

Why do Financial Buyers Pay a Smaller Premium Compared to Operating Buyers?

- A Study on European Buyouts

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Abstract

In this thesis, we investigate if there is a difference in premium paid in buyouts by financial and operating buyers and if this potential difference can be explained by differences in post-buyout operating performance. In a large sample of 1,058 buyouts from European stock exchanges between 1997 and 2012 we find that financial buyers pay 9 percentage points less than operating buyers, after controlling for a set of target and deal characteristics. The difference in premium is higher, however not as significant, in a sub-sample of 80 Swedish buyouts. Comparing pre and post-buyout accounting data for a smaller sub-sample of 19 Swedish buyouts, we find no evidence of differences in operating performance between targets of financial and operating buyers. Hence, we are unable to explain the difference in premium with differences in post-buyout operating performance. In contrast to economic intuition, the results suggest that there is a negative relation between the premium paid and the operating performance of the target post buyout.

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1 Introduction

Over the last few decades, private equity firms have changed the market for mergers and acquisitions. However, it is only in the recent years that the difference in transaction premium between private equity firms and operating buyers has gained attention from researchers.

Recent empirical evidence has shown that private equity firms pay a significantly lower premium compared to other firms (Bargeron et al. (2008); Roosenboom et al. (2009)). A close-at-hand explanation to this is that private equity firms do not gain from synergies as companies in related mergers. On the other hand, there is strong evidence that private equity firms are able to significantly improve industry-adjusted operating performance of the bought out companies (Bergström et al. (2007)).

An interesting question, which is somewhat unexplored in previous literature, is whether the higher premium paid by strategic buyers can be motivated by real economic value creation. Basic valuation theory suggests that the present value of all future cash flows should be equal to the value of the company today. This means that one should expect to find a positive relation between the premium paid and the operating performance following the buyout.

The purpose of this thesis is to examine whether there are any differences in the premium paid in buyouts depending on the type of buyer, controlling for a set of target and deal-specific characteristics. More specifically, using a sample of 1,058 European buyouts between 1997 and 2012, we investigate if financial buyers, comprising private equity firms and private investor groups, pay an economically lower transaction premium compared to operating buyers.

Furthermore, using a sub-sample of Swedish transactions, we aim to investigate whether the potential difference in premium can be motivated by differences in value creation after the transaction. We do this by studying differences in post-buyout operating performance in a sub-sample of 19 Swedish buyouts.

This leads us to the following research questions:

1. Do financial buyers pay a lower premium in buyouts compared to operating buyers?
2. Can differences in operating performance post transaction explain any potential difference in premium between financial and operating buyers?
3. Is the premium paid correlated with the operating performance post buyout?

The thesis will be structured as follows: section 2 presents relevant theories and previous studies. Our hypotheses are outlined in section 3. The methods and different model specifications that are used to test the hypotheses are presented in section 4. Section 5 describes the dataset and section 6 outlines the results. A discussion regarding the implications of our result and the limitations to our study follows in section 7. Section 8 concludes.

1.1 Delimitation and definitions

This study is limited to buyouts from European stock exchanges. The previous research on the topic of premium difference between financial and operating buyers mainly focus on US data (Bargeron et al. (2008); Roosenboom et al. (2009)), and there is less evidence regarding European data. Moreover, looking at European data allows us to study the operating performance of the target post transaction for a sub-sample of Swedish buyouts, as the firm specific data generally is publicly available in Sweden. The time period is limited to 1997 to 2012 due to limitations in the databases used.

Buyout. In this thesis, we define buyout as a transaction in which the target before the transaction is listed on a European stock exchange and as a result of the transaction is delisted. Further requirements are that the stake acquired is at least 50 percent and that the final stake is 100 percent.

Financial and operating buyers. A financial buyer is either a private equity firm or a group of private investors. The reason for including the latter is that it allows us to study a larger sample of transactions, and Bargeron et al. (2008) find no difference in the results when including these together with the private equity firms. An operating buyer is as defined as a firm not belonging to either of the two groups, private equity firm or private investor group. Some previous studies use the concept of strategic buyer, as opposed to operating buyer. However, as a strategic buyer commonly is seen as a company that specifically aims to acquire companies for synergy gains, we use the broader term operating buyer. In other words, our definition implies that we incorporate buyouts carried out by conglomerate firms. In both groups of buyers, there are a number of listed firms. Since previous research has found significant difference between the premium paid by public and private companies, we will, as a robustness test, adjust the groups to include only private firms. These two groups will be denoted private financial buyers and private operating buyers.

Samples. The main sample used in this study is a sample of 1,058 European buyouts between 1997 and 2012 (henceforth “European sample”). The sample consists of 808 buyouts with operating buyers and 250 buyouts with financial buyers. In addition to that, we will study two Swedish sub-samples. The first sub-sample consists of the 80 Swedish buyouts included in the European sample (henceforth “Large Swedish sub-sample”). The second sub-sample is a sub-sample of the Large Swedish sub-sample, consisting of 19 buyouts for which target accounting data is available pre and post buyout (henceforth “Small Swedish sub-sample”).

2 Theoretical and empirical foundation

In this section we will present theories and empirical findings from previous literature. Firstly, we outline the theoretical ideas and empirical results relevant for the first section of our study, i.e. differences in the bidding behavior and rationales for carrying out acquisitions between financial and operating buyers. Secondly, we review the theory and results related to operational value creation of financial and operating buyers.

2.1 Premium in Buyouts and Buyer Identity

2.1.1 Measurements of premium

There are several different methods to calculate the transaction premium. The two main categories used in previous studies are 1) cumulative abnormal return (CAR) measures and 2) ratios of the bid price to the share price before the announcement, using either the price at a specific date or the average over some period (henceforth “simple premium”).

Schwert (1996) argues that the former of these two method is advantageous in some respects, as it incorporates the effect of any changes to the offer price that might occur after the first bid has been placed. Also, when using this measure as proxy of the premium, one can eliminate any potential effect from differences in the takeover contests between financial and operating buyers. Barger et al. (2008) apply this method, looking primarily at the size and book-to-market portfolio-adjusted buy-and-hold abnormal returns from 42 days prior to the first bid to the completion, using Fama-French size and book-to-market portfolios. They obtain similar results when using market-model CAR measures.

There are several issues with using CAR measure to estimate the premium paid. Strong (1992) emphasizes that misspecifications of the benchmark when calculating CARs might lead to spurious inferences. Another negative aspect of looking at CAR is that the measure is affected by the public’s view regarding the probability that the transaction will succeed (Roosenboom et al. (2009); Hutson and Mahony (2008)).

Other studies (Roosenboom et al. (2009); Rustige and Grote (2011)) look at the simple premium. The former uses the bid price divided by the share price eight weeks and four weeks prior to the announcement day as measures of the premium, and the latter uses the bid price divided by the average share price between 30 days and 10 days prior to the announcement.

Negative aspects of using a shorter time period to estimate premiums, for both CARs and simple premiums, is that it the measure will not take into account any potential pre-bid run-up due to leaked or released information. King (2009) studies 399 public takeovers in Canada and finds evidence of the existence of illegal insider trading and abnormal returns prior to the an-

nouncements. Boone and Mulherin (2011) find that the takeover process differs between private equity firms and other buyers, and hence conclude that a longer event window is preferable when studying differences across different types of bidders.

2.1.2 Studies of premium paid in buyouts

Previous studies investigating the difference in premium paid by operating buyers compared to financial buyers mainly focus on the US market, and the area is somewhat unexplored in Europe. The most relevant studies are Bargaron et al. (2008) and Roosenboom et al. (2009).

Bargaron et al. (2008) examine the differences in bidding behavior between public firms, private operating firms and private equity firms on the US market during the years 1980–2005. They outline two reasons for why premiums could depend on whether the firm is listed or not. Firstly, they argue that a failure of an offer can lead to more severe consequences for managers of public companies compared to for managers of private companies, for instance due to the fact that the former has to reveal more information in the process of acquiring another company. Secondly, they argue that agency problems might be more severe in public firms.

When studying the difference in premium between private equity firms and private operating companies, Bargaron et al. (2008) find that the former in general pay less than the latter. However, the result is a bit ambiguous since it depends on the specific measure of premium used. Studying the time period from pre-announcement run-up to completion, they find a significant difference, while the difference is insignificant when employing a 3-day announcement return as measure of premium.

Roosenboom et al. (2009) study the US market during the years 1997–2006 and use a matching technique where they for each private equity transaction search for a “similar” takeover by a strategic buyer. They find that the differences in premiums between private equity versus strategic buyers accrue only for the case of informal auctions. Gorbenko (2009) studies the US market during the years 2000–2008. They use a somewhat different approach compared to previous studies and look at all bids in the sales process, not only the final outcome. The study finds that valuations of financial bidders are affected more by aggregate economic conditions. More precisely, Gorbenko (2009) finds that a lower cost of debt is associated with higher valuations of financial, but not strategic, bidders. Hutson and Mahony (2008) study the premium paid in 114 buyouts carried out by private equity firms and public firms in the US between 2004 and 2007. They find evidence that the premium paid is lower in buyouts where the buyer is a private equity firm, but, however, mention that the evidence is rather weak.

Overall, previous studies indicate that financial buyers on average pay a lower premium compared to operating buyers and there is no consensus regarding the underlying reason for this discrepancy.

2.1.3 Potential explanations to the difference in premium

Previous studies offer a range of possible explanation to the occurrence of a difference in premium between financial and operating buyers. We categorize these into three groups: target characteristics, deal characteristics (defined as characteristics not attributed to the target) and value creation (as mentioned in the introduction, basic valuation theory suggests that the present value of all future cash flows should be equal to the value of the company today). The second section of this paper, the study on the small Swedish sub-sample, aims to investigate the last of these categories, value creation.

Target characteristics

One potential explanation to the fact that financial and operating buyers on average pay different premiums can be related to the fact that the two types of buyers simply buy different types of companies. Several studies (Bargeron et al. (2008); Roosenboom et al. (2009); Hutson and Mahony (2008)) have found evidence that this is the case, but with varying significance of the results. Bargeron et al. (2008) show that private equity firms acquire larger firms in terms of market value of equity and firms with a higher ratio of operating cash flow to assets. However, as to our best knowledge, no previous paper has been able to explain the difference in premium using only differences in the characteristics of the target companies.

Deal characteristics

Roosenboom et al. (2009), as mentioned earlier, find that deal and target characteristics are unable to explain the difference in premium between private equity firms and strategic buyers. Instead, they propose that the type of sale process might explain the difference, with the main argument that managers with superior information structure the sale process as to best fit the given company. By categorizing the sale process as private negotiation, informal auction or control auction, they show that the difference in premium exists only in informal auctions. They further argue that different types of targets attract different types of sale processes. For instance, it is more probable that the sales process will be a controlled auction when the target has experienced superior performance but lower market to book ratio.

There are several factors related to the organization structure and corporate governance of the acquirer that has been suggested as partial explanations to the difference in premium. Bargeron et al. (2008) find evidence that the level of managerial ownership in the bidder partly explains differences in premiums between different types of buyers. Comparing buyouts by private equity firms with buyouts by public firms, they find no significant difference in the premium when the managers of the public company have high ownership stakes in the firm.

In contrast, Hutson and Mahony (2008) find that managerial ownership in public companies cannot explain the higher premium paid by strategic buyers. In fact, they find that the relation between management ownership and premium is positive.

Value creation

The previous literature have mainly focused on value creation of private equity firms and operating buyers separately, and there is limited research directly related to the difference between the two types of firms in terms of operating performance in a buyout-setting. However, there is a vast literature covering value creation and deal rationales for the two types of buyers separately. The main source of value creation for strategic buyers is commonly stated to be synergies, whereas there is no consensus regarding the main source of the value creation by private equity firms.

2.2 Value creation

2.2.1 Value creation by strategic buyers

One of the most commonly mentioned rationales for M&A is synergies, i.e. the idea that the value of two companies combined is higher than the value of the two companies on a stand-alone basis. A vast literature argues that synergies are one of the main drivers for M&A activity (e.g. Kerler, 2000). Synergies can broadly be categorized into three types; operating, financial and tax synergies. Operating synergies can further be divided into two sub-categories; revenue synergies (soft synergies) and cost synergies (hard synergies) (Gaughan, 2002). A possible explanation for the difference in premium is hence that strategic buyers on average expect a relatively higher value creation after the transaction compared to financial buyers due to the existence of synergies. Barger et al. (2008) find that private operating companies pay less than public companies in the majority of their tests, but that this difference is much smaller than the difference between private equity and public companies. Hence, they argue that there is evidence that strategic buyers pay more since they expect to gain from synergies.

Healy et al. (1992) study the post-buyout operating performance looking at a sample including the 50 largest mergers between public firms in the US between 1979 and 1983. The study finds that the industry adjusted asset productivity increases significantly after the merger. This is in line with the findings of Andrade et al. (2001), who study a sample of US buyouts during the period 1973 to 1998 and find evidence of significantly improved operating performance post merger. However, there are studies that find no significant improvements in operating performance post transaction (Ravenscraft and Scherer (1987); Herman and Lowenstein (1988)).

2.2.2 Value creation by financial buyers

Phases of the value generation process

Berg and Gottschalg (2003) distinguishes between three phases in the value generation process of private equity firms: the acquisition phase, holding period and divestment phase. The acquisition phase incorporates negotiation and due diligence and lastly decisions regarding the offer price and structure of the buyout. The various value creating actions, in terms of operational improvements, takes place during the succeeding holding period. The last phase, the divestment phase, involves an exit.

Types of value generation

Berg and Gottschalg (2003) further distinguishes between two sources of value generation: value capturing and value creation. The former involves changes of the value of an enterprise in comparison to a given level of operating performance, usually expressed as some multiple, eg. enterprise value divided by EBITDA¹. This type of value generation can thus occur in absence of operating performance improvements. The latter source of value generation, value creation, on the other hand, is related to changes in the operating performance, for instance revenue growth and operating margins. As this study focuses on the value creation, we will elaborate on this type source of value generation in more detail in the next section.

Sources of value creation

Many studies on private equity show that private equity ownership has a positive impact on the value of the target, as operating performance measures improves post buyout compared to control groups of non-buyout firms (Kaplan (1989); Lichtenberg and Siegel (1990); Cressy et al. (2007)). Several recent studies on Scandinavian data confirm these findings (Adler and Norberg (2012); Bergström et al. (2007)).

The value creating actions undertaken by the private equity firms can, according to Kaplan and Strömberg (2009), be categorized as financial engineering, governance engineering, and operational engineering. There are different opinions regarding the main source of value creation by private equity firms. Sudarsanam (2003) argues that financial engineering is the key source of value creation, whereas Kaplan (1989) argues that the greater part of the value improvements can be explained by improved incentive structures, i.e. governance engineering. Berg and Gottschalg (2003) categorize value creation activities into primary and secondary levers. The former has a direct effect on value through improvements of operating performance and the latter

¹Earnings before interest, taxes, depreciation of tangible assets and amortization of intangible assets

affects value indirectly, by having an impact on the primary levers. One important secondary lever is the reduction of agency costs, which does not improve the operating performance per se, but might induce or facilitate it (Berg and Gottschalg (2003)).

2.2.3 Concluding remarks on value creation

Even though there are many studies on value creation by operating and financial buyers, limited attention has been paid to the differences between the two groups. Moreover, previous research covering the connection between the premium paid in a buyout and the post-transaction operating performance is limited. The study by Healy et al. (1992) find evidence that the relation between post-merger operating performance and CAR for the combined firms at the announcement is positive. However, this paper includes only mergers between listed companies.

3 Hypotheses

3.1 Hypotheses regarding the European sample

As outlined in the previous section, studies on the US market indicates that financial buyers pay less than operating buyers. There are no obvious reasons that this should not hold when studying European buyouts. Hence, we hypothesize that the outcome will be in line with previous literature:

Hypothesis 1: Financial buyers pay less than operating buyers, without controlling for target and deal-specific characteristics

Hypothesis 2: Financial buyers and operating buyers acquire different types of firms

Hypothesis 3: Financial buyers pay less than operating buyers, controlling for target and deal-specific characteristics

3.2 Hypotheses regarding the large Swedish sub-sample

There are no obvious reasons for why the above should differ when studying a sub-sample of Swedish buyouts:

Hypothesis 4: Hypothesis 1 is true in the large Swedish sub-sample

Hypothesis 5: Hypothesis 2 is true in the large Swedish sub-sample

Hypothesis 6: Hypothesis 3 is true in the large Swedish sub-sample

3.3 Hypotheses regarding the small Swedish sub-sample

It is possible that the different approaches to value creation of financial and operating buyers described in the previous section lead to differences in the operating performance of the target post buyout. Moreover, according to economic intuition, we expect to find a positive relation between the premium paid and the value created post buyout; a firm should be willing to pay more when the expected economic gain is larger. This relationship is confirmed by Healy et al. (1992), who find a positive relationship between the operating performance post buyout and CAR for the combination of the target and acquirer at the announcement. Based on the above, we expect the following:

Hypothesis 7: The change in operating performance differs depending on the type of buyer

Hypothesis 8: Differences in the change in operating performance (hypothesis 7) can explain the differences in premiums between financial and strategic buyers

Hypothesis 9: The premium paid (independent of buyer type) is positively correlated with operating performance post buyout

4 Method

4.1 Measuring the premium

The premiums are calculated by dividing the bid price with the share price at a certain time before the announcement. The time periods that have been used to calculate the premiums are eight weeks, four weeks, ten days, five days and one day. The main focus will be on the eight and four week premiums, which is in line with Roosenboom et al. (2009), who motivate these time periods with the fact that they should take differences in information disclosure due to different sales processes between the two types of buyers into account. Also, a longer time period is supported by Boone and Mulherin (2011). The eight and four week time periods will be approximated by using the share price respectively 40 and 20 trading days before the announcement day. The premium for the three other time periods, ten, five and one day, will be calculated using the share price the respective number of days before the announcement day.

4.2 Large European sample and large Swedish sub-sample

4.2.1 Univariate comparison

To test the first hypothesis, if there is a significant difference in the premium paid by financial buyers and operating buyers in our sample, a univariate comparison between the mean and median of the premium paid by each group is performed. A two-tailed t-test is used to investigate if the mean of the samples are significantly different from each other and a two-tailed Wilcoxon signed rank test is used for the medians (similar to Bargaron et al. (2008)). Similarly, the target and deal characteristics are compared between the groups using a univariate comparison of the mean and median. This is done to see if they acquire different types of companies (hypothesis two). The tests are performed by comparing 1) all financial buyers with all operating buyers and 2) private financial buyers with private operating firms, i.e. excluding all listed companies². Once again, two-tailed hypothesis tests are used. The division between listed and private companies is applied in the same way as Bargaron et al. (2008), who find significant differences between the two groups.

The method used in the European sample is applied to the large Swedish sub-sample to test hypotheses four, five and six.

²There are 9 listed financial buyers and 182 listed operating buyers in the sample

4.2.2 Multivariate regressions

To explore if the differences in target and deal characteristics can explain the difference in premium between financial and operating buyers, multiple linear regressions are estimated. The dependent variable is the premium and the independent variables are the target and deal characteristics. In specification (1), only a dummy variable indicating if the buyer is financial is used as dependent variable. In specification (2) a dummy variable indicating if the buyer is listed is added. This is done to control for the difference between listed operating firms and private operating firms found by Barger et al. (2008). A dummy variable indicating if the target and acquirer are from the same industry is included in specification (3). This variable is used to test for the impact of potential synergies. Specification (5) includes all the target characteristics and finally, in specification (6) all the variables are included.

We use ordinary least square regressions (OLS) in order to evaluate the following relationships:

$$(1) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \varepsilon_i$$

$$(2) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{Listed}_i + \varepsilon_i$$

$$(3) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{Listed}_i + \beta_3 \times \text{Industry}_i + \varepsilon_i$$

$$(4) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{Listed}_i + \beta_3 \times \text{Industry}_i + \beta_4 \times \text{Foreign}_i + \varepsilon_i$$

$$(5) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{Listed}_i + \beta_3 \times \text{Industry}_i + \beta_4 \times \text{Foreign}_i + \beta_5 \times \text{Target}_i + \varepsilon_i$$

$$(6) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{Listed}_i + \beta_3 \times \text{Industry}_i + \beta_4 \times \text{Foreign}_i + \beta_5 \times \text{Target}_i + \beta_6 \times \text{Deal}_i + \varepsilon_i$$

European sample

The dependent variable in the main regressions is the eight week premium. To control for differences over time and industry, we use year and industry dummies respectively. The industry dummy will be generated by using the first two digits in the primary NACE Rev. 2 classification³ of the target. The reason for using two digits instead of four is to keep the number of dummy variables down to avoid getting more of a firm fixed-effect. Year and industry dummies will be used both in combination and separately. The regressions are estimated using heteroskedasticity robust standard errors. All specifications are also estimated for the four week premium, as can be seen in table 16 in appendix. Summary statistics for the variables used and a correlation table can be found in the appendix.

³A European industry standard classification system developed by the European Commission

Large Swedish sub-sample

Due to limited number of observations no industry dummies are used as the number of observations in each industry would be very low. The regressions are estimated without any dummies at all and with year dummies (see table 17 in appendix). The regressions are also estimated using the four week premium, which can be found in the appendix (see table 18). Summary statistics for the variables used can be found in the appendix.

4.2.3 Robustness

The regressions on the European sample are also estimated with clustered standard errors at a yearly and monthly level, allowing for dependence in the residuals across buyouts in the given time frame. The main regression is also tested using country dummies to take any country-specific effect into account. However, since the results remain largely the same with the different alterations, the tables have been omitted from the results.

4.2.4 Explanatory variables

Target characteristics

Market capitalization, defined as market value in million pounds sterling, is included as a control variable as it might have an impact on the premium paid. Large companies have a smaller number of potential buyers compared to smaller companies, which might reduce the premium. Debt to total assets, calculated as the book value of debt divided by the book value of total assets, is included as the leverage level can affect the company's valuation. A high debt level might be an indication that the company is in, or is close to, distress and has a higher risk of bankruptcy and other financial problems that will reduce the premium a buyer is willing to pay. Low leverage can also affect the company's valuation as a potential buyer can change the capital structure and through this increase the value by adjusting to a more optimal capital structure. This can be done by increasing the debt level or reducing potential cash reserves. The ratio of intangible assets to total assets is also included as a control variable. Intangible assets are interesting to include as they often include unique assets such as brand and patents. These unique assets can be hard to value by the market and can have significant value for potential buyers. Williamson (1988) finds that non-redeployable (intangible) assets usually are financed with equity and redeployable (tangible) assets with debt. This fact might affect the financing of the buyout and hence the premium the buyer is willing to pay.

Operating cash flows-to-total assets is included as a control variable as it can be seen as a proxy for free cash flow which often is a key component in firm valuation. The variable is defined as operating cash flow divided by the book value of total assets.

Excess returns are defined as the market adjusted return for a given stock during the year prior to the transaction, approximated by 252 trading days. The raw returns are adjusted by the main stock index in the country where the target is listed (a full list of the indices used can be found in table 22). Excess return is included as a measure of the attractiveness of the company compared to the market. High excess returns are usually seen in growth companies with high expected future returns or companies in a booming industry. The standard deviation of the stock price of the target during the year prior to the buyout is included as a measure of risk in the company. This could affect the premium as it might reduce the number of interested buyers and the company can be more valuable for an owner that can combine the target with other companies to reduce risk or even out cash-flows over time.

Tobin's Q is calculated as the sum of the market value of debt and equity divided by the sum of the book value of debt and equity, and gives an indication of the ratio between the market value and the replacement value of the assets. When it is used for a single company it is usually simplified to the ratio between the market value of equity and the book value of equity, which is the method used in this study. The reason for this is the trouble of finding the correct market value of debt as it is not as simple to value as a traded stock. Tobin's Q is included as a control variable to reflect how the market is valuing the company's assets; if the ratio is higher than one the market believes that the assets of the company are worth more than the value on the balance sheet, and vice versa. A potential reason for a low Tobin's Q is low expected future growth opportunities. Firms with high cash flows in combination with low future growth opportunities are found by Jensen (1986) to be more likely to have agency problems. Tobin's Q is in this thesis defined as the market value, at the same day used to calculate the premium, divided by the book value of total assets.

Amihud's illiquidity measure is calculated as the daily ratio of absolute stock return to volume, as presented by Amihud (2002), averaged over 1 month (approximated by 21 trading days). The illiquidity measure is included to control for the fact that illiquidity often generates a discount to the premium (Hou and Howell (2012)). Albuquerque and Schroth (2012) present several reasons for why illiquid assets might be sold at a discounted price, such as fire sales and the lack of potential buyers.

As an indicator of growth, we use the compounded annual growth rate (CAGR) of sales during the three years prior to the buyout. This variable is also used in the study by Barger et al. (2008). The growth in sales can both be an indicator of the growth of an individual company, but it can also be a sign of growth in the economy. For the univariate comparison, we include change in employees, calculated in the same manner as growth in sales, as an additional indicator of growth.

Deal characteristics

A number of deal characteristics are used in the analysis. The main control variable is the financial dummy variable that is one if the buyer is a financial firm and zero if it is an operating firm. A dummy variable indicating if the company is listed is also included. The study by Barger et al. (2008) find that there is a significant difference between the premium paid between private operating buyers and public operating buyers. Some studies have found that agency problems might be more severe in public firms compared to private firms (Jensen (1986)). We also include a dummy variable indicating if the acquirer is from the same country as the target. The variable is based on the data on geographic region from the Zephyr database. Previous studies, such as Rustige and Grote (2011), have found that the premium in cross-border acquisitions in Europe is on average 10.4 percentage points higher compared to domestic acquisitions. Deal value in million pounds sterling is included as a control variable. Large transactions have a smaller pool of potential buyers and hence might have problem receiving the same premium as smaller companies.

A dummy variable indicating if the buyout is a management buyout is included as previous studies have found that this has an effect on the premium paid. DeAngelo et al. (1984) find that the average premium in cash going-private proposals on average is higher, compared to other public offers, when management is involved on the buyer side. Due to the limited number of MBOs in the large Swedish sub-sample, this variable is excluded from the analysis on the Swedish sub-sample. Independence indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50 percent according to the Bureau van Dijk Electronic Publishing Ownership Database.

Several bids is a dummy variable that is equal to one if two or more bids are placed in the takeover process. The occurrence of several bids might indicate that there is a takeover contest between different bidders, which might increase the premium. We include a dummy variable indicating whether the bid is hostile or not. Franks and Mayer (1996) argue that management opposition to a bid partly can be explained by the disagreement regarding the bidders' intentions to restructure the company, and that the premium in hostile takeovers on average is higher compared to other public offers.

4.2.5 Outliers

Some of the premiums in the sample show extreme values, these have been double checked with press releases. To reduce the effect of other potential outliers in the variables, they are winsorized on a 99 percent level. For consistency, this is performed on all variables, both explanatory and dependent, before any further analysis.

4.3 Small Swedish sub-sample

The data availability for private companies in Europe in general is very poor and it is therefore difficult to study the operating performance of targets post buyout using the full sample. In contrast, private company data is generally publicly available in Sweden. For this reason, we use the sub-sample of Swedish buyouts in order to investigate hypothesis seven, eight and nine, which all concern the operating performance of the target post buyout.

In this section, we will elaborate on the choice of operating performance measures, the choice of benchmark used to adjust the operating performance measures and the statistical tests used in order to investigate the hypotheses.

We report two different types of results: unadjusted changes in operating performance and changes in operating performance adjusted using the industry median as benchmark. The median-adjusted performance is the most frequently used method when constructing benchmark-adjusted operating measures (Kaplan (1989), Guo et al. (2011)). One important reason for this is that the median, rather than the mean, provides more robustness to extreme observations in the data.

4.3.1 Model specification

Univariate comparison

First, we test for differences in premiums between the two types of buyers to see if the results in the small Swedish sub-sample are in concordance with the results from the European sample and large Swedish sub-sample. We employ two-tailed t-tests for the mean and Wilcoxon signed rank tests for the median.

In order to examine if operating performance post transaction can help explain any potential difference in the premium between the two types of buyers, we investigate whether the operating performance differs between the groups. This is done using the same tests as for the premiums. Barber and Lyon (1996) show that non-parametric tests always are preferable to parametric tests when examining operating performance as they always provide higher statistical power. Therefore, we will put emphasis on the non-parametric tests when evaluating the empirical results.

Multivariate regressions

To investigate if differences in operating performance can help explain any potential difference in the premium between the two types of buyers (hypothesis 8), we will incorporate three operating performance measures, or operating statistics (OPS), in the specification (1) presented earlier:

$$(7) \text{ Premium}_i = \alpha + \beta_1 \times \text{Financial}_i + \beta_2 \times \text{OPS}_i + \varepsilon_i$$

If the difference in premium can be explained by post-buyout operating performance, the coefficient of the financial dummy should be insignificantly different from zero.

Tests on correlation

In order to investigate hypothesis nine, we will perform tests on the correlation between the OPS and the premium. We use two different statistical metrics for measuring correlation: Pearson’s product-moment correlation coefficient and Spearman’s rank correlation coefficient (Sheskin (2004)). The former is a measure of the correlation (i.e. linear dependence) between two variables calculated using raw numbers and the latter is a measure of correlation using ranks.

4.3.2 Measures of operating performance

The measures of OPS used in this paper are EBITDA-margin (EBITDA divided by sales), ROA (return on assets) and sales growth.

Koller et al. (2010) outline a concept of value creation where return on invested capital in combination with revenue growth, which together drive cash flow, constitute the first pillar and cost of capital the second. We will, as many studies in recent years have (Bergström et al. (2007), Nyrén and Asbrink (2009), Adler and Norberg (2012)), base our selection of operating performance measure on this concept of value creation.

Barber and Lyon (1996) mention two reasons for looking at operating income rather than bottom line earnings. Firstly, they uphold that operating income is a “cleaner” measure compared to earnings, since the former is not affected by special items, taxes or the accounting of minority interest. Secondly, operating income, as opposed to earnings, is theoretically independent of capital structure decisions as long as the capital structure has no impact on the operations. This is important in our study as we examine acquisitions made by financial buyers, who most often make changes to the capital structure of the target as part of the buyout. Previous studies frequently use EBITDA as measure of operating performance, and it is also often the choice of practitioners.⁴ EBITDA is often viewed as the closest proxy for cash flow (Adler and Norberg (2012)), which is one of the key drivers of value (Koller et al. (2010)). In order for the data to be comparable across companies, the numbers need to be scaled (Barber and Lyon (1996)) and we therefore look at the ratio of EBITDA to sales, i.e. the EBITDA-margin.

Instead of studying ROIC, as seen in the value creation concept introduced above, we will look at the return on assets, ROA. The difference between the two concepts is that the former uses NOPLAT (net operating profit less adjusted taxes) in the numerator and incorporates only

⁴Price and leverage are commonly quoted in terms of multiples of EBITDA (Bergström et al. (2007))

operating assets and interest-bearing liabilities in the denominator, whereas the latter normally is defined as EBIT (earnings before interest and taxes) divided by total assets. While ROIC theoretically is a more satisfying way of measuring operating profitability, we believe that the issues arising when estimating it outweigh the benefits. In order to calculate the invested capital one must separate between operating and non-operating assets on the balance sheet and assign a proper adjusted tax rate. With the difficulties with estimating ROIC in mind, which have been recognized by previous studies (Adler and Norberg (2012); Bergström et al. (2007)), we choose to proceed with ROA.

The financials used as input in the numerator and the denominator when calculating ROA are taken from the same year. A more appropriate way to calculate ROA would have been to use the opening balance values for the balance sheet data, or the average of the opening and closing balance values. However, this would impose further limitations to our already restricted sample, and we hence use this simplification.

4.3.3 Test variables

All our operating performance measures compare the post-buyout data with pre-buyout data. Below is a specification of our operating performance measures, where X represent one of the three operating performance measured used (Δ Sales CAGR, Δ EBITDA-margin or Δ ROA). Δ OP represents the raw changes in operating performance, whereas Δ AOP represents the industry-median adjusted change.

$$\begin{aligned}\Delta OP_i &= X_{post} - X_{pre} \\ \Delta AOP_i &= (X_{post} - X_{pre}) - E(X_{post} - X_{pre})\end{aligned}$$

Δ Sales CAGR is defined as the difference between the Sales CAGR after the buyout, calculated as the compounded annual growth rate from the buyout year (the year when the buyout was completed) to two years after the buyout, and the Sales CAGR before the buyout, calculated as the compounded annual growth rate from two years before to the buyout year to the buyout year. Δ EBITDA-margin is calculated as the difference between the average EBITDA-margin during the two years after the buyout and the average EBITDA-margin during the two years before the buyout. Δ ROA is calculated as the difference between the average return on assets during the two years after the buyout and the average return on assets during the two years before the buyout.

Δ AOP looks at the relative change in operating performance compared to a company-specific industry benchmark. It assumes that in absence of the buyout, the companies would have the same trend as the peers. Hence, the expected change in operating performance in absence of buyout is assumed to be peer group average. The process for choosing the adequate peer groups is outlined in the next section.

4.3.4 Assigning peer groups

When we determine relevant peer groups for each transaction, we look at three parameters: geographic location, industry and size.

Regarding the first aspect, geographical location, different approaches have been applied in previous studies. Some restrict the sample to include companies from the same geographical region as the transactions being studied (Bergström et al. (2007)), whereas other has less strict restrictions with regards to the geographical location (Adler and Norberg (2012)). We believe that the former is preferable since companies in the same region are exposed to the same nation-specific effects. Hence, we will use Swedish companies when constructing the peer groups.

In line with previous research (Kaplan (1989), Amess (2002)), we use an official industry classification system to construct our peer groups. In this paper, we look at the first two digits of the SNI 2007 code (which is a Swedish version of the NACE Rev. 2 classification system). When constructing the peer groups, a key decision is the level of precision, i.e. the number of digits of the SNI code we look at. As argued by Barber and Lyon (1996) and applied by for instance Adler and Norberg (2012), we look at the first two digits of the classification code, as the former argues that using a more detailed classification code do not necessarily lead to better results. Also, as we are using Swedish companies only, a more detailed classification code might impose difficulties with finding peer companies of appropriate sizes.

One issue when assigning peer groups is the fact that some companies have codes that does not necessarily reflect the operations being carried out in the company, for example code 64200, Activities of Holding Companies, and code 70100, Activities of Head Office. In these cases, we adjust the codes to appropriately represent the underlying business. In accordance with *inter alia* Adler and Norberg (2012), we look at the code of the main subsidiary to determine the relevant classification code to use.

Fama and French (1995) suggest that operating performance varies with size; more precisely, they find that small firms are less profitable than large firms. Hence, as suggested by Barber and Lyon (1996) and applied by numerous studies related to operating performance, we aim to control for any potential size-effect by selecting companies based on total asset size.⁵

Following the above mentioned procedure, we construct peer groups consisting of 20 companies for each buyout, based on the year preceding the buyout. In line with Barber and Lyon (1996), this control group is held constant throughout the time period.

⁵We select the 20 companies with the smallest difference in total asset size

4.3.5 Time period

We study a time period from two years before the buyout to two years after the buyout, viewing the transaction year as year zero. The transaction year is defined as the year when the transaction was completed (which in the majority of the cases coincide with the year of announcement).⁶ The transaction year is excluded when calculating EBITDA-margin and ROA, as the accounting data might be distorted as a result of the transaction (Healy et al. (1992)). As top-line items are less affected by accounting decisions, the transaction year is included when calculating the Sales CAGR.

⁶As reported in the Zephyr database

5 Data

5.1 Sample

Our sample includes European buyouts from the period 1997 to 2012 and is collected from the database Zephyr. We include the following criteria in our search:

- The transaction is a public takeover where the target is delisted after the transaction
- The method of payment is cash
- The target is listed in a European country
- Current deal status is “Completed”
- The percentage of the acquired stake is at least 50% and that the acquirer owns 100% after the transaction

The reason for only including buyouts with only cash payment is to have a fair comparison between the groups, since it is very rare that financial buyers pay with stock. It is also more difficult to value a transaction that is not purely cash since there are many different methods of payments that can be used with various conditions. In line with previous studies only completed deals are included. Since the aim of the study is to look at buyouts only transactions where the buyer owns 100 percent after the transaction is included and to price in the control premium that usually can be found when a owner takes over control of a company.

We also require that all the buyouts in the sample has information about ISIN codes, since the they are used to retrieve the stock price data from Thomson Reuters’ Datastream, and that the buyouts have information about the bid price. However, bid prices for the Swedish buyouts in the data set have been manually updated with historical data from NASDAQ OMX Nordic’s web page. This results in 1,407 buyouts. The data is then manually checked to make sure that all observations comply with the search criteria. There are 349 buyouts where the method of payment in fact is not only cash and these are deleted.

5.1.1 Sample description of the European sample

As can be seen in table 1 and 2 the sample consists of 1,058 observations, out of which 808 are buyouts with an operating buyer and 250 are buyouts with a financial buyer. The sample has a larger percentage of financial buyers than Barger et al. (2008), 23 percent compared to 14 percent. Table 1 illustrates the distribution of buyouts per country. As can be seen the vast majority of buyouts take place in Great Britain and the second largest group is Sweden

Table 1: Sample Distribution by Target Country

Country	Operating		Financial		Total	
	n	%	n	%	n	%
Belgium	14	0.9	1	6.7	15	1.4
Switzerland	6	1.0	0	0.0	6	0.6
Cyprus	3	1.0	0	0.0	3	0.3
Germany	9	0.9	1	10.0	10	0.9
Denmark	17	0.8	5	22.7	22	2.1
Estonia	9	0.8	2	18.2	11	1.0
Finland	10	0.9	1	9.1	11	1.0
France	19	0.7	8	29.6	27	2.6
Great Britain	550	0.8	173	23.9	723	68.3
Greece	5	1.0	0	0.0	5	0.5
Hungary	2	0.7	1	33.3	3	0.3
Ireland	25	0.8	6	19.4	31	2.9
Italy	3	0.5	3	50.0	6	0.6
Luxembourg	1	1.0	0	0.0	1	0.1
Netherlands	32	0.8	10	23.8	42	4.0
Norway	38	0.8	7	15.6	45	4.3
Poland	11	0.8	2	15.4	13	1.2
Portugal	2	1.0	0	0.0	2	0.2
Russia	1	1.0	0	0.0	1	0.1
Sweden	50	0.6	30	37.5	80	7.6
Slovenia	1	1.0	0	0.0	1	0.1
Total	808	76.4	250	23.6	1,058	

followed by Norway. Table 2 illustrates the buyouts distribution over the time period, for all buyouts but also for each category. The number of buyouts varies over the years and so does the distribution of the type of buyers. The time period used is the one available from Zephyr.

5.1.2 Sample description of the large Swedish sub-sample

The large Swedish comprises all buyouts from the large European sample where the target is listed at a Swedish stock exchange. As can be seen in table 2 the sample consists of 80 buyouts out of which 30 have a financial buyer⁷ (37.5%). The representation is clearly higher than in the large European sample (23.5%).

5.1.3 Sample description of the small Swedish sub-sample

As we are studying the operating performance post transaction, we require that is possible to follow the legal entity during a five year period, from two years prior to the buyout year to two years after, viewing the transaction year as year zero.

The final sub-sample consists of 19 transactions, of which 14 are buyouts with a financial buyer and 5 are buyouts with an operating buyer. The proportion of buyouts with financial buyers in this final sub-sample (73.7%) is clearly different from the total set of Swedish buyouts (37.5%) and total set of European buyouts (23.6%). As we only can include cases where financial

⁷Out of which 2 are listed

Table 2: Sample Distribution by Announcement Year

	European Buyouts						Swedish Buyouts					
	Operating		Financial		Total		Operating		Financial		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
1997	1	100.0	0	0.0	1	0.1	0		0		0	0.0
1998	15	83.3	3	16.7	18	1.7	1	100.0	0	0.0	1	1.3
1999	47	68.1	22	31.9	69	6.5	2	50.0	2	50.0	4	5.0
2000	48	65.8	25	34.2	73	6.9	8	100.0	0	0.0	8	10.0
2001	49	73.1	18	26.9	67	6.3	2	28.6	5	71.4	7	8.8
2002	42	73.7	15	26.3	57	5.4	2	66.7	1	33.3	3	3.8
2003	63	75.9	20	24.1	83	7.8	5	71.4	2	28.6	7	8.8
2004	50	78.1	14	21.9	64	6.0	1	50.0	1	50.0	2	2.5
2005	76	80.9	18	19.1	94	8.9	2	100.0	0	0.0	2	2.5
2006	77	68.8	35	31.3	112	10.6	6	66.7	3	33.3	9	11.3
2007	88	78.6	24	21.4	112	10.6	6	75.0	2	25.0	8	10.0
2008	78	83.9	16	17.2	93	8.8	7	58.3	5	41.7	12	15.0
2009	38	77.6	13	26.5	49	4.6	2	33.3	4	66.7	6	7.5
2010	49	84.5	9	15.5	58	5.5	1	25.0	3	75.0	4	5.0
2011	55	84.6	10	15.4	65	6.1	3	75.0	1	25.0	4	5.0
2012	32	80.0	8	20.0	40	3.8	2	66.7	1	33.3	3	3.8
Total	808	76.4	250	23.6	1,058		50	62.5	30	37.5	80	

data is available during the post-transaction period, our sample might be biased. Due to lack of segment data in company filings, we are unable to include some transactions in which the target has been incorporated in the acquirer’s group, which obviously is more frequent in the case of an operating buyer. We exclude cases where the target has gone bankrupt during our time period. There are also cases where the target is acquired by a private foreign buyer and hence the accounting data is not available.

5.2 Data description

5.2.1 Target characteristics

These variables aim to capture any potential effect the characteristics of the target has on the premium paid in a buyout. All of the data within this category is downloaded from Thomson Reuters’ Datastream. Since we use a cross-European sample we have companies with different currencies in our sample. To mitigate this problem we use market value denominated in pounds sterling to compare sizes across buyouts. For other calculations, we use local currencies. This is done to be consistent with all observations and reduce the risk of problems with a manual currency exchange. All other accounting data are used as margins or ratios and can therefore be used in the local currency.

5.2.2 Deal characteristics

Variables within this category are downloaded from Zephyr. Deal value for the buyouts are downloaded in pounds sterling to make it comparable across buyouts. In the Swedish sub-

sample some of the bids are missing in Zephyr, and these have been collected from NASDAQ OMX Nordics web page.

5.2.3 Operating performance measures

As mentioned in the method section, our set of operating performance measures comprises Sales CAGR, EBITDA-margin and return on assets. This data is retrieved from the Serrano Database constructed by the company PAR. In this database, the financial data has been standardized to be as comparable as possible; balance sheet and income statement data are converted to calendar year values and the length of accounting periods are adjusted (which is important in the case of broken accounting periods). The data is also checked and complemented using company annual reports retrieved from Affärsdata. The data used is on group level.

6 Results and analysis

6.1 European sample

6.1.1 Univariate comparison

The first part of the analysis is the investigation of hypothesis one, whether or not financial buyers pay a lower premium than operating buyers, without controlling for target and deal-specific characteristics. This is done by testing if the mean and median of the premiums in the samples are different. The results can be found in table 3. The results support hypothesis one that financial buyers pay a lower premium compared to the operating buyers; all the differences in both mean and median are negative and highly significant. The difference in the mean of the eight week premium between financial and operating buyers is -14 percentage points and the difference in the median is slightly lower, -8 percentage points. Both are significant at the 1% significance level. The results are similar for all measures of the premium. The difference in premium between financial and operating buyers is larger when using a longer time period to estimate the premium. For the one day premium, the difference is -6 and -4 percentage points for the mean and median respectively (still significant at the 1% significance level). That the longer time periods generate higher premiums indicates that the transactions in our sample on average experience a pre-bid run-up (King (2009)).

Table 3: Univariate Comparison of the Premiums in the European Sample

The table reports mean and median [in brackets] of the premiums, bid price divided by the share price eight weeks, four weeks, ten days, five days and one day, approximated by 40, 20, 10, 5 and 1 trading days, before the announcement day, for the full sample and for the sub-groups All Financial Buyers, All Operating Buyers, Private Financial Buyers and Private Operating Buyers. Columns four and five reports the difference in mean [median], and its significance, between all financial buyers and all operating buyers and columns eight and nine the difference between private financial buyers and private operating buyers. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median.

*p<0.10, **p<0.05, ***p<0.01

	All Buyers	Fin. Buyers	Op. Buyers	Financial - Operating		Private Fin. Buyers	Private Op. Buyers	Private Financial - Private Operating	
				Diff.	P-value			Diff.	P-value
8 Week Premium	39.18 [29.76]	28.23 [23.37]	42.57 [31.48]	-14.34*** [-8.12]***	0.000 0.000	28.89 [23.42]	41.42 [30.95]	-12.54*** [-7.53]***	0.000 0.000
4 Week Premium	31.78 [21.97]	22.02 [15.62]	34.80 [24.25]	-12.78*** [-8.63]***	0.000 0.000	22.52 [15.93]	33.39 [23.81]	-10.87*** [-8.12]***	0.000 0.000
10 Day Premium	27.10 [17.48]	19.52 [12.35]	29.45 [19.76]	-9.93*** [-7.41]***	0.000 0.000	19.84 [12.26]	27.69 [19.40]	-7.84*** [-7.14]***	0.000 0.000
5 Day Premium	24.63 [14.84]	18.30 [11.11]	26.59 [17.15]	-8.29*** [-6.04]***	0.002 0.000	18.77 [11.23]	24.84 [16.36]	-6.07*** [-5.14]***	0.002 0.000
1 Day Premium	19.25 [10.34]	14.12 [7.44]	20.83 [11.76]	-6.71*** [-4.33]***	0.004 0.000	14.66 [7.92]	19.41 [11.76]	-4.74*** [-3.85]***	0.004 0.000

To investigate if the financial and operating buyers acquire different types of firms or if there is any difference in the type of deal structure, a univariate comparison is performed on the target and deal characteristics (see table 4). The focus of the analysis below will be on the difference between all financial and all operating buyers (including both listed and private companies).

However, the results are similar when we study the difference between private financial buyers and private operating buyers.

Target characteristics

Table 4 shows that the median market size of the target is significantly larger when the buyer is financial compared to operating. However, there is no significant difference in the mean. The result is similar for the median leverage level. The median debt-to-asset ratio for the targets of financial buyers is significantly higher than the ratio for targets of operating buyers. This is consistent with the results from the study by Roosenboom et al. (2009). Barger et al. (2008) find a similar difference, however not significant.

Targets acquired by financial companies have significantly higher ratios of intangible assets-to-total asset than targets acquired by operating companies. This result is similar to the findings of Barger et al. (2008). However, it goes against the study performed by Shleifer and Vishny (1992), who find that private equity firms usually acquire companies with higher levels of tangible assets rather than intangible assets, and argue that this is because that the tangible assets easier can be redeployed. Roosenboom et al. (2009) also find that targets acquired by private equity firms has higher levels of tangible assets than the ones acquired by operating firms. The ratio of operating cash flow to total assets is significantly higher among the group of companies acquired by financial buyers. This is consistent with the finding of Barger et al. (2008), who explains this with the view that private equity creates value by returning free cash flow to the shareholders.

The tests also show that the EBITDA-margin is higher among the targets of financial firms. In the case of EBITDA-margin, the median probably gives a more fair picture as there are some extreme values in the data (the minimum EBITDA-margin is -553%), despite the fact that the numbers have been winsorized. Return on assets is also higher for the targets of financial buyers. This suggests that financial buyers acquire targets with better operational performance than operating buyers.

Tobin's Q does not appear to differ significantly between the two groups. The sign of the difference between the mean and the median varies in the different tests, and it is thus difficult to come to any conclusion.

The median of the standard deviation of the targets stock is higher for targets of financial buyers, but the mean is not significantly different between the groups. The excess return of the target during the year before the announcement is not significantly different between the groups. There is no significant difference between the groups in terms of Amihud's illiquidity measure. However, the mean and median are lower for financial buyers, suggesting that they acquire targets that are less liquid than operating firms.

Table 4: Univariate Comparison of Target & Deal Characteristics in the European Sample

The table reports mean and median [in brackets] of the target and deal characteristics for the full sample and for the sub-groups All Financial Buyers, All Operating Buyers, Private Financial Buyers and Private Operating Buyers. Columns four and five report the difference in mean [median], and its significance, between all financial buyers and all operating buyers and columns eight and nine the difference between private financial buyers and private operating buyers. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales and change in employees are calculated as the annual compounded growth rate over three years prior to the buyout. Deal value is in millions of pounds sterling. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, MBO (Management buyout), Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the buyout is classified as a management buyout, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median. *p<0.10, **p<0.05, ***p<0.01

	All Buyers	Fin. Buyers	Op. Buyers	Financial - Operating		Private Fin. Buyers	Private Op. Buyers	Private Financial - Private Operating	
				Diff.	P-value			Diff.	P-value
Market Cap	303.24 [53.26]	283.36 [72.35]	309.35 [46.56]	-25.99 [25.79]***	0.661 0.002	287.53 [72.02]	271.45 [43.02]	16.08 [29.00]***	0.784 0.000
Debt-to- Assets	0.19 [0.16]	0.21 [0.20]	0.18 [0.14]	0.03* [0.05]**	0.083 0.037	0.21 [0.20]	0.19 [0.15]	0.03 [0.05]**	0.108 0.035
Int Assets-to- Assets	0.20 [0.10]	0.25 [0.16]	0.18 [0.08]	0.06*** [0.08]***	0.001 0.001	0.25 [0.17]	0.18 [0.07]	0.07*** [0.10]***	0.001 0.000
Op CF-to- Assets	0.05 [0.06]	0.07 [0.07]	0.04 [0.06]	0.03** [0.01]**	0.022 0.037	0.07 [0.07]	0.04 [0.06]	0.03** [0.01]**	0.014 0.018
EBITDA-margin	2.55 [10.27]	7.26 [11.95]	1.08 [9.43]	6.18 [2.52]**	0.271 0.034	10.71 [12.28]	-1.01 [9.43]	11.72 [2.85]**	0.043 0.014
Return on Assets	2.20 [5.53]	4.68 [6.83]	1.44 [5.02]	3.23** [1.81]***	0.038 0.004	5.24 [6.94]	0.52 [4.65]	4.72*** [2.29]***	0.004 0.000
Tobin's Q	1.20 [0.92]	1.13 [0.96]	1.22 [0.90]	-0.09 [0.07]	0.299 0.247	1.13 [0.96]	1.22 [0.86]	-0.09 [0.10]*	0.361 0.088
St Dev	20.75 [8.35]	21.67 [11.72]	20.46 [7.49]	1.21 [4.23]**	0.596 0.022	22.00 [11.72]	20.38 [7.47]	1.61 [4.25]**	0.494 0.011
Excess Return	16.03 [13.12]	13.14 [13.12]	16.93 [13.13]	-3.79 [-0.01]	0.297 0.611	12.49 [12.97]	17.47 [12.91]	-4.98 [0.06]	0.187 0.545
Amihud's illiquidity	5.60 [0.09]	4.35 [0.06]	5.98 [0.09]	-1.63 [-0.03]**	0.426 0.016	4.50 [0.06]	6.92 [0.09]	-2.42 [-0.03]**	0.299 0.018
Δ in Sales	7.40 [4.67]	8.15 [5.98]	7.16 [4.39]	0.99 [1.58]*	0.487 0.095	8.35 [6.03]	6.49 [4.05]	1.86 [1.98]**	0.213 0.018
Δ in Employees	5.91 [2.99]	5.41 [4.34]	6.06 [2.82]	-0.65 [1.52]	0.622 0.362	5.48 [4.33]	5.77 [2.09]	-0.29 [2.24]	0.839 0.141
Deal value mil GBP	145.61 [62.62]	173.38 [93.00]	137.09 [56.50]	36.29** [36.50]***	0.013 0.003	173.01 [90.96]	129.00 [52.10]	44.01*** [38.86]***	0.003 0.001
Independence	0.51 [1.00]	0.40 [0.00]	0.54 [1.00]	-0.14*** [-1.00]***	0.001 0.001	0.39 [0.00]	0.42 [0.00]	-0.04 [0.00]	0.373 0.373
Several Bids	0.09 [0.00]	0.12 [0.00]	0.08 [0.00]	0.04** [0.00]**	0.037 0.037	0.12 [0.00]	0.08 [0.00]	0.04* [0.00]*	0.089 0.089
MBO	0.07 [0.00]	0.11 [0.00]	0.05 [0.00]	0.06*** [0.00]***	0.001 0.001	0.11 [0.00]	0.07 [0.00]	0.05** [0.00]**	0.022 0.022
Hostile Bid	0.03 [0.00]	0.03 [0.00]	0.03 [0.00]	0.01 [0.00]	0.600 0.600	0.03 [0.00]	0.03 [0.00]	0.00 [0.00]	0.921 0.921
Same Industry	0.28 [0.00]	0.25 [0.00]	0.29 [0.00]	-0.04 [0.00]	0.242 0.242	0.25 [0.00]	0.28 [0.00]	-0.03 [0.00]	0.454 0.454
Foreign	0.27 [0.00]	0.08 [0.00]	0.33 [0.00]	-0.25*** [0.00]***	0.000 0.000	0.07 [0.00]	0.26 [0.00]	-0.19*** [0.00]***	0.000 0.000

The change in sales during the three years preceding the transaction is higher for targets of financial buyers, but only the difference in median is significant. The growth in employees during the three years preceding the transaction is not significantly different between the two types of buyers.

Deal characteristics

When looking at deal-specific characteristics, we find evidence that the financial buyers are involved in larger transactions in terms of deal value than the operating companies. This is not surprising, as we saw earlier that financial buyers acquire targets with larger market capitalization.

The difference in the independence variable suggests that financial buyers have more concentrated ownership. However, the indicator is somewhat biased since there is higher fraction of missing observations among the financial buyers.

It is more common that there are several bids in the buyouts with a financial buyer. One possible explanation to this might be that financial buyers more frequently are involved in takeover contests. There is no significant difference between the groups when it comes to if the bid is hostile or if the target and buyer are in the same industry. Management buyouts are more common among the targets of financial buyers, which is in line with the findings of Barger et al. (2008). The level of foreign buyers is higher among the operating buyers than the financial buyers.

To sum up, the univariate comparison in table 4 gives support to our second hypothesis that financial buyers and operating buyers acquire different types of firms.

6.1.2 Multivariate regressions

The univariate comparison suggests that there are some differences between the targets of financial buyers and operating buyers which might be the reason for the differences in the premium paid. The next step of the analysis is to perform multiple linear regressions to see if the target and deal characteristics can explain the difference in premium between financial and operating buyers. The dependent variable in the regressions is the bid divided by the share price eight weeks before the announcement and the explanatory variables are the target and deal characteristics used in the previous analysis. In specification (1), a dummy variable is included to indicate if the buyer is financial, in (2) a dummy variable is added to indicate if the buyer is listed, in (3) we add a dummy variable if the target and acquirer are in the same primary industry and in (4) a dummy variable indicating if the acquirer is foreign is added. In specification (5), all the deal characteristics are included and in specification (6) both target

Table 5: Regression: Eight Week Premium with Year & Industry Dummies in the European Sample

The dependent variable in the regressions is the Eight Week Premium, the bid price divided by the share price 40 trading days prior to the announcement day. All specifications are estimated using both year and industry dummies. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, MBO (Management buyout), Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the buyout is classified as a management buyout, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-16.2326*** (-5.41)	-15.2184*** (-4.87)	-15.2143*** (-4.87)	-14.0539*** (-4.29)	-11.8306*** (-3.32)	-9.1984** (-2.33)
Listed Buyer		5.7928 (1.41)	5.7776 (1.41)	3.9286 (0.98)	4.5176 (1.12)	3.2834 (0.64)
Same Primary Industry			0.3222 (0.08)	0.2178 (0.06)	-0.2240 (-0.06)	1.7808 (0.42)
Foreign				6.5167 (1.56)	3.3776 (0.73)	4.1832 (0.85)
Ln(Market Cap.)					-4.0462*** (-3.23)	-3.9173*** (-3.03)
Debt-to-Assets					0.1880 (0.02)	-5.9675 (-0.52)
Int. Assets-to-Assets					18.1690 (1.50)	18.1063 (1.38)
Op. Cash Flow-to-Assets					-17.6764 (-0.92)	-18.2657 (-0.79)
EBITDA-margin					-0.0464 (-0.93)	-0.0663 (-1.27)
Return on Assets					-0.1333 (-0.83)	-0.0466 (-0.25)
Tobin's Q					-6.3286* (-1.84)	-5.6094 (-1.45)
St Dev					0.0222 (0.51)	0.0121 (0.24)
Excess Return					0.1598*** (3.34)	0.1401*** (2.60)
Amihud's illiquidity					0.0176 (0.14)	0.0431 (0.26)
Change in Sales					-0.0990 (-1.08)	-0.1001 (-0.99)
Independence Indicator						0.8868 (0.23)
Several Bids						10.0119 (1.34)
MBO						-15.3691*** (-2.59)
Hostile Bid						-10.8705* (-1.69)
Observations	1052	1052	1052	1052	759	690
Adjusted R^2	0.046	0.047	0.046	0.048	0.135	0.128

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

and deal characteristics are included. If the target and deal characteristics can fully explain the difference in premium then the dummy variable for financial buyers should be insignificantly different from zero.

As can be seen in table 5, the dummy variable for financial buyer is significantly different from zero in all specifications, which indicates that financial buyers pays a premium 10–15 percentage points lower than operating firms that cannot be explained by the target and deal characteristics. And not many of the explanatory variables are significant. This result is in line with the univariate comparison (table 3) and is similar to the finding of Barger et al. (2008). The result is robust to the use of the four week premium. The results are the same when clustering the standard errors on a monthly and yearly level respectively. These results are omitted.

This confirms hypothesis 3 that financial buyers pay less than strategic buyers, even when controlling for a set of target and deal-specific characteristics.

6.2 Large Swedish sub-sample

6.2.1 Univariate comparison

To test hypothesis four, the same univariate comparison performed on the European is performed on the sub-sample of Swedish buyouts. The mean and medians are tested with a two-tailed hypothesis test. As can be seen in table 7 there is a significant difference between the mean of financial buyers and all operating buyers. All means of the premiums paid by financial buyers are significantly lower at the 10% significance level. The median is significantly lower for financial buyers for the eight and four week premium. The difference between the groups is larger than in the European sample, however not as significant. The eight week premium suggests that financial buyers pay a premium that is 25 percentage points lower than operating. This can be compared to the difference in premium of 14 percentage points in the European sample. The results support hypothesis four, that financial buyers pay less than operating buyers, without controlling for target and deal-specific characteristics.

Hypothesis five is tested for all the Swedish buyouts with the same method as in the European sample. A univariate comparison is performed, testing the mean and median of the control variables using a two-tailed hypothesis test, to investigate if financial and operating buyers acquire different types of targets. The results, reported in table 7, reveal that the targets of the two groups, financial buyers and all operating buyers, are not as different as in the European sample. Only two characteristics are significantly different between the groups in both the mean and median. The first, intangible assets-to-total assets, is significant at the 5% significance level for the mean and at the 10% level for the median. That financial buyers acquirers targets

Table 6: Univariate Comparison of the Premiums in the Large Swedish Sub-Sample

The table reports mean and median [in brackets] of the premiums, bid price divided by the share price eight weeks, four weeks, ten days, five days and one day, approximated by 40, 20, 10, 5 and 1 trading days, before the announcement day, for the full sample and for the sub-groups All Financial Buyers, All Operating Buyers, Private Financial Buyers and Private Operating Buyers. Columns four and five reports the difference in mean [median], and its significance, between all financial buyers and all operating buyers and columns eight and nine the difference between private financial buyers and private operating buyers. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median.

*p<0.10, **p<0.05, ***p<0.01

	All Buyers	Fin. Buyers	Op. Buyers	Financial - Operating		Private Fin. Buyers	Private Op. Buyers	Private Financial - Private Operating	
				Diff.	P-value			Diff.	P-value
8 Week Premium	44.59 [31.83]	28.97 [28.41]	53.97 [33.07]	-25.00* [-4.66]*	0.052 0.077	30.15 [30.64]	49.70 [30.43]	-19.55 [0.20]	0.131 0.324
4 Week Premium	38.44 [27.77]	25.43 [24.10]	46.24 [32.34]	-20.81* [-8.25]*	0.060 0.093	25.65 [24.10]	42.90 [27.76]	-17.25 [-3.66]	0.144 0.334
10 Day Premium	35.96 [25.10]	24.54 [17.58]	42.81 [29.84]	-18.27* [-12.26]	0.079 0.131	25.19 [17.58]	39.96 [27.91]	-14.76 [-10.33]	0.191 0.349
5 Day Premium	34.48 [27.34]	22.15 [20.40]	41.87 [30.22]	-19.72** [-9.81]*	0.043 0.074	22.90 [20.40]	38.84 [28.69]	-15.94 [-8.28]	0.135 0.367
1 Day Premium	29.70 [22.46]	19.26 [17.37]	35.97 [25.69]	-16.71* [-8.32]	0.071 0.214	19.99 [19.40]	31.16 [23.08]	-11.17 [-3.67]	0.273 0.966

with higher intangible assets-to-total assets is similar to the findings in the European sample. The second, the dummy variable indicating if the acquirer is foreign, is significant at the 1% significance level both for the mean and median. Hence, the result is in line with the findings in the European sample that the operating buyer more often is foreign compared to financial buyers.

To conclude, hypothesis five, that financial and operating firm acquire different target, cannot be confirmed.

6.2.2 Multivariate regressions

To test hypothesis six, if financial buyers pay less than operating buyers, controlling for target and deal-specific characteristics, multiple linear regressions are estimated. The hypothesis is confirmed if the financial dummy variable is significantly different from zero when controlling for the target and deal characteristics. As can be seen in table 8, the financial dummy is significantly lower than zero in the first three specifications when controlling for if the buyer is listed or if the buyer is in the same primary industry as the target. In specification (4) the financial variable is no longer significant when controlling for if the acquirer is foreign. As seen in specification (5) and (6), the R-squared increases drastically and the financial dummy is negative and significant at the 5% significance level. However, when adding year fixed effects (see table 17), the financial dummy is no longer significant, although still negative. As seen in table 2, the distribution of financial and operating buyers over time is quite uneven. This means that the year dummies might absorb some effect that in fact is related to the type of buyer. For instance, in the year of 2000, there are eight buyouts out of which all have operating buyers.

Table 7: Univariate Comparison of Target & Deal Characteristics in the Swedish Sample

The table reports mean and median [in brackets] of the target and deal characteristics for the full sample and for the sub-groups All Financial Buyers, All Operating Buyers, Private Financial Buyers and Private Operating Buyers. Columns four and five report the difference in mean [median], and its significance, between all financial buyers and all operating buyers and columns eight and nine the difference between private financial buyers and private operating buyers. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales and change in employees are calculated as the annual compounded growth rate over three years prior to the buyout. Deal value is in millions of pounds sterling. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, MBO (Management buyout), Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the buyout is classified as a management buyout, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median. *p<0.10, **p<0.05, ***p<0.01

	All Buyers	Fin. Buyers	Op. Buyers	Financial - Operating		Private Fin. Buyers	Private Op. Buyers	Private Financial - Private Operating	
				Diff.	P-value			Diff.	P-value
Market Cap	182.77 [58.01]	202.99 [91.26]	171.22 [29.46]	31.77 [61.80]	0.686 0.304	209.69 [92.37]	187.55 [51.16]	22.14 [41.21]	0.809 0.448
Debt-to-Assets	0.20 [0.16]	0.17 [0.15]	0.22 [0.16]	-0.04 [-0.01]	0.415 0.618	0.17 [0.15]	0.24 [0.19]	-0.07 [-0.05]	0.238 0.349
Int Assets-to-Assets	0.16 [0.09]	0.22 [0.15]	0.12 [0.09]	0.09** [0.05]*	0.033 0.066	0.20 [0.12]	0.15 [0.16]	0.05 [-0.04]	0.302 0.471
Op CF-to-Assets	0.07 [0.07]	0.07 [0.06]	0.08 [0.08]	-0.01 [-0.02]	0.715 0.668	0.07 [0.06]	0.08 [0.09]	-0.01 [-0.03]	0.726 0.511
EBITDA-margin	15.07 [9.37]	11.35 [9.69]	17.38 [9.30]	-6.03 [0.39]	0.241 0.856	11.42 [10.00]	15.27 [8.15]	-3.85 [1.85]	0.423 0.876
Return on Assets	5.77 [8.62]	6.44 [7.78]	5.35 [8.77]	1.08 [-0.99]	0.770 0.957	6.54 [8.40]	4.65 [9.06]	1.89 [-0.66]	0.640 0.835
Tobin's Q	1.29 [1.00]	1.04 [0.93]	1.43 [1.04]	-0.39 [-0.11]	0.147 0.230	1.04 [0.92]	1.45 [1.14]	-0.41 [-0.22]	0.145 0.123
St Dev	7.80 [4.76]	8.89 [7.70]	7.18 [3.94]	1.72 [3.76]	0.384 0.130	9.19 [7.79]	8.00 [4.52]	1.19 [3.27]	0.601 0.180
Excess Return	4.75 [-1.90]	2.75 [-0.38]	5.92 [-2.11]	-3.17 [1.72]	0.800 0.948	3.55 [1.09]	10.81 [0.52]	-7.25 [0.57]	0.590 0.805
Amihud's illiquidity	7.31 [1.23]	11.26 [0.93]	5.05 [1.34]	6.21 [-0.41]	0.174 0.619	11.60 [0.90]	4.12 [1.23]	7.48 [-0.33]	0.144 0.760
Δ in Sales	6.51 [5.50]	6.83 [7.08]	6.32 [4.90]	0.51 [2.18]	0.873 0.560	6.73 [5.75]	6.33 [5.77]	0.40 [-0.01]	0.911 0.666
Δ in Employees	3.39 [3.32]	3.82 [5.67]	3.12 [2.46]	0.70 [3.21]	0.789 0.620	3.70 [4.55]	3.55 [2.92]	0.15 [1.63]	0.960 0.872
Deal value mil GBP	137.56 [58.72]	159.35 [99.43]	125.25 [47.92]	34.10 [51.51]	0.455 0.631	164.52 [101.40]	132.77 [52.43]	31.75 [48.97]	0.530 0.832
Independence	0.73 [1.00]	0.83 [1.00]	0.68 [1.00]	0.15 [0.00]	0.205 0.203	0.82 [1.00]	0.58 [1.00]	0.24 [0.00]	0.062 0.063
Several Bids	0.14 [0.00]	0.14 [0.00]	0.14 [0.00]	0.00 [0.00]	1.000 1.000	0.15 [0.00]	0.20 [0.00]	-0.05 [0.00]	0.603 0.599
Hostile Bid	0.04 [0.00]	0.07 [0.00]	0.02 [0.00]	0.05 [0.00]	0.272 0.269	0.07 [0.00]	0.03 [0.00]	0.05 [0.00]	0.416 0.412
Same Industry	0.24 [0.00]	0.20 [0.00]	0.26 [0.00]	-0.06 [0.00]	0.547 0.544	0.21 [0.00]	0.23 [0.00]	-0.01 [0.00]	0.954 0.953
Foreign	0.34 [0.00]	0.07 [0.00]	0.50 [0.50]	-0.43*** [-0.50]***	0.000 0.000	0.07 [0.00]	0.40 [0.00]	-0.33*** [0.00]***	0.003 0.004

To conclude, using year dummies might not have the desired effect on the regression. Overall, we do not find enough evidence to either reject or confirm hypothesis six.

6.3 Small Swedish sub-sample

The results from the test on the mean and median are reported in table 9. As seen in the table, the mean and median of the premium paid is lower for financial buyers irrespective of the measure of premium used. However, only the difference in the mean of the eight week premium is significant at the 10% significance level. The situation is similar when using the Wilcoxon test on the median. One possible explanation could be the smaller sample. When performing the t-test, we make several assumptions that might not necessarily be satisfied in the data; we assume both normality and homoscedasticity (Bellera et al. (2010)). Therefore, due to the limited number of observations, one should put more focus on the non-parametric Wilcoxon test.

Moreover, as discussed earlier, one need to take into account the issue of selection bias. It is possible that the premium paid by a strategic buyer is correlated with the degree of integration of the target in the acquirer’s organization post transaction, as this could mean that the buyer expects larger synergies and hence are willing to pay more. Based on this and the fact that cases where the target has been integrated in the buyer’s organization to a large extent is excluded from our sample, due to the requirement of availability of financial data post transaction, the premium paid by strategic buyers might be biased downwards.

The results from the test on difference in the operating performance measures between financial buyers and operating buyers can be seen in table 10. As seen in the table, the difference is negative in all cases when studying the adjusted measures. This means that operating buyers experience a relatively better change in operating performance on average. This might indicate the existence of synergies. However, none of the tests are significant at the 10% significance level.

Together with the results from table 9, we see that the signs of the coefficients are both negative, indicating that financial buyers both pay less and experience a relatively inferior change in operating performance. However, overall the results are not significant. This in combination with the fact that hypothesis seven is not true means that we cannot investigate hypothesis eight, as it requires that there is a difference in both the premium and the change in operating performance. Therefore, we leave out regression specification (7).

In table 11, we show the Pearson and Spearman correlation coefficients for the different combinations of premiums and operating performance measures. The only correlation that is positive is the combination of change in sales CAGR and eight week premium. However, the result is not significant and the correlation with the four week premium is negative. All other

Table 8: Regression: Eight Week Premium in the Large Swedish Sub-Sample

The dependent variable in the regressions is the Eight Week Premium, the bid price divided by the share price 40 trading days prior to the announcement day. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-25.0008** (-2.44)	-22.4917** (-2.09)	-22.5503** (-2.13)	-13.1985 (-1.15)	-31.7862** (-2.19)	-35.9170** (-2.04)
Listed Buyer		11.7612 (0.61)	11.7580 (0.61)	5.9478 (0.33)	27.9376** (2.02)	25.2399* (1.96)
Same Primary Industry			-0.9647 (-0.06)	0.5317 (0.03)	25.3277 (1.26)	28.8961 (1.21)
Foreign				24.2342 (1.59)	0.6021 (0.05)	-1.0719 (-0.08)
Ln(Market Cap.)					20.7147** (2.56)	20.8602** (2.66)
Debt-to-Assets					-37.5806 (-0.86)	-35.0350 (-0.84)
Int. Assets-to-Assets					16.3285 (0.68)	15.6508 (0.49)
Op. Cash Flow-to-Assets					-22.3295 (-0.34)	-20.5574 (-0.28)
EBITDA-margin					-0.0093 (-0.04)	-0.0432 (-0.18)
Return on Assets					0.1618 (0.41)	0.2502 (0.53)
Tobin's Q					-14.4780* (-1.98)	-15.3599* (-1.91)
St Dev					-2.4219* (-1.83)	-2.3823 (-1.65)
Excess Return					0.2716*** (3.61)	0.2723*** (3.07)
Amihud's illiquidity					1.3898** (2.20)	1.4212** (2.16)
Change in Sales					0.2995 (0.80)	0.1386 (0.29)
Independence Indicator						10.0126 (0.86)
Several Bids						2.9999 (0.14)
Hostile Bid						5.1126 (0.25)
Observations	80	80	80	80	80	80
Adjusted R^2	0.035	0.030	0.017	0.038	0.421	0.400

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Univariate Comparison of the Premiums in the Small Swedish Sub-Sample

The table reports mean and median [in brackets] of the 8 Week Premium and 4 Week Premium for Financial Buyers and Operating Buyers included in our Swedish sub-sample. The last two columns reports the difference in mean [median] between the different buyer types and its significance levels. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median. *p<0.10, **p<0.05, ***p<0.01

	All Buyers	Financial Buyers	Operating Buyers	Financial - Operating	
				Difference	P-value
8 Week Premium	30.19 [29.71]	25.30 [23.19]	43.90 [32.81]	-18.60* [-9.62]	0.084 0.139
4 Week Premium	26.98 [28.21]	24.68 [25.33]	33.39 [45.23]	-8.71 [-19.90]	0.423 0.711

Table 10: Univariate Comparison of Operating Performance

The table reports mean and median [in brackets] of the unadjusted and industry median-adjusted operating performance measures for Financial Buyers and Operating Buyers included in our Swedish sub-sample (see Table 19 for the list of transactions). Δ Sales CAGR is defined as the difference between the Sales CAGR after the buyout, calculated as the compounded annual growth rate from the buyout year (the year when the buyout was completed) to two years after the buyout, and the Sales CAGR before the buyout, calculated as the compounded annual growth rate from two years before to the buyout year to the buyout year. Δ EBITDA-margin is calculated as the difference between the average EBITDA-margin during the two years after the buyout and the average EBITDA-margin during the two years before the buyout. Δ ROA is calculated as the difference between the average return on assets during the two years after the buyout and the average return on assets during the two years before the buyout. The last two columns reports the difference in mean [median] between the different buyer types and its significance levels. Reported p-values are based on t-tests for difference in the mean and Wilcoxon tests for differences in the median.

	All Buyers	Financial Buyers	Operating Buyers	Financial - Operating	
				Difference	P-value
Δ Sales CAGR	1.27 [3.34]	-2.01 [-5.20]	9.81 [7.74]	-11.82 [-12.94]	0.486 0.657
Δ EBITDA-margin	1.47 [0.58]	2.73 [1.36]	-2.08 [-4.87]	4.81 [6.23]	0.559 0.116
Δ ROA	1.68 [-0.39]	2.14 [-0.03]	0.40 [-0.85]	1.74 [0.82]	0.765 0.643
Δ Adj. Sales CAGR	9.60 [6.77]	2.82 [0.11]	27.22 [18.23]	-24.39 [-18.11]	0.310 0.257
Δ Adj. EBITDA-margin	2.78 [-0.34]	2.33 [-0.55]	4.03 [0.69]	-1.69 [-1.24]	0.842 1.000
Δ Adj. ROA	3.08 [-0.61]	2.85 [0.12]	3.75 [-0.93]	-0.90 [1.05]	0.875 0.7812

correlations, both Pearson and Spearman, are negative. There is, however, no clear pattern in terms of the significance of the coefficients. Overall, there appears to be a negative relation between the premium paid and the change in operating performance. This contradicts both intuition and the empirical findings of Healy et al. (1992). The results (unreported) are similar when excluding the operating buyers.

One potential reason for the negative relationship between the premium and the operating performance measure can be that a high premium is related to high expectations regarding future synergies by the owner, and that these require investments in terms of restructuring which might lower the operating performance measures in the short run. Therefore, due to the limited time period studied, the operational improvements might not be detected.

Table 11: Pearson & Spearman Correlation Coefficients

The table reports Pearson product-moment correlation coefficients and Spearman's rank correlation coefficients [in brackets] for different combinations of premiums and operating performance measures (unadjusted and industry median-adjusted) and the respective p-values. Δ Sales CAGR is defined as the difference between the Sales CAGR after the buyout, calculated as the compounded annual growth rate from the buyout year (the year when the buyout was completed) to two years after the buyout, and the Sales CAGR before the buyout, calculated as the compounded annual growth rate from two years before to the buyout year to the buyout year. Δ EBITDA-margin is calculated as the difference between the average EBITDA-margin during the two years after the buyout and the average EBITDA-margin during the two years before the buyout. Δ ROA is calculated as the difference between the average return on assets during the two years after the buyout and the average return on assets during the two years before the buyout.

	8 Week Premium	P-value	4 Week Premium	P-value
Δ Sales CAGR	0.16 [0.19]	0.524 0.448	-0.16 [-0.07]	0.524 0.773
Δ EBITDA-margin	-0.37 [-0.50]*	0.118 0.029	-0.10 [-0.13]	0.694 0.586
Δ ROA	-0.39 [-0.46]*	0.103 0.049	-0.11 [-0.06]	0.666 0.792
Δ Adj. Sales CAGR	0.17 [0.22]	0.489 0.381	-0.12 [-0.20]	0.626 0.433
Δ Adj. EBITDA-margin	-0.34 [-0.36]	0.153 0.135	-0.22 [-0.45]*	0.369 0.055
Δ Adj. ROA	-0.26 [-0.23]	0.288 0.344	-0.07 [-0.05]	0.791 0.831

6.4 Summary of hypotheses and results

Hypotheses regarding the European sample

Hypothesis 1: Financial buyers pay less than operating buyers, without controlling for target and deal-specific characteristics

Support: Yes

Hypothesis 2: Financial buyers and operating buyers acquire different types of firms

Support: Yes

Hypothesis 3: Financial buyers pay less than operating buyers, controlling for target and deal-specific characteristics

Support: Yes

Hypotheses regarding the large Swedish sub-sample

Hypothesis 4: Hypothesis 1 is true in the large Swedish sub-sample

Support: Yes

Hypothesis 5: Hypothesis 2 is true in the large Swedish sub-sample

Support: No

Hypothesis 6: Hypothesis 3 is true in the large Swedish sub-sample

Support: Ambiguous

Hypotheses regarding the small Swedish sub-sample

Hypothesis 7: The change in operating performance differs depending on the type of buyer

Support: No

Hypothesis 8: Differences in the change in operating performance (hypothesis 7) can explain the differences in premiums between financial and strategic buyers

Support: Could not be tested

Hypothesis 9: The premium paid (independent of buyer type) is positively correlated with operating performance post buyout

Support: No

7 Discussion

This study shows that the findings from the US market that financial buyers pay less than operating buyers is true also for European data. We find a significant difference in premium when controlling for a wide range of target and deal characteristics. As always when performing empirical studies of this type, one is dependent on external data sources and their accuracy. The data from Zephyr and Datastream is not complete. In a more extensive study this data could potentially have been manually updated and more observations would have been available. One potential flaw with the data set is that it to a large extent is based on the Zephyr database and its definitions, over which we have no control. We have examined the data manually to detect potential problems with the data and values that seem to be wrong. However, it is possible that some errors have slipped through our fingers.

Another data-related issue is that we do not limit the European sample to the large stock exchanges. As a result of this, some countries only have one observation in the study and the majority of the observations are buyouts in Great Britain. Potential problems related to this are differences in the financial markets across countries, for instance regarding stock liquidity and penetration of private equity firms. However, we run all the regressions with country-fixed effects (not reported), which should mitigate any problem with a geographically unbalanced dataset, and the results do not change.

We only look at cash deals to make the comparison between the groups fair. However, this excludes many operating buyers paying with equity or a combination of cash and equity. If these are included the results might change.

As can be seen in table 2 the distribution of buyouts between financial and operating buyers in Sweden is very uneven. This means that the findings in the data are hard to interpret and it is hard to generalize any conclusions. It is possible that a matching technique, similar to the study performed by Roosenboom et al. (2009), would have been better in our sample. However, the sample size might make the matching process difficult, which could enlarge the selection bias.

It would be interesting to add additional explanatory variables, found to be important in explaining the difference in premium between financial and operating buyers, such as managerial ownership in the buyer (Bargeron et al. (2008)) and more detailed information on the sales process (Roosenboom et al. (2009); Gorbenco (2009)). However, this type of data is not available for our sample.

There is a clear selection bias in the small Swedish sub-sample as we go from 80 to 19 observations. The financial buyers are clearly overrepresented in the sample and we have very few operating buyers. This is likely due to the fact that many targets of operating buyers

are fully or partly integrated in the buyer group and hence hard to follow after the buyout. The study of the operating performance after the buyout in the small Swedish sub-sample is made even harder by the high fraction of foreign buyers, for which the availability of private accounting data is limited. It would have been interesting to do a larger Swedish study and not only include buyouts but also private-to-private transactions. However, in that case we cannot observe the market value, hence not the premium or CAR. It would also have been interesting to perform the study on a longer time period, and hence include more observations, to see if this changes the results.

A more theoretically satisfying procedure to analyse the relation between premium paid and post-buyout operating performance would be to compare the performance of the combined entity post merger with the weighted average of the two entities pre merger, as adopted by Healy et al. (1992). Using this method, one would be able to capture potential synergies in both the target and the buyer, unlike our study where we only look at the target. There are further reasons to prefer the former method. When looking at the target company and not the combined entity, there is always a risk of capturing effects of internal restructurings and rearrangements, that might have large effect on the target level, but less effect on the group level. However, mainly due to the large number of foreign buyers, this type of study would be difficult to perform on our limited Swedish sample.

8 Conclusion

In this thesis, we investigate if there is a difference in premium paid between financial and operating buyers and if this potential difference can be explained by differences in post-buyout operating performance.

Using a sample of 1,058 European buyouts between 1997 and 2012, we find that financial buyers, comprising private equity firms and private investor groups, pay an economically and statistically significantly lower transaction premium compared to operating buyers. Financial buyers pay 9 percentage points less than operating buyers, when controlling for a set of target and deal characteristics. This is in line with previous studies by Barger et al. (2008) and Roosenboom et al. (2009). We also find that the financial and operating buyers, to some extent, buy different types of companies. However, this cannot explain the difference in premium.

In a Swedish sub-sample, consisting of 80 buyouts between 1998 and 2012, we also detect a difference in the premium paid by financial buyers and operating buyers. However, this result is not as significant as in the European sample. There are only small differences between the targets of financial and operating buyers in the Swedish sub-sample.

Comparing pre and post-buyout accounting data for a smaller sub-sample of 19 Swedish targets, we do not find any evidence of differences in the change in operating performance between targets of financial and operating buyers. Hence, we cannot explain the difference in premium with differences in post-buyout operating performance.

Interestingly, the results suggest that there is a negative correlation between the premium paid and the operating performance of the target post buyout. This contradicts both economic intuition and the results of Healy et al. (1992). A possible explanation to this anomaly is the limited sample size and time period studied.

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9 Appendix

Table 12: Summary statistics for the European Sample

Variable	Mean	Std. Dev.	Min.	Max.	N
Market Cap.	303.24	815.93	1.30	5759.70	1054
Debt-to-Assets	0.19	0.19	0.00	0.77	843
Int. Assets-to-Assets	0.20	0.23	0.00	0.88	848
Op. Cash Flow-to-Assets	0.05	0.14	-0.70	0.35	843
EBITDA-margin	2.55	75.98	-552.76	133.65	1008
Return on Assets	2.20	19.22	-101.89	37.85	850
Tobin's Q	1.20	1.06	0.11	7.45	833
St Dev	20.75	31.41	0.01	177.04	1055
Excess Return	16.03	49.73	-83.31	206.5	1037
Pre-bid run-up	17.36	27.06	-34.28	131.11	1055
Amihud's illiquidity	5.60	27.14	0.00	229.02	996
Change in Sales	7.40	18.83	-49.37	85.49	968
Change in Employees	5.91	17.31	-33.06	88.21	952
Deal value mil GBP	145.61	192.01	0.08	975.95	958

Table 13: Summary statistics for the Large Swedish Sub-Sample

Variable	Mean	Std. Dev.	Min.	Max.	N
Market Cap.	182.77	328.36	1.41	1822.22	80
Debt-to-Assets	0.20	0.21	0.00	0.77	80
Int. Assets-to-Assets	0.16	0.18	0.00	0.88	80
Op. Cash Flow-to-Assets	0.07	0.10	-0.27	0.31	80
EBITDA-margin	15.07	21.24	-36.04	107.7	80
Return on Assets	5.77	14.92	-63.90	37.85	80
Tobin's Q	1.29	1.07	0.16	7.45	80
St Dev	7.80	8.25	0.21	42.99	80
Excess Return	4.75	52.06	-83.31	206.50	80
Amihud's illiquidity	7.31	19.23	0.00	104.64	80
Change in Sales	6.51	12.72	-28.78	47.73	80
Change in Employees	3.39	10.40	-19.92	38.50	80
Deal value mil GBP	137.56	184.28	1.80	822.02	80

Table 14: Summary Statistics for Operating Performance in the Small Swedish Sub-Sample

Variable	Mean	Std. Dev.	Min.	Max.	N
Change Sales CAGR	6.073	24.486	-40.281	56.044	18
Change EBITDA-margin	1.023	14.357	-26.209	41.246	19
Change ROA	1.684	10.7	-12.996	27.709	19
Change Adj. Sales CAGR	14.404	35.597	-45.158	91.706	18
Change Adj. EBITDA-margin	2.335	14.542	-19.289	36.965	19
Change Adj. ROA	3.085	10.564	-12.101	25.475	19

Table 15: Regression: Eight Week Premium in the European Sample

The dependent variable in the regressions is the Eight Week Premium, the bid price divided by the share price 40 trading days prior to the announcement day. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, MBO (Management buyout), Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the buyout is classified as a management buyout, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-14.3443*** (-4.84)	-13.6090*** (-4.37)	-13.6053*** (-4.36)	-12.1012*** (-3.68)	-10.2908*** (-3.14)	-8.1888** (-2.27)
Listed Buyer		3.8375 (0.92)	3.8319 (0.92)	1.4791 (0.36)	3.3857 (0.79)	2.3769 (0.45)
Same Primary Industry			0.1351 (0.04)	-0.0059 (-0.00)	1.5523 (0.39)	3.9653 (0.93)
Foreign				7.9169** (1.97)	5.2551 (1.22)	5.0834 (1.10)
Ln(Market Cap.)					-4.5253*** (-3.65)	-4.4790*** (-3.56)
Debt-to-Assets					-10.5472 (-1.02)	-15.3011 (-1.49)
Int. Assets-to-Assets					26.7927*** (3.05)	24.1032** (2.53)
Op. Cash Flow-to-Assets					-18.0723 (-1.07)	-20.9651 (-1.09)
EBITDA-margin					-0.0779 (-1.40)	-0.0935* (-1.68)
Return on Assets					-0.0212 (-0.13)	0.0808 (0.45)
Tobin's Q					-4.9815* (-1.83)	-4.4810 (-1.42)
St Dev					0.0013 (0.03)	0.0026 (0.05)
Excess Return					0.1360*** (2.97)	0.1120** (2.23)
Amihud's illiquidity					0.0288 (0.23)	0.0668 (0.42)
Change in Sales					-0.0056 (-0.07)	-0.0246 (-0.29)
Independence Indicator						1.2517 (0.33)
Several Bids						8.5417 (1.18)
MBO						-14.4629*** (-2.97)
Hostile Bid						-11.5330** (-2.21)
Observations	1058	1055	1055	1055	761	691
Adjusted R^2	0.014	0.014	0.013	0.017	0.105	0.099

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16: Regression: Four Week Premium with Year & Industry Dummies in the European Sample

The dependent variable in the regressions is the Four Week Premium, the bid price divided by the share price 20 trading days prior to the announcement day. All specifications are estimated using both year and industry dummies. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 20 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, MBO (Management buyout), Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the buyout is classified as a management buyout, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-14.3240*** (-5.44)	-13.0411*** (-4.81)	-13.0311*** (-4.81)	-12.3602*** (-4.36)	-10.2343*** (-3.19)	-7.8316** (-2.16)
Listed Buyer		7.3286** (2.00)	7.2920** (1.99)	6.2230* (1.73)	7.2300* (1.94)	8.0188* (1.77)
Same Primary Industry			0.7721 (0.24)	0.7118 (0.22)	1.1131 (0.32)	1.7898 (0.47)
Foreign				3.7677 (1.00)	2.3723 (0.56)	3.1707 (0.71)
Ln(Market Cap.)					-3.3263*** (-2.99)	-3.2522*** (-2.80)
Debt-to-Assets					-3.3979 (-0.34)	-7.8893 (-0.75)
Int. Assets-to-Assets					16.7891 (1.57)	18.8143* (1.66)
Op. Cash Flow-to-Assets					-8.9181 (-0.55)	-10.1068 (-0.52)
EBITDA-margin					-0.0222 (-0.64)	-0.0301 (-0.82)
Return on Assets					-0.1664 (-1.26)	-0.1404 (-0.89)
Tobin's Q					-5.7475** (-1.99)	-5.4666* (-1.72)
St Dev					-0.0493 (-1.29)	-0.0544 (-1.30)
Excess Return					0.0868* (1.77)	0.0762 (1.42)
Amihud's illiquidity					-0.0089 (-0.09)	0.0102 (0.08)
Change in Sales					-0.0417 (-0.51)	-0.0413 (-0.47)
Independence Indicator						-1.3162 (-0.37)
Several Bids						2.7907 (0.45)
MBO						-16.6720*** (-3.12)
Hostile Bid						-12.9840** (-2.23)
Observations	1052	1052	1052	1052	761	691
Adjusted R^2	0.063	0.066	0.065	0.066	0.141	0.133

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: Regression: Eight Week Premium with Year Dummies in the Large Swedish Sub-Sample

The dependent variable in the regressions is the Eight Week Premium, the bid price divided by the share price 40 trading days prior to the announcement day. All specifications are estimated using both year dummies. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 40 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-24.4290** (-2.39)	-21.1812* (-1.87)	-20.7293* (-1.83)	-13.1818 (-1.29)	-3.1766 (-0.23)	-0.8288 (-0.04)
Listed Buyer		17.7217 (1.31)	18.3937 (1.34)	13.0859 (0.87)	35.4447** (2.35)	40.5141* (2.03)
Same Primary Industry			9.1696 (0.53)	9.3823 (0.54)	35.6871* (1.70)	39.1072 (1.52)
Foreign				19.8576 (1.59)	10.0896 (0.73)	8.9136 (0.53)
Ln(Market Cap.)					16.4950** (2.60)	17.1548** (2.54)
Debt-to-Assets					-15.3184 (-0.45)	-10.2599 (-0.26)
Int. Assets-to-Assets					24.7710 (0.75)	-1.8763 (-0.04)
Op. Cash Flow-to-Assets					59.1861 (0.65)	68.5184 (0.60)
EBITDA-margin					0.1824 (0.73)	0.1329 (0.40)
Return on Assets					-0.2157 (-0.32)	-0.3748 (-0.38)
Tobin's Q					-13.5586* (-1.83)	-12.7455 (-1.44)
St Dev					-2.5828* (-1.94)	-2.4513 (-1.69)
Excess Return					0.5078*** (3.29)	0.4878*** (2.95)
Amihud's illiquidity					1.1460* (1.70)	1.2310* (1.73)
Change in Sales					0.3681 (0.67)	0.2320 (0.32)
Independence Indicator						-6.2989 (-0.36)
Several Bids						-1.1392 (-0.05)
Hostile Bid						-3.1037 (-0.12)
Observations	80	80	80	80	80	80
Adjusted R^2	0.107	0.109	0.100	0.108	0.482	0.412

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 18: Regression: Four Week Premium in the Large Swedish Sub-Sample

The dependent variable in the regressions is the Four Week Premium, the bid price divided by the share price 20 trading days prior to the announcement day. Specification (1) only includes a dummy variable indicating if the buyer is financial. Specification (2) includes a dummy variable indicating if the firm is listed. Specification (3) includes a dummy variable indicating if the target and acquirer is in the same industry. Specification (4) includes a dummy variable indicating if the acquirer is foreign. Specification (5) includes all the target characteristics. Specification (6) includes all the deal characteristics. The market value is defined as the market capitalization 20 trading days before the announcement day. Debt-to-Assets, Intangible Assets-to-Assets and Operating Cash Flow-to-Assets is the book value of the respective item divided by the book value of total assets, using latest available data. EBITDA-margin is defined as EBITDA divided by total sales. Return on Assets is EBIT over book value of total assets. Tobin's Q is the market value of equity divided by the book value of equity. St Dev is the standard deviation of the equity and Excess Return is the market adjusted return, both over one year prior to the buyout. Amihud's illiquidity measure (2002). Change in sales is calculated as the annual compounded growth rate over three years prior to the buyout. Independence Indicator is a dummy variable that is one if the acquirer does not have a shareholder with a direct ownership over 50% according to the BvDEP Independence Indicator. Several Bids, Hostile Bid, Same Industry and Foreign are dummy variables that are one if the deal respectively is a process with several bids, the bid is hostile, the target and buyer has the same primary two-digit NACE code or the acquirer is foreign. T-statistics for the independent variables are found in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Financial Buyer	-16.1972*	-13.1143	-12.4752	-7.5497	-3.8712	-2.3562
	(-1.93)	(-1.42)	(-1.36)	(-0.96)	(-0.33)	(-0.13)
Listed Buyer		16.8219	17.7723	14.3084	28.2599*	31.7017*
		(1.49)	(1.56)	(1.11)	(1.83)	(1.93)
Same Primary Industry			12.9667	13.1054	36.0757**	39.1799*
			(0.94)	(0.94)	(2.11)	(1.87)
Foreign				12.9588	2.7958	0.4556
				(1.19)	(0.21)	(0.03)
Ln(Market Cap.)					10.1012*	13.4220*
					(1.73)	(1.93)
Debt-to-Assets					-25.7550	-22.4362
					(-0.73)	(-0.57)
Int. Assets-to-Assets					29.5633	5.6248
					(1.08)	(0.15)
Op. Cash Flow-to-Assets					42.3977	52.2879
					(0.55)	(0.57)
EBITDA-margin					0.0154	0.0192
					(0.06)	(0.06)
Return on Assets					0.0636	-0.0212
					(0.11)	(-0.03)
Tobin's Q					-10.2827	-9.0213
					(-1.62)	(-1.14)
St Dev					-1.9252*	-1.9445*
					(-1.79)	(-1.70)
Excess Return					0.2521*	0.2716
					(1.70)	(1.67)
Amihud's illiquidity					0.6209	0.6681
					(0.83)	(0.89)
Change in Sales					0.3220	0.1636
					(0.61)	(0.24)
Independence Indicator						-7.2256
						(-0.50)
Several Bids						-18.4633
						(-0.91)
Hostile Bid						-4.8718
						(-0.18)
Observations	80	80	80	80	80	80
Adjusted R^2	0.177	0.184	0.185	0.185	0.401	0.330

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 19: List of Transactions in the Small Swedish Sub-sample

Target	Acquirer	Type of buyer	Deal year	SNI 2007
BIORA AB	STRAUMANN HOLDING AG	Operating	2003	21
BOSS MEDIA AB	GEMED AB	Operating	2008	59
EPSILON HOLDING AB	DANIR AB	Financial	2003	71
ESSELTE AB	JW CHILDS ASSOCIATES LP	Financial	2002	46
FINNVEDEN AB	CIDRON INVEST AB	Financial	2005	46
GANT COMPANY AB	PROCASTOR SA	Operating	2008	47
GUNNEBO INDUSTRIER AB	SEGULAH STELLATA HOLDING AB	Financial	2008	25
LINDAB AB	LINDAB INTRESSEENTER AB	Financial	2001	46
NEFAB AB	NPNC INTRESSEENTER AB	Financial	2007	46
NILÖRNGRUPPEN AB	TRACTION BRANDING AB	Operating	2009	46
NÄRKES ELEKTRISKA AB	SEGULAH AB	Financial	2006	43
PANDOX AB	APES HOLDING AB	Operating	2003	68
PERSEA AB	PERSEA INTRESSEENTER AB	Financial	2003	46
SALUSANSVAR AB	DNB NOR ASA	Operating	2007	66
SECURITAS DIRECT AB	ESML INTRESSEENTER AB	Financial	2008	43
SPENDRUPS BRYGGERI AB	SPENDRUP INVEST AB	Financial	2001	11
TECHNOLOGY NEXUS AB	PONDERUS TECHNOLOGY AB	Financial	2009	62
TELECA AB	CAYTEL 1 LP	Financial	2008	70
WATER JET SWEDEN AB	VEGA RONNEBY AB	Financial	2009	28

Table 20: Summary Statistics for Operating Performance for Financial Buyers

Variable	Mean	Std. Dev.	Min.	Max.	N
Change Sales CAGR	4.636	24.16	-40.281	56.044	13
Change EBITDA-margin	2.13	8.4	-10.884	24.344	14
Change ROA	2.14	10.804	-12.996	27.709	14
Change Adj. Sales CAGR	9.475	27.852	-30.52	58.73	13
Change Adj. EBITDA-margin	1.731	10.277	-10.112	32.624	14
Change Adj. ROA	2.847	10.852	-12.101	25.475	14

Table 21: Summary Statistics for Operating Performance for Operating Buyers

Variable	Mean	Std. Dev.	Min.	Max.	N
Change Sales CAGR	9.808	27.801	-23.359	53.789	5
Change EBITDA-margin	-2.077	26.113	-26.209	41.246	5
Change ROA	0.405	11.538	-9.452	19.643	5
Change Adj. Sales CAGR	27.218	52.668	-45.158	91.706	5
Change Adj. EBITDA-margin	4.026	24.566	-19.289	36.965	5
Change Adj. ROA	3.749	10.893	-7.985	16.41	5

Table 22: List of Indices

Country	Index
Belgium	BEL 20
Switzerland	SWISS MARKET (SMI)
Cyprus	CYPRUS GENERAL
Germany	DAX 30 PERFORMANCE
Denmark	OMX COPENHAGEN (OMXC20)
Estonia	OMX TALLINN (OMXT)
Finland	OMX HELSINKI 25 (OMXH25)
France	FRANCE CAC 40
Great Britain	FTSE100
Greece	FTSE/ATHEX LARGE CAP
Hungary	BUDAPEST (BUX)
Ireland	ISEQ 20
Italy	FTSE MIB INDEX
Luxembourg	LUXEMBOURG SE GENERAL
Netherlands	AEX INDEX (AEX)
Norway	OSLO SE OBX
Poland	WARSAW GENERAL INDEX
Portugal	PORTUGAL PSI-20
Russia	MICEX 10 INDEX
Sweden	OMX STOCKHOLM 30 (OMXS30)
Slovenia	SLOVENIAN BLUE CHIP (SBI TOP)

Table 23: Cross-Correlation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Financial Buyer	1																				
2 Listed Buyer	-0.21	1																			
3 Market Cap.	-0.01	0.07	1																		
4 Debt-to-Assets	0.06	-0.06	0.14	1																	
5 Int. Assets-to-Assets	0.11	-0.03	0.05	-0.07	1																
6 Op. CF-to-Assets	0.08	0.02	0.09	-0.05	0.02	1															
7 EBITDA-margin	0.03	0.01	0.08	0.09	0.01	0.34	1														
8 Return on Assets	0.07	0.04	0.11	0.04	-0.07	0.61	0.56	1													
9 Tobin's Q	-0.04	0.02	0.09	-0.02	0.06	0.03	-0.07	0.03	1												
10 St Dev	0.02	-0.01	0.29	0.03	-0.02	0.09	0.10	0.16	0.09	1											
11 Excess Return	-0.03	0.00	0.11	-0.01	-0.04	0.23	0.09	0.25	0.20	0.12	1										
12 Amihud's illiquidity	-0.03	-0.05	-0.05	-0.01	0.02	-0.08	-0.08	-0.07	-0.05	-0.12	-0.08	1									
13 Change in Sales	0.02	0.04	0.02	0.01	0.18	0.07	0.22	0.10	0.15	0.12	0.02	-0.06	1								
14 Change in Employees	-0.02	0.03	-0.04	-0.01	0.20	-0.03	-0.03	-0.03	0.13	0.1	-0.04	0.03	0.67	1							
15 Deal value mil GBP	0.08	0.05	0.90	0.14	-0.02	0.16	0.13	0.19	0.16	0.27	0.14	-0.1	0.07	0.05	1						
16 Independence	-0.11	0.4	0.03	-0.04	-0.09	-0.04	-0.02	-0.04	-0.05	-0.07	0.00	0.06	-0.04	-0.02	-0.08	1					
17 Several Bids	0.06	-0.04	0.16	0.06	0.01	0.09	0.04	0.05	0.05	0.14	0.17	-0.03	-0.03	-0.05	0.09	-0.01	1				
18 MBO	0.11	-0.11	-0.08	-0.07	-0.08	0.08	0.01	0.00	-0.05	-0.06	-0.03	0.03	-0.05	0.03	-0.09	-0.05	0.01	1			
19 Hostile Bid	0.02	-0.06	0.02	0.00	-0.04	-0.03	0.04	-0.02	-0.04	0.04	-0.04	-0.03	0.00	-0.01	0.00	0.02	0.01	-0.04	1		
20 Same Industry	-0.04	0.04	0.05	0.06	-0.10	-0.01	-0.08	0.00	-0.04	0.06	0.02	0.00	-0.09	0.00	-0.02	0.03	-0.01	0.04	-0.04	1	
21 Foreign	-0.24	0.3	0.11	-0.02	-0.04	-0.03	-0.02	-0.02	0.06	-0.02	0.03	0.06	-0.03	0.01	0.05	0.27	0.03	-0.12	-0.02	0.04	1