Takeover Success Prediction
European acquisitions between 1999 and 2008

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### Title of thesis: Takeover Success Prediction – European acquisitions between 1999 and 2008

### Abstract:
The purpose of the study is to identify the determinants of takeover bid success on the European market, to create a model that can be used for takeover success prediction and to test the effect of the buyer type on takeover success. The study is limited to tender offers made in Europe between January 1\textsuperscript{st} 1999 and December 31\textsuperscript{st} 2008. The method in the study is a logistic regression.

The study confirmed the prediction power of some factors that have previously been shown to significantly affect takeover bid success both in Europe and in the U.S. In line with most of the previous research on takeover success prediction this thesis found that target attitude is the single most significant predictor of takeover success. Out of all factors only target attitude, termination fees and the presence of competing bids had significant effect on takeover success in the main model. Also another novel contribution of the thesis is that in the European market buyer type does not affect takeover bid success at all.

Another contribution is that it is not possible to create a model to sufficiently predict bid success using the independent variables used in this study on the European market. If there was valid and reliable data collected comparably from each country representative of their actual share of the takeover bids, it might be possible to create a model that captures the determinants on a European level. If not then it might be of interest to find out and study the country specific differences in the independent variables that effect takeover success.

### Keywords:
- takeover
- success prediction
- risk arbitrage
- financial buyer
- strategic buyer
LIST OF FIGURES AND TABLES

Figure 1 Distribution of events per year ........................................................................................................... 43

Table 1 Distribution of events per year and yearly success and failure rates ......................................................... 44
Table 2 Distribution of events by country ............................................................................................................. 45
Table 3 Distribution successful and failed events of events by categorical variables and their significance levels ........................................................................................................................................................................... 46
Table 4 Distribution of events per target nation .................................................................................................. 49
Table 5 Descriptive statistics for continuous variables .......................................................................................... 50
Table 6 Correlations of the variables .................................................................................................................. 51
Table 7 Determinants of bid success by logistic regression .................................................................................. 54
Table 8 Results of the regressions on the subsamples .......................................................................................... 57
1 Introduction

Corporate takeovers are widely studied in the financial literature. They are often explained to be the functioning of a takeover market or a market for corporate control where different managerial teams compete against each other for control of companies (Manne, 1965.) There are studies about the motivations for takeovers, the gains or losses from takeovers, the spreads of the target and acquirer shares and even about takeover activity clustering around periods as a result of outside industry-related shocks (Andrade et al., 2003). Still there are surprisingly few studies made on takeover success prediction. It is the one field of takeover research that has not been as widely studied. The existing studies have mostly concentrated on U.S. and U.K. data and there is a clear lack of takeover success prediction studies in Europe. It is to be expected that some of the main determinants of takeover success may be the same regardless of geographical dimension but it is of interest to study the determinants of takeover bid success also in Europe.

Identifying these determining factors would make it possible to create a model that predicts takeover success. Such a model would be most beneficial for hedge funds and other investors engaging in merger arbitrage (also known as risk arbitrage) or other event-driven investment strategies related to mergers and acquisitions. Also bidder and target companies would benefit from the identification of the determinants of takeover bid success or a functioning prediction model. Although the companies involved in the deal often have inside information which makes creating a takeover bid success model complicated. The only ones to truly benefit from a model that consists of determinants that are public information at the time of takeover bid announcement are the merger arbitrageurs and investors focusing on event-driven investment strategies.

Merger arbitrage is a strategy that seeks to extract the offer premium that almost always persists after a tender offer is announced. The offer premium is the excess amount the bidder is offering on top of the current share price as an incentive for shareholders to tender their shares. Merger arbitrage is often also referred to as risk arbitrage. This is a strategy used by hedge funds and other speculators. In order for the strategy to work it is essential to be able to distinguish between bids that are likely to succeed as opposed to deals that are likely to fail. It is beneficial to have a model for the prediction of the bid success. According to studies, merger arbitrage strategies usually only pay off well when the bid succeeds. If the bid fails the
arbitrageurs usually end up with losses. This is why merger completion risk is an essential determinant of the returns of merger arbitrage.

Merger arbitrage was for long a strategy used only by financial professionals and institutional specialists and was only introduced to the grand public by the infamous arbitrageur Ivan Boesky. Boesky founded one of the first merger arbitrage limited partnerships in 1975. He also wrote a book “Merger Mania: Wall Street’s Best Kept Money Making Secret” in 1985. Boesky was a famous arbitrageur who made a fortune on this strategy. He was later caught in the insider trading scandals of the late 1980’s and found to have used illegal information in his investments and purposely manipulated stock prices and breached regulations in cooperation with other high profile professionals.

Back when there were only a few players in the merger arbitrage arena it used to be easier to make abnormal returns. As the strategy grew more known and used the increased competition among merger arbitrageurs is diminishing the obtainable abnormal returns from the strategy. Merger arbitrage has become a widely used strategy for hedge funds and even institutions. The amount of information available on the tender offers and mergers has also increased in recent years, making merger arbitrage possible for also others than a handful of specialists. (Brown and Raymond, 1986)

1.1 Purpose of the paper

The purpose of the study is to identify the determinants of takeover bid success on the European market. The purpose is to try to create a model that best incorporates these factors and can be used for takeover success prediction. An additional purpose of the paper is to test a novel predictor of takeover success that has not been previously tested, the effect of the buyer type on takeover success.

1.2 Limitations of the paper

The study is limited to tender offers made in Europe between January 1st 1999 and December 31st 2008. The selection criteria further limits the data so that both the acquirer and target
companies are European and the target company has to be listed on a stock exchange. The acquisition technique is a tender offer, a merger or an acquisition and the bid is for the control of the company as opposed to an investment. This means that the bidder has to strive to own more than 50% after the tender offer.

1.3 Motivation and contribution of the paper

The motivation and contribution behind my paper is to find out which factors can be used for takeover success prediction on the European takeover market. I will also try to construct a model that incorporates all these factors to predict which takeovers will succeed and which ones will fail. This is essential information for those parties taking part in merger arbitrage activities.

Most studies have focused on the U.S. takeover market or Australia and some even the UK. Only one paper has studied takeover success prediction in Europe; the timeframe for that research was 1991 to 2002 with a sample of 542 takeovers. My sample is between 1999 and 2008 and to my knowledge similar models have not been tested on European data within this time period. The data set of 732 takeover bids is also very large compared to previous studies on any given markets.

Another central contribution is to test whether buyer type has any effect on takeover bid success. This is a takeover success prediction determinant that has not previously been investigated in this context. There are two types of buyers: strategic buyers and financial buyers. Their motives and ways of implementing changes after the takeover vary considerably and it is of great interest to see if the buyer type has any effect on the success of the takeover bid.
2 Takeover market and merger arbitrage

The earliest studies focusing on the market for corporate control are done in the 1960s. Manne (1965) had a theory that the control of corporations constitutes a valuable asset and that there is a market for this asset. He called this the market for corporate control and argued that mergers are the result of the working of this market. He also defines that the fundamental premise in the existence of this market is that there is a high positive correlation between corporate managerial efficiency and the market price of the company's shares. His work is very quoted in the corporate control literature.

The market for corporate control is often also referred to as the takeover market. It is defined as the market in which alternative managerial teams compete for the rights to manage corporate resources. (Manne, 1965) In this model the stockholders are mostly seen as having a passive role and instead the buyers of the companies are seen as the ones with the power to hire and fire management and thus lead to better utilization of resources and the maximization of the company value. Merger arbitrageurs are seen as facilitating these transactions as they evaluate and value tender offers and act as intermediaries in the market. (Jensen and Ruback, 1983) Merger arbitrageurs are also seen as important in the market for corporate control because it is claimed that the increase in trading volume after a tender offer is mostly due to the activities of the arbitrageurs and that they provide a solution to the free-rider problem that might otherwise prevent the success of tender offers (Cornelli and Li, 2002).

Merger arbitrageurs also have an important role in the takeover market for various other reasons. It is for example suggested that merger arbitrageurs provide liquidity for the takeover stock. When a takeover or a merger is announced it is usual for the target stock to rise and make so-called windfall profits for investors. Because of deal completion risk these profits might evaporate as fast as they materialized if any news appear regarding potential deal failure or success related problems. (Weston et al, 2004) Some investors do not wish to bear the risk of deal completion but rather realize the windfall profits and sell the shares. This is where the merger arbitrageurs step in. They are experts in takeover success prediction and have made their investment calculations to reflect their expectations and will thus bear the risk of deal completion. By buying up the shares from these investors the merger arbitrageurs play a significant role of providing liquidity for the takeover stock. This is also one of the explanations offered to explain the documented abnormal returns of merger arbitrage. In other
words, the excess return is compensation for the service of providing liquidity and bearing deal completion risk. (Brown and Raymond, 1986)

2.1 Takeovers

Takeovers can occur through mergers, tender offers or proxy fights. The takeover can also include elements of all. In the case of a merger or a tender offer a bidding firm makes an offer to the firm’s shareholders to buy the stock, usually at a premium to the prevailing market price. Mergers are usually negotiated with the target management before an offer is made to the shareholders. In tender offers the offer is made directly to the shareholders. Usually it is defined that offers where the sought after amount of shares exceeds 50 % is an offer for control of the company. Lesser amounts are usually categorized as investment rather than seeking control in the company. If the bidder receives the sought after 50 % or more, it is considered that the bidder has received shareholder approval (Weston et al., 2004). Proxy fights occur when a group of investors, usually consisting of the managers or large shareholders, attempt to gain controlling seats in the board of directors of the target company (Jensen and Ruback, 1983). The terms takeover, merger and tender offer will be used relatively interchangeably in this paper.

Takeovers and M&A activity have been widely studied especially on the U.S. market. The bulk of the research is focused on the wealth effects of the takeovers. The most common finding is that mergers do create value for the shareholders of the companies involved in the merger but that most of the value goes to the shareholders of the target company. The shareholders of the bidder company do not usually experience a drastic increase in value but rather lose a bit on the short term but these findings often are not statistically significant. Andrade et al. (2001) along with other studies have found evidence that takeovers and mergers happen in waves. They find that the different waves of takeovers are highly clustered by industry and that the industries differ substantially per wave. In their opinion this suggests that takeover waves happen as a result of unexpected industry-wide shocks.

The motivations for takeovers are many besides the industry-wide shocks proposed by Andrade et al. (2001). It is assumed that a company that is not managed efficiently enough with respect to the resources at hand will be a likely target of a corporate takeover as there will be some company or entity that deems itself better suited to run the company. A company that
is not managed efficiently enough does not live up to its full potential and thus is assumed to have a lower share price with respect to what it could be. The potential acquirers evaluate that they could run the company better and increase the share price and then sell the shares and make a profit. This threat of a takeover is one way to motivate the managers to act in the best interest of the shareholders and to maximize the company value. Also some takeovers take place because the bidding firm sees potential synergy benefits from merging with a company usually operating in the same industry. (Jensen and Ruback, 1983) The potential buyers can be divided into either strategic buyers or financial buyers on the grounds of their motivation and aspirations regarding the takeover.

2.1.1 Strategic and financial buyers

According to Morck, Shleifer and Vishny (1988) takeovers can be roughly divided into two classes. The first one is called disciplinary takeovers. They are aimed at companies where the current management team is not maximizing shareholder value and where the buyer can step in and correct this and make the company more valuable. There is no difference here who the buyer is in relation to the target as there are no synergies from merging. The buyers in these kinds of transactions are called financial buyers as they are most often private equity companies or other parties who seek mismanaged companies that they can turn around and sell at a profit.

Morck, Shleifer and Vishny (1988) also identify another class of takeovers called synergic takeovers. There the aim of the takeover is to create value by combining two companies. In these types of takeovers the buyer sees value in acquiring the target and that in merging the businesses synergy benefits would be created. Here it is very relevant who the buyer is in relation to the target. They are often in the same industry and field or in complementary fields. The target may be a distributor or a manufacturer for the buyer and the buyer sees significant gain in acquiring the target with respect to improving its own line of business. These types of buyers are often called strategic buyers.

The effect of buyer type on takeover success has not previously been studied. Nikoskelainen and Wright (2007) studied the impact of corporate governance mechanisms on value increase in leveraged buyouts. They found support for the implication that private equity companies i.e. financial buyers are able to create value through streamlining of target company operations. Knip (2009) who studied valuation effects of cancelled tender offers in Europe found that
following a tender offer from a financial buyer there seemed to be a change in company valuation that persisted even after the tender offer was cancelled. His conclusion was that the target share value increase that materializes after a tender offer seems to persist if the offer is made by a financial buyer. This means that the market interprets a tender offer from a financial buyer to signal that the target has previously been undervalued and even the failure of the takeover does not decrease this valuation if the financial buyer does not itself withdraw the offer.

2.1.2 The free-rider problem

As stated earlier, it is assumed that a mismanaged company is vulnerable to a takeover bid. Grossman and Hart (1980) present a potential hinder for this, especially in the case of financial buyers. They claim that shareholders are aware of the fact that the financial buyers of the mismanaged companies will be making improvements that lead to a higher share price. According to them this will indeed lead to the fact that in the event of a tender offer, the shareholders will not tender their shares to the raider but instead hope to “free-ride” on the improvements that he will be making on the company. It is assumed that the shareholders are diverse enough not to alone hinder the success of the tender offer but when all the small shareholders wish to free-ride instead of tendering, this will indeed lead to the fact that the tender offer will be unsuccessful and this sort of hinder will seriously the functioning of the market for corporate control.

Grossman and Hart (1980) argue that because of this free-rider problem it will not be as profitable for the raider to engage in takeovers and that a lot of mismanaged companies that should be taken over will not be thus reducing the efficiency of the market for corporate control. They go on to suggest alternative solutions for hindering the minority shareholders from free-riding on the raider’s actions, such as charters that enable the raider to for example sell the assets of the firm without sharing the winnings with the minority shareholders. It is also often argued that the presence of merger arbitrageurs is a solution to the free-rider problem as the arbitrageurs are more likely to tender. (Cornelli and Li, 2002)
2.2 Merger arbitrage

In the area of mergers and acquisitions, merger arbitrage is the practice of buying the stock of takeover targets after a merger is publicly announced and holding the stock until the deal is officially consummated (Weston et al., 2004). In this chapter the concept and practice of merger arbitrage are presented thoroughly, beginning from a comparison between the typical concept of arbitrage and the differences between that and the practice known as merger arbitrage. The strategies and practices are also presented along with the most recent studies regarding the risk/return dynamics of this investment strategy. This information is important before laying the ground for why takeover success prediction is such a major part of merger arbitrage. Also it is commonly stated that merger arbitrage strategies yield abnormal excess returns but understanding the risk/return profile better may lead to better understanding of the actual reason and source for these returns. Understanding the sources of risk better helps also in minimizing the risk inherent in these strategies.

2.2.1 Definition and strategy

A textbook example of arbitrage is “the simultaneous purchase and sale of the same, or essentially similar, security in two different markets for advantageously different prices” (Sharpe and Alexander, 1990). It is also assumed that this sort of arbitrage requires no capital and there is no risk in the transaction. This sort of theoretical arbitrage is an important assumption in researching securities and capital markets because it is the underlying assumption in keeping markets efficient and in preventing mispricing of securities (Schleifer and Vishny, 1997). In practice there may be many obstacles for arbitrage being as risk-free as in the theoretical examples for example capital is almost always required. According to Schleifer and Vishny (1997) risk arbitrage is when an arbitrageur does not make money with probability one and is also required to have capital to execute his trades and cover his losses. Schleifer and Vishny’s definition is much broader than the one used in this paper.

In this paper merger arbitrage (risk arbitrage) entails trying to capture the spread between a target’s current share price and the tender offer price. It is though notable that this strategy although called arbitrage, is not risk-free and requires capital, even substantial amounts of it. (Baker and Savasoglu, 2002) The acquirer offers a certain price for the shares tendered that exceeds the current share price. The so-called premium is an incentive for the shareholders to
tender their shares and the premium is supposed to reflect the acquirer’s evaluation of the value of the target company and thus be a fair price for the stocks to the current shareholders. The fact that the stock price does not immediately convert to the offer price reflects the time value of money and deal completion risk. This is why takeover success prediction is an essential part of merger arbitrage activity. The arbitrageur will make his calculations as to evaluate if the spread will compensate for this risk.

Another even broader definition of risk arbitrage is presented by Keith Moore in his book Risk Arbitrage: An Investor’s Guide (1999): the risk arbitrage investment process is the investment on securities involved in and affected by mergers, tender offers, liquidations, spin-offs and corporate reorganizations. According to Moore the securities need not be limited to common stock but may also be preferred stock, bonds and/or options. He goes on to describe the process as collecting information after the announcement to evaluate the risk, the return and most of all, the success probability by using annual reports, quarterly reports and reports generated by Wall Street professionals. Moore also suggests that arbitrageurs often also consult with experts such as lawyers to foresee if there are concerns for a lawsuit or antitrust problems and investment bankers to gain insight into the dynamics of the deal. Weston et al. (2004) state that risk arbitrageurs also purchase information from Wall Street equity research analysts who follow up with the merging parties. Sometimes also the investment bankers involved in the transaction seek the arbitrageurs’ advice and information to find out how the offer will be received on the market and to set the deal structure and bid premium to account for this.

The merger arbitrage strategies vary depending on the payment method of the offer. The two main types are cash offers and stock-financed offers. In a cash offer the tendering company offers to buy the target stocks at a certain price. In a cash merger/tender offer the arbitrageur only goes long on the target stock but in a stock merger he or she may also short the stock of the acquirer. Mitchell and Pulvino (2001) account for two sources of return in the cash merger strategy. First, the arbitrageur gets the difference between the purchase price of the stock and the ultimate offer price. Second, the arbitrageur receives the dividend on the target stock.

In a stock merger the arbitrageur goes long on the target stock and also may take a short position in the acquirer stock to hedge out market risk (Weston et al., 2004). In the stock merger, there are three sources of return for the arbitrageur in the case where the acquirer stock is shorted. First, the difference obtained from shorting the acquirer’s stock and the price paid for the target’s stock. Second, again the dividend paid on the target stock offset by the
dividends that must be paid on the acquirer stock. And third, the interest paid by the arbitrageur’s broker on the proceeds from the short sale of the acquirer stock (for large institutions).

2.2.2 Abnormal returns

Several previous papers document abnormal returns for merger arbitrage strategies. The returns have ranged for example from 220% annualized returns reported by Dukes et al. (1992) to 102% reported by Jindra and Walking (2004). This raises questions about the efficiency of the corporate control market and the pricing of merger stocks. Baker and Savasoglu (2002) found annualized excess returns of 12.5% and sought of reasons for this. One suggested reason was that there is not sufficient capital to erase these arbitrage opportunities. They called this “limited arbitrage”. They found evidence that excess returns are higher when merger arbitrage capital is low. They also found that merger arbitrageurs bear a high degree of idiosyncratic risk and hypothesized that the excess return might be compensation for this.

A number of problems have arisen in the calculation of merger arbitrage returns. The duration of the merger arbitrage investment process may vary and sometimes arbitrageurs make huge profits in a relatively short time should the deal they are betting on go through quickly. Calculating these returns in event time will make them look extraordinary. Mitchell and Pulvino (2001) solve this problem by using calendar time based return calculations (instead of event time based calculations) which are then annualized to see if there are still abnormal returns. They do find annualized abnormal returns of 10.3% and go on to suggest two reasons why the abnormal returns are observed. Firstly, they suggest that practical constraints such as transaction costs might these abnormal returns appear in studies but not be realized by arbitrageurs in practice. Secondly, they suggest that merger arbitrageurs receive these abnormal returns because they indeed bear an additional risk that they are compensated for.

The basic assumption behind the return calculations has been that they are related to the market returns in a linear way. This is intuitive as such because similar to other strategies to do arbitrage with spreads the process is supposed to be market neutral. This is often the aim of various hedge funds that by definition invest in strategies that are supposed to create positive returns regardless of the market conditions. Still Mitchell and Pulvino (2001) go on to suggest that merger arbitrage strategies are in fact related to the market returns in a non-linear way and
this in turn increases their risk in such a way that they have to be compensated for it somehow and this would explain the documented abnormal returns.

2.2.3 Risk

The primary risk that the arbitrageur faces is the risk of deal failure. It is common for stocks of potential target companies to start reverting to the offer price until deal completion but when it becomes evident that the deal will not go through the prices usually plummet to even under pre-offer announcement levels. This is where the strategy leads to a big loss irrespective of the payment method or related arbitrage strategy. This is also evident from the research of Mitchell and Pulvino (2001) and their conclusions on the merger arbitrage strategy being like writing an uncovered put option on the index. They also conclude that merger arbitrage yields especially negative returns on depreciating markets which would also be intuitive if one assumes that deal completion risk increases in a depreciating market.

Weston et al. (2004) state that merger arbitrage firms and the arbitrage departments of investment banks suffered huge losses during the stock market crash on 1987, in the August of 1998 when Long Term Capital Management collapsed and in the September of 2001 after the 9/11 attacks. This also supports Mitchell and Pulvino’s claim that the risk/return profile of this investment strategy is not linear. LTCM was a company that also had considerable merger arbitrage activity but according to research, this was not one of the areas where the fund made its most staggering losses.

Mitchell and Pulvino’s (2001) paper was the first to document a high correlation between merger arbitrage returns and market returns in depreciating markets. Their research shows that in flat and appreciating markets the beta of merger arbitrage strategies is essentially zero but in depreciating markets it increases to 0.50. Their portfolios generate moderate returns in bull markets but large negative returns in bear markets which leads the researchers to conclude that merger arbitrage resembles writing uncovered index put options. This in turn leads to the fact that standard linear asset pricing models (such as the Capital Asset Pricing model) do not efficiently capture the risk nor returns associated with merger arbitrage and alternative models have to be used. These theories about the merger arbitrageurs bearing more risk than previously assumed also help explain the reasons for the recorded abnormal returns as the returns could be interpreted as compensation for bearing this additional risk. (Mitchell & Pulvino, 2001)
3 Takeover success prediction

An important part of a merger arbitrageur’s choice of investment strategy is to evaluate the probability of takeover success. A takeover success prediction model is a model that attempts to use information that is publicly available at the time of the announcement to predict the probability that a takeover will succeed (Branch et al. 2008). The literature regarding takeover success prediction can be divided into articles dealing with prediction from the viewpoint of the acquiring company or from the viewpoint of the investors engaging in merger arbitrage. The viewpoint of this thesis is to focus on how to predict the outcomes of tender offers from an outsider’s point of view, with no direct influence on the outcome to form a model to help choose and evaluate which takeover attempts to invest in a merger arbitrage strategy.

There are several different models in the articles written on the topic. These models are mostly based on the same variables with slight variation and testing for alternative independent variables. The most relevant variables are presented and described in this chapter. The most central and relevant articles written about takeover success prediction are presented in chapter four.

The research method is usually very similar in the different articles. In the most recent articles the most commonly used method is the logistic regression as the dependent variable is dichotomous because the takeover either succeeds or fails. The different studies may and do define success in different ways (for example, over 50% of shares targeted and tendered) but the dependent variable is inevitably binary to reflect success of failure. Within this paper the logistic regression is used and the method will be described in more detail.

3.1 Factors

The factors that have shown or hypothesized to have an effect on the takeover success are presented here. The most dominant of these factors is the attitude of the bid (also called target attitude, bid attitude, target management attitude, hostility etc.). A central factor that has yielded conflicting results is the bid premium. Logically the bid premium should affect the probability but quite often the findings are insignificant. The other presented factors are the payment method of the offer, the size of the target company, target leverage, the size of the
transaction, the pre-bid ownership (toehold). Also some other factors tested in previous research are presented here. The buyer type factor will be presented in the empirical part of the paper because this chapter is more focused on the factors from the viewpoint of previous research. As stated before, effect of buyer type has not previously been tested and cannot thus be discussed from the viewpoint of previous studies.

### 3.1.1 Target attitude

A general result in several papers is that the single most efficient predictor of takeover success is the target attitude. (Hoffmeister and Dyl 1981; Schwert 2000; Branch et al. 2003; Flanagan et al. 1998, Baker & Savasoglu, 2002; Pelligrino, 1968; Ebeid, 1974; Walkling, 1985; Wong & O’Sullivan, 2001; Maheswaran and Pinder, 2005) This is also often called bid hostility, bid attitude, target management attitude, or acquirer attitude. It is often defined as if the target management is consulted before the offer or if the target management objects to the offer. To account for bid hostility, previous studies have used the direct classification of the SDC database or then searched through the press releases for the different tender offers to determine if the target management indeed opposed the offer and recommended to the shareholders that they should not tender (Walkling, 1985; Schwert, 2000). Schwert (2000) points out that the potential hostility of the bid is hard to measure as the mood in especially merger negotiations can vary during the process and many transactions that have begun as hostile may end up in friendly settlements.

There are several theories on why the target management would want to oppose the offer. The two most prominent theories are the shareholder interest theory and the management entrenchment theory. (Jensen & Ruback, 1983) The “shareholder interest” theory states that the management thinks that the offer is too low and is protecting the shareholders by refusing the offer and then looking for a higher bid. According to this theory the management is acting in the best interest of the shareholders. The other theory, “management entrenchment”, is the opposite of this theory. Management entrenchment entails that the management is only thinking of its own best interest, perks and job security and is willing to oppose the tender offer to secure its own position as takeovers usually lead to some sort of optimizing and reorganizing of the acquired company. Schwert (2000) presents a third theory called the “bargaining power” hypothesis. It states that the target management resists the offer not to reject it totally but to negotiate better terms for the deal.
In any case, bid hostility is shown to have a significant effect on takeover success in such a way that hostile bids are significantly less likely to succeed than so-called friendly or solicited bids. This can depend on various reasons. Target management has an arsenal of tricks up their sleeve to prevent, hinder and/or complicate a takeover of a company. These tricks include the use of various poison pills and/or the possibility of lawsuits against the acquirer. Also the shareholders, depending on the previous performance of the managers, may listen to the advice of the management and not tender their shares should they be advised against tendering. The target management can also try to turn around and purchase the bidding company. This is dubbed in the financial media as a “Pac-Man defense”. (Walkling, 1985)

3.1.2 Bid premium

The bid premium is the excess amount that the acquirer is offering on top of the current share price for those shareholders who will tender their shares. Intuitively it would make sense for the bid premium to affect the probability of takeover success as a higher premium would more certainly serve as stronger incentive for the shareholders to tender their shares. This is also the argumentation behind many papers on the effect of the bid premium on the success of the takeover (see Walkling, 1985).

The studies yield conflicting results. Surprisingly often, the bid premium is shown to have no significant effect on the probability of takeover success at all. In some studies it is shown to have a significant but weak effect. Most of the previous research does seem to agree though that the bid premium is not a factor in determining takeover success (Mitchell & Pulvino, 2001; Baker & Savasoglu, 2002, Branch & Yang, 2003, Pelligrino, 1968; Ebeid, 1974). Several other have on the other hand found that the bid premium has a significant positive effect on takeover success (Officer, 2003; Betton and Eckbo, 2000; Giammarino and Heinkel, 1986; Fishman, 1988; Hirschleifer and Titman, 1990).

Walkling (1985) suggests that some previous insignificant results are mostly due to a misspecification in the calculation of the bid premium. The bid premium is often calculated as a percentage relative to the share price of the day when the papers have been filed to the SEC, i.e. the official date of the tender offer. But in 40 % of the cases in his study, the information was publicly available already before that so it can be argued that the expectations about deal success were already in the price and lead to an artificially low figure for the premium which in turn did not give significant results in previous studies. Using a bid premium calculated
before the SEC filing he finds that the bid premium has significant prediction power in a takeover success prediction model. In their paper Baker and Savasoglu (2002) calculated the premium as the price 20 days prior to the takeover announcement and the offer price two days after the announcement date but still got insignificant results with respect to the prediction power of the bid premium.

3.1.3 Payment method

Especially the paper by Branch and Yang (2003) focused on the prediction power of the payment method as an explanatory variable in a takeover context. The payment method is an important factor for merger arbitrageurs to take into account also because it significantly changes the merger arbitrage strategy itself. As also stated before, in purely cash offers, the merger arbitrageur has to only go long in the target stock. But if the offer is stock-financed the arbitrageur also takes an off-setting short position on the stock of the acquirer to eliminate market risk. (Mitchell and Pulvino, 2001)

Besides affecting the appropriate merger arbitrage strategy, the payment method is also shown to be a significant determining factor of the tender offer success. Studies show that takeovers that are financed with cash are more likely to be successful than takeovers where the payment method is stock. (Branch and Yang, 2003) The reasoning behind this is the following. It is assumed that an acquirer that is uncertain of the value of the target company will rather finance the purchase with stock than cash because it eliminates a part of the uncertainty of the target stock price. (Branch and Yang, 2003) Also the asymmetric information hypothesis states that companies that are overvalued are more inclined to substitute the target shares with their own instead of paying cash. (Myers and Majiluf, 1984)

For the shareholder, the upside of tendering is not as easily calculated as stock prices vary and it is difficult to be certain of how much the acquirer share will be worth after the transaction. Intuitively this would mean that shareholders who are assumed to be risk averse as opposed to risk neutral will be more likely to tender should they receive cash instead of stock.

3.1.4 Target size
The logarithm of the target size or the target size relative to the bidder is often found to affect
the bid success in a significantly negative way. (Branch and Yang, 2003; Hoffmeister and Dyl,
1981; Mitchell and Pulvino, 2001; Officer, 2003; Raad and Ryan, 1995) It is assumed to be
harder for an acquirer to purchase a very large company because larger companies may have a
large shareholder base and one also would need a substantial amount of capital to acquire a
controlling share should the acquiring firm be small. Also it is hypothesized that larger
companies tend to have better resources to fend off unwanted tender offers.

3.1.5 Target leverage
The evidence on this variable is divided. Schwert (2000) found that the target leverage
affected the bid success negatively. On the other hand Branch and Yang (2003) found that the
debt to equity ratio (also called D/E ratio or Gearing) of the target had a positive effect on the
bid success. The researchers have hypothesized that a company that has a lot of debt and not a
lot of equity is in fact an easy target for acquisition. On the other hand, companies that have
available cash not currently well spent in any investments make lucrative targets especially for
corporate raiders. (Branch and Yang, 2003) The evidence on this factor is divided.

3.1.6 Transaction size
The transaction size meaning the amount of shares that the bidder is seeking is an important
determinant of takeover success (Branch et al. 2007; Branch and Yang, 2003; Flanagan et al.
1998). The transaction size factor impacted the success of the takeover negatively. It is easier
for a bidder to get fewer shareholders to tender as opposed to getting several shareholders to
tender their shares. It is also possible that the bidder already owns a stake in the company and
thus does not have to seek after a significant amount of shares to gain control. In this situation
the bidder might also be in a better position to persuade the target management to recommend
to the shareholders that they should accept the offer. (Flanagan et al. 1998)

3.1.7 Toehold
A toehold is the amount of shares that the bidder owns in the target before the tender offer. It
is shown to affect the takeover success positively. (Flanagan et al. 1998; Walkling, 1985;
As stated in the previous subchapter, the bidder has a better bargaining power with respect to the target management when they already own a stake in the company. Walkling (1985) also suggests that toeholds have a positive impact on takeover success because the shareholders and also the merger arbitrageurs who usually accumulate shares in target companies after a takeover announcement view a high pre-bid ownership of the bidder as a good sign with respect to the bidder’s commitment to the deal and thus are more willing to tender.

3.1.8 Other factors

The presence of termination fees for the target in the tender offer or merger agreement is shown to significantly increase the probability of takeover success. (Officer, 2003; Flanagan, D’Mello and O’Shaughnessy, 1998; Branch, Wang and Yang, 2008) Also the presence of competing bids has been shown to decrease takeover success (Flanagan, D’Mello and O’Shaughnessy, 1998; Baker and Savasoglu, 2002; Kallio, 2003). The factors measuring target performance such as the price-to-earnings ratio (P/E), the market-to-book ratio (M/B) and the target’s return on equity (ROE) have also shown by some studies to have an effect on takeover success.

A novel factor that will be introduced in this paper is the buyer type, in other words if it has any effect on takeover success whether the buyer is strategic or financial. It will be expected has financial buyers increase the probability of takeover success due to the assumption that they are able to create more value in the target than strategic buyers who often have other more synergic motives that purely to maximize target shareholder value.

There are studies focusing on finding out if the takeover success probability is embedded in the share price behavior after the actual takeover offer is announced (summarized in Branch and Yang, 2003). This would suggest that the market is capable of determining beforehand which takeovers will succeed and also price the takeover shares accordingly.
4 Previous literature

The previous literature presented here can be divided into different groups of articles. The most central articles are the ones by Branch and Yang (2003, and 2008 with Wang) as they are the newest and have the most recent information available. These articles are also written with merger arbitrage in mind and the variables are subject to the constraint that the information used to predict the takeover success probability has to be public information. Another central study is Kallio (2003) that is a previous research on the topic on European data.

Some of the other articles approach takeover success prediction from the point of view of the acquiring firm. These studies are presented here because although their aim and viewpoint is different from a merger arbitrageur’s viewpoint, some of the factors in the prediction models are still the same that a merger arbitrageur would use in constructing a prediction model. Thus the results of these studies are relevant with respect to this paper.

4.1 Branch and Yang (2003)

Branch and Yang’s article titled Predicting Successful Takeovers and Risk Arbitrage was published in the Quarterly Journal of Business and Economics in 2003. They investigated the probability of merger completion for the time period from 1991 to 2001. Their aim was to construct a prediction model and test the effect of different variables, especially the payment method and merger type. Regarding the payment method their argument was that in a merger that is financed with stock, there is uncertainty about the stock values of both the acquirer and target and it may lead to a conflict over the exchange ratio, which in turn would reduce the probability of merger completion. Following this logic, cash as a payment method would reduce this risk and thus lead to an increase in the probability of merger completion. The contribution of the paper was to explore these two factors that have previously been less studied in the takeover success prediction literature.
4.1.1 Data and method

The sample consisted of 1,097 stock, cash tender and collar merger offers on the U.S. market from 1991 to 2000. Out of the sample 22% were cash tender offers, 64% were stock swap offers and the remaining 14% were collar offers. The data was collected from five sources: Securities Data Corporation (SDC), Data Stream, CompuStat and Lexis-Nexis. They took into the sample only the merger attempts where all the required information was available.

They calculated the success rates for their sample and concluded that each merger type has an average success rate of 89% or greater in their sample. They conclude that clearly the success rate is very high in their sample. The prediction model used by the authors was a multivariate logistic regression.

Aside from merger type/payment method, the other variables in the prediction model were attitude of the target towards the bid (friendly versus hostile), the target size relative to the bidder, the transaction size (the percentage of shares sought after in the offer), the target debt ratio, the bid premium and the post announcement target price behavior.

4.1.2 Results

Their results show that the most significant variables in predicting takeover success are the attitude of the target and the target size relative to the bidder. They find that a merger attempt where the board of directors is friendly towards the offer is 20.48 times as likely to be successful in comparison with a hostile offer. This result is in line with the results of earlier studies regarding target attitude. The target size on the other hand is significantly negative meaning that the higher the relative size of the target in comparison the bidder, the lower the likelihood of merger success. Their model predicts that for every increase of one unit in size, the success of the merger attempt decreases by 0.59.

Out of their other prediction variables the transaction size (meaning the percentage of shares sought by the acquirer) was found to have a significant negative effect on merger success. The model predicts that for every unit increase of transaction size, the success probability tends to decrease by 0.001. This means that the higher percentage of shares the acquirer is seeking the less likely the merger will succeed.

The debt ratio of the target company was also found to have a significant positive effect on the merger completion probability. The authors found that for every increase of one unit of target
debt, the success probability of the merger increased by 2.29 times meaning that the more highly leveraged the target company is, the more likely the merger is to be successful.

The merger type/payment method dummy variables were also significant according to the model. The test results showed that compared to cash tender offers, both the collar offers and the stock swap offers had a negative effect on the merger completion probability. A collar offer increases merger probability by 0.45 whilst a stock swap increases the probability by 0.35 thus decreasing the probability of merger completion compared with a cash offer. The figures also show that out of the two types, a collar offer increases the merger success probability more than a stock offer. This is in line with the authors’ hypothesis of a cash offer having the highest merger success probability, followed by a collar offer and lastly stock merger offer having the lowest merger success probability.

The variables that were not significant according to the model were the bid premium and the post price variables. The authors did find that an interaction variable between the attitude and the post announcement price that measured convergence to the spread after two days since the merger announcement was significant indicating that the target stock price movements after the takeover announcement do have information about the probability of merger success.

The authors also assessed the fit of the prediction model by using a Hosmer-Lemeshow (HL) test. Their result is that the goodness of fit test cannot reject the null hypothesis that the prediction model fits well with samples. They also tested the effectiveness of their model in various investment strategies and came to the conclusion that the model does facilitate improved risk-adjusted returns of risk arbitrage and unhedged strategies by assisting in the construction of a portfolio and by increasing the likelihood of correctly identifying which takeovers will be successful.

They concluded that the merger type/payment method is a significant predictor of merger success and that their hypothesis about cash mergers being most likely to succeed over other merger types is accepted. Also their hypothesis about a collar offer increasing the merger success probability more than a stock merger offer is accepted. They also concluded that their model fits well with the sample and can also be used to enhance risk arbitrage returns by assisting in portfolio construction and the correct prediction of merger success.

The article by Branch, Wang and Yang titled A note on takeover success prediction was published in 2008 in the *International Review of Financial Analysis*. The aim of the paper was to construct a takeover success prediction model and also to compare two techniques used to evaluate the prediction models. The two techniques are the traditional logistic regression and the artificial neural network technology. Whilst aiming to compare these two techniques the authors create a takeover success prediction model by using the most common variables used to predict takeover success and then choose to use only the ones with the most prediction power to create the parsimonious model that they will use in differentiating between the two techniques.

4.2.1 Data and method

The data was collected from 1991 to 1994 from the Securities Data Corporation (SDC) database. The data included both successful and failed takeover attempts on the U.S. market. They used the following constraints: the transaction must involve either a merger or an acquisition, and no spin-offs or reorganizations; the announcement and completion or termination date of the deal as well as the terms of the deal have to be publicly available information at the time of the offer; and both the firms involved have to be publicly listed companies. Their final sample consisted of 1,196 takeover offers out of which 146 failed and 1,050 succeeded.

The authors screened the variables that have been found to be significant in takeover success prediction. These variables were: target size, target leverage, target book-to-market ratio, target resistance, arbitrage spread, deal structure, termination fees for the target, termination fees for the acquirer, poison pills and bid premium. The authors also test the two before-mentioned techniques against each other in predicting takeovers that succeed and those that fail. It turns out that the logistic regression and neural network model perform equally well in predicting successful takeovers but the neural network model significantly outperforms the logistic regression in predicting failed takeovers.
4.2.2 Results
By using a stepwise model selection the authors narrowed the variables down to four that they deemed to dominate over the other variables with respect to their prediction power. These four were: target resistance, the arbitrage spread, deal structure and transaction size. Also they found that the neural network model was superior in predicting failed takeovers compared to the traditional logistic regression. The authors concluded that it is more important for investors to be able to predict failed takeovers because of the significant losses that result from investing in these deals that will not be completed. Thus the result that the neural network outperforms the logistic regression in predicting these failed deals should be considered more important than the result that the model is equal with the logistic regression in predicting successful deals.

4.3 Walkling (1985)
The paper by Ralph A. Walkling titled Predicting Tender Offer Success: A Logistic Analysis was published in *The Journal of Financial and Quantitative Analysis* in 1985. The aim of the paper was to develop and test a model for the prediction of tender offer outcomes and especially to resolve the bid premium anomaly.

4.3.1 Data and method
The data sample used consisted of all the cash tender offers filed at the SEC from 1972 to 1977. The additional information about bid characteristics and offer outcomes was obtained from statements filed by both the bidding and the target companies to the SEC. The share price information was obtained from Standard & Poor’s Stock Price Guide and the dates of offer announcements from different journals and magazines such as The Wall Street Journal. The financial data was obtained from Compustat’s Annual, Over the Counter and Research Tapes. A complete set of information was found for 158 offers on the U.S. market. The data was then divided into an estimation sample of 108 and a validation sample of 50 offers.

The author used both a linear model and a logistic regression to test the data. The linear model is a model where the probability that the acquirer is tendered as many or more shares than he
sought is a function of the bid premium, target attitude, toehold, solicitation fees and an indicator variable of a competing offer at the time of the last revised bid.

Walkling stresses the importance of appropriate bid premium specification. He questions that which event date should be used in calculating the bid premium percentage. Previous research has used the date of the official SEC filing but Walkling goes on to state that over 40 percent of the tender offers in his sample alone have actually been announced in the press already before the filing. Also the target and the bidder and terms of the offer have often been made available in these news items. This entails that the market has already priced the target stock accordingly upwards and if the bid premium is calculated on the date of the SEC offering it will lead to appear as if the bid premium is low when it actually is higher. This may also affect the prediction power of the bid premium in the prediction models and lead to misleading results.

Walkling uses three different specifications for bid premium in his research. First, the percentage premium based on the market price fourteen days before the SEC filing, which is the definition used in most previous research. Second, the percentage premium based on the market price fourteen days prior to the earliest of SEC dates or offer announcement. And third, as in the second definition but taking into account the percentage of shares sought after.

4.3.2 Results
The central results of the paper were that variables that are seen to increase what the author calls “obtainable shares” such as the bid premium or the payment of solicitation fees are shown to increase the takeover success probability along with the increased ownership of target shares by the acquirer. The specification of the bid premium affected the significance considerably.

Specifically, the author used different ways of calculating the bid premium. Out of these the coefficients for bid premiums measured based on prices prior the earliest of either offer announcement or SEC filing are significant as opposed to the coefficients for bid premiums measured prior to the SEC filing of an offer that were insignificant. Walkling states that his result suggests that the previous anomalous findings regarding the bid premium are faulty due to specification errors. The problem lies in the fact that many studies haven’t taken into account early announcement of tender offers before the actual SEC filing. According to
Walking this had lead to biased estimation of the bid premiums and faulty results in previous research.

On the other hand, variables that hinder the tendering of the shares such as hostile attitude by the target management or the presence of competing bids were shown to decrease the takeover success probability. The target management reaction was shown to be highly significant in line with results from previous studies.

4.4 Hoffmeister and Dyl (1981)

The article by Hoffmeister and Dyl titled Predicting Outcomes of Cash Tender Offers was published in Financial Management in 1981. The aim of the paper was to show how firms initiating a cash tender offer can assess the likelihood that the offer will be successful. The models in the paper were intended to help acquiring firms to select target firms where the likelihood of success is high.

4.4.1 Data and method

The sample of the paper consisted of 84 cash tender offers during 1976 and 1977 in the U.S. market. The constraints on the data were that the outcome had to be known and a complete set of data for 17 independent variables had to be available. The method used in the paper was a multivariate discriminant analysis.

Success was defined as if the acquiring firm received a number of shares equal or greater than sought after in the offer. The analysis included a total of seventeen independent variables. Out of these eight measured the target firm’s financial condition before the takeover attempt. These variables were: current ratio, profit margin, payout ratio, dividend yield, price-earnings ratio, return on equity and earnings growth and dividend growth two years prior to the offer.

Five variables were used to account for a target firm’s vulnerability to takeover attempts: the percentage of the outstanding shares to be sought (transaction size), the firm’s market value, the percent of shares already owned by the bidding firm (toehold), the bid premium (as a percent of the stock price two weeks prior to the tender announcement) and the size of bid premium as a percent of the firm’s book value.
Three of the independent variables measured the target firm’s position in its industry: current ratio compared to other firms in the industry, the target’s comparative profit margin, and the target’s comparative return on equity. Also a variable to measure the target management reaction to the tender offer was included.

4.4.2 Results

The author set up several models. The first model was to test the variables to determine how they affect the outcome of the tender offer. The results were that the only two variables to strongly be associated with tender offer success were the management reaction and the size of the target firm. The results showed that when the target management opposes the offer and when the target firm is a large firm, the tender offer is more likely to be unsuccessful. The prediction power of the model was also very high further reinforcing these results. Results from the other models included that a high current ratio and a high price-earnings ratio were associated with successful tender offers and firms that are both large and have a high payout ratio are often attributed with unsuccessful offers. The study also concluded that the size of the bid premium seems to have no effect on the takeover success probability.

4.5 Flanagan, D'Mello and O'Shaugnessy (1998)

The paper by Flanagan, D’Mello and O'Shaugnessy titled Completing The Deal: Determinants Of Successful Tender Offers was published in the Journal of Applied Business Research in 1998. The article continued along the lines of Hoffmeister and Dyl (1981) and Walkling (1985) in examining factors that affect the probability that a tender offer will be successful from the acquiring firm’s point of view. The contribution of the paper was also that it extends the previous research by taking into account variables that have not previously been researched. The dataset used in the paper was also considerably newer and larger than in the previous research.

4.5.1 Data and method

The data sample consists of 991 tender offers attempted in the U.S. market between 1985 and 1994. The data was taken from the Security Data Company’s (SDC) mergers and acquisitions (M&A) database. Out of the sample 793 tender offers were successful and the remaining 198
failed. A tender offer was considered successful if the SDC coded it as completed in the database. In the database a tender offer is coded as successful if the acquirer accepts the tendered shares, which usually is a sign that the sought after amount or more were successfully tendered. The methods used to test the data were $\chi^2$ tests, t-tests and logistic regressions.

The prediction variables were grouped into three categories. First the characteristics of the target firm: P/E-ratio and a new variable for family ownership (family control). Flanagan et al. argue that because family owners are assumed to value the control over the firm highly a high percentage of shares being family owned decreases takeover success probability.

The second grouping was based on the characteristics of the bidding firm. These variables were whether the bidder is in the same industry as the target (intra-industry offer), whether the bidder is a U.S. firm or a foreign firm, whether the bidder included members of the target firm’s management (the case of management buy-outs) and the percentage of shares already owned by the bidder.

The third grouping included characteristics specific to the transaction such as the bid premium, the transaction size, two-tier offers (higher price for shares tendered early and lower for shares tendered late), the value of the proposed deal, target attitude, the presence of competing bids and termination fees.

### 4.5.2 Results

Cross-border tender offers were more likely to be successful than intra-U.S. offers and also management buy-outs proved to be more likely to be successful as opposed to other bids. Also bids that included termination fees were significantly more successful than bids without termination fees. Smaller transactions were more likely to be successful than large ones and also toeholds were significant, the bigger the toehold the more likely the bid was to be successful.

Two-tier transactions were be less likely to be successful than one-tier offers. Also, along the lines of previous studies, hostile bids and contested bids were less likely to be successful than other transactions. Also the percentage of shares sought after was smaller in successful takeovers than in failed ones.
Family control showed no effect on takeover success. Several bid premium measures were used but none of them showed any significance in discriminating between successful and failed bids. Also target firm profitability showed no effect on bid success.

Regardless of the model specification intra-industry offers showed to be more successful than across-industry offers but the difference was only significant according to the logistic regression.

4.6 Kallio (2003)

The Master’s thesis by Juhana Kallio at the Helsinki School of Economics (HSE) in 2003 is among the only takeover success prediction studies done with European data. The title of the thesis is Determinants of Corporate Takeover Success and The Prediction Power of Target’s Share Price: Tender Offers in Europe 1991 – 2002. His main objective was to examine takeover success by studying the significant determinants affecting tender offer outcome in the European takeover market.

4.6.1 Data and method

The author collected twelve years of data on 542 intra-European takeovers announced between January 1, 1991 and December 31, 2002. The tender offer data was collected from the database of Securities Data Corporation (SDC). His method for takeover success prediction was to use a logistic regression in line with previous research. His dependent variable was the offer outcome and the explanatory variables were the attitude of the target firm’s management, one day premium over the announcement day stock price, one week premium, one month premium, the presence of competing bids, pre-transaction holdings, target equity value, method of payment (both as a dummy and as a continuous variable) and cross-border status. He also came up with some new variables that had not previously been tested; target industry concentration and target industry regulation. He also used some other dummy variables to categorize the data for additional testing, such as transaction value, acquirer and target size ratio, and target domicile. He did not however always have enough data for all variables of his sample of 542 but some of the additional tests were done with a smaller amount of data.
The success rate in his sample was 83 % successful against 17 % failed. This fit quite well in line with the previous line of research.

4.6.2 Results

In line with previous research Kallio found that a hostile target attitude affects takeover success in a significantly negative way. His other very significant finding was that the existence of competing bids affects bid success also in a significantly negative way. His results indicated that also target equity value and method of payment were significant predictors of takeover success. His other factors yielded insignificant results. Kallio’s results are an important addition to the takeover success prediction literature because it was the first comprehensive takeover success prediction study on the European market.
5 Data and methodology

This chapter presents the data and the method used in the empirical part of the study. The data is gathered from the SDC Platinum database using some restrictions and guidelines to gather a representative sample. The method is a logistic regression which will be described later in this chapter. Also the variables used in the regression will be described along with the hypotheses of the study.

5.1 Data description

The data for this study is mostly gathered from the Securities Data Corporation’s SDC Platinum –database. Additional information regarding euro-dollar exchange rates is taken from an online database of The Research Institute of the Finnish Economy (ETLA).

The sample consists of 732 tender offers made in Europe between January 1st 1999 and December 31st 2008. The selection criteria are the following:

- Both acquirer and target are European companies
- The target is a listed company
- The offer outcome is clearly completed or withdrawn
- The consideration is cash, stock or both
- The acquisition technique is a tender offer, a merger or an acquisition
- The acquirer owns less than 50% of the target prior to the offer
- The acquirer is seeking to purchase between 20% and 100% of the target
- The acquirer is seeking to own between 50% and 100% of the target after the offer

Out of the resulting sample the offers where there was insufficient information regarding the independent takeover success prediction variables were erased leaving a sample of a total of 732 offers.

The selection criteria are fairly straightforward. The target needs to be listed in order for the arbitrageurs and speculators to be able to take a position in the stock. As merger arbitrage can
be done by only taking a long position in the target stock it is not imperative to have a listed buyer. Often if the buyer is listed, the arbitrageur takes a short position in the acquirer stock to control for market risk. But as this is not compulsory for the strategy to work, it is not required that the buyer is listed. The buyer is also not required to be listed because of the objective to also test if takeover success is affected by the type of buyer, i.e. strategic buyer versus financial buyer. Requiring that the buyer is listed might limit the amount of offers in the sample where there is a financial buyer.

The sample selection criteria regarding pre-bid ownership and the amount sought are in place to take into account only the bids where the offer is for the control of the company. Also the minimum sought after amount of 20% is to eliminate overly small transactions from the sample.

The reason to use European data is that there are not many takeover success prediction studies done with European data. The studied markets are usually the U.S. market, the UK market and Australia. It is interesting to see whether the same variables that effect takeover success prediction in the other markets are also significant predictors in Europe.

The time period is chosen as ten years to take into account various market conditions and the period from 1999 to 2008 because the data is recent and current and has not been tested. A similar study on European data has been done in the thesis by Juhana Kallio at the Helsinki School of Economics in 2003. He used a sample of 542 European tender offers between 1991 and 2002. Kallio did not always have a complete set of data for all his independent variables and ran several tests on data of merely plus 100 tender offers. In my sample all the independent variables are available for all the 732 bids so I expect my results to be more reliable in that sense. Also I introduce a novel independent variable that has not previously been tested in this context, the buyer type.

5.1.1 Data bias and possible data problems

A problem with the data possibly creating a bias is that the successful offers tend to be more documented in SDC. The lack of sufficient takeover success determinant information might create a bias where there would actually be more unsuccessful offers in practice but they fall out of the sample due to the information problem. There are 664 successful offers in the sample as opposed to 68 unsuccessful ones. The success percentage in my sample is thus 88.1
%. Although this is a high percentage it is consistent with the findings in previous studies and assumed to be a fair representation of reality.

5.2 Method

The empirical part of the study is based on a logistic regression model. The logistic regression model, also called the logit model, is the most commonly used model in takeover success prediction literature. Some older articles have also used linear regressions but that is by far not an efficient method because the linear regression models make the assumption of normality in the residual, which does not hold for binary data. (Maddala, 1983) There are also other possible models that have a categorical dependent variable such as the probit model and some others. These models are all different versions of the logistic model. The probit model measures the relationship between the strength of a stimulus and the proportion of cases exhibiting a certain response to it. The model is useful for situations where there is a dichotomous output that is estimated to be influenced or caused by levels of one and several independent variables. (SPSS Manual, 2007)

The logit model is most commonly used for takeover success prediction because logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model. This makes it convenient to quantify the differences that the independent variables result in the outcome. The logg-odds ratio (also called the expected beta, EXP(B)) gives an quantified approximation and also the direction of the effect that an independent variable on the outcome probability. (Maddala, 1983, SPSS Manual)

The logistic regression model is used to predict the probability of an occurrence of an event by fitting data to a logistic curve. The Y-variable will take values yes or no depending on if the particular takeover bid has succeeded or failed. These are not actual probabilities but probabilities that take only values of “success” or “failure” which is why the logistic regression with its binary nature is the optimal choice of method. The logistic regression also allows for the independent variables to be either numerical or categorical. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model. (SPSS Manual, 2007) This means that not only does the logistic regression produce the log coefficients (betas) and their significance levels to reveal the prediction power of the
independent variables but it also creates ratios that can numerically describe how much a change in an independent variable affects the outcome of the bid.

Using a logistic regression model instead of a linear regression model is more suited for binary data because in linear regression models binary data can cause heteroskedasticity. Also the logistic model allows the probabilities to vary between 0 and 1 whilst in the linear regression model they might be over and under the zero-one boundaries and harder to interpret for binary data. Also the error term does not have to be assumed to be normally distributed in the logistic regression. (Cramer, 1991; SPSS Manual, 2007; Agresti, 1990)

The logistic regression model is based on the following equation:

\[
\text{logit}(\pi) = \log\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_i x_i \quad (equation\ 1)
\]

where \(\pi\) is the response probability to be modeled, \(\alpha\) is the intercept parameter and \(\beta\) is the vector of parameters.

There is also a direct relationship between the \(\text{logit}(\pi)\) and the log odds ratio:

\[
\text{logit}(\pi) = \log(\frac{\pi}{1-\pi}) = \log(\text{odds}) \quad (equation\ 2)
\]

The odds ratio is a ratio of probability of success to the probability of failure.

Within the theoretical framework of this thesis and the several independent variables, the prediction model is as follows:

\[
P(Y) = \alpha + \beta_1 * x_1 + \beta_2 * x_2 + \beta_3 * x_3 + \ldots + \beta_n * X_n + \epsilon \quad (equation\ 3)
\]

where \(P(Y)\) is the probability of takeover bid success and \(Y\) takes on the value 0 if the bid fails and 1 if the bid succeeds. The independent variables (the \(X\) factors) are the ones presented in the next subchapter.

Hosmer-Lemeshow goodness-of-fit test for the model is included into the methodology of the paper to test the goodness-of-fit of the model with the data used in the study. This goodness-
of-fit statistic is more robust than the traditional goodness-of-fit statistic used in logistic regression. It is based on grouping cases into deciles of risk and comparing the observed probability with the expected probability within each decile. (SPSS Manual, 2007)

Also Pearson’s $\chi^2$ testing of the independent variables in isolation is done. Pearson $\chi^2$ tests measure the bivariate associations of the variables to the bid success and do not mean that the same variables are necessarily significant in the prediction model. These tests may give an indication of which variables have prediction power regarding bid success in regression models. As opposed to the log-odds ratios the $\chi^2$-tests do not give out the direction of the influence. (SPSS Manual, 2007)

In a regression model, the $R^2$ coefficient of determination is a statistical measure of how well the regression line approximates the real data points. Nagelkerke (1991) generalizes the definition of the coefficient of determination so that it would be consistent with the classical coefficient when they can both be computed. Most importantly the interpretation of the Nagelkerke $R^2$ statistic should be the proportion of the variation explained by the model and it should remain between 0 and 1. A measure of 1.0 indicates that the regression line fits the data perfectly and a measure of 0.0 means that the regression line does not fit the data at all. In this study the Nagelkerke $R^2$ is used to estimate the goodness-of-fit of the model by looking at the proportion of the variation that is explained by the model.

### 5.3 Variables and hypotheses

The set of independent variables used to predict takeover success are presented here. These variables include target attitude, bid premium, payment method, target size, target leverage, the percentage of shares sought, the effect of termination fees, the effect of a competing bidder and the effect of a domestic versus cross-border acquirer. Also the novel variable buyer type is described here and the hypothesis is made on why buyer type is expected to affect takeover success.
5.3.1 Takeover success

Takeover success is the dependent variable in the regression and it is dichotomous taking on the value of either 0 or 1. The takeover is considered failed if it is stated in SDC to be withdrawn. A failed offer takes on the value 0 in the logistic regression. The takeover is considered to be successful if it is stated as being completed according to SDC. A successful outcome is coded as 1. Only clearly completed or withdrawn offers are emitted into the sample.

5.3.2 Target attitude

The attitude of the target management is considered hostile if the target management opposes the offer. SDC has categorized these offers as hostile. Another definition in previous literature has been that an offer is hostile if the target management has not been consulted and the offer is presented directly to the target shareholders. These offers are classed in SDC as unsolicited. All the remaining offers in the sample are friendly.

This variable is also dichotomous and is coded 0 for friendly offers and 1 for hostile offers and unsolicited offers. The hostile and unsolicited are considered as a group on their own as opposed to friendly offers. There were only 8 unsolicited offers within 732 so they are grouped with the hostile offers.

Bid hostility is expected to influence takeover success negatively.

H1: Target hostility influences takeover bid success negatively.

5.3.3 Bid premium

The bid premium information is also gathered from SDC. There are three different measurements. The one with the strongest prediction power will be incorporated into the regression model. All of these cannot be used because of the expected high correlation between these variables.

The 1 day premium is the premium between the tender offer price and the target company share price one day prior to the announcement.
The one week premium is the premium between the tender offer price and the target company share price one week prior to the announcement.

The four week premium is the premium between the tender offer price and the target company share price four weeks prior to the announcement.

This variable is a percentage and is continuous. The bid premium is always hypothesized to influence the success of a takeover positively. Still the previous research often finds that this factor has insignificant prediction power. This variable will be expected to influence the probability of takeover success positively.

H2: A higher premium influences takeover success positively.

5.3.4 Payment method

The payment method information is also gathered from SDC. The bids where the offer is partly or completely also paid with other than cash and/or stock, such as loan notes, bonds or options, are removed from the sample to enhance the effect of a cash payment as opposed to also using stock. There were surprisingly few offers paid entirely with stock so the sample is divided to offers that are paid only with cash and offers that are paid with a combination of cash and stock probably due to eliminating the combinations where also other methods of payment besides stock were included in the consideration.

The variable is a dummy and takes on the value of 0 if the payment method is a combination of stock and cash and the value of 1 for cash only offers.

It is expected that the cash offers are more likely to be successful as opposed to the stock-financed offers.

H3: Cash only as a payment method is expected to influence takeover success positively.

5.3.5 Target size

According to Hoffmeister and Dyl (1981) the firm size is an important determinant of takeover success; the larger the absolute market value of the target, the lower the likelihood of merger success. Branch and Yang (2003) also found that the relative target/acquirer size has a strong effect on takeover success; the bigger the target in relation to the acquirer, the lower the likelihood of bid success.
In this study target size is the natural logarithm of the target market value four weeks prior to the announcement. SDC had the most information for the target market values in dollars so these values are converted to euro using the average euro-dollar exchange rate for the announcement month for the specific events. The average exchange rates were taken from the ETLA database. This variable is continuous and the expected effect is strongly negative and significant. The rationale behind this argument is that larger companies should be harder to take over.

*H4: A higher target size is expected to affect takeover success negatively.*

### 5.3.6 Target leverage

The target leverage information is also gathered from SDC. The target leverage is the total debt divided by shareholder’s equity, also called Gearing. This variable is a ratio and it is continuous. Target leverage has shown to have different effects in previous studies, some studies show that it affects the success of a takeover negatively and some positively. In this regression target leverage is hypothesized to affect the outcome positively because companies with much debt are assumed to be easier to take over. It is hypothesized by Stulz (1988) that increasing debt to equity indicates substituting debt for equity, consequently reducing the fraction of the voting right controlled by management and the bidder gain. This in turn should increase the likelihood of both takeover success and even the likelihood to receive a bid.

*H5: Higher target leverage is expected to affect takeover success positively.*

### 5.3.7 Transaction size

Both the transaction size (the amount of shares that the bidder is seeking) and the toehold (the bidder’s pre-bid ownership in the target) have shown to have an effect on the success of the takeover. The transaction size has been shown to impact the success negatively (eg. Branch and Yang, 2003) whilst the toehold has the opposite effect and affects the success positively. Because of the expected high negative correlation between these two variables it is appropriate to choose only one into the prediction model. I have chosen to use the transaction size for the regression model because it is intuitive that a larger amount of shares outstanding is harder to acquire than a smaller amount. Also the transaction size is much more documented in SDC allowing a larger sample size.
The transaction size is the amount of shares sought after in the offer. It is continuous and expected to affect offer success negatively.

*H6: A higher transaction size is expected to affect takeover success negatively.*

### 5.3.8 Cross-border

Flanagan, D’Mello and O’Shaugnessy (1998) found that in their study, cross-border takeover bids were more successful than intra-U.S. takeover bids due to anti-trust issues.

The effect of a cross-border offer is tested using a dummy variable coded as 0 if the offer is between companies from the same country and 1 if the companies are from different countries. The cross-border status is expected to affect takeover success positively.

*H7: Cross-border bids are expected to be more successful than non-cross-border bids.*

### 5.3.9 Termination fees

Flanagan, D’Mello and O’Shaugnessy (1998) found that offers that have termination fees are more likely to be successful than offers without termination fees.

The termination fee variable is a dummy taking the value 0 in the absence of termination fees and 1 in the presence of termination fees. The presence of termination fees is expected to affect takeover success positively.

*H8: Termination fees are expected to affect takeover success positively.*

### 5.3.10 Buyer type

The effect of buyer type has remained untested in takeover success prediction literature.

It is hypothesized that bids where the buyer is a financial buyer are more likely to be successful because of the nature of most financial bids. A financial buyer is usually made so that the buyer intends to improve on the target company and make the company more valuable. Strategic buyers are usually looking for synergy benefits and the market and the shareholders are usually more skeptical of these synergy motives. It is thus expected that bids where the acquirer is a financial buyer are more successful than bids made by strategic buyers.
This variable is a dummy variable where a strategic buyer is coded as 0 and a financial buyer is coded as 1.

H9: Bids made by financial buyers are expected to be more successful than bids made by strategic buyers.

5.3.11 Competing bidder

Kallio (2003) found support for the fact that a competing bidder decreases bid success in a significantly negative way in his study of European takeovers. This variable is a bit controversial though because it is the only variable that might not be known at the time of bid announcement. Competing bids tend to appear after the initial offer and from a merger arbitrageurs’ point of view may increase the eventual tender offer price and thus merger arbitrage returns. It may also be of no interest to the merger arbitrageur which of the offers succeeds as long as one of them does.

This is a complex variable for someone trying to construct a model to help create merger arbitrage returns but the variable will be included into the model to test if it continues to have prediction power in Europe. The dual nature of the variable will be discussed in the interpretation of the regression results.

H10: The presence of a competing bid is expected to affect bid success in a significantly negative way.
6 Empirical results

This chapter presents descriptive statistics for the data as well as the results of the study and compares them to the hypotheses made in the previous chapter. In chapter 6.1 descriptive statistics are presented and also some preliminary testing is done by using Pearson's \( \chi^2 \) test. In chapter 6.2 the regression results are presented.

6.1 Descriptive statistics

Figure 1 presents the distribution of the 732 events per year and it can clearly be seen that the distribution varies greatly. It is sometimes claimed that that takeovers and mergers tend to happen in waves or clusters per period (Andrade et al, 2001) and this figure seems to support that claim.

Figure 1 Distribution of events per year

The figure presents the distribution of the 732 events per year of announcement as both the number of events per year and as a percentage of the overall events.
The first sample year 1999 has the highest number of tender offers per year (148, totaling 20 % of the whole sample). After 1999 the number of events steadily decreases until leveling to about 38 to 50 events per year in the years between 2002 and 2005. Possible causes for the downward trend in takeover market may be the turbulence in the markets caused by the so-called techno bubble bursting soon after the millennium. An upward trend can be seen from 2005 until 2007 as the economy also in Europe was more vibrant but in 2008 the number of events also dropped probably due to the problems in the markets caused by the subprime crisis. Should the sample continue onwards from 2008 a clear downward trend would be expected due to the continued crisis in the markets around the world.

Table 1 Distribution of events per year and yearly success and failure rates

This table presents the events per year and the percentage of events per year of total. The table also presents the number of successful offers and the number of failed offers per year along with the yearly success and failure rates.

<table>
<thead>
<tr>
<th>Year</th>
<th>Events per year</th>
<th>% of total</th>
<th>Successful</th>
<th>Success rate</th>
<th>Failed</th>
<th>Failure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>148</td>
<td>20 %</td>
<td>124</td>
<td>84 %</td>
<td>24</td>
<td>16 %</td>
</tr>
<tr>
<td>2000</td>
<td>103</td>
<td>14 %</td>
<td>89</td>
<td>86 %</td>
<td>14</td>
<td>14 %</td>
</tr>
<tr>
<td>2001</td>
<td>74</td>
<td>10 %</td>
<td>69</td>
<td>93 %</td>
<td>5</td>
<td>7 %</td>
</tr>
<tr>
<td>2002</td>
<td>38</td>
<td>5 %</td>
<td>33</td>
<td>87 %</td>
<td>5</td>
<td>13 %</td>
</tr>
<tr>
<td>2003</td>
<td>45</td>
<td>6 %</td>
<td>37</td>
<td>82 %</td>
<td>8</td>
<td>18 %</td>
</tr>
<tr>
<td>2004</td>
<td>31</td>
<td>4 %</td>
<td>28</td>
<td>90 %</td>
<td>3</td>
<td>10 %</td>
</tr>
<tr>
<td>2005</td>
<td>50</td>
<td>7 %</td>
<td>43</td>
<td>86 %</td>
<td>7</td>
<td>14 %</td>
</tr>
<tr>
<td>2006</td>
<td>73</td>
<td>10 %</td>
<td>64</td>
<td>88 %</td>
<td>9</td>
<td>12 %</td>
</tr>
<tr>
<td>2007</td>
<td>102</td>
<td>14 %</td>
<td>96</td>
<td>94 %</td>
<td>6</td>
<td>6 %</td>
</tr>
<tr>
<td>2008</td>
<td>68</td>
<td>9 %</td>
<td>63</td>
<td>93 %</td>
<td>5</td>
<td>7 %</td>
</tr>
<tr>
<td>Total</td>
<td>732</td>
<td>100 %</td>
<td>646</td>
<td>88 %</td>
<td>86</td>
<td>12 %</td>
</tr>
</tbody>
</table>

Table 1 presents the distribution of events per year along with their respective success and failure rates. The overall success rate in the sample is 88 % and the overall failure rate is 12 %. Although in some years the success rates vary a lot around the average (the lowest success rate was 84 % in 1999 and the highest 94 % in 2007), the differences are not statistically significant as to draw conclusions about the years having an effect on the success rates (Pearson’s χ²-test was insignificant).

Overall the success rate of 88 % fits the previous studies rather well (Kallio, 2003: success rate 83 % in Europe between 1991 and 2002).
Table 2 Distribution of events by country

This table presents the number and percentage of events per target country.

<table>
<thead>
<tr>
<th>Target nation</th>
<th>Events per nation</th>
<th>Cumulative events</th>
<th>% of total events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>5</td>
<td>5</td>
<td>0.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>7</td>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2</td>
<td>14</td>
<td>0.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>30</td>
<td>44</td>
<td>4.1</td>
</tr>
<tr>
<td>Finland</td>
<td>11</td>
<td>55</td>
<td>1.5</td>
</tr>
<tr>
<td>France</td>
<td>69</td>
<td>124</td>
<td>9.4</td>
</tr>
<tr>
<td>Germany</td>
<td>39</td>
<td>163</td>
<td>5.3</td>
</tr>
<tr>
<td>Greece</td>
<td>4</td>
<td>167</td>
<td>0.6</td>
</tr>
<tr>
<td>Hungary</td>
<td>6</td>
<td>173</td>
<td>0.8</td>
</tr>
<tr>
<td>Iceland</td>
<td>1</td>
<td>174</td>
<td>0.1</td>
</tr>
<tr>
<td>Ireland-Rep</td>
<td>16</td>
<td>190</td>
<td>2.2</td>
</tr>
<tr>
<td>Italy</td>
<td>24</td>
<td>214</td>
<td>3.3</td>
</tr>
<tr>
<td>Jersey</td>
<td>3</td>
<td>217</td>
<td>0.4</td>
</tr>
<tr>
<td>Liechtenstein</td>
<td>1</td>
<td>218</td>
<td>0.1</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1</td>
<td>219</td>
<td>0.1</td>
</tr>
<tr>
<td>Monaco</td>
<td>2</td>
<td>221</td>
<td>0.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>38</td>
<td>259</td>
<td>5.2</td>
</tr>
<tr>
<td>Norway</td>
<td>38</td>
<td>297</td>
<td>5.2</td>
</tr>
<tr>
<td>Poland</td>
<td>6</td>
<td>303</td>
<td>0.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>4</td>
<td>307</td>
<td>0.6</td>
</tr>
<tr>
<td>Spain</td>
<td>32</td>
<td>339</td>
<td>4.4</td>
</tr>
<tr>
<td>Sweden</td>
<td>55</td>
<td>394</td>
<td>7.5</td>
</tr>
<tr>
<td>Switzerland</td>
<td>19</td>
<td>413</td>
<td>2.6</td>
</tr>
<tr>
<td>Turkey</td>
<td>1</td>
<td>414</td>
<td>0.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>318</td>
<td>732</td>
<td>43.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>732</strong></td>
<td><strong>732</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 2 shows the events per target nation. It shows that 318 out of 732 events (43.4 %) have a target based in the United Kingdom. Kallio (2003) had the same bias in his data. There are two possible explanations for the high number of events in the UK. First, it is possible that there is more takeover activity in the UK compared with the continental Europe. Second, the source of the data (SDC Platinum database) might have better documentation of the events in the UK than the events in Europe. The disclosure rules may vary considerably between countries creating bias in the data towards having a higher number of bids from countries where disclosure rules are tighter. This data bias is taken into consideration in the tests by seeing if the target nation (the UK versus continental Europe) has an affect on bid success.
Table 3 Distribution successful and failed events of events by categorical variables and their significance levels

This table presents the distribution of the failed and completed offers by categorical variables (number and percentage) and the Pearson $\chi^2$ test of significance.

<table>
<thead>
<tr>
<th></th>
<th>Status</th>
<th>Failed</th>
<th>Completed</th>
<th>Total</th>
<th>Pearson $\chi^2$ Asymp. Sig (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>Friendly</td>
<td>49</td>
<td>615</td>
<td>664</td>
<td>.000***</td>
</tr>
<tr>
<td></td>
<td>Hostile</td>
<td>38</td>
<td>30</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td><strong>Payment method</strong></td>
<td>Combination of cash and stock</td>
<td>22</td>
<td>88</td>
<td>110</td>
<td>.004**</td>
</tr>
<tr>
<td></td>
<td>Cash only</td>
<td>65</td>
<td>557</td>
<td>622</td>
<td></td>
</tr>
<tr>
<td><strong>Cross border</strong></td>
<td>Domestic</td>
<td>49</td>
<td>386</td>
<td>435</td>
<td>.530</td>
</tr>
<tr>
<td></td>
<td>Cross border</td>
<td>38</td>
<td>259</td>
<td>297</td>
<td></td>
</tr>
<tr>
<td><strong>Termination Agreement</strong></td>
<td>No termination fees</td>
<td>86</td>
<td>570</td>
<td>656</td>
<td>.003**</td>
</tr>
<tr>
<td></td>
<td>Termination fees</td>
<td>1</td>
<td>75</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td><strong>Buyer type</strong></td>
<td>Strategic</td>
<td>68</td>
<td>507</td>
<td>575</td>
<td>.925</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
<td>19</td>
<td>138</td>
<td>157</td>
<td></td>
</tr>
<tr>
<td><strong>Competing bidder</strong></td>
<td>No competing bids</td>
<td>44</td>
<td>578</td>
<td>622</td>
<td>.000***</td>
</tr>
<tr>
<td></td>
<td>Competing bids</td>
<td>43</td>
<td>67</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td><strong>Europe vs UK</strong></td>
<td>Continental Europe</td>
<td>61</td>
<td>353</td>
<td>414</td>
<td>.007**</td>
</tr>
<tr>
<td></td>
<td>UK</td>
<td>26</td>
<td>292</td>
<td>318</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>87</td>
<td>645</td>
<td>732</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows that out of friendly offers 92.6% were successful versus 44.1% out of hostile offers. According to the Pearson $\chi^2$ test this difference is statistically significant, meaning that
hostile bids are less likely to succeed than friendly bids. Out of the sample 664 offers were friendly and 68 were hostile (91% versus 9%).

The payment method of a combination of cash and stock versus cash only is also significant according to the table. There were 110 offers paid with both cash and stock and 622 offers paid only in cash. This variable is a bit problematic in this data. Most previous studies have limited their dataset to include only listed buyers. In my attempt to test the effect of buyer type on bid success I have chosen to include also unlisted buyers into the sample in order to gather a sufficient sample of financial buyers that I assume might not always be listed companies. Unlisted companies pay with cash which may bias the cash only variable upwards. Also in my attempt to select only offers that were the consideration was purely stock and cash or purely cash I had to eliminate a lot of events where other alternative means of payment were also included (such as loan notes, warrants, convertibles, options etc.). I assume this criterion also left a relatively high number of cash only offers into the sample. I am unsure of how representative this variable is of reality so the interpretation of this variable in the tests is conservative and careful.

According to the table the difference of successful and failed offers by cross border status is not significant. The success rate for domestic offers was 88.7% versus 87.2% for cross border offers.

Table 3 shows that the difference between successful and unsuccessful offers by the variable termination agreement is strongly significant. This is problematic as such as out of the failed offers only one had termination fees and the rest 86 did not. This creates some bias and will be interpreted conservatively.

In the sample there are 575 strategic buyers and 157 financial buyers. The success rate for strategic buyers is 88.2% versus 87.9% for financial buyers. This small difference is not statistically significant implying that buyer type does not influence bid success.

The table shows that there was no competing bid in 622 cases and in 110 cases there was a competing bid. The success rate for no competing bids was 92.9% versus 60.9% for bids with competing bids. This difference is also statistically strongly significant implying that the occurrence of competing bids significantly decreases bid success probability.

The table shows that there were 414 offers in continental Europe that had a success rate of 85.3%. The number offers in the UK was 318 with a success rate of 91.8%. This difference is
statistically significant meaning that UK offers have a higher probability to succeed than non-UK offers.

These Pearson $\chi^2$ tests measure the bivariate associations of the variables to the bid success and do not mean that the same variables are necessarily significant in the prediction model. These tests may give an indication of which variables have prediction power regarding bid success in regression models. These measurements are here to compliment the descriptive statistics. The actual empirical analysis is based on the logistic regressions that follow.
Table 4 Distribution of events per target nation

This table presents the distribution of the sample bids per target nation and the significance of the target nation to bid success.

<table>
<thead>
<tr>
<th>Target Nation</th>
<th>Failed</th>
<th>Completed</th>
<th>Total</th>
<th>Pearson $\chi^2$</th>
<th>Asymp.Sig (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>7</td>
<td>23</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>7</td>
<td>23</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>7</td>
<td>62</td>
<td>69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>5</td>
<td>34</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iceland</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland-Rep</td>
<td>1</td>
<td>15</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>4</td>
<td>20</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jersey</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liechtenstein</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monaco</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>3</td>
<td>35</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>6</td>
<td>32</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>11</td>
<td>21</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>9</td>
<td>46</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>3</td>
<td>16</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>26</td>
<td>292</td>
<td>318</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>645</td>
<td>732</td>
<td></td>
<td>0.054</td>
</tr>
</tbody>
</table>
Table 4 presents the distribution of successful and failed offers per target nation and the Pearson's $\chi^2$-test for significance. The test is almost significant implying that according to the test there might be some prediction power for bid success by target nation. The samples per nation are however so small that this conclusion should not be made.

Table 5 presents some descriptive statistics for the continuous variables. The different premiums range from 31 to 39 % on average with medians from 24 % to 32 %. The fact that the means are higher than the medians implies that there are some very high premiums that hike up the average as compared to the median. Only one of the premiums, the 1 week premium, is used in the main regression because of the estimated high correlation between the different premiums.

The target market value is on average 1,163 million euros. Meanwhile, the median is 142.96 million euros, which means that there are some very high market values that hike up the average as compared to the median.

The leverage ratio is on average 1.97 compared to the median of 0.53. The highest percentile (75) is 1.22, which implies that there are some companies in the sample that are very highly levered.

The median for the shares sought is 100 % implying that there are more bids for 100 % of the shares in a company than bids for less than 100 %. This may be due to the data restriction that the offer must be for the control of the company (offer for more than 50 % of the shares).
Table 6 Correlations of the variables

This table presents the correlations between the variables used for bid success prediction. Only one premium is included because of the high correlation between the three different premium measures. Also only Ln(Target market cap) is included and not the Target market value in million euros.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Status</th>
<th>Europe vs UK</th>
<th>1 week Premium</th>
<th>Attitude</th>
<th>Payment method</th>
<th>Ln(Target market cap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe VS UK</td>
<td>.100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week Premium</td>
<td>-.009</td>
<td>.138</td>
<td></td>
<td>.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>-.435**</td>
<td>.072</td>
<td>.020</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment method</td>
<td>.105</td>
<td>-.102</td>
<td>-.070</td>
<td>-.116</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ln(Target market cap)</td>
<td>-.180</td>
<td>-.298</td>
<td>-.123</td>
<td>.214</td>
<td>-.153</td>
<td>1</td>
</tr>
<tr>
<td>Leverage</td>
<td>-.049</td>
<td>-.156</td>
<td>.072</td>
<td>.043</td>
<td>-.094</td>
<td>.171</td>
</tr>
<tr>
<td>Shares sought %</td>
<td>-.052</td>
<td>.243</td>
<td>.141</td>
<td>-.015</td>
<td>-.093</td>
<td>-.070</td>
</tr>
<tr>
<td>Cross border</td>
<td>-.023</td>
<td>-.146</td>
<td>.114</td>
<td>-.006</td>
<td>.176</td>
<td>.165</td>
</tr>
<tr>
<td>Termination Agreement</td>
<td>.111</td>
<td>.307</td>
<td>.021</td>
<td>-.093</td>
<td>.068</td>
<td>-.016</td>
</tr>
<tr>
<td>Buyer type</td>
<td>-.003</td>
<td>.005</td>
<td>-.071</td>
<td>-.087</td>
<td>.182</td>
<td>.073</td>
</tr>
<tr>
<td>Competing bidder</td>
<td>-.354</td>
<td>-.037</td>
<td>.141</td>
<td>.168</td>
<td>-.069</td>
<td>.247</td>
</tr>
</tbody>
</table>

A high correlation between independent variables would distort the regression so only one premium is included in table 6. Also only Ln(Target market value) is included because it correlates highly with the Target market value in million euros.

There is a high negative significant correlation between status and attitude (-.435**). This indicates that there is a strong negative association between bid success and a hostile target attitude. The interpretation of this result is that a hostile target attitude decreases bid success probability. This also indicates that target attitude may have significant prediction power in the regression analysis.
There is also a high negative significant correlation between status and the competing bidder variable (-.354**). This is interpreted as the presence of a competing bid decreasing bid success probability. This indicates that the competing bidder variable may also have significant prediction power in the regression.

Generally the correlations between the independent variables were less than 0.2, with some exceptions:

- Europe vs UK and shares sought % (.243**)
- Europe vs UK and termination agreement (.307**)
- Europe vs UK and Ln(Target market value) (-.298**)
- Ln(Target market value) and attitude (.214**)
- Ln(Target market value) and competing bidder (.247**)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Leverage</th>
<th>Shares sought %</th>
<th>Cross border</th>
<th>Termination Agreement</th>
<th>Buyer type</th>
<th>Competing bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe vs UK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 week Premium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(Target market cap)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>.009</td>
<td>.090</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares sought %</td>
<td>-.068</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross border</td>
<td>.095</td>
<td>.090</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Termination Agreement</td>
<td>-.029</td>
<td>.155</td>
<td>.047</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyer type</td>
<td>-.094</td>
<td>.142</td>
<td>.029</td>
<td>.062</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Competing bidder</td>
<td>.074</td>
<td>.108</td>
<td>.050</td>
<td>-.030</td>
<td>.041</td>
<td>1</td>
</tr>
</tbody>
</table>
These unexpected correlations imply that it is advisable to include the variable Europe vs UK into the regression model and also to pay special attention to the target market value.

6.2 Success prediction factors and regression results

Table 7 presents the results of the main regression model. I ran three different regressions with the three different premiums in order to choose the one with the best prediction power. All the premiums showed a lack of significant prediction power so the one week premium, which had the highest Nagelkerke $R^2$ and also the highest percentage of correct predictions, was chosen to be in the main regression model. I also ran a regression without the control variable Europe versus UK but the model significances were lower even though the variable has no significant prediction power in itself.

I also ran regressions with varied combinations of the independent factors to find out which model would have the highest explanatory power. Leaving out any of the independent variables that did not have a significant effect on the dependent variable did not increase the Nagelkerke $R^2$ or the highest percentage of correct predictions. A good model is often thought to have only significant explanatory variables included but keeping only the significant variables in the regression did not lead to a higher Nagelkerke $R^2$ nor a higher percentage of correct predictions. Henceforth the model that included all the independent variables and the one week premium representing bid premium was chosen to be the best representative model.

The results of the model are confirmed by doing a set of sub-sample regressions. They confirm that the results are consistent over the sample. I conclude that the model specification for the chosen main regression is the best combination of the available independent factors. The model is also robust according to the Hosmer-Lemeshow goodness-of-fit test.
Table 7 Determinants of bid success by logistic regression

This table presents the main logistic regression results for the independent variables. The dependent variable is the bid outcome, a dummy variable named “status”, where the value 0 stands for a failed offer and the value 1 stands for a successful offer. The offer is classified as successful or failed according to the SDC Platinum database classification. Out of the three different premium measures, the 1 week premium (the bid premium over the target share price one week before announcement) is chosen because even though none of the premiums were significant, the model where the 1 week premium was used had the highest Nagelkerke $R^2$ and the highest percentage of correct predictions. The payment method is a dummy taking the value 0 if the consideration offered was a combination of stock and cash and 1 if the consideration was cash only. Ln(Target market cap) is the natural logarithm of the target market value four weeks prior to the announcement. The figures from SDC were converted to euros using the average euro-dollar exchange rates for the announcement month of the event. Leverage is a ratio of target debt to target shareholder’s equity. Shares sought is the percentage of target shares that the buyer is bidding for. The Cross-border variable is coded 0 for intra-country offers and 1 for cross-border offers. Termination agreement is coded as 1 and 0 for no termination agreement. Buyer type is coded 0 for strategic buyers and 1 for financial buyers. The absence of a competing bid is coded as 0 and 1 otherwise. The control variable Europe vs UK is coded 1 for UK and 0 otherwise.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Expected sign</th>
<th>Regression coefficient</th>
<th>t-test</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>-</td>
<td>-2.678</td>
<td>62.651</td>
<td>.000</td>
<td>.07</td>
<td>.04 .13</td>
</tr>
<tr>
<td>1 week Premium</td>
<td>+</td>
<td>.005</td>
<td>1.283</td>
<td>.257</td>
<td>1.01</td>
<td>1.00 1.01</td>
</tr>
<tr>
<td>Payment method</td>
<td>+</td>
<td>.435</td>
<td>1.217</td>
<td>.545</td>
<td>1.54</td>
<td>.71 3.34</td>
</tr>
<tr>
<td>Ln(Target market cap)</td>
<td>-</td>
<td>.001</td>
<td>.000</td>
<td>.993</td>
<td>1.00</td>
<td>.85 1.18</td>
</tr>
<tr>
<td>Leverage</td>
<td>+</td>
<td>-.004</td>
<td>.033</td>
<td>.856</td>
<td>1.00</td>
<td>.95 1.04</td>
</tr>
<tr>
<td>Shares sought</td>
<td>-</td>
<td>-.012</td>
<td>1.478</td>
<td>.993</td>
<td>1.00</td>
<td>.97 1.01</td>
</tr>
<tr>
<td>Crossborder</td>
<td>-</td>
<td>-.171</td>
<td>.338</td>
<td>.561</td>
<td>.84</td>
<td>.47 1.50</td>
</tr>
<tr>
<td>Termination Agreement</td>
<td>+</td>
<td>2.310</td>
<td>4.332</td>
<td>.037</td>
<td>10.07</td>
<td>1.14 88.67</td>
</tr>
<tr>
<td>Buyer type</td>
<td>+</td>
<td>-.320</td>
<td>.898</td>
<td>.343</td>
<td>.73</td>
<td>.37 1.41</td>
</tr>
<tr>
<td>Competing bidder</td>
<td>-</td>
<td>-2.110</td>
<td>44.486</td>
<td>.000</td>
<td>.12</td>
<td>.07 23</td>
</tr>
<tr>
<td>Europe vs UK</td>
<td>?</td>
<td>.366</td>
<td>1.324</td>
<td>.250</td>
<td>1.44</td>
<td>.77 2.69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model details</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td></td>
<td>3.589</td>
<td>9.410</td>
<td>.002</td>
<td>36.21</td>
<td></td>
</tr>
<tr>
<td>Observations (N)</td>
<td></td>
<td>732</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2 Log likelihood</td>
<td></td>
<td>374.526</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R Square</td>
<td></td>
<td>0.378</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hosmer and Lemeshow Test</td>
<td></td>
<td>0.558</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct predictions % (total)</td>
<td></td>
<td>89.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct predictions % (successful)</td>
<td></td>
<td>98.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct predictions % (failed)</td>
<td></td>
<td>23.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7 shows that as hypothesized target attitude is a strongly significant predictor of takeover success (significance level of 0.1 %, two sided). The expected sign is negative as expected and means that hostile offers are less likely to succeed than friendly offers. Hostile offers are 0.07 times less likely to succeed than friendly ones and this result is strongly significant.

The other significant predictors of takeover success were the termination fees and competing bidder variables. The results show that the presence of a competing bid is a strong negative predictor of takeover success (significance level of 0.1 %, two sided). Contested offers are 0.12 times less likely to succeed than non-contested offers. According to the regression the presence of termination fees increases takeover success (significance level of 5 %). Offers with termination fees are more than ten times likelier to succeed than offers without termination fees.

All and all, I find strong support for hypotheses 1, 8 and 10. No support is found for the rest of the hypotheses. According to the main regression model only target attitude, termination fees and competing bidder had any significant prediction power. The rest of the variables yielded some results regarding the direction of their influence but none of the other variables were significant predictors of takeover success.

None of the premiums showed to have any significant prediction power to takeover success. The signs of the premiums were all positive as expected and the betas and odds-ratios did not really differ between the different premiums. All the premiums were far from significant in the chosen main model and the other tested models where insignificant independent variables were left out to see if the results changed or the model improved.

The results regarding the payment method show that offers paid in cash only are likelier to be successful (1.54 times likelier than offers paid with stock and cash), but this result is not statistically significant. Also the target leverage proved to be a very poor predictor of takeover success. The sign of the variable was expected to be negative but was according to the regression positive. The odds-ratio was exactly one so it can be stated that the target leverage has no effect at all on takeover success.

The sign on the shares sought variable was negative as expected showing that a higher amount of shares sought decreases takeover success probability but this result was not statistically significant.
According to expectations the results show that cross-border offers were less likely to succeed than domestic offers. Cross-border offers were 0.84 times less likely to succeed than domestic ones. Again this result was not statistically significant.

Contrary to expectations the buyer type seemed to affect so that strategic offers were likelier to succeed than offers from financial buyers. Financial buyers were 0.73 times less likely to succeed than strategic buyers. This result was not statistically significant. Essentially the result is that buyer type has no prediction power at all. The hypothesis that financial buyers affect takeover success positively is rejected. This is contrary to the hypothesis and the reasoning behind the hypothesis. It is economically logical to think that financial buyers would be able to create more value for the target shareholders with their streamlining of the company operations and also their focus on undervalued or mismanaged companies. The results do not support this line of argument.

The control variable Europe versus UK showed that UK offers are likelier to succeed than other European offers (1.44 times likelier). This result was not statistically significant.

I also ran a regression with the years as dummy variables (year 1999 as reference) added to the model. The results were for the most part similar except the termination agreement lost significance. The individual years had no prediction power and were insignificant. The Nagelkerke R Square increased but merely by one percentage point. The amount of correct predictions remained at the same level. Adding the years into the regression added no value to the model and was rejected in favor of the main regression model.

Overall, the model passed the Hosmer Lemeshow goodness-of-fit test and is a significant and robust model. On the other hand the Nagelkerke $R^2$ is only 37.8 %. The Nagelkerke $R^2$ measures the proportion of variance in the dependent variable which is explained by the individual variables. The interpretation of this less than 40 % $R^2$ is that there is over 60 % of variance in the dependent variable that this model and its independent variables do not explain. In total the model predicted 89.3 % of the outcomes correctly. Out of the successful offers the model correctly predicted 98.3 % and out of the failed offers a mere 23 %.

In excess of the main regression model I ran some regressions on subsamples in the data to test for changes in the prediction powers of the independent variables and also to make sure that there are no distorting variables included in the main regression. Table 8 presents results of the subsamples.
Table 8 Results of the regressions on the subsamples

This table presents the results of some of the subsample regressions compared to the main regression model. The first column is the main regression model, followed by a regression done on only European companies, followed by a regression done by only UK data. Also regressions are done on friendly offers only and hostile offers only. B stands for beta, the regression coefficient. Sig. stands for the significance according to the t-test.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Whole sample</th>
<th>Europe (no UK)</th>
<th>UK</th>
<th>Friendly offers</th>
<th>Hostile offers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Sig.</td>
<td>B</td>
<td>Sig.</td>
<td>B</td>
</tr>
<tr>
<td>Attitude</td>
<td>-2.678</td>
<td>0.000</td>
<td>-2.336</td>
<td>0.000</td>
<td>-4.032</td>
</tr>
<tr>
<td>1 week Premium</td>
<td>0.005</td>
<td>0.257</td>
<td>0.002</td>
<td>0.691</td>
<td>0.013</td>
</tr>
<tr>
<td>Payment method</td>
<td>0.435</td>
<td>0.270</td>
<td>0.590</td>
<td>0.253</td>
<td>0.562</td>
</tr>
<tr>
<td>Ln(Target market cap)</td>
<td>0.001</td>
<td>0.993</td>
<td>0.015</td>
<td>0.888</td>
<td>-0.043</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.004</td>
<td>0.856</td>
<td>-0.011</td>
<td>0.619</td>
<td>1.327</td>
</tr>
<tr>
<td>Shares sought</td>
<td>-0.012</td>
<td>0.224</td>
<td>-0.009</td>
<td>0.420</td>
<td>-0.040</td>
</tr>
<tr>
<td>Cross-border</td>
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<td>0.561</td>
<td>-0.213</td>
<td>0.537</td>
<td>0.232</td>
</tr>
<tr>
<td>Termination Agreement</td>
<td>2.310</td>
<td>0.037</td>
<td>1.229</td>
<td>0.335</td>
<td>18.487</td>
</tr>
<tr>
<td>Buyer type</td>
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<td>0.343</td>
<td>-0.540</td>
<td>0.174</td>
<td>-0.487</td>
</tr>
<tr>
<td>Competing bidder</td>
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<td>0.000</td>
<td>-1.907</td>
<td>0.000</td>
<td>-3.487</td>
</tr>
<tr>
<td>Europe vs UK</td>
<td>0.366</td>
<td>0.250</td>
<td>-1.907</td>
<td>0.000</td>
<td>0.724</td>
</tr>
</tbody>
</table>

Model details

- Observations (N) 732 414 318 664 68
- -2 Log likelihood 374.526 257.703 100.039 264.428 87.616
- Nagelkerke R Square 0.378 0.340 0.514 0.294 0.108
- Hosmer and Lemeshow Test (Sig.) 0.558 0.676 0.983 0.842 0.593
- Correct predictions % (failed) 23.0 23.0 46.2 14.3 86.8
- Correct predictions % (successful) 98.3 96.9 99.0 99.2 43.3
- Correct predictions % (total) 89.3 86.0 94.7 92.9 67.6

Table 8 presents the results of some of the subsample regressions. Additional subsample regressions were also run but they provided no additional information.

The most notable contribution of the subsample regressions is that the prediction model with these specific independent variables seems to work best on the UK data. The Nagelkerke R² is 51.4 % in the UK regression. Also the correct predictions are as high as 94.7 % total and 99 % and 46.2 % for successful and failed offers respectively. In the UK model the attitude has a
much higher beta than in the other models. The competing bidder variable is still significant. Termination agreement is not but this must be due to the problems with sufficient data in every class in the variable. Interestingly, in the UK model, leverage is suddenly a significant predictor of takeover success.

In all the subsample regressions the Nagelkerke $R^2$ is lower than in the main model except for the UK. The same variables are significant than before except for the termination agreement. In the subgroup of only friendly offers the payment method and Europe versus UK variables are surprisingly close to having some significance which is interesting. In the hostile offer group all variables lose significance. There are only 68 observations and the amount of total predictions is only 67.6 %.

The additional subsamples were made on samples divided by payment method, termination agreement, competing bidder and buyer type. The results in the termination agreement subgroups were distorted due to the small amount of observations where events with termination agreements have failed. In these subgroups the independent variables had the same prediction power or lower to none and the models were always worse as measured by Hosmer-Lemeshow goodness-of-fit test and Nagelkerke $R^2$.

The finding in the subgroups divided into strategic buyers only and financial buyers only showed that the buyer type has no prediction power of effect on takeover success. The results of the above mentioned subsamples show that in no scenario did the buyer type variable come even close to being significant. Also there was absolutely no variation in results in the subsample where the division made by strategic buyers and financial buyers separately. Still, only target attitude and the competing bidder factor were significant and none of the other factors varied in the buyer type subsample. The results indicate that the buyer type variable does not have any significance under any circumstances within the scope of the data.
7 Conclusions

The purpose of this thesis is to identify and study the determinants of takeover bid success on the European market. The purpose is also to try to create a model that best incorporates these factors and can be used for takeover success prediction. An additional purpose is to test a novel variable, the buyer type and its effect on takeover success. This chapter concludes the thesis by discussing and comparing the results to previous research. The contribution of the thesis is also revisited and suggestions for further research are made.

7.1 Discussion of the results compared to previous research

In line with most of the previous research on takeover success prediction this thesis found that target attitude is the single most significant predictor of takeover success. Hostile bids are significantly less likely to be successful as compared to friendly bids. This finding is consistent with previous studies (Hoffmeister and Dyl 1981; Schwert 2000; Branch et al. 2003, Flanagan et al. 1998; Baker & Savasoglu 2002; Kallio 2003). Hostility was defined as a bid that was made directly to target shareholders bypassing the target’s board of directors, either by not soliciting them or ignoring their hostility towards the bid. The classification for this variable was taken directly from the SDC Platinum database. This variable may be problematic though because it is not uncommon for the mood of the negotiations to vary in during the process and it is sometimes unclear if offers that start out hostile end as hostile or if offers that start out as friendly actually end as friendly either. In any case, strongly consistent with previous research target hostility towards the bid significantly decreases bid success probability. In previous studies this finding is consistent across countries. Most other studies are done on U.S. data or U.K. data but also Kallio (2003) who tested target attitude in Europe found that it is the most significant predictor of takeover success also in Europe.

The inclusion of termination fees was also significant along the lines with earlier research. (Flanagan, D’Mello and O’Shaugnessy , 1998; Officer, 2003; Kallio, 2003) Termination fees for the acquirer or target mean that it is more costly to abandon the merger contract than to go through with it and it is proven to be effective in determining takeover success in the U.S. and also in Europe by Kallio and now in this study. This signifies that it is worth planning mergers
and takeover contracts so that they include termination fee clauses. Also for merger arbitrageurs the knowledge of the presence of termination fees is a sign that this increases bid success, according to this study and others.

The presence of competing bids is a challenging predictor of takeover success. It is the only variable in my model that may not be known at the time of the announcement which initially was the idea. But because it had proven to be a significant determinant of takeover success in Europe (Kallio, 2003) I decided to include it also into my study. Still there are some challenging dynamics between the competing bids and merger arbitrage returns that should be taken into consideration whilst interpreting the model.

The competing bid from the merger arbitrageurs’ point of view is rather a good thing because it might create upward pressure in premiums. Moreover, one would require another set of data to analyze the competing bid separately to foresee its success also in isolation. In this case one should also be taking into account that bid withdrawal in this case still might lead to the company being bought and the speculators being paid off. To test the effect of the competing bids to merger arbitrage activities is more complex than the model in this thesis. It is thus only acknowledged that even though the competing bids significantly decrease bid success probability, it does not necessarily lead to losses for a merger arbitrageur because the competing bid in itself might succeed and with a higher price. This is an effect that my model could not capture and that could be studied further.

The effect of buyer type was insignificant contrary to expectations. I hypothesized that bids from financial buyers would affect takeover success positively as opposed to strategic buyers. The logic of my hypothesis was based on the assumption that financial buyers are more focused on maximizing target shareholder value than strategic buyers who may have other more synergistic motives. Also it has been hypothesized that the market is more skeptical of strategic takeovers and synergies than financial takeovers.

The result of the main regression and all the additional subsample regressions was still that buyer type has absolutely no prediction power on takeover success. In order to acquire a representative sample of financial bids also unlisted buyers were included into the sample. The sample included 575 strategic takeovers and 157 financial takeovers. It is clear that strategic takeovers are more represented but this proportion is deemed to represent the real takeover market well. There are enough financial bids to make a clear comparison. It is doubtful that the insignificant result is due to any problems in data or any technicalities and that there must be a logical or an economic reason for the insignificance.
A possible explanation of why the buyer type yielded insignificant results may lie in the free-rider problem described earlier in the thesis. The free-rider problem resulted from the fact that shareholders might anticipate that the buyer does some improvements to the company and sells it forward at a higher price and thus they want to free ride and not tender their shares. In the case of a strategic buyer there is nothing to free ride on as the company will not be reorganized for resale but integrated into another company to create synergies. This would explain why the free-rider problem would only hinder deals where the buyer is a financial buyer.

Out of all factors only target attitude, termination fees and the presence of competing bids had significant effect on takeover success in the main model. In the model the payment method had no effect at all, a result that differed from Kallio’s study that was also done on European data. Some differences between his research and mine were that my bidder companies were not necessarily listed. This might have increased the number of bids that were paid with cash only in my sample and diluted the effect. This is why I draw no clear conclusions that payment method definitely would not affect takeover bid success in Europe even though in my regression it appeared to have no prediction power.

Additional challenges in the thesis are the clear lack of documentation for bids in some countries. For example in my sample there are more takeovers from Sweden than Germany which is very surprising but can be explained only by the exclusion of German bids by lack of documentation of the variables used in my study. This also suggests that it might be too challenging to create a model on the European level as the differences in bid documentation between countries may be too large. Also the clear improvement of my model specifications when limiting the sample to only the UK suggests that these models might be appropriate for one market only. It could further be hypothesized that these different markets might even have different determinants of takeover bid success.

It can also be possible that evaluating the synergies and benefits from taking over a company or merging two companies is far more complex than can be captured in a model and that every single bid should be evaluated based on its specific circumstances. Still some determinants are shown to have a clear effect on takeover bid success but based on my results I would not claim that a model that captures enough explanatory factors to sufficiently and efficiently predict takeover bid success could be created due to data restrictions.
7.2 Contribution of the thesis

This study is among the only studies of takeover bid success on the European market. It has a large and recent dataset of 732 takeover bids covering the years 1999 – 2008. The dataset in itself is more comprehensive than in most studies on takeover success prediction and the most comprehensive in the European studies.

The study confirmed the prediction power of some factors that have previously been shown to significantly affect takeover bid success both in Europe and in the U.S. Also the contribution is that it is not possible to create a model to sufficiently predict bid success using the independent variables used in this study on the European market. If there was valid and reliable data collected comparably from each country representative of their actual share of the takeover bids, it might be possible to create a model that captures the determinants on a European level. If not then it might be of interest to find out and study the country specific differences in the independent variables that effect takeover success.

Also another novel contribution of the thesis is that in the European market buyer type does not affect takeover bid success at all. In other words, the market does not discriminate between bids made by strategic buyers and bids made by financial buyers, at least based on bid success. The effect of the buyer type on takeover success had not previously been tested on any market so it is a contribution in itself.

7.3 Suggestions for further research

As mentioned in the discussion of the results I would suggest that future research would focus on gathering large country specific sets of information on takeover bids to determine if there are indeed differences in the determinants of takeover bid success by country. Other than focusing on specific countries, such as UK and thus eliminating country wise differences, it might be possible to try creating a model to estimate success probabilities per offer directly and using it to calculate whether such a model could enhance for example merger arbitrage returns. Such a model might even be planned so that it incorporates that challenging dynamics of competing bids as they might or might not lead to merger arbitrage gains irrespective of the original bid success.
Also using a more extensive dataset gathered from multiple sources (or completing the data that is missing from SDC Platinum) to find sufficient documentation for failed offers might highlight the differences between successful and failed offers.

Both studies done on the European market had a poor prediction percent of failed offers. It would be of importance to improve the prediction percent of these by maybe a totally different method to create a model to select out the ones that generate losses for people engaging in merger arbitrage. Branch et al. 2008 compared the traditional logistic regression with a neural network model and significantly improved the correct prediction rate on their failed offers whilst the correct prediction rate on successful offers remained the same. A similar study could be done on European data to test whether the correct predictions percent for failed offers increases. Being able to correctly predict offers that will fail is one of the best ways to enhance merger arbitrage returns as the failed offers usually lead to more substantial losses than what is gained from a single successful offer. That is why it would be of interest to study the neural network model further in takeover success prediction and also on the European market.

It might also be of interest to study if buyer type affects for example deal valuation or arbitrage spread or if buyer type has any impact on takeover success on other markets such as in the United States.
Svensk sammanfattning

1 Inledning


Många studier har forskat företagsförvärv från olika synpunkter men prediktionen av framgång hos köpeanbud är relativt lite forskat jämfört med andra aspekter av företagsförvärv. Också de existerande studierna har för det mesta fokuserat på den amerikanska eller den australiska marknaden. Prediktionen av framgång hos köpeanbud är väldigt lite forskat på den europeiska marknaden. Existerande studierna har försökt komma upp med olika slags modeller för prediktion och har testat effekten av olika variabler på framgången. En sådan modell är av nytta till både anbudsgivaren samt utomstående investerare och risk arbitragörs.


1.1 Syfte

Syftet i den här avhandlingen är att identifiera och studera de bestämmande faktorerna i prediktionen av framgång hos köpeanbud. Syftet är också att kombinera dessa faktorer i en modell som bäst förutspår denna framgång. En faktor som inte har tidigare testats i detta sammanhang kommer också att undersökas.

1.2 Avgränsningar

Undersökningen är avgränsat till köpeanbud i Europa mellan 1 januari 1999 och 31 december 2008. Urvalskriterierna ytterligare avgränsar datamaterialet till anbud där både köpare och
köpeobjekt är europeiska företag, köpeobjektet är börslistat, typen av företagsförvärv är en anbudsemission, en fusion eller ett företagsköp samt köparen strävar efter kontroll i köpeobjektet dvs. att äga mera än 50 % av aktier i köpeobjektet efter anbudet.

1.3 Kontribution

En viktig kontribution i den här undersökningen är att vara en av de få undersökningar med europeisk data. Företagsförvärvsframgång har undersöks på flera marknader såsom i Amerika, Australia och även UK men bara en studie har fokuserat i Europa före den här undersökningen. Studien i fråga är gjort i 2003 med data som slutar 2002 och kan ses vara föråldrat i karakter.

En annan kontribution i avhandlingen är att testa om köpartypens inverkan till företagsförvärvsframgången. Den här faktorn har inte tidigare studerats i detta sammanhang fast inom ramen för andra typer av forskning har man klargjort att marknaden skiljer sig emellan strategiska och finansiella köpare på marknaden för företagsförvärv.

2 Prediktion av framgång hos anbud för företagsköp

I detta kapitel presenteras kort faktorerna som i tidigare forskning har visats ha inverkan på företagsförvärvsframgång.

Den mest dominerande faktorn i tidigare forskning har visats vara köpeobjektets attityd mot anbudet. Köpeobjektets attityd definieras ofta som om köpeobjektets styrelse är emot anbudet eller om de inte har ens konsulterats. Denna faktor har i varje tidigare artikel visats ha en starkt signifikant negativ inverkan på företagsförvärvsframgång.

Anbudspremien är den andelen av anbudet som köparen är villig att betala utöver det gällande aktiepriset. Intuitivt skulle man anta att en högre premie skulle inverka företagsförvärvsframgången positivt men i tidigare forskning har för det mesta hittats att anbudspremien inte påverkar alls framgången.

Betalningsmetoden har visats inverka framgången i tidigare forskningen. Med betalningsmetoden menar man hur anbudet betalas, dvs. med köparens aktier eller med kontant eller med en kombination av båda. Man antar att det är sannolikare att anbudet lyckas om det betalas bara med kontant.

Den nya variabeln i denna studie är typen av köpare. För den första gången försöks det att ta reda på om det är sannolikare att ett anbud från en finansiell köpare har en större sannolikhet att lyckas än ett anbud från en strategisk köpare.

3 Tidigare forskning

Den tidigare forskningen kan delas i artiklar som undersöker framgången i företagsköp från en utomstående synpunkt såsom arbitragören och artiklar som undersöker framgången från köparens synpunkt. Både typer av artiklar är relevanta för att de testar delvis samma variabler.


4 Data och metodologi

I detta kapitel presenteras datamaterialet för den empiriska delen av undersökningen samt metoden som används. Datamaterialet är taget ur SDC Platinum databasen genom att använda
bestämda restriktioner och riktlinjer för att samla ett representativt sampel. Metoden för forskningen är en logistisk regression kommer att beskrivas senare i kapitlet. Också faktorerna som används i regressionen samt deras underliggande hypotes kommer att beskrivas i detta kapitel.

Datamaterialet för denna undersökning är för det mesta samlat ur Securities Data Corporations SDC Platinum databas. Ytterligare information gällande euro-dollar växelkursen är tagen ur online databasen för Näringslivets Forskningsinstitut (ETLA).

Samplet består av 732 europeiska köpeanbud mellan den 1 januari 1991 och den 31 december 2008. Urvalskriterierna är följande:

- Både köpare och köpeobjekt är europeiska företag enligt SDC
- Köpeobjektet är börslistat
- Anbudets utgång är känd
- Betalningsmetod är kontant, aktier eller både och
- Företagsförvärvsteknik är en anbudsemission, en fusion eller ett företagsförvärv
- Köparen äger mindre än 50 % av köpeobjektets aktier före anbudet
- Köparen strävar efter att köpa mellan 20 % och 100 % av köpeobjektets aktier
- Köparen strävar efter att äga mellan 50 % och 100 % av köpeobjektets aktier efter anbudet


Sampelkriterier gällande ägandet i köpeobjektet före anbudet existerar för att garantera att anbudet är för kontroll i företaget och att det inte är fråga om bara en vanlig investering.
Kriteriet för att sträva efter att köpa minst 20 % av aktier i köpeobjektet utesluter mindre transaktioner bort från samplet.


Eventuella problem med undersökningen är partiskhet i datamaterialet genom att framgångsrika företagsköp är mera dokumenterade i databasen än misslyckade företagsköp. Det kan hända att antalet misslyckade företagsköp är större i verkligheten än i samplet på grund av denna partiskhet. Andelen framgångsrika anbud i min undersökning är 88.1 % vilket stämmer dock överens ganska väl med tidigare studier inom områden. Datasamplet antas därefter lämpligt representera verkligheten.


De oberoende variablerna som är valda för att testas presenteras i detta kapitel. Dessa variabler är anbudets karaktär, anbudspremie, betalningsmetod, köpeobjektets storlek, köpeobjektets finansiella hävstång, transaktionens storlek, effekten av avgifter för annullering, effekten av ett konkurrerande anbud, och effekten av inhemsk eller främmande köpare.

Framgången hos företagsköpets effekten är den beroende variabeln och den är binär så att den tar antingen värdet 0 eller 1. Företagsköpets effekten har lyckats om det är klassat i SDC Databasen som kompletterat. Företagsköpets effekten har misslyckats om det har klassats i SDC som annullerat. Ett lyckat uppköp tar värdet 1 och ett misslyckat uppköp tar värdet 0 i modellen. Bara uppköp vars slutresultat är känt tas med i samplet.

Information gällande anbudspremier är också från SDC. Det finns tre olika premier i databasen (premier mätta en dag, en vecka eller fyra veckor före anbudet i förhållande till anbudspriset) och den som har den största inverkan i uppköpsframgången kommer att väljas för den slutliga modellen. Hypotesen är att en högre premie inverkar uppköpsframgång positivt.


Effekten av en inhemsk mot en främmande köpare är en binär variabel som tar värdet 0 för inhemska köpare och värdet 1 för främmande köpare. Hypotesen är att främmande köpare inverkar uppköpsframgången positivt för att myndigheterna har mera restriktioner till fusioner inom ett land än fusioner som sker mellan två företag från olika länder.

Effekten av avgifter för annullering är en binär variabel som tar värdet 0 om det inte finns avgifter för annullering i transaktionen och värdet 1 om det finns dem. Hypotesen är att avgifter för annullering inverkar uppköpsframgången positivt.

Effekten av ett konkurrerande anbud är också en binär variabel som tar värdet 0 om det inte finns konkurrerande anbud och värdet 1 om det finns ett konkurrerande anbudet. Hypotesen är att ett konkurrerande anbud inverkar uppköpsframgången negativt.


5 Resultat

I detta kapitel presenteras deskriptiv statistik för datamaterialet samt resultat för undersökningen jämfört med hypoteser från det tidigare kapitlet.


Tabell 1 presenterar fördelningen av händelser per år med respektive procent lyckade samt misslyckade företagsköp. Procenten lyckade företagsköp i hela sampllet är 88 %. Fast det finns
variation i procenten av framgångsrika företagsköp mellan åren är dessa skillnader inte statistiskt signifikanta enligt Pearson $\chi^2$ testet.


Tabell 3 visar att av de vänliga anbuden 92.6 % var framgångsrika mot 44.1 % av de fientliga anbuden. Enligt Pearson $\chi^2$ testet är den här skillnaden statistiskt signifikant. Detta betyder att fientliga anbud har en mindre sannolikhet att vara framgångsrika jämfört med vänliga anbud.

Betalningsmetoden är också signifikant enligt tabellen. Det fanns 110 anbud där betalningsmetoden var aktier eller en kombination av kontant och aktier samt 622 anbud var betalningsmetoden var kontant.

Tabell 3 även visar att det fanns ett konkurrerande anbud i 110 fall. I 622 fall fanns det inget konkurrerande anbud. Framgångsprocenten var 92.9 % för anbud där det inte fanns ett konkurrerande anbud mot 60.9 % där en konkurrerande anbud fanns. Den här skillnaden är starkt statistiskt starkt signifikant vilket medför att ett konkurrerande anbud inverkar företagsköpsframgång negativt.

I samplet finns det 575 strategiska köpare samt 157 finansiella köpare. Procenten framgångsrika anbud är 88.2 % för strategiska köpare mot 87.9 % för finansiella köpare. Denna lilla skillnad är inte statistiskt signifikant vilket medför att typen av köpare inte verkar inverka företagsköpsframgång.

De här $\chi^2$ testen mäter bivariata samband mellan variablerna till anbudsframgång och betyder nödvändigtvis inte att samma variabler är signifikanta i prediktionsmodellen. Dessa tester kan dock ge en indikation av vilka variabler skulle kunna ha inverkan på företagsköpsframgången i regressionen.

Tabell 7 presenterar resultaten i huvudregressionen. Tre olika regressioner var gjorda med de olika premier för att välja den premie som hade den största inverkan på den beroende variabeln. Ingen premie hade en statistiskt signifikant inverkan på företagsköpsframgången. Därför valdes den premie var regressionen hade den högsta Nagelkerke $R^2$ samt antalet korrekt predicerade framgångsrika företagsköp var högst, dvs. en veckas premie.
Tabell 7 visar att enligt hypotesen är anbudets karaktär en starkt signifikant prediktor av företagsköpsframgång. Den förväntade tecken är negativ som förväntat vilket betyder att ett fientligt anbud har en mindre sannolikhet att vara framgångsrik. Log odds ration är 0.7 vilket betyder att fientliga anbud är 0.7 gånger mindre sannolikt att lyckas jämfört med vänliga anbud, då alla andra faktorer hålls konstanta.

Andra signifikanta faktorer enligt regressionen är avgifter för annullering samt konkurrerande anbud. Resultaten visar att om det finns ett konkurrerande anbud är sannolikheten för att företagsköpet lyckas mindre. Anbud med konkurrerande bud är 0.12 gånger mindre sannolika att lyckas. Om det finns avgifter för annullering är sannolikheten för att företagsköpet lyckas högre. Enligt regressionen är anbud med dessa avgifter mera än tio gånger sannolikare att lyckas.

Inga av de andra oberoende variablerna var statistiskt signifikanta i regressionen. För dessa variabler fick man ett resultat som visade lite tips på direktionen av en möjlig inverkan men inga statistiskt signifikanta resultat.

Enligt alla regressioner som gjordes var ingen premie signifikant alls. Tecken på alla premier var dock positiv enligt förväntningar men regressionskoefficienter samt log odds ration skilde sig inte mellan olika premier. Alla premier var ganska långt från att vara signifikanta.


Tecken på transaktions storlek var negativ enligt förväntningar vilket betyder att en större transaktions storlek minskar på framgångssannolikheten. Detta resultat var dock inte statistiskt signifikant. I strid mot förväntningarna var köpartypen inte alls signifikant. Också tecken var emot förväntningarna. Log odds ration visade att anbud från finansiella köpare var 0.73 gånger mindre sannolikt framgångsrika än anbud från strategiska köpare. Detta resultat var dock inte statistiskt signifikant.

En regression med en kontrollvariabel för UK mot andra länder var också gjord. Resultatet var att transaktioner inom UK var 1.44 gånger sannolikare att vara lyckade än transaktioner inom resten av de europeiska länderna.
Allmänt var modellen bra enligt Hosmer-Lemeshow goodness-of-fit test och passade datamaterialet väl. Hosmer-Lemeshow testet mäter hur bra modellen passar ihop med datat. Å andra sidan var Nagelkerke $R^2$ bara 37.8 %, vilket betyder att modellen lyckas förklara bara 37.8 % av variationen i den beroende variablen och lämnar 62.2 % av variationen oförklarat. Av alla transaktionerna förutsådde modellen rätt 89.3 %. Av de lyckade transaktionerna förutsådde modellen 98.3 % och av de misslyckade transaktionerna var det motsvarande numret 23 %.

Några subregressioner var också gjorda med att fördela datamaterialet i grupper enligt de kategoriska variablerna samt kontrollvariablen UK mot andra länder. Resultaten av subregressionerna var likadana som i huvudregressionen samt förklaringsgraden och modellens godhet var hela tiden lägre utan för ett undantag. Regressionen där materialet var delat per land visade att modellen fungerar bäst med UK data. I UK modellen är Nagelkerke $R^2$ 51.4 %, dvs. mycket högre än i huvudregressionen. Också procenten korrekt predicerade transaktioner var 94.7 % och 99 % och 46.2 % för lyckade respektive misslyckade transaktioner. Andra resultat i UK modellen är lika som i huvudregressionen utan bara starkare. Också hävstången hos köpobjektet blev signifikant i UK modellen.

Detta resultat betyder att det kanske skulle vara ändamålsenligt att skapa modeller som tar i beaktande landspecifika skillnader på företagsförvärvsmarknaden. Prediktionsfaktorerna tagna ur tidigare forskningen som är gjort för det mesta med amerikansk data. Detta resultat tyder på att en likadan modell som fungerar på amerikansk data fungerar också ganska bra på UK data men inte lika bra i andra europeiska länder. Det skulle därför vara skäl att undersöka skillnader i företagsförvärv i olika länder skilt.

Den andra kontributionen som subregressionerna hade var att de bekräftade att köpartypen förblir osignifikant oberoende av datafördelningen. Detta ger vidare stöd till att anbud från finansiella köpare inte är mera sannolikt framgångsrika än anbud från strategiska köpare, inte ens i UK modellen som verkade vara bäst passat för modellen.

6 Slutsatser och diskussion av resultaten

I det här kapitlet genomgås de viktigaste resultaten och de jämförs med resultaten från tidigare forskningen. Jag ger också förslag till fortsatt forskning.

I linje med tidigare forskningen var ett resultat i den här undersökningen att anbudets karaktär dvs. köpoejektets attityd är den viktigaste faktorn i prediktionsmodellen. Fientliga anbud har


Som sagt tidigare skulle jag föreslå att man koncentrerar sig i landspecifika skillnader då man försöker reda ut faktorer som har inverkan på företagsköpsframgång. Faktorerna som användes inom ramen för den här forskningen var tagna ur tidigare forskning som hade hittat att dessa faktorer har haft inverkan för det mesta på den amerikanska marknaden. Jag antar att de därför hade den största inverkan på UK data som för att företagsförvärvsmarknaden där liknar den amerikanska marknaden. Det kan hända att landspecifika skillnader i
företagsförvärvsprocessen är så avvikande att man inte kan skapa en modell som kan förutspå företagsuppsköpsframgång i Europa som helhet.

Inom ramen för den här undersökningen hade köpartypen ingen inverkan på resultatet i modellen. Det är dock den första gången den här faktorn har undersöfts i detta sammanhang. Det skulle vara av intresse att testa om den här faktorn har inverkan på företagsförvärvsframgång på andra marknader som i USA. Man skulle också kunna skaffa ett större sampel från UK och testa faktorn igen men antagligen skulle det vara av största intresse att undersöka köpartypens effekt på den amerikanska marknaden.
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