i>	0,0560	0,0236	0,0166

Note. This table displays model 1 (presented in the data and methods section) where we regress *deal initiation* ('1' is bidder- initiated and '0' is target-initiated deal) on target cumulative abnormal return 3 days around the merger, and the premium for a shareholder buying the stock 1 day and 4 week before the offer price is announced. Other variables are used to control for known effects on target return around the announcement day. In line with Simsir (2008), we do not incorporate *Run-up* in the regressions, including premiums, since they are partly overlapping. t-values are reported in parentheses, and * denotes significance at .1 level, **at .05 level, and *** at .01 level.

Our control variables also provide us with some important information: *first*, they confirm the relevance of our chosen controls, and *secondly*, they prompt us to think about particularities of our sample if the results contradict findings from previous studies. More specifically, we notice that returns are decreasing with increased use of stock as a method of payment. The coefficient, although small in magnitude, on stock payments is negative and significant in the first regression (see, *Table 4*). However, the sign is changing across the regressions, and the stock payment method becomes no longer significant in explaining the bid premiums. Moreover, deal completion and target leverage is significant at .01 level in explaining CARs (4.4%, t= 4.4 and 8.6%, t=6.5). Interestingly, directionality of those effects change when moving across the regressions (2) and (3) and estimating the bid premiums. The relative difference in size between targets and bidders has a negative and significant effect on short-term returns and premiums.

Our reported volatility index signifies that target wealth effects are on average higher in more volatile stock market periods. Overall, our empirical evidence confirms findings of other scholars (e.g. Simsir (2008), Xie (2010), Anilowski Cain, Macias, and Sanchez (2010)) about the important role of initiating party when estimating target wealth effects in takeover markets.

In the following two sections we present the results of our second model (Equations (2) and (3)) where we show moderating effects of a merger type and market concentration on the relationship between deal initiation and target wealth returns.

Interaction Effect of Merger Type and Deal Initiation

Drawing on our assumption that conglomerate mergers posit higher information asymmetry costs when compared with non-conglomerates, we tested a null hypothesis implying that a merger type has no moderating effect on relationship between deal initiation and target wealth. Statistically speaking, when incorporating the interaction term *initiation*conglomerate* into our regression model, we expected *deal initiation* to have positive and significant effects on target returns, irrespective of what type of merger was announced.

As we can see in *Table 5* (see below), the effect of deal initiation remains positive and significant in our new model and confirms our initial hypothesis that initiating party matters in estimating wealth to target shareholders.

Table 5

Coefficient	(1)	(2)	(3)
	CAR3	Premium 1d	Premium 4w
Sample	Full sample	Full sample	Full sample
<i>C</i>	0,0362	0,1623	0,1868
<i>Deal initiation</i>	0,0296*** (3,9672)	0,0603*** (3,0124)	0,0471* (1,6538)
<i>Conglomerate Merger</i>	-0,0199** (-2,0452)	-0,0341 (-1,3042)	-0,0613* (-1,6469)
<i>Initiation*Conglomerate</i>	0,0162 (1,1596)	0,0062 (0,16532)	0,093* (1,7377)
<i>Deal Completed</i>	0,0424*** (4,2655)	-0,0785*** (-2,9432)	-0,0351 (-0,9269)
<i>Percentage of stock</i>	-0,0003*** (-4,7735)	-0,0002 (-1,1182)	-0,0002 (-0,2284)
<i>Book to market</i>	0,0091*** (3,1944)	0,0174** (2,2704)	0,0324*** (2,9659)
<i>Capex</i>	0,0328 (0,7368)	-0,1241 (-1,0389)	-0,3008* (-1,7712)
<i>Enterprise value</i>	0,000015 (0,9271)	0,00008* (-1,843)	0,000015** (-2,5063)
<i>Leverage</i>	0,0853*** (6,4449)	0,0169 (0,4773)	-0,0003 (-0,0078)
<i>Log of the relative sizes</i>	-0,0489*** (-5,5148)	-0,0466** (-1,9677)	-0,0796** (-2,3632)
<i>R&D</i>	0,1807*** (7,281)	0,3443*** (5,1722)	0,285*** (3,0102)
<i>Runup</i>	-0,0667*** (-5,0121)		
<i>Volatility(VIX)</i>	0,0025*** (5,9093)	0,0086*** (7,3545)	0,0107*** (6,4161)
R-Squared	0,0749	0,0371	0,0282

This table displays Model 2 (presented in the data and methods section) where we regress *deal initiation* ('1' is bidder- initiated and '0' is target-initiated deal) on target cumulative abnormal return 3 days around the merger, and the premium for a shareholder buying the stock 1 day and 4 week before the offer price is announced. We also add an interaction term *Initiation*Conglomerate* (where conglomerate is a dummy taking the value of '1' when it is a conglomerate merger and '0' when it is otherwise) in order to capture a moderating effect of *conglomerate merger* on relationship between deal initiation and target returns. Other variables are used to control for known effects on target return around the announcement day. In line with Simsir (2008), we do not incorporate *Run-up* in the regressions including premiums, since they are partly overlapping. t-values are reported in parentheses, and * denotes significance at .1 level, ** at .05 level and *** at .01 level.

As shown in *Table 5*, the coefficient on the 4-week bid premium reduces from 6.6% to 4.7% in magnitude and its significance diminishes from .01 level to .1 level. A direct effect of a conglomerate type of the merger on target returns is negative and significant (except for 1-day bid premiums), supporting a theory that conglomerates are trading at a discount (Lang and Stulz 1994). We also report that the interaction effect of *deal initiation* and *conglomerate merger* is non-significant in all our models, except for the 4-week bid premium model. In the latter (see, Model (3) in *Table 5*), the coefficient is positive and high as 9.3% (t=1.7) and significant at .1 level. These results are somewhat conflicting and let us conclude that the null hypothesis cannot be completely rejected. Overall, an interpretation of this is that the variation in target returns still remains, and its

magnitude is levered when we add our proxy for information asymmetry. More precisely, we observe (holding control variables constant) that targets, on average, earn 6.13¹¹ percentage points more in target-initiated non-conglomerate deals than in target-initiated conglomerate deals. This difference increases from 4.71 to 10.84 percentage points when bidders take the initiative in non-conglomerate deals. Target returns increase with another 3.17 percentage points in bidder-initiated conglomerate deals.

We observe that conglomerate mergers have two opposing effects. On the one hand, they result in negative premiums in the form of a discount. On the other hand, our results show that in bidder-initiated conglomerate mergers the overall target wealth effect is positive. Intuitively, we believe that the negative effect associated with conglomerate mergers is outweighed by the fact that bidders tend to bid higher in these mergers. One possible explanation could be information asymmetry between bidders and targets which is likely to be high due to less transparency and knowledge of unrelated businesses. Another plausible explanation could be that conglomerate acquirers have higher bargaining power than non-conglomerate ones when the targets take initiatives because targets have no distinct assets to complement other than the pure diversification effect.

Interaction Effect of Deal Initiation and Industry Concentration

A third question that we investigate in this thesis is whether and how the level of target industry concentration moderates the effect of deal initiating party and target returns. We believe that the relevant information is easier to access the higher the level of industry concentration is. This leads us to believe that the gap in target returns decreases across target- and bidder-initiated deals with an increase of industry concentration. Holding the average discrepancy between target returns in target- and bidder-initiated deals constant, we test the null hypothesis implying that there is no significant difference in the linear slopes estimated by our regression models. We expect a positive effect of deal initiation and a negative effect of the interaction term. As mentioned in the data and methods section of this thesis, we run our regressions on two samples - a full sample with a 4-firm concentration measure and a sub-sample of manufacturing

¹¹ The differences between groups are calculated holding the control variables constant and inserting the respective values of the dummy parameters for each group into the regression equation.

firms with the Herfindal-Hirschman Index). The results with full sample are presented in *Table 6*, and results from the subsample are reported in *Table 7*.

Table 6

Coefficient	(1)	(2)	(3)
	<i>CAR3</i>	<i>Premium 1d</i>	<i>Premium 4w</i>
Sample	<u>1652</u>	<u>1652</u>	<u>1652</u>
<i>C</i>	0,0360	0,1640	0,1512
<i>Deal initiation</i>	0,0369*** (4,6531)	0,0552*** (2,5885)	0,0779*** (2,5677)
<i>Industry concentration</i>	-0,0010*** (-2,5939)	-0,0023** (-2,1343)	0,0014 (0,9166)
<i>Initiation* Concentration</i>	-0,0003 (-0,6134)	0,0008 (0,5339)	-0,0003 (-0,1703)
<i>Deal Completed</i>	0,0454*** (4,6061)	-0,0721*** (-2,7205)	-0,0338 (-0,8966)
<i>Asset Relatedness</i>	0,00007 (0,0110)	0,0146 (0,4288)	0,0066 (0,2514)
<i>Percentage of stock</i>	-0,0003*** (-4,3159)	-0,0001 (-0,7115)	-0,0000 (-0,1001)
<i>Book to market</i>	0,0086*** (3,0302)	0,0165** (2,1464)	0,0319*** (2,9212)
<i>Capex</i>	0,0010 (0,0231)	-0,1792 (-1,4923)	-0,2917* (-1,7067)
<i>Enterprise value</i>	0,0000 (1,0913)	-0,0000* (-1,7319)	-0,0000** (-2,5493)
<i>Leverage</i>	0,0918*** (6,9213)	0,0282 (0,7948)	-0,0041 (-0,0813)
<i>Log of the relative sizes</i>	-0,0475*** (-5,3826)	-0,0428* (-1,8140)	-0,0797** (-2,3708)
<i>R&D</i>	0,1654*** (6,6142)	0,3213*** (4,7817)	0,2952*** 3,0873
<i>Runup</i>	-0,0680*** (-5,1108)		
<i>Volatility(VIX)</i>	0,0025*** (5,9185)	0,0086*** (7,3750)	0,0108*** (6,4873)
R-Squared	0,0774	0,0347	0,0240

This table displays Model 3 (presented in the data and methods section) where we regress *deal initiation* ('1' is bidder-initiated and '0' is target-initiated deal) on target cumulative abnormal return 3 days around the merger, and the premium for a shareholder buying the stock 1 day and 4 week before the offering price is announced. We also add an interaction term *Initiation*Concentration* (4 firms ratio) in order to capture interaction effects of *industry concentration* and *deal initiation*. Other variables are used to control for known effects on target returns around the announcement day. In line with Simsir (2008), we do not incorporate *Run-up* in the regressions, including premiums, since they are partly overlapping. t-values are reported in parentheses, and * denotes significance at .1 level, ** at .05 level and *** at .01 level. Note that we exclude manufacturing industry from this regression analysis as Herfindahl-Hirschman Index is used as a concentration ratio therein.

The test results from *Table 6* show, in line with our results in *Tables 4 & 5*, that *deal initiation* measured on a standalone basis is significant in all regressions. The single variable *industry concentration* is negative and significant in explaining target wealth effects in the short run (regressions (1) and (2)). More explicitly, a 10% increase in target industry concentration is followed by a decrease in target returns with 1%, independent of who initiates the transaction. The interaction term *initiation*concentration* is negative but insignificant at all sig. levels. Hence, statistically, we find no support in our data and, therefore, are not able to reject the null hypothesis.

There might be many explanations for our reported non-significant relationships. One of those might relate to the fact that the sample suffers from selection bias since not all industries are included, e.g. mining and construction industries are not represented in the UCB reports. In addition, the manufacturing industry is also omitted from this sample as industry concentration level therein is reported using the HHI. Generally speaking, Herfindahl-Hirschman Index is a more widely used (and possibly a better) measure of industry concentration, yet it is largely absent in our dataset. Following this thought, we perform the same test for the subsample of manufacturing industry (see, *Table 7* below).

Table 7

Coefficient	(1) CAR3	(3) Premium 1d	(4) Premium 4w
Sample	761	761	761
<i>C</i>	0.0220	0.1410	0.1620
<i>Deal initiation</i>	0.0392*** (5.771)	0.0598*** (3.270)	0.0711*** (2.734)
<i>Industry concentration(HHI)</i>	0.0001*** (2.722)	0.0001 (0.853)	0.0001 (0.693)
<i>Initiation* Concentration(HHI)</i>	-0.00014** (-2.136)	0.00004 (0.224)	0.00001 (0.040)
<i>Deal Completed</i>	0.0436*** (4.416)	-0.073*** (-2.771)	-0.033 (-0.877)
<i>Asset Relatedness</i>	-0.0018 (-0.2707)	0.0105 (0.5724)	0.0089 (0.3410)
<i>Percentage of stock</i>	-0.0003*** (-4.300)	-0.0001 (-0.699)	0.00001** (0.0403)
<i>Book to market</i>	0.0086*** (3.019)	0.0168** (2.191)	0.0318** (2.906)
<i>Capex</i>	0.0246 (0.554)	-0.141 (-1.185)	-0.316* (-1.864)
<i>Enterprise value</i>	0.0000 (0.962)	-0.0000* (-1.811)	-0.0000** (-2.502)
<i>Leverage</i>	0.0874*** (6.607)	0.0192 (0.542)	-0.000 (-0.000)
<i>Log of the relative sizes</i>	-0.048*** (-5.484)	-0.045* (-1.942)	-0.081** (-2.406)
<i>R&D</i>	0.1703*** (6.798)	0.3288*** (4.884)	0.2629*** (2.744)
<i>Runup</i>	-0.065*** (-4.933)		
<i>Volatility(VIX)</i>	0.0026*** (5.952)	0.0086*** (7.356)	0.0107*** (6.426)
R-Squared	0,0744	0,0374	0,0277

This table displays Model 3 (presented in the data and methods section) where we regress *deal initiation* ('1' is bidder-initiated and '0' is target-initiated deal) on target cumulative abnormal returns 3 days around the merger, and the premium for a shareholder buying the stock 1 day and 4 week before the offering price is announced. We also add an interaction term *Initiation*Concentration* (Herfindahl-Hirschman Index) in order to capture interaction effects of *industry concentration* and *deal initiation*. Other variables are used to control for known effects on target returns around the announcement day. In line with Simsir (2008), we do not incorporate *Run-up* in the regressions, including premiums, since they are partly overlapping. t-values are reported in parentheses, and * denotes significance at .1 level, ** at .05 level and *** at .01 level.

The results that we got after running regressions on the manufacturing industry sample somewhat confirmed our suspicion that the full sample might have suffered from the selection bias. As *Table 7* reports, there is no striking difference in *deal initiation* effects compared to the previous tests. Neither do the

significance nor do the signs of any of the control variables change radically. What is particularly interesting from this test is the fact that the effect of the interaction term *deal initiation*concentration* (HHI) is negative (-0,00014, $t=-2,136$) and significant at .05 level when estimating cumulative abnormal returns of the targets. However, this interaction effect is not significant when estimating the bid premiums. Our findings on CARs suggest that the gap in abnormal returns between target-initiated and bidder-initiated deals is diminishing with 1.4% per 100 point increase on the HHI. This partly supports our previous findings that the discount on target-initiated deals is decreasing with increased concentration in the target industry. There is no doubt that drawing conclusions from these results will be ambiguous since the sample is only containing observations from the manufacturing industry and, thereby, might capture some variation which is industry-specific. Nevertheless, we believe we should give credit to the Herfindahl–Hirschman Index in reporting a significant interaction effect of industry concentration and deal initiation, and we encourage researchers to use this measure of concentration further in larger samples.

To summarize our hypothesis testing results, we observe that target firms, on average, earn more (both in the short- and long-term) when the deals are initiated by bidders. A short-term investor, on average, earns 3.4 percentage points more by buying the stock before the takeover announcement and by selling it after, while a long-term investor (-4 weeks) is presented with a bid premium of 6.6 percentage points compared to the cost price of the stock. With this evidence we confirm findings of prior research (e.g. Simsir (2008), Xie (2010), Anilowski Cain, Macias, and Sanchez (2010) and De Bodt, Cousin, and Demidova De Bruyne (2011)). Our contribution was an attempt to explain *why* and *when* (or under what conditions) this difference appears to be significant. By testing interaction effects of deal initiation, merger type (conglomerate vs. non-conglomerate mergers) and industry concentration, we aimed to show variation in the level of information asymmetry that target and bidder firms face in takeover transactions. Our results show that targets earn significantly higher returns in bidder-initiated conglomerate deals and the earnings' gap across target-and bidder-initiated deals decreases with increasing concentration in the target industry. Since the latter finding is based on a small sample of manufacturing firms, we encourage future research to verify it in large samples.

Robustness Check

In order to check the robustness of our findings we included a dummy variable for each year and industry in each of the three econometric equations. By including them into our set of controls and after running the regressions several times, we tested whether our findings were affected by industry- or yearly-specific characteristics. We found no evidence that this altered our results in any way.

The 4-firm concentration ratio and Herfindahl–Hirschman Index were only the two measures of industry concentration used in this study. In USB reports also use the 8, 20 and 50- firm concentration ratios. By substituting the 4-firm concentration ratios with these alternative measures and running the regressions, respectively, we controlled for possible selection bias. Other than what we have already discovered in the statistical analysis (e.g. that HHI gave different results in the manufacturing industry), we observed similar results when using the alternative measures.

Our sample with concentration data might also have suffered from selection bias. *First*, since UCB does not report concentration ratios for the construction and mining industries, these industries are not represented in our sample. *Second*, because of the official change from SIC to NAICS as industry codes, we were not able to match all transactions with concentration ratios. Because of this, we have nearly reduced our initial sample by 50% which is a limitation of our study. Whether sampling issues can explain non-significant findings on our reported interaction terms remains a question to answer for further research.

Conclusion

In this thesis we examined a causal relationship between initiating party and wealth effects to target shareholders in corporate takeovers. We built our study heavily on Simsir (2008) and Xie (2010) findings who reported that targets, on average, earn more in bidder-initiated deals than in target-initiated deals. The ultimate goal of this thesis was to explain the rationale behind this variation in target returns and give an account of *when* (or under what conditions) this variation appears to be significant. Drawing on adverse selection risk theory and information asymmetry argument, we used *merger type* and *target industry concentration* as proxies of information asymmetry and developed respective hypotheses.

To test our hypotheses we used a sample of 3316 corporate transactions over the period of 1996 and 2009 that involved a data set from Norli, Thorburn and Eckbo and reports from the US Census Bureau. Our findings indicate that target shareholders, on average, earn a 3.4 percentage points higher cumulative abnormal returns around the day of announcement and a 6.6 percentage points higher 4-week bid premiums if transactions are initiated by bidders. When we adjusted the level of information asymmetry to the merger type, we observed that targets, on average, earned significantly higher 4-week bid premiums in bidder-initiated conglomerate deals than in target-initiated conglomerate mergers. We concluded that a gap in bid premiums in bidder- and target-initiated deals is affected by the type of a merger. More specifically, we found that targets earn a significantly higher return in bidder-initiated conglomerate deals. Our explanation of this is that conglomerate deals inherent higher information asymmetry between targets and bidders and, therefore, those deals increase the adverse selection risk. The last but not the least, we partly confirm our hypothesis stating that in highly concentrated markets the discrepancy in target wealth effects is likely to be smaller. As we found support for this hypothesis in a small and industry-specific sample of takeover transactions, further investigation is needed and called for.

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Preliminary Thesis Report

Performance implications of corporate governance mechanisms in M&As: the role of initiating party.

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Content

CONTENT	1
INTRODUCTION: MOTIVATION AND PURPOSE OF THE THESIS	2
BACKGROUND AND LITERATURE REVIEW	3
CORPORATE GOVERNANCE	3
POST-TAKEOVER PERFORMANCE ASSESSMENT	5
RELATIONSHIP BETWEEN CORPORATE GOVERNANCE FACTORS, INITIATING PARTY AND POST-TAKEOVER PERFORMANCE?	6
HYPOTHESES	8
METHODOLOGY	9
SAMPLE.....	9
DATA COLLECTION AND ANALYSIS	9
REFERENCES	11

Introduction: Motivation and purpose of the Thesis

As an area of research, Mergers and Acquisitions (hereinafter, M&As) is associated with empirics concerning data of publicly listed companies. Many hypotheses in M&A research focus on bidding strategies, premiums and organisational processes after the bid/sell initiation phase. Moreover, many researchers assume that M&A transactions are first and foremost initiated by the bidder.

The purpose of this thesis is to investigate whether initiating party matters in M&A transactions, and if yes, how the initiator characteristics (buyer vs. seller, corporate governance mechanisms, family-owned vs. private firm) affect post-take-over performance of the target. We plan to do our research on data from Norwegian private and family-owned firms. By analyzing Norwegian market of small and medium enterprises we intend to increase our understanding of unlisted firm behaviour and the market for private corporate takeovers. **Our research questions are as follows:**

- 1. How do corporate governance factors in the target firm prior to take-over transaction affect its post-takeover performance?**
- 2. How does initiating party moderate a relationship between corporate governance factors and post-takeover performance of the target firm?**

Why is this research interesting? Private and family-owned firms constitute a much higher contribution to GNP in Norway than publicly listed companies. Furthermore; % (Grünfeld, Grimsby and Gulbran 2009, 28) reports that 39 500 (companies with >1Mnok in salary expenses) changes of ownership occurred between 2000 and 2007, whereof companies listed on the Oslo Stock Exchange accounts for only 0, 2%, thus leaving a large fraction of the transactions to a sample that has been neglected by previous studies. This is also supported by Berzins & Bøhren (2007) who found that in 2005 there were 500 non listed companies in Norway for each listed company of similar size.

Background and Literature Review

In this section of the report we will first look at corporate governance factors that influence firm performance in a take-over context. Further, we will review a list of performance measurements that captures the impact preceding a take-over transaction best. To do so, we consider a take-over transaction as any transaction leading to “purchase of one company (the target) by another (the acquirer, or bidder)” (Wikipedia, the free encyclopedia 2012) and, therefore, use mergers and acquisitions (M&As) interchangeably. IPOs are excluded as they are more related to raising capital for companies. Given that our contribution to existing literature falls into investigation of non-listed companies we also define them as private companies (e.g. AS, DA etc)

Corporate governance

It seems that LBO's attracted significant researchers' attention over the past decades due to increasing popularity in both sides of the pond, and also due to potentiality for market investors. “Private equity activity creates economic value on average (Kaplan, Stromberg 2008)”. As mentioned earlier, in typical LBO (private equity) transactions bidders are the ones that usually take initiative. Moreover, in such transactions there is a high debt leverage that creates pressure on managerial behaviour and, in turn, reduces agency costs (disciplining device). However, the effect varies across initiating parties (buyers vs. sellers) and in transactions of private vs. publicly listed companies. Overall, performance implications of CG mechanisms can not be generalized to all M&A transactions. Therefore, by analyzing similar CG devices across different research settings one might come up with different findings about performance implications.

In this part our aim is to provide an overview of corporate governance mechanisms that have an impact on post-takeover performance of the firm, such as legal regime, ownership structure, financial structure and top management incentive packages. Since Norway has a specific Scandinavian civil-law regime and performance-related pay is rather seldom (Bøhren, Ø. and B. A. Ødegaard 2006), we chose to omit these two mechanisms as they are more or less ‘prefixed’ in terms of variability of our sample.

One of the classical predictors of bad corporate governance is high level of free cash flow. It is argued that a split between ownership and control rights leads to agency costs in a guise of free cash flow which is under control of managers but not shareholders (Jensen 1986, 1993). This view is also supported by Robert D. Arnott and Clifford S. Asness (2003) who found that by using dividend policy as a proxy for FCF (free cash flow) that increase direct cash flow payout to owners is related with better company performance. Hence, FCF seems to play a major role in firm performance both before and after the takeover. Albeit direct cash payout is designed to reduce incentives of managers to waste FCF, it is not so obvious in private companies because discrepancy between the owners and managers is not that high. Moreover, in family-owned companies this kind of discrepancy is almost non-existent.

Shareholder structure; There is no doubt that shareholders have a significant impact on how good a company performs. The *rule of thumb* is that shareholders' concentration of 30-40%, measured by Herfindahl¹² index, has a positive effect on firm performance: Tobin's Q (Bøhren and Ødegaard 2006). Having a shareholders' concentration below that threshold there is lack of monitoring incentives. On the other hand, a "free-rider's" problem among small shareholders arises when having a high level of concentration and large owners are often found to expropriate welfare from the small owners. Similarly, a separation between CEO and a Chairman of the Board and ownership rights assigned to the management has positive effect on firm performance (Haleblian, et al. 2009).

A company Board is another variable that influences firm performance. There is consensus among researchers that smaller boards improve firm performance (Jensen 1993). Several researchers also found the opposite effect arguing that bigger boards bring more expertise and better access to cheaper capital (Anderson, Ronald C., Mansi, Sattar and Reeb, David M. 2004). Therefore, we find it of even higher interest to examine a causal relationship between M&A initiatives (bidder vs. seller) and post-takeover performance in private companies of different board sizes.

Although, as we can see above, there are already some common conclusions achieved by researchers, there is quite a little known under different

¹² Herfindahl index – sum of squared fractions across all owners

context (firms environment) – mergers and acquisitions. Moreover we want to observe from a different angle – target’s perspective; violating presumption that bidder always takes initiative. For example, financial distress might trigger the initiative of the target on M&A, but its effect on post-M&A performance is ambiguous. Our preceding literature review also suggests that we should take a closer look at financial policy, shareholder concentration and companies’ boards as corporate governance mechanisms and examine whether these mechanisms have similar effects on post-takeover performance. Given many performance measurement methods and all criticism associated with that (Tuch and O’Sullivan 2007) it is also essential to understand which of the measurements may capture post-takeover performance best.

Post-Takeover performance assessment

According to classical economic theory the ultimate goal of any shareholder is to maximize the value of their invested wealth. Consequently, it is not surprising that the performance of targets and bidders both pre- and post-acquisitions has been comprehensively explored by financial researchers.

Our motive for conducting this dive into the literature is two-sided; first, we seek a general understanding of the empirical evidence concerning takeover performance. Secondly, statistical models with the aim of measuring performance related to a single event are often criticized, as they frequently are associated with various methodological problems (Tuch and O’Sullivan 2007). Thus, it will be important to gain knowledge of potential fall pits before a model is constructed.

In their 2007 review article Tuch and O’Sullivan distinguish between short and long-term performance of the acquirer and between event studies focusing on share prices and accounting performance. Given that our study focuses on non listed companies we cannot rely on market share prices as they are unobservable. Despite the fact that accounting performance measures are under heavy criticism because of easy manipulation by managers we still consider them as the ones eventually revealing effects of transactions. Therefore we tend to use -24 and +24 month window. Additional difficulty arises when it comes to comparison of two different time periods: pre-takeover and post-takeover because after transaction the form of the company might be changed.

So far we consider employment of operating margin, as they should reveal incentives for value creation in terms of profitability (Andrade, G., Mitchell, M.L.

and Stafford, E. 2001). Return on operating assets and equity are supposed to cover underlying incentives for increased efficiency. All of these measurements are observable and thus easy feasible. However, there is no general agreement on what measurements are the best to capture takeover effect as this research area is still developing (Christian Tuch and Noel O’Sullivan 2007) hence, additional conduct of measurements candidates review is necessary.

Relationship between corporate governance factors, initiating party and post-takeover performance?

Researchers have developed a set of theories explaining why takeovers happen and how they affect performance of the target and bidder firms. Following Weston and Halpern (1983), two sets of acquisition theories can be identified: 1) those that explain a non-value maximizing behaviour of the acquiring firms’ management, and 2) those that focus on value-maximizing motivations¹³. Jensen (1986) builds his agency cost argument on combination of these two theories. He states that takeovers occur due to agency problems (e.g. high FCF, weak owners, entrenched managers, etc.) and that takeovers or even a treat of potential takeover can be beneficial for target shareholders, especially when there are high agency problems therein and high cash holdings are present in the bidder. Others found that type of a bid (e.g. friendly vs. hostile takeover), method of payment (e.g. cash vs. stock), sales method (e.g. auction vs. negotiation) also count for differential effects on post-takeover performance (Andrade, G., Mitchell, M.L. and Stafford, E. 2001). Inspired by these research findings we argue that post-takeover performance of the target is a function of corporate governance mechanisms therein, and this causal relationship is moderated by initiation of the deal– be it by a bidder or a seller (Haleblian, et al. 2009)

The issues surrounding takeovers have lead to a vast number of articles, books and other scientific publications. However, by searching in various databases we found a very limited number of articles that focus on deal initiation (Macias, Cain and Sanchez 2011). Macias, Cain and Sanchez (2011) argue that “initiation” is a proxy for adverse selection risk and which, among other variables (e.g. uncertainty of future cash flows), affects whether a target decides to sell its shares via an auction or negotiation. Researchers found that auctions are

¹³ All investments should have positive NPV

associated with higher target cumulative abnormal returns (hereinafter, CAR) and offer premiums than negotiations, but only if the transactions are not initiated by the target. The intuition here is that the adverse selection problem that occurs when a target puts itself up for sale reduces the price of the target, and that this reduction is not outweighed by the choice of selling through an auction.

We believe that these findings only tell part of the story concerning a takeover deal initiation. In particular, we argue that if all market participants are aware of the adverse selection problem, then there must be an explanation why target initiation occurs. Moreover, we will also measure the long-run post-acquisition performance of the target depending on who took the initiation of the deal.

Hypotheses

Our literature review showed how corporate governance mechanisms affect takeovers and how they are related to post-takeover performance. We identified several gaps in the literature. In particular, we argue that prior research is overly focused on a bidder as decision-maker of importance and fails to show initiation effects on target's post-takeover performance thus our first hypothesis is intended to check whether high FCF, as one of weak CG guises, is replaced with better performance incentivised by acquirer:

H1: High free cash-flow in the pre-takeover target firm has a positive effect on target's post-takeover performance;

Further, we assume that companies facing high leverage and foreseeing future difficulties to serve a debt is closer to financial distress and thus:

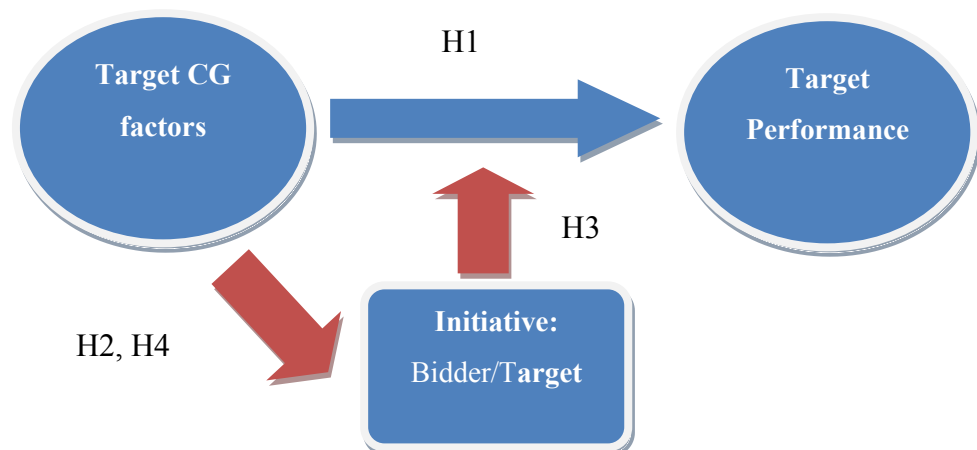
H2: It is more likely that a target firm with high leverage initiate M&A transaction;

Given initiating party is related with a transaction method (negotiations vs. auctions) we suspect:

H3: There is a significant difference in post-takeover performance of the target firm depending on who initiates the deal – a bidder or a target;

We expect companies demonstrating very high growth rates and employing strong corporate governance mechanisms serving as fiduciary duties warranty to initiate M&A transactions as the way to enhance owners' welfare:

H4: A target firm with high growth and strong corporate governance mechanisms is more likely to initiate the M&A deal.



Methodology

Sample

Our data sample has been collected in two stages. *First*, we collected a set comprised of 166 takeovers in the period of 2001-2012, which is obtained from an external database in collaboration with BI Oslo. The data set consists primarily of Norwegian company data. However, some of the transactions will include a target or a bidder registered abroad. Each observation in the sample contains the following information;

1. **Initiation:** Information about which of the parties took initiative in the transaction (a target or a bidder)
2. **Company id:** Pre-merger organizational number of both firms.
3. **Other takeover characteristics:** Auction/Negotiation and Price

As mentioned in our literature review, researchers who used “Initiation” as a variable in their models had to make proxies based on either SEC filings or interpretation of other available information. In our sample the initiator is the one (a buyer or a seller) that first approaches the intermediary (external source) in order to “sell or buy”. Hence, by definition this provides us with the unbiased variable. *Secondly*, we will use organizational numbers from the external sample to create a query in the BI CCGR¹⁴ database in order to match our observations with various corporate governance and performance variables.

Data collection and analysis

The hypotheses we have posed earlier in the paper will cover two aspects of takeovers. First, we will explore corporate governance characteristics of target firms and examine how these characteristics contribute to the probability of initiating a transaction. Secondly, we will measure the post-takeover performance of companies depending on who took the initiative. Thus, the different hypotheses will require a different set of statistical procedure that fits the properties of the dependent and independent variables.

For example in H3 and H4 our objective is to measure the probability of the target initiating a takeover deal depending on the pre-takeover characteristics of the firm. Hence, initiation will be a dependent variable in the model. In this case a dependent variable is binary (dummy variable) taking the value ‘1’ if the target took initiative and ‘0’ if it did not. In that respect, Gujarati and Porter

¹⁴ BI Norwegian Business School Center for Corporate Governance Research Database

(2009:299) recommend using Probit or Logit models instead of the standard OLS estimation technique.

On the other hand, when we will estimate the effect of takeover initiative on post-takeover performance acquired performance measurement method will be an event study. Following related academic studies, we will use control variables in order to isolate the effects of the event.

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