LUND UNIVERSITY
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The Effect of Terminated Bids in Mergers & Acquisitions

- A study on the effect of terminated bids' buy-and-hold abnormal returns in a short- and long-term perspective on the European market 1990-2015

by

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Abstract

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Five Key Words:	Mergers and Acquisitions, Terminated bids, Buy-and-Hold Abnormal Return, Short-Term, Long-Term
Purpose:	The purpose of this thesis is to examine the target firm's abnormal returns in two aspects; short-term and long-term after a bid gets terminated for different categorizations and payment methods.
Methodology:	This thesis uses the approach of buy-and hold abnormal returns presented by Barber & Lyon (1997). The approach of control firms are used in the context of BHAR as recommended by Safieddine & Titman (1999).
Theoretical perspectives:	This thesis uses the synergy and information hypotheses and five major earlier studies conducted on the subject. In addition a practical framework is used to enhance the depth of the analysis.
Empirical Foundation:	This thesis uses 175 terminated bids with different categorizations on any European Stock Exchange. The data from 1990-2015 is gathered from Bloomberg database as well as Thomson Reuters Eikon & Datastream.
Conclusions:	This thesis concludes that in there is no statistical differences in the categorization of bids and payment methods, however it provides tendency that friendly bids outperform hostile ones, strategic outperforms financial ones and hybrid outperforms cash which in turn outperforms common stock. The findings also conclude that, disregarding any categorizations, there are positive abnormal returns in a short-term perspective but negative in the long-term perspective of one year.

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1. Introduction

The first chapter of this thesis gives a background to the research area of focus, followed by a problem discussion. Next, are the research questions that will be answered and investigated. This is followed by the thesis's purpose and its scope and limitations. Lastly, the target group and the thesis's outline are presented.

1.1 Background

Since the 1970-80s practitioners and researchers have been investigating the value-creation or -destruction of a termination of a bid in either a merger or an acquisition. The focus of the research in the past has mostly been on successful mergers and acquisitions and not on terminated bids.

Roll (1986) describes how an acquiring firm in an M&A activity proposes its bid. First an acquirer identifies a potential target firm. Thereafter, a valuation of the target firm's equity is conducted based on public or in some cases non-public information. The valuation includes any estimated economics due to synergies and assessments of weak management that might imply a discount in the target's current market price. The value computed is then compared to the current market price of the firm and if the value is below price, the bid will be abandoned, as the seller would never accept the bid. In contrary, if the value exceeds the price a bid will be made and becomes a public record. According to Arzac (2008) it is common that a bid premium is paid by the acquirer in order to induce target shareholders to tender their shares.

Morch et al. (1988) argues that there are numerous reasons why a tender offer gets terminated and the most common reason is resistance from managers and boards (most common in hostile takeovers). According to the Bloomberg Database there were 646 terminated bids in the time period of 1990-2015 on the European Market. Bradley et al. (1983) were one of the first to investigate the stock price reaction on the target firm when a bid gets terminated. According to Bradley et al. (1983) two hypotheses, the synergy

hypothesis and the information hypothesis, can be used to understand the effect of the revaluation after the termination of the bid.

During 1990-2015 (the study's research time-period) there were two major financial crises that hit the economies worldwide. In 2000 the dotcom stock bubble hit and stocks plunged and forced lots of companies into bankruptcy (Geier, 2015). In 2008 another crisis hit again due to that the sky-high home prices plunged in the United States (Havemann, N.A). During the times before 2000 and 2008 there were plenty of mergers and acquisitions and due to crises many of the bids were terminated.

1.2 Problem discussion

Since the 1970-80s most studies on terminated bids have been during the 70s and 80s on the American stock market, where Bradley et al. (1983) were one of the first. Other major studies on the matter were conducted by Dodd (1980), Fabozzi et al. (1988), Davidson et al. (1989), Limmack (1994) and Safieddine & Titman (1999) and some of these were an extension on the study conducted by Bradley et al. (1983). These studies mostly focused on a short-time perspective on the effect of the revaluation on target firms on terminated bids and not on a long-term return perspective.

There are several reasons why firms participate in mergers & acquisition transactions according to Duksaitė & Tamošiūnienė (2009). The authors highlight growth possibilities, synergy effects and access to intangible assets to be the main reasons. They do also present integration, tax benefits, changes in markets, cost reductions, obtaining a new customer base and changes in technology as several other reasons. These are the reasons why buyers participate in mergers & acquisition transaction; however, there are motives for the target firm as well. The target firm might want to sell their firm because of several reasons; the company does not have enough resources to grow further, the company might have maximized its market cap, the firm believes it has it history peak in valuation, lack of access to capital or simply that the investors want to cash out (Duksaitė & Tamošiūnienė, 2009). However, according to Sokolyk (2011), antitakeover provisions in mergers and acquisition bids have increased in importance. There are several

antitakeover provisions that a firm can adopt. These are; golden parachutes, poison pills, supermajority to approve mergers, limits to amend charter & bylaws and staggered boards (Stráska & Waller, 2010). The increased importance of antitakeover provisions, hindering the acquiring firm to get control of the target firm, has resulted in a lot of bids in mergers and acquisitions getting terminated (Sokolyk 2011).

The previous studies conducted on terminated bids effect on the abnormal returns on the target firm have not come to a clear conclusion regarding revaluation of a terminated bid. Additionally it is unclear what hypothesis, synergy or information hypothesis that could best explain the revaluation effect of terminated bids. There have not been any major studies conducted on the European stock market as the focus has only been on the American stock market on terminated bids in the last 40 years.

The earlier studies conducted on the matter have not specifically researched how different characteristics of bids and payments methods affect the buy-and-hold abnormal return for the target firm of terminated bids. As mentioned earlier most of the studies conducted have focused on a short-term horizon on the effect of terminated bids in mergers and acquisitions. There is therefore a research gap in comparing if there is any difference between a short-term perspective compared to a long-term perspective on different categorized terminated bids effect on the buy-and-hold abnormal return.

1.3 Research questions

- *What is the abnormal return of a target firm after a bid gets terminated?*

- *How do the characteristics of a terminated bid affect the abnormal returns in a short- and long-term perspective?*

- *Which hypothesis, synergy or information, can best explain the abnormal returns of the target firm after a bid gets terminated?*

1.4 Research purpose

The purpose of this thesis is to examine the target firm's abnormal returns in two aspects; short-term and long-term; after a bid gets terminated on the European market between the time-period 1990-2015. Additionally, the purpose is to categorize the different types of terminated bids and compare them to see whether any categorization or payment methods perform better than another. The goal is to find significant evidence if certain types of terminated bids outperform others and explanations in earlier research, practical framework and theoretical hypotheses revolving the subject. The study will give further insights on a subject with lack of previous research.

1.5 Scope and limitations

This thesis focuses on terminated bids in merger and acquisitions on the European stock market between the years 1990-2015. Merger and acquisitions will be treated as the same throughout the whole study as in line with Duksaitė & Tamošiūnienė (2009).

1.6 Target group

The results of the thesis will bring further insights to what actually happens to the target firm's revaluation after a termination of a bid. The thesis is of interest for people in general who are investing in the European market and owners of firms that are in active process of a merger or acquisition. The result of the thesis is also of interest for fund managers and stock investors as it would give them guidance whether they should invest in companies that are up for a merger or acquisition and believe that the bid will become terminated.

1.7 Outline of the thesis

The remainder of this thesis will be structured as followed. The next section will present the theoretical framework and give a background to the synergy hypothesis and the information hypothesis. This will be followed by an earlier studies review based on five

studies that have been conducted on the same subject as this thesis is analysing. The earlier study chapter is followed by a practical framework which is later derived into hypotheses. Next, the data used in the study is explained followed by the method that explains how the data will be analysed. The data will then be presented in the results chapter which is followed by an analysis and discussion ending in a conclusion.

2. Theoretical framework

This part of the thesis gives an overview of which known hypotheses that are used to interpret and understand the results. The theoretical framework presents two major hypothesis regarding Mergers and Acquisitions; the Synergy- and the Information Hypothesis.

2.1 Synergy Hypothesis

Bradley et al. (1983) found that a bid from the acquiring firm is an attempt to exploit specialized resource by gaining control of the target company and implement a better value-wise operating strategy. The revised operating strategy often involves more management efficiencies, economies of scale, improved production techniques, the combination of complementary resources, increased market power, improved production techniques or any other value-creating mechanisms that underlines with the general rubric of corporate synergy. This is more commonly known as the synergy hypothesis.

2.2 Information Hypothesis

An alternative hypothesis to the synergy hypothesis is the information hypothesis. The revaluation of the target shares is a result of new information brought to the light/generated during the tender offer process. There are two distinctions of this hypothesis. The first one argues that the dissemination of the new information prompts the market to revalue the target shares. This is called the “sitting on a gold mine” (Bradley et al., 1983). The other information hypothesis argues that the new information available in the tender offer process induces the current target management to implement a better value-wise operating strategy on its own. This is called the “kick in the pants” variant. The positive revaluation of the target shares does not require a successful acquisition (Bradley et al., 1983). Limmack (1994) argues that new information is revealed in some bids and can lead to a permanent revaluation. Bradley et al. (1983) argues that there is a difference between the information and synergy hypothesis as the information hypothesis requires that certain capital market agents possess superior

information regarding the true value of the target firm, which the synergy hypothesis does not require.

2.3 Comparison between the synergy hypothesis and the information hypothesis

Bradley et al. (1983) found that firms that are targets of unsuccessful tender offers experience significant and permanent increases in their share prices in short-term perspective. They also found that in unsuccessful tender offers, the revaluation of the target shares exceeds the per share premium of the rejected bid. The permanent revaluation of the target shares of unsuccessful tenders contradicts the synergy theory of tender offers. Announcements of a tender offer, whether it is successful or not, appear to release positive information regarding the value of the target shares. The revaluation of target shares of unsuccessful tender offers is consistent with the information hypothesis, but not fully consistent with the synergy hypothesis. The positive return on the target share of an unsuccessful acquisition can be due to the anticipation of a future higher-valued bid. When a higher-valued, future successful bid is conducted the stockholders experience additional increase in their wealth in short-term, however in the long-term perspective it is uncertain. In the other way around when there is no future successful bid the price of the target shares will gradually fall back to the pre-offer level in the long-term perspective, as the uncertainty of another bid is resolved over time (Bradley et al., 1983).

Bradley et al. (1983) conclude that both the information and synergy hypothesis predict that a successful tender offer will have a positive impact on the wealth of the target firm's stockholders. However, the two hypotheses have contradictory predictions concerning the returns to the stockholders of unsuccessful tender offers.

3. Earlier research

This part of the thesis presents earlier research done on the subject. It represents five major studies from Dodd (1980), Fabozzi et al. (1988), Davidson et al. (1989), Limmack (1994) and Safieddine & Titman (1999). This part also includes a summary table of the earlier studies investigated.

3.1 Merger proposals, management discretion and stockholder wealth (Dodd, 1980)

The study by Dodd (1980) examined the daily market's reaction to the announcement and subsequent acceptance or rejection of merger proposals. It examined the time period of 1971-1977 on NYSE.

3.1.1 Data & Method

The sample in the study consisted of completed mergers and all proposals that were later cancelled. The proposals that were cancelled were found in Standard and Poor's Corporation Records, Moody's Industrial Manual and Wall Street Journal. During the time period of 1971-1977 there were 151 bids and of those 80 were terminated. Dodd (1980) used the market model and the disturbance term is interpreted as a measure of the abnormal stock return. The study applies the market model to all firms in the sample and the disturbance terms, also called prediction errors, are calculated for each day relative to the event date. To obtain the cumulative average prediction errors the average prediction errors for all firms are summed over event time. Statistically, the average prediction errors are tested to be significantly different from zero through a t-test (Dodd, 1980). Dodd (1980) uses the termination announcement of the bid as day zero and examines the return between 100 and 300 days.

3.1.2 Result & Conclusion

The stockholders of the target firm experience large positive abnormal returns from the announcement of merger proposals, regardless of the outcome. The target firms' stockholders on average, in both terminated and completed mergers, experienced

approximately 13 % abnormal return at the time of the merger proposal was announced. Since there is uncertainty regarding the outcome of a merger proposal the market reacts significantly. When the merger proposal was terminated, the target firm's stockholders experience negative returns at the termination announcement, however in long-term perspective Dodd (1980) explains that firms experience abnormal returns of approximately 4%. However, if incumbent management vetoes the proposal, stockholders experience an abnormal return of 11%.

3.1.3 Critique/Criticism

The study conducted by Dodd (1980) has a rather small sample of bids that have been terminated and the time-period of 1971-1977 is restricted. This in combination of using only one stock exchange make the sample targeted and the results can become inconclusive. The study is also divided into two parts, successful and terminated bids, which contribute to that the conclusions, are not substantiated with large data on either part as there are only 80 terminated bids. Further on, Dodd (1980) argues that there is uncertainty regarding how the market will react, meaning that the study does not fully explain the effects on abnormal returns of terminated bids.

3.2 A Note on Unsuccessful Tender Offers and Stockholder Returns (Fabozzi et al., 1988)

The study examines target returns in the interim between the termination announcement and one year after the offer has been withdrawn. The study extends the work of Bradley et al. (1983).

3.2.1 Data & Method

Fabozzi et al. (1988) investigates the stock returns in unsuccessful cash and stock tender offers between 1977 and 1983 on the American market. The definition of an unsuccessful offer in this study is; one bidding firm withdrew their bid before receiving all shares they sought after. The data was obtained from Austin Data Bank and The Wall Street Journal

(newspaper and index) databases. The authors' final sample consisted of 21 failed offers on NYSE, AMEX and OTC between 1977 and 1983. The cause for the limited final sample was due to strict conditions for inclusion.

1. The offer was not a "clean-up" bid or one aimed at only partial ownership.
2. The target firm remained independent for at least one year following the tenders offer's withdrawal.
3. The firm received no other bid (successful or not) within that year.
4. In the six months before the offer and in the twelve months after it failed, the target did not issue or retire many shares or sold or called a large amount of debt.

The methodology used in the study analyse excess returns in the period from six months before the offer to twelve months after its termination. Fabozzi et al. (1988) used the single index market model (SIMM) and its adjusted version. To ensure the tests' robustness they used two values of beta. The first beta used is the SIMM beta[2], which uses sixty monthly rates of return and Standard and Poor's 500 Common Stock Index as the market portfolio. The estimation ends six months before the tender offer was published. The estimation of the second beta was the value of beta as unity, which is the mean index of systematic risk. Due to the difference between the time-periods of the publication of the offer and its annulment in the sample firms Fabozzi et al. (1988) choose to convert the daily returns to weekly returns.

3.2.2 Result & Conclusion

Fabozzi et al. (1988) found that the return was – 3, 30 % each week for the target firm after termination of the bid, which was significant at 5 %. This implies that stock development after the publication of the offer to its termination will lead to loss of the preemie and can therefore be interpreted as a support for the synergy hypothesis. Returns based on the estimated SIMM beta (0, 78 %) yielded roughly the same results as returns using beta of unity (0, 82 %). The beta of unity was significant too. The test ended up in two main conclusions. First is that the market reacts quickly to failure, as the offer-based price increase vanishes when the offer is annulled. Second is that the targets' returns over the post failure year have no trace of the offer and at its best it is just a small decline. The

reason why tender offers failed are often due to vigorous opposition by the target's management, which the sample by Fabozzi et al. (1988) confirms.

3.2.3 Critique/Criticism

The study by Fabozzi et al. (1988) only investigated a sample of 21 firms meaning that there is no statistical support that the results could describe the abnormal return of a terminated bid for a general population. The study did also focus on a short-term perspective of maximum of one year and the interim-phase, by this the study does not describe the long-term effects. Additionally, due to lack of information the authors decided to use weekly data instead of daily data that can contribute to the results being misrepresenting.

3.3 A Re-Examination of the Market Reaction to Failed Mergers (Davidson et al., 1989)

The study by Davidson et al. (1989) examined the revaluation of shares surrounding the cancellation of mergers over the years 1976-1985. The results were categorized by which party that cancelled the merger.

3.3.1 Data & Method

Davidson et al. (1989) sampled mergers by examining the "Out the Window" section of Mergers & Acquisitions and "Terminated Transactions" in the W.T. Grimm Publication, Mergerstat. From Wall Street Journal Index the authors retrieved the initial announcement date of proposed mergers and the cancellation. The 10-year period 1976-1985 was examined, however, they included some cancellation announcements that were made in 1986 as well. In order for a firm to be included in the sample it had to be listed on the daily CRSP tape for at least a period of 291 days before the announcement until date of termination announcement. Firms, target or bidder, that had less than thirty days of trading data were eliminated as well. The study's final sample consisted of 163 proposed and subsequently cancelled mergers.

The study used the single-index market model (SIMM) to predict returns and the regression for the estimation period used 200 daily observations spanning from 291 days before announcement of a merger and running to 91 days before failure announcement. The authors used the cumulative prediction error (CPE) method in order to detect abnormal performance (Davidson et al., 1989).

3.3.2 Result & Conclusion

Davidson et al. (1989) present their results according to each category of why the mergers failed. For the mergers that got cancelled by targets the results were insignificant at the 5% level for all the reported intervals. There is a negative reaction to the cancellation announcement on day -1, however, during a longer interval targets appear to perform well and gain over 17% in returns. The mergers that were cancelled by the bidders, the target firms' returns are negative in the beginning, however in the long-run the targets return to their pre-bid levels. Target firms do not face any revaluation by bidder cancelled-mergers. If the bid got cancelled by other reasons the CPEs return is close to zero for the target as well (Davidson et al., 1989).

3.3.3 Critique/Criticism

The study by Davidson et al. (1989) examined a total of 163 firms on a short term window of roughly a year before the announcement of a merger and its failure. However, the authors did not examine the long term effect on the firm after the merger had been terminated. The authors used the single market index model (SIMM) to calculate to predict the returns, which could mis-view the data as different industries could outperform others, meaning Davidson et al. (1989) used an index. It would have been better to use control firms to assess each industry and company better. Davidson et al. (1989) did not include acquisitions or compare different characteristics of the terminated bids.

3.4 Synergy or New Information as a Source of Wealth Change in Acquisitions: The Case of Abandoned Bids (Limmack, 1994)

The reason of the study is to examine if there is evidence or support for the information hypothesis in abandoned bids on the UK stock market during the time period 1977-1986 through an analysis of the returns to targets in abandoned bids (Limmack, 1994).

3.4.1 Data & Method

The data sample used by Limmack (1994) in the study for analysis was bids on UK quoted companies, initiated during the period 1977-1986. The requirements for inclusion in the sample were:

1. The bid abandonment was announced by 31 December 1986.
2. The company was listed on the London Share Price Database (LPSD) throughout the periods prior to and subsequent to the bid.
3. Returns data had to be available for at least 40 months of the five year period prior to the bid in order to allow estimation of market model parameters
4. The target company remained independent for a period of at least six months following abandonment of the original bid.

The final sample was 63 firms. To analyse the impact of the bid and its subsequent abandonment on the share price on the companies involved the variant Market Model developed by Fama, Fisher, Jensen and Roll (1969) was used. To test the sensitivity of the results two further models were used. The market-relative control was adopted, in example assuming an alpha of zero and beta of one for all securities. Limmack (1994) used the variant Market Model with betas that had been calculated on a trade-to-trade basis. The results obtained in the study were found to be insensitive to the choice of control model and therefore the study used only the Market Model.

Limmack (1994) realized that a lot of the observations would disappear because of subsequent acquisitions and therefore adopted the method of calculating total abnormal returns (TAR) described by Frank and Harris (1989). TAR was calculated three months

prior to the bid month to 24 months following the outcome month. This to be able to obtain data on stock returns from subsequent offers. Thereafter the author divided the initial sample into two sub-samples according to whether the target firm remained independent in five years following the annulment of the initial bid or was acquired during that period. However, the five-year period was not investigated for returns instead it was used as criteria.

3.4.2 Result & Conclusion

The targets that remained independent from three months prior to the bid through 24 months following abandonment experienced positive returns of 31%. The bids reveal new information about the target, which in fact can lead to a new revaluation of the target. Additionally, the relationship between TAR and size suggest that the premium was not based on undervaluation of the target instead it reflected the lack of market interest. For most of the companies that received takeover bids it seems that it worked as a spur for them to improve their operations and therefore the majority of target firms received positive abnormal returns (Limmack, 1994). Limmack (1994) argued that if bids are only motivated by synergy potentials and not for informational gains, then the share price should revert to the pre-bid level.

3.4.3 Critique/Criticism

Limmack (1994) focused only on the UK market which results in a sample of 63 observations that could be applied in the study. The author focused only on what the return were and if could be explained by the information hypothesis. There is no focus on different aspects of merger and acquisitions such as if they were financial or strategic, or different payment methods (cash vs stock e.g.)

3.5 Leverage and Corporate Performance: Evidence from Unsuccessful Takeovers (Safieddine & Titman, 1999)

The study conducted by Safieddine & Titman (1999) examined 573 unsuccessful takeovers attempts during the period of 1982-1991. The authors examined in which way firms resisted takeovers and how they performed compared to each other.

3.5.1 Data & Method

The study obtained their data over unsuccessful takeovers from W.T. Grimm Mergerstat Review and COMPUSTAT that resulted in 573 observations. Their data set included the reason for cancellation, the names of the target and bidder, the means of payment the premium offered, the termination date and the announcement date of the transaction. Of the sample were 48% of the firms listed on NASDAQ and 52% on NYSE/AMEX. The authors separated how the bid was terminated by categories; cancelled by the bidder and other reasons. Other reasons included; target cancelled the bid, mutually rejected and no reason given due to lack of information (Safieddine & Titman, 1999).

For each firm, the authors calculated annual industry-adjusted performance measures by subtracting the target firm's change in performance from the change in performance over the same period for the target firm's industry. They also examined how leverage changes, common equity, special dividends and share repurchases effect unsuccessful takeovers. The study concluded the result by regressions where changes in leverage, asset sales, changes in number of SIC codes, CEO turnover, percentage change in employees and in capital expenditures, if it is a hostile bid, insider ownership and if the bidder terminated were independent variables. This was done to several dependent variables (Safieddine & Titman, 1999).

Lastly, the study examined the long-run stock performance by applying the buy-and-hold abnormal return method over a period of 60 months. Each of the target firms were matched to a benchmark portfolio that consisted of stocks within the same book-to-

market quintile, the same momentum quintile and size quintile (Safieddine & Titman, 1999).

3.5.2 Result & Conclusion

Saffieddine & Titman (1999) concluded that firms that did an increase in leverage following an unsuccessful takeover are less likely to experience a subsequently takeover than those firms that do not change their leverage. Higher leverage decreases the probability of a subsequent takeover in the future as it commits the existing management to improve the business as a possible takeover firm would do. Those firms that increase their leverage after a failed takeover do also outperform their benchmarks over a five-year period, by median of 29, 73 %. This abnormal stock return suggests, even though stock price drops at the termination announcement, that target managers when turning down a takeover offer acted in the interest of the shareholders.

3.5.3 Critique/Criticism

Saffieddine & Titman (1999) examine a large sample of unsuccessful takeovers on the American market. They calculated the buy-and-hold abnormal return using a benchmark portfolio, which could be mis-viewing as it could contain companies from other industries which might outperform or underperform compared to the target firm. The authors did not clearly distinguish different categorizations of terminated bids or payment methods.

3.6 Summary table of earlier research

Authors (year)	Data	Time period	Methodology	Hypothesis supported/ other	Conclusions
Dodd (1980)	80 terminated bids on NYSE	1971-1977	Market model & cumulative prediction error method (CPE)	Investigated managerial discretion and stockholders' wealth	Since there is uncertainty regarding the outcome of a merger proposal the market reacts significantly in the short term
Fabozzi et al. (1988)	21 failed offers on NYSE, AMEX and OTC	1977-1983	Single index market model (SIMM) and its adjusted version	Information hypothesis	Markets react quickly to failure. Targets' returns over the termination year have no trace of the offer and at its best it is just a small decline.
Davidson et al. (1989)	163 proposed and subsequently cancelled mergers on the American market.	1976-1985	Single-index market model (SIMM) & Cumulative prediction error method (CPE)	Synergy hypothesis	If a target cancels the bid and takes part in merger activities the firm experiences positive returns, but if the firm does not take part in merger activities the returns are close to zero
Limmack (1994)	63 bid abandonments on the UK market	1977-1986	Variant Market Model & Total abnormal return model (TAR)	Information hypothesis	If bids are only motivated by synergy potentials and not for informational gains, then the share price revert to the pre-bid level
Safieddine & Titman (1999)	573 unsuccessful takeovers attempts on NASDAQ, NYSE and AMEX	1982-1991	Buy-and-hold abnormal return method (BHAR)	Investigated how leverage affects corporate performance	Those firms that increase their leverage after a failed takeover outperform their benchmarks over a five-year period

Table 1: Summary table of earlier research

3.7 Critique/Criticism and contribution with this thesis

The five earlier studies used in this study have different strengths and faults which have led to this thesis being conducted. Firstly, the earlier studies were conducted a long time ago, and there has not been a lot of research done on the matter during the recent years. Secondly, there have not been any major studies on the European market and all the earlier studies' results in different results and conclusions. Lastly, none of the studies have used different subgroups within the classification of the mergers and acquisitions.

With the critique presented the authors of this thesis believe thesis is able to contribute with new research on the area with a longer period of time-span as well as a larger sample. The thesis also focuses on the European market which have in contrary to earlier studies that have had a focus on the American market or a specific countries. The different subgroups used in this study will also contribute with new facts on how different categories and payments methods of terminated bids in affect the short- and long term buy-and-hold abnormal returns. The earlier studies have also mostly focused on short-term perspective and not a long-term perspective, this study will do both to further investigate what happens with the return on the target firm when a bid is terminated.

4. Practical framework

This part of the thesis represents the practical approach of the study. It starts with the definition of a merger and acquisition and the implications of a terminated bid. Thereafter differ categorizations of bids are presented and derive into the different hypothesises that is tested in this thesis.

4.1 Definition of Mergers & Acquisitions

According to Duksaitė & Tamošiūnienė (2009) the distinction between a merger and an acquisition is not of matter as the end result is often the same. Two firms, or more, that operated under separate ownership become one entity. This is done usually to obtain a strategic or financial objective.

A merger is a combination of two firms in which only one firm survives and the other firm ceases to exist. The acquiring firm assumes all the assets and liabilities of the merged firm and if the buying firm is a different organization after the merger it still remains with the same identity. While in an acquisition one firm takes controlling ownership interest in another firm, selected assets in a firm or a legal subsidiary in a firm (Duksaitė & Tamošiūnienė, 2009).

4.2 The terminated bid's implication

The classification when a bid gets terminated is usually of two types, the bidder has terminated the bid or the target firm has eliminated the bid. Dodd (1980) used these types of classification to examine the effects of terminated bids. However Dodd (1980) argues for no distinguish between termination by the acquirer or the bidder.

According to Neuhaser et al. (2011) the most common reason that a takeover fail is because of withdrawal of the bid from the acquirer, however, the authors also examines the effect of when the target firm resists the bid through greenmail or when a stock repurchase occurs. The study shows that there are significant beneficial effects to targets from takeover activity even if it does not change control. In contrary, merger activity that

ended in cancellations experienced a significant loss. Valuation effects of a terminated takeover are affected by the method of failure. For each type of takeover failure the stock price reaction is positive but it is significantly higher for acquisitions and mergers that later fail through voluntary withdrawals or buybacks. Greenmail and buybacks show less deterioration in stock price in the interim period than voluntary withdrawals and cancelled mergers, which are preceded by a poor target stock price performance (Neuhaser et al, 2011).

Targets' returns are the highest when takeovers fail due to buybacks while those that end in voluntary withdrawals and greenmail are statistically smaller but nevertheless highly positive. Neuhaser et al. (2011) conclude that tender offer generates permanent gains in target shareholder wealth regardless of a takeover occurs or not. For the bidder the returns are significantly lower in a failed merger as there is negative effect on the bidder's stock price. The bidder also experiences a greater loss when the target employs anti-takeover defence (ATD) (Neuhaser et al., 2011).

4.3 Characteristics of a bid

According to Morck et al. (1988) economic analysis has identified two broad classes of takeovers. They are referred to as disciplinary (hostile) and synergistic takeovers (friendly). The disciplinary takeovers are done in order to correct the non-value-maximizing practices of the target firms. These practices in the target firm are normally debt avoidance, excessive growth and diversification, overpayment to employees and suppliers or lavish consumption of perquisites. This is referred to as the agency cost of free cash flow. Since the disciplinary takeovers are mainly done to replace or change the policies of managers who do not maximize shareholder value, it is not of essence to integrate the business of the acquirer and the target. The takeover is in fact just the most effective way to change control and along with it the target's operating strategy. The second class, the synergistic takeovers (friendly), is motivated by the possibility of benefits from combining business of firms. The synergy gains can come from increasing market power, combining operations or simply liquidate functions that are common in the

firms. The difference from disciplinary takeovers the integration of the businesses is essential for realizing the synergies in a synergistic takeover (Morck et al., 1988).

Morck et al. (1988) argue that there are difficulties in distinguishing hostile from friendly takeovers, meaning that there is often not obvious what type of a bid it is that a target firm receives. Some takeovers that are motivated by diversification, friendly, may face resistance from managers within the targeted firm who are unsatisfied with either expected changes or the compensation that they receive for giving up their control. In similarity, a hostile takeover, that has the incentive to change the target's operations proceed without any resistance from managers as they receive a well compensation or that they simply want to retire. These so called "grey zones" suggest a possibility that the variation in monetary incentives of managers across targeted firms can completely account for mood differences from takeover to takeover. However, the authors suggest that there are several characteristics that have an impact and not solely mood (Morck et al., 1988).

In hostile takeovers the premium is usually higher than in friendly transactions. If there is competition in a bid, many acquiring firms normally pay an excessive premium and often results in a lower share price. This phenomenon is known as the "winner's curse" (Arzac, 2008).

Morck et al. (1988) classify hostile takeovers if the initial bid of the target was not accepted by the board or not negotiated with the board prior to the bid. Therefore, the authors suggest that an initial rejection by the target's board is taken as evidence of the bidder's hostility; this also applies for a management buyout response to unsolicited pressure, active management resistance or escape to a "white knight". Takeovers that are not classified as hostile are considered to be friendly (Morck et al., 1988). Following hypotheses are tested:

$H_1(0)$: There is no difference between friendly and hostile bids' abnormal returns.
$H_1(1)$: Friendly bids should result in higher abnormal returns than hostile bids.

4.4 Characteristics of the bidder

There are two distinct types of takeovers, strategic and financials. Strategic are often referred to as friendly takeovers and usually includes stock payments and the firms often have overlapping businesses. Financials on the other hand are often referred to as hostile takeovers and include cash offers (Healy et al., 1997).

Strategic takeovers have several positive advantages over financial ones as the strategic takeovers combine firms in related businesses and they are also more likely to generate greater business synergies. The acquiring managers in strategic takeovers do also have more information and expertise regarding the target company's operations and business. They also have access to proprietary information in negotiations that improves accuracy when evaluating the target. Additionally, stock financed transactions reduce costs in relation to mis-valuations as the target company bears some of the consequences. Strategic takeovers are furthermore less likely to experience disrupted operations. The authors claim with these reasons that strategic takeovers potentially are more profitable than financial ones (Healy et al., 1997).

There might however be some concerns with strategic takeovers in the case of manifestations of free cash flow problems, and then strategic takeovers are likely to be less profitable than financial ones, which reduce agency costs and replace inefficient management. Healy et al. (1997) concluded that financial takeovers broke even at best meanwhile as strategic takeovers generated substantial gains for the acquirers. Following hypothesises are tested:

$H_2(0)$: There is no difference between strategic and financial bids' abnormal returns.
$H_2(1)$: Strategic bids that should result in a higher abnormal return than financial bids.

4.5 The method of "payment" and its implications

The choice of payment for a bid gives information about how the acquirer has chosen to finance its tender offer or merger. Travlos (1987) present two different types of payment,

cash offers and common stock. It also exists hybrid offers, which is a combination of the two. The various methods of payments have different valuation effects on the bidding firm's common stock price. According to Myers and Majluf model, managers will prefer cash offer if they believe that the firm is undervalued and if the firm is overvalued the managers prefer a common stock offer. The market therefore reacts positive to a cash offer whilst negative to a common stock offer (Travlos, 1987).

Malmendier et al. (2016) present in their study that unsuccessful takeovers bids that was cash offers was revalued at +15 % meanwhile as common stock target returned to their pre-announcement of the bid levels. The authors also found that failed takeover firms are more likely to receive future takeover bids than firms that had prior not received any bids. The study aligns with the study conducted by Travlos (1987) that firms that received cash offers are believed to be undervalued (Malmendier et al., 2016).

Common stock transactions outperform cash offers according to Healy et al. (1997). This was often related to that common stock transactions paid less premium which increased the cash flow returns. With the premium being lower in common stock transactions and when this form of payment is used it is normally a strategic takeover, greater synergies were generated than with cash offers (Healy et al., 1997). Following hypothesises are tested:

$H_3(0)$: There is no difference in abnormal returns whether the bids' payments are in cash, common stock or hybrid.
$H_3(1)$: Cash offers on the target firm should generate higher abnormal returns than commons stock and hybrid (Common stock should generate a better abnormal return than hybrid as well).

4.6 Hypotheses

The previous research on the subject in combination with the practical framework of this thesis has resulted into these hypotheses. All hypotheses' abnormal returns relate to the

target firms' bids that have been terminated. The abnormal returns will be investigated in both a short-term and a long-term perspective.

$H_1(0)$	There is no difference between friendly and hostile bids' abnormal returns**.**
$H_1(1)$	Friendly bids should result in higher abnormal than hostile bids.
$H_2(0)$	There is no difference between strategic and financial bids' abnormal returns.
$H_2(1)$	Strategic bids that should result in a higher abnormal return than financial bids.
$H_3(0)$	There is no difference in abnormal returns whether the bids' payments are in cash, common stock or hybrid.
$H_3(1)$	Cash offers on the target firm should generate higher abnormal returns than commons stock and hybrid (Common stock should generate a better abnormal return than hybrid as well).

Table 2: Summary table of hypotheses

5. Data

This part of the thesis presents the data that have been used and its qualifications to fit in the sample. Next, the control firms used are presented and their qualifications to be a good fit. Lastly, the categories of the bids are presented with descriptive statistics.

5.1 Quantitative data / Target firms

As presented earlier the study will not distinguish merger and acquisition from each other as recommended by Duksaitė & Tamošiūnienė (2009). The sample, target firms, is gathered from the Bloomberg terminal and its Merger & Acquisition database. In addition Thomson Reuters Datastream is used to find stock prices for each firm and control firm in order to conduct the buy-and-hold abnormal return method. Bloomberg's database includes several other markets, nature of bids, type of bids, payment methods and percentage acquired. However, these are excluded when using following criteria in the search:

1. Status of transaction: terminated
2. Time period, year: 1990-01-01 - 2014-12-31
3. Target's market: Europe
4. Nature of bid: Friendly, hostile
5. Type of bid: Financial, Strategic
6. Payment method: Cash, Common stock, hybrid
7. Percentage acquired: 51-100 %

The search results in 646 observations during the time period.

5.2 Restrictions

In the previous research chapter, the study examined five earlier studies within the same subject. The research by Dodd (1980), Fabozzi et al. (1988), Davidson et al. (1989) and Safieddine & Titman (1999) all focus on the US market whilst Limmack (1994) is focusing on the UK market. With numerous research on the US market but nothing on the European market the study is therefore only focusing as the European market as a whole.

The target firms need to be listed for at least one year prior to the bid in order to exclude interference from under-pricing (Safieddine & Titman, 1999). In order to successfully perform the buy-and-hold abnormal return method for the long-term period of three years the latest termination of the bid had to be done before 2015, therefore the exclusions of the years 2016, 2017 and 2018 in the sample.

Due to lack of information/data in the initial sample there was a total loss of 471 observations. Specific detailed loss is accordingly:

Reason	Number of losses
Lack of information in Bloomberg Terminal	144
Lack of data in Thomson Reuters Datastream	19
Bankruptcy within three years after bid	145
Merged/Acquired within three years after bid	20
IPO prior one year of announcement of bid	21
Delisted within three years after bid	70
Data not available for short-term BHAR	52
Total losses	**471**
Final sample	**175**

Table 3: Number of loss in observations and reasons

5.3 Selection bias

The current limitations used in table 3 have an effect on the end result. The final sample used will not represent the whole population of terminated bids during the time-period of 1990-2015, as criteria limit the number of firms. The result will be affected by selection of survival bias and only the firms not limited by the criteria will represent the result. The conclusions being drawn from the result and analysis can be invalid as the study deals with selection bias (Collier, 1995).

5.4 Quality assurance of the thesis

5.4.1 Validity

Validity in a quantitative study is defined as the absence of systematic errors (Lundahl & Skärvad, 1999). Validity is also whether one or more indicators that are designed to measure a concept really measure the assigned concept. There are different types of validity that are of relevance to this study, internal and external validity. Internal validity is about concluding that the causal relationship between two or more variables is sustainable or not. The thesis is based on theories from previous research that demonstrate a causal relationship between the variables. External validity is about whether the results of a study can be generalized in addition to the specific investigated context. The short-term and long-term BHAR method can be used on other markets, as well as the different categorizations. The authors consider that the statistical reliability could be greater if number of observations when divided into categories would be equally divided as well as investigating more independent variables (Bryman & Bell, 2013).

5.4.2 Reliability

Reliability of a study refers to the absence of random measurement errors. A study with high reliability is characterized by the fact that the measurement is not affected by who conducts the study. In a study with high reliability, the measurement is limited to a limited extent, there should few random errors (Lundahl & Skärvad, 1999). The reliability of a study concerns the reliability and consistency of measurements and its replicability. The three most important factors in reliability are stability, internal reliability and inter-firm reliability. Stability means that the measurements are stable over time that there is persuasion that the results of a sample of respondents do not fluctuate. Internal reliability means that the control firms are reliable and consistent Inter-reliability about subjective assessments, the authors have avoided subjective assessments and measurement errors by interpreting data objectively (Bryman & Bell, 2013). The criteria in the thesis are used for all firms to ensure consistency and reliability. Important to keep

in mind is that validity and reliability are related because validity assumes reliability (Bryman & Bell, 2013).

5.4.3 Replicability

Replicability refers to that the study can be conducted using described method. The reliability of the study is measured by being repeatable by others with the same results (Bryman & Bell, 2013). In order to enable replicability, the authors have in depth described the method of the study, the limitations, criteria and loss of data. The models and formulas are also described in depth resulting in high replicability.

5.4 Control firms

In this thesis both Barber & Lyon (1997) and Safieddine & Titman (1999) approaches are used to select control firms. The sample firms are matched to one control firm on the basis of specified firm characteristics (criteria). Thomson Reuters Eikon Database is used to find suitable control firms to the target firms.

Barber & Lyon (1997) argue for three methods to identify control firms by matching a sample firm to a control firm, (a) by size (market value of equity), (b) book-to-market ratio, (c) combining size and book-to-market ratio. If a control firm is missing return data, Barber & Lyon (1997) argues that one can fill the control firm's return with a corresponding reference firm. For example, if the study matches sample to control firms based on size, the missing return data filled in by another control firm that has the same characteristics. This can be conducted if the sample becomes too narrow. The firms that have insufficient information in Thomson Reuters Eikon are matched with a suitable control firm that fits the criteria and will also be matched in regards to the categorization of the bids described in chapter 5.4 to greatest extent possible.

Safieddine & Titman (1999) proposes several criteria when choosing control firms. They propose that each target firm is matched to a control firm by the same SIC-code (same industry) and size.

Following criteria are used to find control firms:

1. For each target firm a control firm with the same SIC-code (industry) is used, this generates that the firms have similar business and operations.
2. In order to have control firms of the same size, both market value of equity and book-to-market ratio of the control firm need to be within 70-130 % of the target firm one year prior to the bid.
3. The control firms need to be listed on the European market one year prior to bid and at least three years after the bid has been terminated, this in order to correctly being able to perform the BHAR method.

Due to restrictions of control firms that fit all the criteria, the authors have accepted that two out of three criteria are sufficient to be applicable as a control firm to the target firm. In total 108 unique control firms are used, and 44 out of these control firms are used several times (see Appendix A & B). Foremost companies that match all criteria will be used to ensure best fit of the control firm. The criteria that is difficult to match with the control firms is the size-criteria as firms differs a lot in size in the industries as well as lack of information regarding firms during the 90's. The authors have chosen to match the categorization of bids when matching target firms, with insufficient information, with control firms already used by another target firm.

5.5 Categories of bids

In order to distinguish bids from each other the thesis are using the categorizations presented in the practical framework. The study will categorize the bids by following criteria:

1. Hostile vs Friendly
2. Strategic vs Financial
3. Hybrid vs Cash vs Common Stock

The categorizations are in line with the recommendations presented by Morck et al. (1989), Healy et al. (1997), Dodd (1980) and Travlos (1987). With this categorization the t can do comprehensive comparison between different types of terminated mergers and acquisitions. In the study the two classifications presented by Dodd (1980) will not be used in this study due to that Bloomberg Terminal does not provide detailed information on terminations, there is no distinction whether the acquirer or the target terminated the bid.

5.6 Descriptive statistics

In Appendix A the target firms with its comparing control firms are illustrated. There are target firms with the same control firms as there were not sufficient data on another control firm to be able to analyse the buy-and-hold abnormal return. Target firms with same control firms follows the criteria mentioned earlier in chapter 5.4.

Year	Number of bids	Percentage
1998	3	2%
1999	19	11%
2000	21	12%
2001	14	8%
2002	7	4%
2003	13	7%
2004	7	4%
2005	14	8%
2006	12	7%
2007	23	13%
2008	9	5%
2009	8	5%
2010	4	2%
2011	3	2%
2012	10	6%
2013	3	2%
2014	5	3%
Total	175	100%

Table 4: Distribution of terminated M&As during the time-period 1990-2015

As seen in table 4, the majority of bids that were announced in 1999, 2000 and 2005-2007. These were times before the dotcom stock bubble that hit in 2000 and the financial crisis in 2008 (Geier, 2015, Havemann, N.A). The authors of the study are aware of this and this is discussed in the analysis and its potential effects on terminated bids.

The final sample that is used in this study consists of 175 firms. These are then divided according to the three categorizations mentioned above in chapter 5.4. The division of the bid is presented below as followed:

Type of Bid	Number of M&As	Percentage
Friendly	144	82 %
Hostile	31	18 %
Total	**175**	**100 %**
Strategic	166	95 %
Financial	9	5 %
Total	**175**	**100 %**
Hybrid	25	14 %
Cash	101	58 %
Common Stock	49	28 %
Total	**175**	**100 %**

Table 5: Distribution of characteristics of the bids

As seen in the table 5, 82 % of the terminated bids are friendly bids and the majority of the bids are strategic. Most terminated bids in a merger or acquisition are cash bids representing 58 % of the final sample. There are only a few bids that are hostile and financial ones. It is important to highlight that there is only 5 % of the bids that are financial ones which complicates it to arrive at valid conclusions from the results of this categorization. The reliability of the result with few observations is highlighted by the authors and is analysed with caution.

A further analysis in categorization is not possible with current sample as dividing the different types of bids in further subgroups for a more thorough analysis the study generates the setup described in Appendix C. As seen in Appendix C, most of the terminated bids are friendly strategic and hostile strategic, and only a few are friendly financial and hostile financial. The division on the different types of bids, payments and motives divided into further divisions makes it difficult to analyse the result as there are few hostile bids from the beginning. Thereby no valid result or conclusion will be obtained from it.

6. Method

This part of the thesis presents the methodology which the results will be interpreted from. It gives an explanation to the Buy-and-hold abnormal return (BHAR), the authors' method criticism and lastly statistical tests and modifications are presented.

6.1 Buy-and-hold abnormal return method (BHAR), Long-Term

In order to evaluate the abnormal long-run stock returns for the firms that have received bids, this thesis uses the buy-and-hold abnormal return method. It is conducted in the same way as Safieddine & Titman (1999) did in their research along with additions from how Barber & Lyon (1997) conducted it. To measure the abnormal long-return the study is using the stock price on the firm, $t_1(0)$, one month after the bid has been terminated as foundation. The market has by then correctly priced the firm after the bid has been terminated and information asymmetries should not affect the price (Safieddine & Titman, 1999). The thesis investigates the abnormal returns for $t_1(1)$, $t_1(2)$ and $t_1(3)$, meaning one, two or three years after the first month has passed after the termination of the bid.

According to Barber & Lyon (1997) the following formula is used when calculating buy-and-hold abnormal returns;

Equation 1: BHAR formula for target firms

$$BHAR_{\text{it}} = \prod_{t=1}^{t}[1 + R_{\text{it}}] - \prod_{t=1}^{t}[1 + E(R_{\text{it}})]$$

R_{it} is the realized return for the target firm at the time of *t*, while $E(R_{it})$ is the return of the control firm at the same time *t*. This formula therefore yields the BHAR of the target firm (Barber & Lyon, 1997).

Thereafter it is necessary to calculate the sample mean abnormal return of the target firms. This is conducted by calculating arithmetic mean for all target firms abnormal returns accordingly (Barber & Lyon, 1997):

Equation 2: BHAR mean for full sample

$$BHAR_{(\text{mean})} = \frac{1}{n}\sum_{i=1}^{n} BHARi$$

The BHAR method ends with a T-test in order to test the null hypothesis that the buy-and-hold abnormal returns are equal to zero for a sample of *n* firms. This is conducted according to Barber & Lyon (1997) by this given formula:

Equation 3: BHAR t-test

$$t_{\text{BHAR}} = BHAR_{(\text{mean})\text{it}} \,/\, [\frac{\sigma(BHAR_{\text{it}})}{\sqrt{n}}]$$

The t-value is given by using the mean of the sample's buy-and-hold abnormal return divided by the quota of the cross-sectional standard deviations of abnormal return for the sample of *n* firms and square root of sample of *n* firms. If the sample is drawn randomly from a normal distribution, the test concludes that the test statistics will follow a Student's t-distribution under the null hypothesis. However, since BHAR is clearly non-normal, the Central Limit Theorem guarantees that if the measures of abnormal returns in the cross-section of firms are identically distributed drawings from finite variance distributions and independent, the distribution of mean converges to normality as the sample increases in number of firms (Barber & Lyon, 1997).

To calculate the short- and long term abnormal return the authors use Thomson Reuters Datastream to obtain the total return index on the stocks to adjust for splits, dividends and stock repurchases to represent the true value on the returns on the specific dates needed.

In Thomson Reuters Datastream this is known as Total Return Index, shortened RI. This is used on both the target firms and control firms to ensure that all the abnormal returns are calculated correctly.

6.2 BHAR, Short-Term

This part of the thesis investigates why the bid was terminated and if there is any value creation in terms of stock price in defending a bid. It is elaborated to investigate the effect on abnormal returns on terminated bids in a short-term perspective. The earlier method explained with BHAR and control firms are applied to this section as well.

In this part the BHAR setup is instead; $t_2(0)$ is one month prior to the bid has been announced, $t_2(1)$ will be one month after the bid has been presented and $t_2(2)$ will be one month after the bid has been terminated. The method of choosing one month after the bid has been presented and terminated is because by then the market has correctly priced the firm and information asymmetries should not affect the price (Safieddine & Titman, 1999).

The same sample firms and control firms are used in this section in order to make the methods intertwine with each other and therefore information regarding sample firms and control firms can be found in earlier chapter.

6.3 Method criticism

With the chosen buy-and-hold abnormal return method it is important to highlight critique and its implications on the result obtained in the thesis. One important aspect is to comment on why cumulative abnormal return (CAR) was not chosen, another method that Barber & Lyon (1997) proposes in their study. The models differ from each other in the monthly compounding, CAR ignore compounding while BHAR include it. Barber & Lyon (1997) argues, on conceptual grounds, that the use of buy-and-hold abnormal returns in tests is designed to detect long-run abnormal stock returns. The CAR method

becomes problematic when the study needs to identify an initial event month for the sample. It is referred to as measurement bias.

The buy-and-hold return method does however suffer from three major drawbacks. First of is the listing bias as newly listed firms underperforms market averages and it would lead to positive buy-and-hold abnormal returns. Secondly, long-rung buy-and-hold abnormal returns are positively skewed as a sample firm can achieve a very high return but not the market, which is usually the control mechanism in the BHAR method. Lastly is the problem with rebalancing, since the method normally uses market indexes to compare (Barber & Lyon, 1997).

With the approach of control firms instead of referencing portfolios or indexes, the thesis eliminates the new listing bias since both sample firm and control firm must be listed one year prior to announcement of the bid. The approach also eliminates rebalancing bias and the skewness problem since both target firm and control firm are calculated with rebalancing (RI), both set of firms are equally likely to experience large positive or negative returns (Barber & Lyon, 1997). The study's criteria that a firm has to be listed at least one year prior to the bid also mitigate the listing bias.

In the final sample of 175 target firms there are differences between announcement day of the bid and termination day, some are no more than months apart meanwhile some can be years apart. This could have a possible effect on the study's result, but this will not be addressed as the authors believe the final sample is big enough to have a good diversity of spreads between how many days there is between the announcement and termination day. Therefore the result gives a good representation of the reality on the European market of terminated bids in mergers and acquisitions.

6.4 Statistical tests and modifications

There are numerous statistical models being used in the result to interpret whether the data is significant or not, consequently to determine whether the null hypothesis can be rejected or not. The thesis uses regression models with least square, Jacque-Bera, t-test

and Wilcoxon test. It is important to highlight that data used is not panel data, it is cross-sectional data and there are few independent variable making it hard to obtain significance in the tests conducted. Jarque-Bera tests are conducted on every dependent variable. The Jarque-Bera test ensures that sample is normally distributed and it should have a coefficient of 3. The null hypothesis, that the error terms are not normally distributed, can be rejected if the probability is equal or lower than 5 percent. If the null hypothesis cannot be rejected the sample most certainly have extreme outliers (Brooks, 2014).

In the thesis log transformation is used as it makes highly skewed data less skewed, meaning the sample is closer to normal distribution than before as it reduces skewed observations (Brooks, 2014). All the samples are logged to address this problem. There is however some loss in data observations. For each table in the result chapter, the numbers of logged observations are shown. The result obtain in this thesis is interpreted by the median as there are several outliners in the sample that spikes the mean. The median better represent the reality of the buy-and-hold abnormal return of the terminated bids at specific times (Wilcoxon, 1945).

In order to test the median and being able to statistically compare different categorizations' medians Wilcoxon test is performed, thereby if significant medians can statistically be compared and the null-hypothesis can be rejected. The Wilcoxon test is used as an alternative to the t-test when data does not follow a normal distribution (Wilcoxon, 1945).

7. Empirical findings

This part of the thesis presents the empirical findings of conducted the study. First of the full sample is presented and it is followed by the results for the different categorizations and payment methods, which are compared to each other. The result for each table is presented summarized and described shortly in short-term and long-term perspective.

7.1 Full sample

Following are the two tables presenting the short-term and long-term abnormal return on the full sample.

7.1.1 Short-term

Short-term full sample	**$t_2(1)$**	**$t_2(2)$**
Mean	10,77%	6,47%
Median	9,49%	7,92%
Maximum	226,45%	175,29%
Minimum	-75,76%	-160,90%
Std, Dev,	30,98%	45,06%
Skewness	2,21	-0,46
Jarque-Bera	1485,36	57,98
t-statistic value	3,24	1,76
t-statistic p-value	0,00	0,08
Wilcoxon signed rank value	4,66	2,46
Wilcoxon signed rank p-value	0,00	0,01
Observations	154	154

Table 6: Short-term full sample

As seen in table 6 period $t_2(1)$ and at $t_2(2)$ abnormal returns are both positive at 9,49 % respectively 7,92 % . There is a big spread between the maximum and minimum value for both observations. None of the two time-period observations are normal distributed as seen by the Jarque-Bera values. The two observations are significant for the whole sample at a p-value less than 10 % and the median at a p-value equal of 1 %.

7.1.2 Long-term

Long-term full sample	$t_1(1)$	$t_1(2)$	$t_1(3)$
Mean	-8,04%	-1,02%	-5,41%
Median	-0,45%	5,30%	-1,54%
Maximum	150,49%	272,79%	354,11%
Minimum	-381,86%	-196,16%	-417,01%
Std, Dev,	61,93%	68,00%	89,55%
Skewness	-2,02	0,38	0,08
Jarque-Bera	773,64	71,75	160,95
t-statistic value	-2,58	-1,32	-0,75
t-statistic p-value	0,01	0,19	0,45
Wilcoxon signed rank value	1,72	1,02	0,82
Wilcoxon signed rank p-value	0,08	0,31	0,41
Observations	154	154	154

Table 7: Long-term full sample

As seen in table 7 the observations at $t_1(1)$ and at $t_1(3)$ have negative abnormal returns at -0,45 % respectively -1,54 %. At $t_1(2)$ there is a positive abnormal return of 5,30 %. There is a big spread between the maximum and minimum value for all three observations. None of the three time-period observations are normal distributed as seen by the Jarque-Bera values at. Only $t_1(1)$ observation is significant for the whole sample at a p-value equal to 1 %. The other two observations are insignificant. The median is significant at a p-value less than 10 % for the $t_1(1)$ observation and the two other observations are insignificant.

7.2 Full sample result regressions

As seen in Appendix D, regressions on the dependent variables for each time span are conducted on the full sample. With the independent variables being nature of bid, type of payment and type of bid for each dependent variable the observations are only 154. As shown in the Appendix D, none of the independent variables are significant and R-squared are very low, close to zero. The regressions are cross-sectional. The BHAR method with the event study makes is it problematic with a regression analysis. This means that there is no statistical significance that the buy-and-hold abnormal returns are

only affected by characteristics of bids. There is however one significant variable in regression 3, nature of bid, that explains the abnormal return after 1 year of termination of bid.

7.3 Friendly (F) vs Hostile (H)

Following are the two tables presenting the short-term and long-term abnormal return on friendly versus hostile terminated bids.

7.3.1 Short-term

Short-term Friendly vs Hostile	**F $t_2(1)$**	**H $t_2(1)$**	**F $t_1(2)$**	**H $t_2(2)$**
Mean	11,09%	9,28%	7,77%	0,32%
Median	10,09%	6,94%	8,27%	1,42%
Maximum	226,45%	99,10%	175,29%	117,99%
Minimum	-75,76%	-38,88%	-160,90%	-157,74%
Std, Dev,	31,78%	27,40%	43,27%	53,21%
Skewness	2,33	1,11	-0,39	-0,53
Jarque-Bera	1401,79	13,10	51,99	5,29
t-statistic value	3,99	-0,17	1,94	0,03
t-statistic p-value	0,00	0,87	0,05	0,97
Wilcoxon signed rank value	4,73	0,81	2,58	0,19
Wilcoxon signed rank p-value	0,00	0,42	0,01	0,85
Observations	127	27	127	27

Table 8: Short-term Friendly vs Hostile

Long-term Friendly vs Hostile tests	**F/H $t_2(1)$**	**F/H $t_3(2)$**
t-test value	-1,76	0,77
t-test p-value	0,08	0,44
Wilcoxon value	1,32	0,92
Wilcoxon p-value	0,19	0,36

Table 9: Long-term Friendly vs Hostile tests

As seen in table 8 the $t_2(1)$ and $t_2(2)$ abnormal return are positive for both friendly and hostile bids. There is a difference between the abnormal return between the two categorizations. At $t_2(1)$ observation the abnormal return for friendly terminated bids is 10,09 % versus hostile bids at 6,94 %. At $t_2(2)$ the abnormal return for friendly

terminated bids is 8,27 % versus hostile bids at 1,42 %. There is a big spread between the maximum and minimum value for both observations points of the categorizations. None of the two time-period observations for either friendly or hostile terminated bids are normal distributed as seen by the Jarque-Bera values. Only the friendly terminated bids samples at both observations are significant at a p-value equal to 5 %. The hostile terminated bids are highly insignificant at the two observation periods. The same applies for the median, the friendly terminated bids' are significant at a p-value equal to 1 % and the hostile terminated bids observations are highly insignificant. There is a huge difference in the number of observations as friendly bids have 127 observations and hostile bids only 27.

Table 9 shows that comparing friendly versus hostile bids at 1 month after the bid is announced is significant at a p-value less than 10 % and insignificant at 1 month after the bid is terminated. Comparing the two medians at the two time-period observations are insignificant, meaning they are not statistically comparable.

7.3.2 Long-term

Long-term Friendly vs Hostile	**F t_1(1)**	**H t_1(1)**	**F t_1(2)**	**H t_1(2)**	**F t_1(3)**	**H t_1(3)**
Mean	-8,74%	-4,77%	-2,26%	4,76%	-7,22%	3,14%
Median	1,74%	-8,32%	6,10%	-7,19%	-2,11%	1,46%
Maximum	150,49%	119,24%	188,71%	272,79%	338,24%	354,11%
Minimum	-381,86%	-105,34%	-196,16%	-155,24%	-417,01%	-181,10%
Std, Dev,	64,79%	47,05%	61,81%	93,01%	84,22%	112,82%
Skewness	-2,13	0,06	-0,455	1,43	-0,49	1,13
Jarque-Bera	634,24	1,53	18,75	18,69	167,86	13,27
t-statistic value	-2,31	-1,21	-1,30	-0,45	-0,95	0,13
t-statistic p-value	0,02	0,24	0,20	0,66	0,34	0,90
Wilcoxon signed rank value	1,23	1,46	0,59	1,23	0,65	0,35
Wilcoxon signed rank p-value	0,21	0,14	0,56	0,20	0,44	0,72
Observations	127	27	127	27	127	27

Table 10: Long-term Friendly vs Hostile

Long-term Friendly vs Hostile tests	F/H $t_1(1)$	F/H $t_1(2)$	F/H $t_1(3)$
t-test value	0,26	0,08	0,51
t-test p-value	0,80	0,94	0,61
Wilcoxon value	0,86	0,73	0,05
Wilcoxon p-value	0,39	0,46	0,96

Table 11: Long-term Friendly vs Hostile tests

As seen in table 10 the $t_1(1)$ and $t_1(2)$ observations of friendly bids have positive abnormal returns of 1,74 % respectively 6,10 %. At $t_1(3)$ the friendly bids have a negative abnormal return of -2,11 %. The $t_1(1)$ and $t_1(2)$ observations of hostile bids have negative abnormal returns of -8,32 % % and -7,19 %. At $t_1(3)$ the hostile bids have a positive abnormal return of 1,46 %. There is a big spread between the maximum and minimum value for both observations points of the categorizations. None of the three time-period observations for either friendly or hostile terminated bids are normal distributed as seen by the Jarque-Bera values expect for hostile bids at $t_1(1)$. Only friendly terminated bids at $t_1(1)$ are significant at p-value less than 5 %, all other observations for friendly and hostile terminated bids are insignificant. All of the time-periods observations for friendly or hostile bids are insignificant for the median.

Table 11 shows that it is not statistically possible to compare friendly versus hostile terminated bids at any of the three different time-period observations investigated as they are insignificant.

7.4 Strategic (S) vs Financial (Fi)

Following are the two tables presenting the short-term and long-term abnormal return on strategic versus financial terminated bids.

7.4.1 Short-term

Short-term Strategic vs Financial	S $t_2(1)$	Fi $t_2(1)$	S $t_2(2)$	Fi $t_1(2)$
Mean	10,87%	17,12%	6,70%	24,91%
Median	11,03%	7,63%	7,88%	23,34%
Maximum	226,45%	79,76%	175,29%	78,78%
Minimum	-133,34%	-15,83%	-160,90%	-5,20%
Std, Dev,	34,11%	32,09%	45,15%	28,77%
Skewness	1,43	1,06	-0,55	0,79
Jarque-Bera	1041,32	1,30	68,45	0,74
t-statistic value	3,99	2,28	1,63	0,67
t-statistic p-value	0,00	0,05	0,10	0,52
Wilcoxon signed rank value	4,73	0,67	2,19	1,18
Wilcoxon signed rank p-value	0,00	0,51	0,03	0,24
Observations	123	7	123	7

Table 12: Short-term Strategic vs Financial

Short-term Strategic vs Financial tests	S/Fi $t_2(1)$	S/Fi $t_2(2)$
t-test value	0,88	0,37
t-test p-value	0,38	0,71
Wilcoxon value	1,00	0,98
Wilcoxon p-value	0,32	0,33

Table 13: Short-term Strategic vs Financial tests

As seen in table 12 the $t_2(1)$ and $t_2(2)$ abnormal return are positive for both strategic and financial terminated bids. There is a difference between the abnormal return between the two categorizations. At $t_2(1)$ observation the abnormal return for strategic bids is 11,03 % % versus financial bids at 7,63 %. At $t_2(2)$ the abnormal return for strategic bids is 7,88 % versus financial bids at 23,34 %. There is a big spread between the maximum and minimum value for both observations points of the categorizations. The strategic bids at $t_2(1)$ and $t_2(2)$ at are not normally distributed and the financial bids at $t_2(1)$ and $t_2(2)$ are normally distributed as seen by the Jarque-Bera values. The strategic terminated bids sample at both observations is significant at a p-value equal to 10 %. The financial terminated bids are significant at $t_2(1)$ at a p-value equal to 5 % but it is insignificant at $t_2(2)$. The same applies for the median, the strategic terminated bids' are significant at a p-value equal to 5 % and the financial terminated bids observations are highly

insignificant. There is a huge difference in the number of observations as strategic bids have 123 observations and financial bids only 7.

Table 13 shows that it is not statistically possible to compare strategic versus financial terminated bids at any of the two different time-period observations investigated as they are insignificant.

7.4.2 Long-term

Long-term Strategic vs Financial	**S t_1(1)**	**Fi t_1(1)**	**S t_1(2)**	**Fi t_1(2)**	**S t_1(3)**	**Fi t_1(3)**
Mean	-9,69%	-4,66%	-2,74%	18,15%	-7,84%	1,84%
Median	0,61%	-16,50%	5,93%	7,52%	-4,15%	2,36%
Maximum	150,49%	30,41%	188,71%	141,59%	338,24%	132,86%
Minimum	-381,86%	-28,11%	-196,16%	-40,18%	-223,15%	-138,11%
Std, Dev,	66,74%	25,09%	59,13%	61,82%	79,43%	84,61%
Skewness	-2,05	0,35	-0,33	1,20	0,49	-0,09
Jarque-Bera	487,79	0,93	20,82	1,72	57,39	0,05
t-statistic value	-2,54	-0,64	-1,30	-0,02	-0,93	0,64
t-statistic p-value	0,01	0,54	0,20	0,98	0,35	0,54
Wilcoxon signed rank value	1,62	0,49	0,58	0,07	0,98	0,47
Wilcoxon signed rank p-value	0,10	0,62	0,56	0,94	0,33	0,64
Observations	123	7	123	7	123	7

Table 14: Long-term Strategic vs Financial

Long-term Strategic vs Financial tests	**S/Fi t_1(1)**	**S/Fi t_1(2)**	**S/Fi t_1(3)**
t-test value	0,35	0,27	0,86
t-test p-value	0,73	0,78	0,39
Wilcoxon value	0,12	0,03	0,73
Wilcoxon p-value	0,91	0,97	0,47

Table 15: Long-term Strategic vs Financial tests

As seen in table 14 the t_1(1) and t_1(2) observations of strategic bids have positive abnormal returns of 0,61 % respectively 5,93 %. At t_1(3) the strategic bids have a negative abnormal return of -4,15%. The t_1(2) and t_1(3) observations of financial bids have positive abnormal returns of 5,93 % and 7,52 %. At t_1(3) the financial bids have a

negative abnormal return of -16,50 %. There is a big spread between the maximum and minimum value for the three observations points of the categorizations. None of the three time-period observations for strategic terminated bids are normal distributed but for the financial bids they are normal distributed as seen by the Jarque-Bera values. Only the strategic terminated bids at $t_1(1)$ are significant at p-value equal to 1 %, all other observations for strategic and financial terminated bids are insignificant. All of the time-periods observations for friendly or hostile bids are insignificant for the median except for the strategic bids at $t_1(1)$ which is significant at a p-value equal to 10 %.

Table 15 shows that it is not statistically possible to compare friendly versus hostile terminated bids at any of the three different time-period observations investigated as they are insignificant.

7.5 Cash (CA) vs Common Stock (CS) vs Hybrid (HY)

Following are the two tables presenting the short-term and long-term abnormal return on cash versus common stock versus hybrid payment method on terminated bids.

7.5.1 Short-term

Short-term Cash vs Common stock vs Hybrid	**CA $t_2(1)$**	**CS $t_2(1)$**	**HY $t_2(1)$**	**CA $t_2(2)$**	**CS $t_2(2)$**	**HY $t_2(2)$**
Mean	13,36%	6,15%	10,13%	7,73%	5,14%	4,32%
Median	10,01%	4,66%	10,71%	9,20%	7,37%	5,48%
Maximum	226,45%	79,76%	85,17%	175,29%	88,15%	104,09%
Minimum	-42,16%	-75,76%	-39,43%	-160,90%	-117,36%	-69,85%
Std, Dev,	32,61%	27,83%	30,79%	47,38%	44,62%	38,13%
Skewness	3,39	-0,43	0,45	-0,44	-0,77	0,26
Jarque-Bera	1569,54	5,71	0,80	54,07	5,50	0,84
t-statistic value	2,69	0,95	1,85	1,75	0,48	0,32
t-statistic p-value	0,01	0,35	0,08	0,08	0,63	0,75
Wilcoxon signed rank value	3,95	1,99	1,72	2,25	1,14	0,40
Wilcoxon signed rank p-value	0,00	0,05	0,09	0,02	0,26	0,69
Observations	86	45	23	86	45	23

Table 16: Short-term Cash vs Common stock vs Hybrid

Short-term Cash vs Common stock vs Hybrid tests	**CA/CS $t_2(1)$**	**CA/CS $t_2(2)$**	**CA/HY $t_2(1)$**	**CA/HY $t_2(2)$**	**CS/HY $t_2(3)$**	**CS/HY $t_2(1)$**
t-test value	1,01	0,66	0,07	0,61	-0,81	0,08
t-test p-value	0,32	0,51	0,94	0,55	0,42	0,94
Wilcoxon value	0,59	0,11	0,02	0,79	0,31	0,59
Wilcoxon p-value	0,56	0,91	0,98	0,43	0,76	0,56

Table 17: Short-term Cash vs Common stock vs Hybrid tests

As seen in table 16 the $t_2(1)$ and $t_2(2)$ abnormal return are positive for all three payment methods. There is a difference between the abnormal return between the three categorizations. At $t_2(1)$ observation the abnormal return for cash bids are 10,01 % % common stock bids at 4,66 % and hybrid bids at 10,71 %. At $t_2(2)$ the abnormal return for cash bids are 9,20 %, common stock bids at 7,37 % and hybrid bids at 5,48 %. There is a big spread between the maximum and minimum value for all three categorizations' observations points. Only hybrid bids at $t_2(1)$ are normally distributed otherwise all other observations time-periods are non-normally distributed as seen by the Jarque-Bera values. The cash observation at $t_2(1)$ is significant at a p-value equal to 1 %, the hybrid observation at $t_2(1)$ and the cash observation at $t_2(2)$ are both significant at a p-value less than 10 % otherwise the observations are insignificant. Cash at $t_2(1)$, common stock at $t_2(1)$, hybrid at $t_2(1)$ and cash at $t_2(2)$ are significant for their medians at p-value less than 10 %. There is a difference in the number of observations between the three payment methods.

Table 17 shows that it is not statistically possible to compare the different payment methods terminated bids at any of the two different time-period observations investigated as they are insignificant.

7.5.2 Long-Term

Long-term Cash vs Common stock vs Hybrid	CA $t_1(1)$	CS $t_1(1)$	HY $t_1(1)$	CA $t_1(2)$	CS $t_1(2)$	HY $t_1(2)$	CA $t_1(3)$	CS $t_1(3)$	HY $t_1(3)$
Mean	-6,63%	-6,42%	-16,50%	2,96%	-5,98%	-6,22%	-8,38%	-4,57%	4,07%
Median	-0,33%	0,00%	-3,82%	5,51%	1,96%	7,16%	-2,35%	-6,66%	2,36%
Maximum	144,09%	150,49%	62,66%	267,07%	272,79%	92,81%	354,11%	255,23%	116,93%
Minimum	-381,86%	-208,72%	-271,58%	-128,96%	-196,16%	-171,62%	-417,01%	-146,16%	-145,67%
Std, Dev,	59,41%	64,08%	68,79%	63,31%	79,63%	62,04%	100,40%	81,08%	59,52%
Skewness	-2,81	-0,59	-2,29	0,98	0,22	-1,24	0,02	0,56	-0,29
Jarque-Bera	1166,43	11,89	58,38	50,81	15,51	7,91	94,80	5,03	0,38
t-statistic value	-2,11	-1,02	-1,15	-1,10	-0,66	-0,35	-0,84	-0,31	0,36
t-statistic p-value	0,04	0,31	0,26	0,28	0,51	0,73	0,40	0,76	0,72
Wilcoxon signed rank value	1,65	0,44	0,47	1,18	0,43	0,40	0,95	0,43	0,43
Wilcoxon signed rank p-value	0,10	0,66	0,64	0,24	0,67	0,69	0,34	0,67	0,67
Observations	86	45	23	86	45	23	86	45	23

Table 18: Long-term Cash vs Common stock vs Hybrid

Long-term Cash vs Common stock vs Hybrid tests	CA/CS $t_1(1)$	CA/CS $t_1(2)$	CA/CS $t_1(3)$	CA/HY $t_1(1)$	CA/HY $t_1(2)$	CA/HY $t_1(3)$	CS/HY $t_1(1)$	CS/HY $t_1(2)$	CS/HY $t_1(3)$
t-test value	-0,32	-0,03	-0,29	0,17	0,24	-0,63	0,36	-0,18	-0,43
t-test p-value	0,75	0,97	0,77	0,87	0,81	0,53	0,72	0,85	0,67
Wilcoxon value	0,58	0,26	0,23	0,19	0,96	0,82	0,28	0,75	0,56
Wilcoxon p-value	0,56	0,79	0,82	0,85	0,34	0,41	0,78	0,46	0,57

Table 19: Long-term Cash vs Common stock vs Hybrid tests

As seen in table 18 the $t_1(1)$ and $t_1(3)$ the abnormal returns are negative for all three payment methods except for hybrid at $t_1(3)$ which is positive. At $t_1(2)$ the abnormal return is positive for all three payment methods. There is a big spread between the maximum and minimum value for all three categorizations' observations points. Only hybrid bids at $t_1(3)$ are normally distributed otherwise all other observations time-periods are non-normally distributed as seen by the Jarque-Bera values. The cash observation at $t_1(1)$ is significant at a p-value less than 5 % otherwise they are all insignificant. Same applies for to the medians, except that the cash observation at $t_1(1)$ is significant at a p-value equal to 10 %. There is a difference in the number of observations between the three payment methods.

Table 19 shows that it is not statistically possible to compare the different payment methods terminated bids at any of the three different time-period observations investigated as they are insignificant.

8. Analysis & Discussion

This part of the thesis presents the analysis of the findings and its implications on the research questions and hypothesis. The analysis will follow the same structure as the result, comparing and analysing the different categorizations with theory and previous research as basis. A discussion regarding the analysis will be presented afterwards.

The results in form of the difference categorizations varies a lot depending how the bid is categorized and what form of payment that has been used. Initially the data sample was 646 firms which ended in 175 suitable observations and 154 logged observations. The number of observations amongst the categories has significant impact on the results and how well an analysis can be executed on each categorization. This especially effects the strategic versus financial bid analysis.

The dataset with the time-period being 1990-2015 have two major financial crises included, which have significant impact on the results (Geier, 2015) (Haveman, N.A). As table 4 shows 25 % of the data set is the same year as/or previous two years before the dotcom stock bubble crisis. The data set is also majorly affected by the financial crisis in 2008 as 28% of the data set is three year previous to the event. With 53% of the final sample being close to a financial crisis it is possible to assume that the abnormal returns have been affected negative. This especially applies to the long-term abnormal returns as those realize the effect of the financial crisis on a 1-, 2- or 3-year horizon or for all of them. The short-term abnormal returns do not generally realize the effects as the time-period is often a few months, however it cannot be excluded. This is shown for all the result as the short-term abnormal returns are positive in the full sample and mainly negative returns in the long-term perspective. The authors are aware of this effect and thus use the approach with control firms when calculating BHAR. The control firms should realize the same macro-effects such as a financial crisis and the effects are mitigated when using BHAR.

8.1 Full sample

The full sample is highly skewed and with large standard deviations, therefore it is difficult to analyse the results by its own. It is possible however, since the short-term data is significant, that terminated bids disregarding any categorization are experiencing positive abnormal returns but in the long-term perspective experience negative abnormal returns except after two years of termination as seen in table 6. The long-term perspective data is however insignificant for the two and three year period, thus it is not possible to draw statistically correct conclusions as seen in table 7.

The previous research on the subject is not fully comparable to our result as this thesis uses the approach of categorization of bids when studying abnormal returns. However, it can be linked to the result in the full sample. In line with Dodd (1980) the firms experience large positive abnormal returns from the announcement of a merger proposal with approximately 13% in abnormal return in contrast to this thesis's result of 9,49%. In contrast this thesis's sample experience negative returns in the long-run compared to Dodd's (1980) findings of terminated bids realizing returns of approximately 4%. This can be explained by the financial crises as the sample time-periods differ from each other or that control firms were used instead of indexes.

The result of this thesis and Dodd's (1980) findings of short-term abnormal returns are contradictive to the findings of Fabozzi et al. in (1988). Fabozzi et al. (1988) found that in short-term firms realized negative returns of -3,30% per week after termination. It is important to highlight that Fabozzi et al. (1998) only had a sample of 21 terminated bids and this could describe the variations in results. The authors conclude that the synergy hypothesis is a major reason and this can be concluded when there is a friendly or strategic takeover, which is discussed in later chapters. While using this thesis's full sample it is possible to determine that the information hypothesis has a significant role in the short-term perspective as the firms realize positive abnormal returns. New information is brought up in the bid announcement and the market reacts positive to

information as shown by the short-term abnormal returns in this thesis, which is in line with Bradley et al.'s (1983) and Limmack's (1994) findings.

This thesis's findings are in line with Davidson et al (1989) that after termination the firms experience positive returns, stating that the firms gain over 17% in returns. Davidson et al (1989) also concludes that the synergy hypothesis is important in the revaluation, and could explain why this study experience positive returns in the short-term perspective but not in the long-term perspective. As the target firm most likely realized that the synergies were not as good in the beginning but in the long run could have benefitted from them anyway (Bradley et al., 1983). Thereby the long-term perspective mostly experience negative abnormal returns.

Limmack (1994) explains the termination working as a spur for the target firms in a short-term, which can explain this thesis's short-term positive abnormal returns but in the long-term perspective the spur may diminish. Limmack (1994) argues for the information hypothesis as new information is being brought up in M&A activities, and in short-term perspectives this have a positive effect. In long-term perspectives, this "new" information is not classified as new and the market does not react positively anymore to the termination instead realizes the negative effects of it. This thesis's findings can also be compared to those of Saffieddine & Titman (1999), the authors found that firms outperform their benchmarks with over 29, 73 % over a five year period. This thesis does not align with Saffieddine & Titman (1999) findings and instead this thesis's sample realizes negative returns in the long-term perspective.

The regressions seen in Appendix D shows that none of the independent variables are significant, except the short-term $t_2(1)$ where the nature of a bid is significant at a p-value of 10 % and thereby has some explanatory effects on the result. There is therefore in general no statistical evidence that different types of categorizations or payment method affect the full sample more than another.

8.2 Friendly vs Hostile

The empirical findings show that friendly terminated bids outperform, in regard of abnormal returns, the hostile terminated bids on all observed time-periods in short-term and long-term as seen in table 8 and 10 for this sample. As Wilcoxon test being, when comparing friendly versus hostile bids, insignificant for the shot-term perspective as well in the long-term perspective, it is not possible to statistically conclude that friendly bids outperform hostile ones as shown in table 9 and 11. Worth mentioning is that there are several more observations for the friendly bids compared to the hostile bids and thereby the result is mis-viewing.

There are numerous reasons why friendly bids outperform hostile bids. First of all friendly bids are often seen as synergistic bids and is motivated by the possibility of benefits from combining the businesses. The hostile bids are often done in order to replace or change the policies of manager to maximize shareholder value (Morck et al., 1988). Therefore target firms of hostile bids will often use antitakeover provisions as Sokolyk (2011) and Stráska and Waller (2010) highlight. In the short-term perspective and in the long-term perspective the antitakeover provisions have a great impact as shown in table 8 and 10. These findings do not align with those of Saffieddine & Titman (1999) as their findings for long-term perspective showed positive returns when using leverage as an antitakeover provision, meanwhile as this thesis shows that hostile bids are outperformed by friendly ones. Another reason for why friendly bids outperform hostile ones is that undertaking antitakeover provisions are costly (Stráska and Waller, 2010). Additional findings by Limmack (1994) why firms that received friendly bids are outperforming are the idea of a spur. The hostile ones were focused on antitakeover provisions instead of capitalizing on their current resources as those firms that received friendly bids do.

Using the two different hypothesises presented in this study, the synergy and information hypothesis, gives an understanding on why the abnormal returns are as they are. Both bids experience a positive abnormal return after the bid is announced and this is due to the fact that the market believes that the firm before have been undervalued and therefore

its stock prices rises and is explained by the information hypothesis (Bradley et al., 1983) (Limmack, 1994). The market believes that the bidding company can exploit synergies and thereby increase the value of the firm as explained by Bradley et al. (1983) in the synergy hypothesis. This explains why this thesis's findings that friendly bids outperform hostile bids in the long-term perspective. However, these findings do not align with Fabozzi et al.'s (1988) findings, since they realize that the market reacts quickly to failure and realises negative returns in the short-term perspective.

As there is no significance provided in neither the Wilcoxon tests nor the t-tests, the null hypothesis, $H_1(0)$ cannot be rejected, as seen in table 9 and 11. There is therefore no statistical significant conclusion that there is a difference between friendly and hostile bids' abnormal returns. The result only shows that for this thesis's sample friendly bids outperform hostile ones on short- and long-term perspectives.

8.3 Strategic vs Financial

Analysing the two different bid types, strategic versus financial, there is a huge difference in the number of observations, making the comparison highly unreliable. The conclusions from this thesis's sample cannot be interpreted as statistically valid instead it merely indicates that overall financial bids outperform strategic bids in the short-term perspective and after three years of termination. In short-term perspective, as seen in table 12, both strategic and financial bids experience positive abnormal returns. This can be explained by the information hypothesis, as the market reacts positively to the information even though the bid gets terminated (Bradley et al., 1983).

According to Healy et al. (1997) strategic bids should generate better abnormal returns but with few observations on financial bids with high returns it is complicated to align this thesis's findings with those of Healy et al. (1997). This could however explain why strategic bids outperform financial ones during the two first years as the market has realized that there is synergetic value and reacts positively upon this information. The

positive returns are a combination of both the synergy and information hypothesis as discussed by Bradley et al. (1983) and Davidson et al (1989).

As there is no significance provided in neither the Wilcoxon tests nor the t-tests, the null hypothesis, $H_2(0)$ cannot be rejected, as seen in table 13 and 15. There is therefore no statistical significant conclusion that there is a difference between strategic and friendly bids' abnormal return. The result only shows that for this study's sample financial bids outperform strategic ones in general in short- and long-term perspectives.

8.4 Hybrid vs Cash vs Common Stock

Analysing the three different payment methods in a short-term perspective, hybrid payments outperform the other two payment types at $t_2(1)$, however hybrid payments performs worst after termination at $t_2(2)$, as seen in table 16. Meanwhile, cash payments outperform common stock in the short-term. According to Myers and Majluf model, cash is used when a target firm is undervalued and common stock when a target firm is overvalued. The hybrid can be interpreted as a mix between them and correctly price the target firms (Travlos, 1987). The model can be interpreted with the information hypothesis as how the market reacts to the different payment method as all have positive abnormal returns in short-term (Bradley et al., 1983). Malmendier et al. (2016) argue for that cash offers outperform common stock in terminated bids, the findings of this thesis aligns with the conclusion of Malmendier et al. (2016). This conclusion applies also for the long-term perspective when comparing cash and common stock payments. However, Healy et al. (1997) argues for the contrary, that common stock outperforms cash. Combining the findings of Malmendier et al. (2016) and Healy et al. (1997) most of the firms must have been undervalued when receiving a bid. These findings can also explain that in the long-term perspective hybrid payments are preferable as they are a combination of cash and common stock, which this thesis concludes in table 18.

The synergy hypothesis is applicable in the sense to payment methods that in the long-term perspective it could have an impact as firms tend to be undervalued with cash, overvalued with common stock and correctly valued with hybrid payments. The

synergetic effects with hybrid payments should therefore be correctly valued and the market reacts more positively on this than on the other the two other payment alternatives (Bradley et al., 1983). The synergy possibilities in this sense are also then correctly priced.

As there is no significance provided in neither the Wilcoxon tests nor the t-tests, the null hypothesis, $H_3(0)$ cannot be rejected, as seen in table 17 and 19. There is therefore no statistical significant conclusion that there is a difference between hybrid, cash and common stock abnormal returns. The result only shows that for this study's sample hybrid payments in general outperforms cash and common stock. Cash payments however outperform common stock. This applies on this study's sample.

9. Conclusion

This part of the thesis presents the conclusions on the findings and the analysis. The initial concluding discussion provides answer to the research questions. A practical implication part of the result is presented in order to critically discuss the contribution of the thesis's findings. The chapter ends with proposed future research on the subject.

9.1 Concluding discussion

The majority of the findings of this thesis are not statistically significant and thereby it is difficult to draw any valid conclusions on any general population. However this thesis's result can be used to show a tendency on how the effect of terminated bid's buy-and-hold abnormal returns are in a short- and long-term horizon on the European market between 1990-2015. There are individual time-periods investigated that are significant as seen by t-tests and Wilcoxon tests and these can conclude abnormal returns for the general population on the specific period. In the full sample short-term perspective there is significance as well as for one year after termination. These findings conclude that, disregarding any categorizations, there are positive abnormal returns in a short-term perspective but negative abnormal returns after one year (see table 6 and 7).

In the short-term perspective the full sample as well as the categorizations and payments methods experience positive abnormal returns after announcement and termination. One valid explanation for this is the information hypothesis and Malmendier et al.'s (2016) findings. Target firms that have received bids that have been terminated are more likely to receive future bids than firms that have not received any bids, which would explain why there is a positive abnormal return one month after the bid is terminated for all specific areas investigated. In the long-term perspective there is inconsistency whether firms experience positive or negative abnormal returns for the full sample.

In regards of the hypotheses, synergy and information mention by Bradley et al (1983), to terminated bids it is concluded that the information hypothesis is the most explanatory one, especially in the short-term perspective. The findings in the thesis are in line with

the findings of Fabozzi et al. (1988) and Limmack (1994). The synergy hypothesis is difficult to examine whether it has an effect or not. However there is a tendency in the result of this study that friendly and strategic terminated bids, which are mainly driven by synergetic effects, experience better abnormal returns than hostile and financial ones. The synergy hypothesis also explains why hybrid payments are preferable compared to cash and common stock since the target firm and its synergy potentials are valued correctly. These findings align with those of Davidson et al. (1989).

Examining the characteristics and payment methods of terminated bids it can be concluded for this sample that in overall friendly bids outperform hostile bids, strategic bids outperform financial bids and that hybrid outperforms cash which in turn outperforms common stock. However, statistically it is not possible to draw these conclusions on a general population as seen by the Wilcoxon tests when comparing the alternatives. This leads to that the three null hypotheses tested in this study (see table 2) cannot be rejected. Therefore the results of this study only show a tendency on how the characteristics and payment methods affect the abnormal return in short-term and long-term perspective.

9.2 Practical implication

The findings and conclusions of this study's practical implications are very few as the results mostly are insignificant. Investigating the full sample it is concluded that on the European market terminated bids experience positive abnormal returns in a short-term perspective as well as negative abnormal return one year after termination. This is a valid result and conclusion as Dodd (1980) and Davidson et al. (1989) concluded that terminated bids experience large positive abnormal returns in the short-terms perspective as well. However this is in contradiction to Fabozzi et al. (1988) findings. Therefore the practical implication of this study's full sample, except long-term perspective of two and three years, is applicable on the European market and could be compared to the American market investigated by the earlier mentioned authors.

The practical implication of dividing terminated bids into different categories and payment methods is that they are none comparable due to insignificance and thereby there is no statistical valid evidence that explains the abnormal returns on the European market. There are distinctions between the categories investigated but due to inconsistencies in the result the practical implication of the thesis cannot be applied to a general population of terminated bids. However, it is of interest to see the differences in this sample and can be used as guidelines.

It is evident throughout the analysis and conclusions of the result that the information hypothesis is the main explanatory driver in explaining the abnormal returns of terminated bids. The contribution of this is that the market reacts quickly and positive to new information as Fabozzi et al (1988) concludes. However, the result of this thesis concludes that even though a bid gets terminated the value of the new information generates positive abnormal returns. This is useful and can be applied to any market as terminated bids always involve new information being released.

Overall this thesis shows tendencies on how categorized terminated bids experience abnormal returns in short-term and long-term perspective and it can be used as guidance. The main contribution with this thesis is that terminated bids in short-term realize positive abnormal returns and therefore it is of interest for investors and people in general that are in interested in merger and acquisition activities with a short-term investment horizon.

9.3 Future Research

As the result of this study is mostly insignificant it would be favourable to conduct a similar study with same categorizations and payments methods on short- and long-term with more independent variables. This could be done by examining bid premiums, balance sheet ratios (e.g. capital expenditures, enterprise values, cash flow) and which part terminated the bid. One alternative new research area would to restrain the limitation

to only short-term and investigate why bids get terminated and see how antitakeover provisions affect the abnormal returns.

It would also be of interest to investigate further in depth different terminations of merger and acquisition activities at country and stock exchange levels (small-, mid- and large-cap). This to see if the economy of the country has an impact or if the size of the firm matters for abnormal returns in terminated bids. Additionally, there would be of major interest to conduct this study on other markets such as the American market and Asian market, which would enable for better comparison due to lack of relevant studies conduct recently on these markets.

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11. Appendix

Appendix A. Target firm with corresponding control firm

Target Firm	Announcement date	Termination date	Nature of bid	Type of bid	Payment type	Control firm
MANCHESTER UNITED	1998-09-09	1999-04-09	Friendly	Strategic	Hybrid	TOTTENHAM HOTSPUR
CLARIANT	1998-11-09	1998-12-09	Friendly	Strategic	Stock	SOLVAY
POLIMEXMS	1998-12-14	1999-06-16	Friendly	Strategic	Stock	EUROBANK ERGASIAS
WEMBLEY	1999-01-08	1999-03-12	Friendly	Strategic	Hybrid	TOTTENHAM HOTSPUR
BNP PARIBAS	1999-02-01	1999-09-03	Friendly	Strategic	Stock	ING GROEP
SOCIETE GENERALE	1999-03-09	1999-08-30	Hostile	Strategic	Hybrid	UNICREDIT
TELECOM ITALIA MOBILE	1999-03-11	2000-05-22	Friendly	Strategic	Stock	SAMPO 'A'
GUCCI GROUP	1999-03-22	1999-05-27	Friendly	Strategic	Hybrid	AIRESIS 'R'
CAPITALIA	1999-03-22	1999-04-27	Friendly	Strategic	Stock	ING GROEP
E ON BAYERN	1999-04-16	2000-06-19	Friendly	Strategic	Hybrid	TOTTENHAM HOTSPUR
BROOKE INDUSTRIAL HDG.	1999-04-21	1999-06-09	Friendly	Strategic	Stock	RESTAURANT GROUP
XPONCARD	1999-04-30	1999-06-11	Friendly	Strategic	Cash	HEINEKEN
ECO ANIMAL	1999-05-10	1999-06-25	Friendly	Strategic	Stock	RESTAURANT GROUP
GOLDSCHMIDT	1999-06-02	2000-06-19	Friendly	Strategic	Cash	PREMIER OIL
IM SKAUGEN	1999-06-25	1999-08-02	Friendly	Financial	Cash	CONCORDIA MARITIME 'B'
BANCO TOTTA ACORES	1999-07-19	1999-11-18	Friendly	Strategic	Hybrid	TOTTENHAM HOTSPUR
TOTAL	1999-07-19	1999-09-13	Friendly	Strategic	Cash	BP
MBANK	1999-07-22	2000-04-14	Friendly	Strategic	Cash	BALKAN REAL ESTATE
LEGAL & GENERAL	1999-09-06	1999-10-11	Friendly	Strategic	Cash	BP
USG PEOPLE DEAD	1999-09-09	1999-10-29	Friendly	Strategic	Cash	STAGECOACH GROUP
NEWPORT HOLDINGS	1999-09-14	1999-11-11	Friendly	Strategic	Cash	ING GROEP
CARLTON COMMS.	1999-11-26	2000-07-21	Friendly	Strategic	Stock	ING GROEP
MONBERG & THORSEN 'B'	2000-01-18	2001-03-21	Friendly	Strategic	Cash	BALKAN REAL ESTATE
IFX GROUP	2000-01-21	2000-02-21	Hostile	Strategic	Cash	BOUYGUES
VALOE	2000-02-21	2000-04-12	Hostile	Strategic	Cash	SOITEC
WELLINGTON UNDERWRITING	2000-04-26	2000-06-28	Hostile	Strategic	Cash	PREMIER OIL
STORK	2000-05-08	2000-08-17	Friendly	Strategic	Cash	LVENTURE GROUP
ACTRIS	2000-05-19	2000-10-01	Friendly	Strategic	Cash	HEINEKEN
SALVESEN(CHRIS.)	2000-05-30	2000-07-20	Friendly	Strategic	Stock	EUROBANK ERGASIAS
COMPEL GROUP	2000-06-01	2000-10-06	Friendly	Strategic	Cash	ITV
FINOP HOLDING	2000-06-07	2000-09-30	Friendly	Strategic	Cash	REVENIO GROUP
INTERSPORT PSC HOLDING	2000-06-13	2000-12-31	Friendly	Strategic	Cash	ING GROEP
PROSIEBENSAT 1 MEDIA	2000-06-28	2002-03-20	Friendly	Strategic	Cash	ITV
ERGO PREVIDENZA	2000-08-17	2001-01-30	Friendly	Strategic	Stock	SAMPO 'A'
MARSTON'S	2000-08-18	2001-05-02	Friendly	Strategic	Cash	RESTAURANT GROUP
GO-AHEAD GROUP	2000-08-24	2000-10-25	Friendly	Financial	Cash	STAGECOACH GROUP
RESCO 'B'	2000-09-11	2000-10-17	Hostile	Strategic	Cash	DANSKE BANK

CENTERPULSE	2000-09-18	2000-10-27	Hostile	Strategic	Stock	UNICREDIT
NEXT UP	2000-10-03	2000-12-21	Friendly	Strategic	Hybrid	GREIFFENBERGER
VALUE MANAGEMENT K	2000-10-05	2000-12-31	Friendly	Strategic	Stock	LVENTURE GROUP
IBERDROLA	2000-10-17	2001-02-05	Friendly	Strategic	Stock	ENEL
SAMAS	2000-11-16	2000-12-22	Friendly	Strategic	Stock	AIRESIS 'R'
ABBEY NATIONAL	2000-12-12	2001-07-10	Hostile	Strategic	Hybrid	ENEL
SULZER 'R'	2001-02-19	2001-04-26	Friendly	Strategic	Stock	SFS GROUP
SWEDBANK 'A'	2001-02-22	2001-09-19	Friendly	Strategic	Cash	DANSKE BANK
ADOLFO DOMINGUEZ	2001-03-14	2001-04-17	Hostile	Strategic	Hybrid	LIWE ESPANOLA LIMITED DATA
SWISS PRIME SITE	2001-04-17	2001-12-31	Friendly	Strategic	Cash	PSP SWISS PROPERTY AG
ALTIN 'B'	2001-05-14	2001-07-18	Friendly	Strategic	Stock	AIRESIS 'R'
STOREBRAND	2001-05-21	2001-10-01	Friendly	Strategic	Stock	SAMPO 'A'
BAUMGARTNER 'R'	2001-06-07	2002-02-25	Friendly	Strategic	Hybrid	AIRESIS 'R'
HIGHLIGHT COMMS.	2001-07-20	2001-08-24	Friendly	Strategic	Stock	EDEL
TBI DEAD	2001-08-15	2001-09-25	Hostile	Strategic	Cash	PREMIER OIL
KEMIRA	2001-08-31	2001-12-03	Friendly	Strategic	Hybrid	SAMPO 'A'
PAGED	2001-09-03	2002-06-19	Hostile	Strategic	Stock	PREMIER OIL
AF 'B'	2001-09-24	2001-10-31	Hostile	Strategic	Cash	MOUNTVIEW ESTATES
ALPHA BANK	2001-11-01	2002-01-19	Friendly	Strategic	Stock	EUROBANK ERGASIAS
BIOLIN SCIENTIFIC	2001-12-28	2002-03-11	Friendly	Strategic	Cash	REVENIO GROUP
BETER BED HOLDING	2002-02-05	2002-03-21	Friendly	Strategic	Stock	PAGEGROUP
LAROX 'B'	2002-02-11	2002-04-10	Hostile	Strategic	Cash	MOUNTVIEW ESTATES
BETA SYSTEMS SOFTWARE	2002-02-18	2002-04-11	Friendly	Strategic	Cash	STATPRO GROUP
HOTELS DEAUVILLE DEAD	2002-06-04	2003-04-17	Hostile	Strategic	Cash	UNICREDIT
SC.FME.DU_CNO.DE_CANNES	2002-06-04	2003-04-17	Friendly	Strategic	Hybrid	SOLVAY
CGBI	2002-08-08	2003-06-02	Friendly	Financial	Stock	STATOIL
MARZOTTO	2002-09-07	2002-10-30	Friendly	Strategic	Stock	ORANGE POLSKA
METROVACESA	2003-01-22	2003-04-21	Friendly	Strategic	Cash	INMOBILIARIA COLONIAL
SAVILE GROUP	2003-02-05	2003-04-02	Friendly	Strategic	Stock	PAGEGROUP
AWG	2003-02-10	2003-06-11	Friendly	Strategic	Cash	LVENTURE GROUP
PRIMA INDUSTRIE	2003-02-11	2003-04-11	Hostile	Strategic	Cash	STARRAG GROUP HOLDING
GETRONICS	2003-02-12	2003-03-27	Friendly	Strategic	Stock	ORANGE POLSKA
COLONIA REAL ESTATE	2003-03-04	2003-12-01	Hostile	Strategic	Cash	MOUNTVIEW ESTATES
IBERDROLA	2003-03-10	2003-05-05	Friendly	Strategic	Stock	ENDESA
DEO PETROLEUM	2003-08-04	2003-09-17	Friendly	Strategic	Cash	PREMIER OIL
AUTANIA	2003-09-17	2004-03-30	Friendly	Strategic	Cash	DANSKE BANK
HITT NM	2003-10-29	2004-01-21	Friendly	Strategic	Hybrid	CASH MEDIEN
EVS BROADCAST EQUIPMENT	2003-10-30	2003-12-23	Hostile	Strategic	Hybrid	BRUNEL INTL.
DERWENT LONDON	2003-11-24	2004-01-12	Friendly	Strategic	Cash	SHAFTESBURY
BERLINER EFFTG.	2003-12-12	2004-01-31	Friendly	Strategic	Hybrid	BANCA PROFILO
THE NATIVE	2004-01-19	2004-05-14	Friendly	Strategic	Cash	DEVOTEAM
ULMA CONSTR.POLSKA	2004-03-26	2004-06-30	Friendly	Strategic	Cash	AWBUD
EESTI TELEKOMI	2004-04-14	2004-06-10	Friendly	Strategic	Cash	TELENOR

READCREST CAPITAL	2004-07-01	2004-09-06	Friendly	Financial	Cash	CASH MEDIEN
C ROKAS CR	2004-07-26	2004-10-11	Friendly	Strategic	Cash	SFS GROUP
NTT COM SECURITY	2004-07-29	2004-12-06	Friendly	Strategic	Cash	LEROY SEAFOOD GROUP
FORBO 'R'	2004-11-11	2005-04-06	Friendly	Strategic	Stock	NOBIA
RENSBURG SHEPPARDS	2005-01-14	2005-04-07	Friendly	Strategic	Hybrid	INVESTEC
TISCON	2005-02-17	2005-03-24	Friendly	Strategic	Cash	VIDELIO
CIE AUTOMOTIVE	2005-06-07	2005-12-31	Friendly	Strategic	Stock	GREIFFENBERGER
FIDIA	2005-06-07	2005-09-08	Friendly	Strategic	Hybrid	GREIFFENBERGER
BANK BPH	2005-06-12	2006-03-03	Hostile	Strategic	Cash	BANK POLSKA KASA OPIEKI
MARINE HARVEST	2005-06-22	2005-08-01	Friendly	Strategic	Cash	LEROY SEAFOOD GROUP
UNIPETROL	2005-07-01	2005-12-31	Friendly	Financial	Cash	STATOIL
ALBIOMA	2005-07-13	2005-09-06	Friendly	Strategic	Stock	SCHNEIDER ELECTRIC SE
JUTRZENKA	2005-08-02	2005-09-07	Friendly	Strategic	Cash	ABERTIS INFRAESTRUCTURAS
ENDESA	2005-09-05	2007-02-01	Friendly	Strategic	Cash	GAS NATURAL SDG
BOS	2005-09-08	2005-11-29	Friendly	Strategic	Stock	JCDECAUX
PROSIEBENSAT 1 MEDIA	2005-09-16	2006-02-01	Friendly	Strategic	Cash	JCDECAUX
IBERSOL - SGPS	2005-10-18	2005-12-08	Hostile	Strategic	Hybrid	FULLER SMITH & TURNR.
DADA	2005-11-11	2006-01-20	Friendly	Strategic	Cash	VOLVO 'B'
CAMAIEU	2006-01-12	2007-03-22	Friendly	Strategic	Stock	BOSS (HUGO)
PHAROL SGPS	2006-02-06	2007-03-02	Friendly	Strategic	Cash	ORANGE POLSKA
LOOKERS	2006-03-09	2006-04-27	Friendly	Strategic	Cash	HALFORDS GROUP
BANCO BPI	2006-03-13	2007-05-04	Hostile	Strategic	Cash	BANCA PPO.DI SONDRIO
ATLANTIA	2006-04-23	2006-12-13	Hostile	Strategic	Cash	ABERTIS INFRAESTRUCTURAS
SOTKAMO SILVER	2006-05-12	2006-06-23	Hostile	Strategic	Stock	HIGHLAND GOLD MINING
WESTGRUND	2006-06-02	2006-08-10	Friendly	Strategic	Cash	LAMDA DEVELOPMENT
WILMINGTON	2006-06-26	2006-08-21	Friendly	Strategic	Stock	CENTAUR MEDIA
ERG RENEW	2006-06-28	2006-08-03	Friendly	Strategic	Cash	HELLENIC BANK
DANUBIUS HOTEL & SPA	2006-08-08	2006-12-31	Friendly	Strategic	Cash	IMI PLC
SCANIA 'B' (OTC)	2006-09-17	2007-01-24	Friendly	Strategic	Cash	VOLVO 'B'
RIEBER & SON	2006-11-23	2006-12-29	Hostile	Strategic	Hybrid	ASSOCIATED BRIT.FOODS
MARFIN POPULAR	2007-01-11	2007-03-06	Friendly	Strategic	Cash	IPSOS
BANK OF CYPRUS	2007-01-12	2007-03-06	Friendly	Financial	Hybrid	HELLENIC BANK
REPOWER SYSTEMS (OTC)	2007-01-22	2007-05-24	Friendly	Strategic	Cash	DEBENHAMS
A I S	2007-01-22	2007-04-04	Friendly	Strategic	Cash	LAMDA DEVELOPMENT
CYTRUSTEES INVESTMENTS	2007-02-02	2007-04-27	Hostile	Strategic	Hybrid	ZCCM INVESTMENTS HDG.
SARTORIUS STEDIM BIOTECH	2007-02-22	2007-07-27	Friendly	Strategic	Stock	GREIFFENBERGER
VARTEKS	2007-02-26	2007-12-30	Friendly	Strategic	Stock	CONCORDIA MARITIME 'B'
BODYCOTE	2007-03-02	2007-04-27	Friendly	Strategic	Cash	IMI PLC
IRISH CONT.GP.UNT.	2007-03-08	2007-09-26	Friendly	Strategic	Cash	CONCORDIA MARITIME 'B'
IBS	2007-04-04	2007-06-21	Hostile	Strategic	Hybrid	POLSKI KONCERN (LON) NAFTOWY GDR
EIFFAGE	2007-04-19	2008-04-09	Hostile	Strategic	Cash	BOUYGUES
BPER BANCA	2007-05-20	2007-06-28	Friendly	Strategic	Cash	CREDITO EMILIANO

ATLANTIC 2 BERENICE	2007-05-22	2007-07-09	Friendly	Strategic	Cash	BAADER BANK
SAVE-AEP.DI VNZ.MRC.POLO	2007-06-13	2007-07-20	Friendly	Strategic	Stock	BOSS (HUGO)
BANCA PROFILO	2007-07-25	2008-01-22	Friendly	Strategic	Cash	BAADER BANK
MOL MAGYAR OLAJ-ES GAZIPARI	2007-09-25	2008-08-06	Friendly	Strategic	Cash	POLSKI KONCERN (LON) NAFTOWY GDR
CARPETRIGHT	2007-10-09	2007-12-21	Friendly	Strategic	Cash	DEBENHAMS
DAVENHAM GROUP	2007-10-25	2008-01-14	Friendly	Strategic	Cash	WORLDSPREADS GROUP
BANCO COMR.PORTUGUES 'R'	2007-10-25	2007-11-26	Hostile	Strategic	Cash	BANKINTER 'R'
IMPLENIA 'R'	2007-11-02	2008-03-28	Friendly	Strategic	Cash	ALLREAL HOLDING
BRODRENE AO JHAE.PREF.	2007-11-07	2008-05-14	Friendly	Strategic	Cash	CNTEE TRANSELECTRICA
NEWBURY RACECOURSE	2007-11-14	2008-02-05	Friendly	Strategic	Stock	SNOWWORLD
KUBANENERGO	2007-12-25	2008-06-05	Friendly	Strategic	Cash	CNTEE TRANSELECTRICA
SIGMA B	2008-03-27	2008-06-12	Friendly	Strategic	Stock	FULLER SMITH & TURNR.
STYLES & WOOD GROUP	2008-04-16	2008-05-23	Friendly	Strategic	Cash	SODIFRANCE
GFK	2008-04-29	2008-07-09	Hostile	Financial	Cash	IPSOS
CISION	2008-04-30	2008-06-23	Hostile	Strategic	Cash	IPSOS
VALUE8	2008-06-06	2008-12-31	Friendly	Strategic	Stock	CATELLA 'B'
DGB GROUP	2008-06-14	2008-09-06	Friendly	Strategic	Cash	BARCLAYS
QUADRA POWER GENERATION	2008-07-30	2008-10-13	Friendly	Strategic	Cash	FLUGHAFEN ZURICH
LONMIN	2008-08-06	2008-10-01	Friendly	Strategic	Hybrid	METALS EXPLORATION
AER LINGUS GROUP	2008-12-01	2009-01-28	Friendly	Strategic	Stock	RYANAIR HOLDINGS
ORIGIO	2009-01-14	2009-03-30	Hostile	Strategic	Cash	VITROLIFE
LLOYDS BANKING GROUP	2009-03-09	2009-11-03	Friendly	Strategic	Stock	BARCLAYS
PILAT MEDIA GLOBAL	2009-03-19	2009-05-19	Friendly	Financial	Stock	SODIFRANCE
RESBUD	2009-04-01	2012-03-05	Friendly	Strategic	Hybrid	SODIFRANCE
LUDWIG BECK	2009-05-06	2010-12-27	Friendly	Strategic	Cash	STOCKMANN 'B'
M & C	2009-06-08	2009-09-15	Friendly	Strategic	Cash	HUNTSWORTH
NATIONAL EXPRESS GP.	2009-09-03	2009-10-16	Friendly	Strategic	Cash	FLUGHAFEN ZURICH
TRADING EMISSIONS	2009-12-17	2010-02-19	Hostile	Strategic	Cash	ELECTRA PRIVATE EQUITY
VOLGA TGC	2010-01-13	2010-06-30	Hostile	Strategic	Cash	SERICA ENERGY
JACQUET METAL SCE	2010-02-03	2010-03-10	Friendly	Strategic	Cash	IRONVELD
F&C COML.PROPERTY TRUST	2010-04-23	2010-08-09	Friendly	Strategic	Stock	S IMMO
INTEROIL EXP.& PRDN.	2010-07-02	2010-08-03	Friendly	Strategic	Stock	CADOGAN PETROLEUM
AKVA GROUP	2011-06-23	2011-08-19	Friendly	Financial	Cash	DISKUS WERKE
EUROBANK ERGASIAS	2011-08-29	2012-05-22	Friendly	Strategic	Hybrid	NATIONAL BK.OF GREECE
NEWRON PHARMACEUTICALS	2011-09-27	2011-10-28	Friendly	Strategic	Cash	HANSA MEDICAL
TEMENOS GROUP	2012-02-07	2012-03-12	Friendly	Strategic	Stock	ATOS
3W POWER	2012-02-22	2012-04-11	Friendly	Strategic	Cash	EXCEET GROUP
AUDAX RENOVABLES	2012-04-13	2012-08-01	Friendly	Strategic	Cash	SOLARIA ENERGIA Y MEDIO AMBIENTE
RHOEN-KLINIKUM	2012-04-26	2012-09-03	Friendly	Strategic	Stock	STRAUMANN HLDG.
PULAWY	2012-06-18	2012-08-07	Friendly	Strategic	Cash	KLOECKNER & CO
EASY SOFTWARE	2012-07-03	2012-08-27	Friendly	Strategic	Cash	SINNERSCHRADER
ARTNET	2012-09-03	2012-10-04	Friendly	Strategic	Cash	AOVO TOURISTIK

BRITVIC	2012-11-14	2013-07-11	Friendly	Strategic	Cash	REMY COINTREAU
DOGUSAN	2012-11-23	2013-04-12	Friendly	Strategic	Cash	LAFARGEHOLCIM
NOTE	2012-12-03	2013-01-23	Friendly	Strategic	Cash	CICOR TECHNOLOGIES
SELONDA AQUACULTURE	2013-04-05	2014-01-21	Friendly	Strategic	Stock	SAPMER
SCHMOLZ+BICKENBACH	2013-07-12	2013-12-31	Friendly	Strategic	Stock	KLOECKNER & CO
AANNEMINGSMAATSCHAP PIJ CFE	2013-09-19	2014-03-05	Friendly	Strategic	Stock	BOSKALIS WESTMINSTER
METSO	2014-04-01	2014-05-28	Friendly	Strategic	Cash	KONECRANES
ATM 'H'	2014-04-11	2014-06-18	Friendly	Strategic	Cash	BETACOM
TOUR EIFFEL	2014-06-05	2014-07-09	Friendly	Strategic	Cash	GREAT PORTLAND ESTATES
IOMART GROUP	2014-07-24	2014-09-15	Friendly	Strategic	Cash	NCC GROUP
PHAROL SGPS	2014-11-07	2014-12-08	Friendly	Strategic	Cash	ORANGE POLSKA

Appendix B. Specifications on control firms used more than once

Control firm	Number of times used
Tottenham	4
Solvay	2
EUROBANK ERGASIAS	3
ING GROEP	5
UNICREDIT	2
SAMPO 'A'	4
AIRESIS 'R'	4
RESTAURANT GROUP	3
PREMIER OIL	5
HEINEKEN	2
CONCORDIA MARITIME 'B'	3
BP	2
BALKAN REAL ESTATE	2
STAGECOACH GROUP	2
BOUYGUES	2
LVENTURE GROUP	3
ITV	2
REVENIO GROUP	2
DANSKE BANK	3
GREIFFENBERGER	4
ENEL	2
SFS GROUP	2
MOUNTVIEW ESTATES	2
PAGEGROUP	2
ORANGE POLSKA	4
STATOIL	2
CASH MEDIEN	2
LEROY SEAFOOD GROUP	2
ABERTIS INFRAESTRUCTURAS	2
JCDECAUX	2
FULLER SMITH & TURNR.	2
VOLVO 'B'	2
BOSS (HUGO)	2
HELLENIC BANK	2
IMI PLC	2
IPSOS	3
DEBENHAMS	2
POLSKI KONCERN (LON) NAFTOWY GDR	2
BAADER BANK	2
CNTEE TRANSELECTRICA	2
SODIFRANCE	3
BARCLAYS	2
FLUGHAFEN ZURICH	2
KLOECKNER & CO	2

Appendix C. Categorizations of terminated bids

Type of Bid	Number of M&As	Percentage
Friendly Strategic	136	94 %
Friendly Financial	8	6 %
Total	**144**	**100 %**
Hostile Strategic	30	97 %
Hostile Financial	1	3 %
Total	**31**	**100 %**
Friendly Strategic Hybrid	16	12 %
Friendly Strategic Cash	76	56 %
Friendly Strategic Common Stock	44	32 %
Total	**136**	**100 %**
Friendly Financial Hybrid	1	11 %
Friendly Financial Cash	5	67 %
Friendly Financial Common Stock	2	22 %
Total	**8**	**100 %**
Hostile Strategic Hybrid	8	27 %
Hostile Strategic Cash	19	63 %
Hostile Strategic Common Stock	3	10 %
Total	**30**	**100 %**
Hostile Financial Hybrid	0	0 %
Hostile Financial Cash	1	1 %
Hostile Financial Common Stock	0	0 %
Total	**1**	**100 %**

Appendix D. Regression models for full sample, log

Regression 1: Long-Term log BHAR $t_1(1)$

Dependent Variable: Long-term log BHAR $t_1(1)$
Method: Least Squares
Date: 05/16/18 Time: 17:19
Sample: 1 175
Included observations: 167

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.023113	0.316182	-0.073099	0.9418
NATURE_OF_BID01	-0.035696	0.133042	-0.268306	0.7888
TYPE_OF_BID01	-0.085618	0.242126	-0.353609	0.7241
PAYMENT_TYPE01	0.000662	0.071600	0.009249	0.9926

R-squared	0.001169	Mean dependent var	-0.132085
Adjusted R-squared	-0.017214	S.D. dependent var	0.662035
S.E. of regression	0.667709	Akaike info criterion	2.053732
Sum squared resid	72.67112	Schwarz criterion	2.128414
Log likelihood	-167.4866	Hannan-Quinn criter.	2.084044
F-statistic	0.063596	Durbin-Watson stat	1.955093
Prob(F-statistic)	0.978988		

Regression 2: Long-Term log BHAR $t_1(2)$

Dependent Variable: Long-term log BHAR $t_1(2)$
Method: Least Squares
Date: 05/16/18 Time: 17:19
Sample: 1 175
Included observations: 169

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.029123	0.345054	0.084403	0.9328
NATURE_OF_BID01	0.011448	0.145495	0.078682	0.9374
TYPE_OF_BID01	-0.073173	0.262086	-0.279195	0.7804
PAYMENT_TYPE01	-0.017164	0.075730	-0.226652	0.8210

R-squared	0.000778	Mean dependent var	-0.072812
Adjusted R-squared	-0.017390	S.D. dependent var	0.715728
S.E. of regression	0.721924	Akaike info criterion	2.209591
Sum squared resid	85.99379	Schwarz criterion	2.283671
Log likelihood	-182.7104	Hannan-Quinn criter.	2.239654
F-statistic	0.042821	Durbin-Watson stat	2.259628
Prob(F-statistic)	0.988170		

Regression 3: Long-Term log BHAR $t_1(3)$

Dependent Variable: Long-term log BHAR $t_1(3)$
Method: Least Squares
Date: 05/16/18 Time: 17:20
Sample: 1 175
Included observations: 164

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.442353	0.413333	1.070210	0.2861
NATURE_OF_BID01	-0.095338	0.185844	-0.513001	0.6087
TYPE_OF_BID01	-0.277646	0.307053	-0.904229	0.3672
PAYMENT_TYPE01	-0.063752	0.094741	-0.672909	0.5020

R-squared	0.009152	Mean dependent var	-0.052278
Adjusted R-squared	-0.009427	S.D. dependent var	0.889652
S.E. of regression	0.893836	Akaike info criterion	2.637499
Sum squared resid	127.8308	Schwarz criterion	2.713105
Log likelihood	-212.2749	Hannan-Quinn criter.	2.668192
F-statistic	0.492590	Durbin-Watson stat	1.889509
Prob(F-statistic)	0.687920		

Regression 4: Short-Term log BHAR $t_2(1)$

Dependent Variable: Short-term log BHAR $t_2(1)$
Method: Least Squares
Date: 05/16/18 Time: 17:20
Sample: 1 175
Included observations: 175

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.072511	0.179855	0.403162	0.6873
NATURE_OF_BID01	0.132264	0.077824	1.699522	0.0910
TYPE_OF_BID01	-0.129157	0.134565	-0.959809	0.3385
PAYMENT_TYPE01	0.015427	0.040757	0.378504	0.7055

R-squared	0.023759	Mean dependent var	0.096384
Adjusted R-squared	0.006632	S.D. dependent var	0.393890
S.E. of regression	0.392582	Akaike info criterion	0.990448
Sum squared resid	26.35459	Schwarz criterion	1.062786
Log likelihood	-82.66419	Hannan-Quinn criter.	1.019790
F-statistic	1.387250	Durbin-Watson stat	2.082097
Prob(F-statistic)	0.248394		

Regression 5: Short-Term log BHAR $t_2(2)$

Dependent Variable: Short-term log BHAR $t_2(2)$
Method: Least Squares
Date: 05/16/18 Time: 17:21
Sample: 1 175
Included observations: 173

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.034334	0.223375	-0.153704	0.8780
NATURE_OF_BID01	0.070557	0.098024	0.719800	0.4726
TYPE_OF_BID01	-0.051761	0.167097	-0.309764	0.7571
PAYMENT_TYPE01	0.036936	0.050759	0.727682	0.4678

R-squared	0.007203	Mean dependent var	0.064806
Adjusted R-squared	-0.010421	S.D. dependent var	0.484850
S.E. of regression	0.487370	Akaike info criterion	1.423263
Sum squared resid	40.14247	Schwarz criterion	1.496172
Log likelihood	-119.1123	Hannan-Quinn criter.	1.452842
F-statistic	0.408700	Durbin-Watson stat	2.010450
Prob(F-statistic)	0.746949		