

Stockholm School of Economics
Department of Accounting and Business Law
Master's Thesis in Accounting and Financial Management
December 2007

Bidder Returns

A Study on Share Price Reactions Following Takeover Announcements 2000 – 2006

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Abstract

This Master's Thesis set out to investigate how bidder returns are dispersed in 113 acquisitions made by Swedish companies between the years 2000 and 2006, and if this dispersion can be explained with five explanatory variables. The investigated variables are; bidder acquisition experience, owner control in the bidding company, domestic or cross border acquisitions, industry similarity between the bidder and target, and the relative size of the target. This study is performed by measuring the short-term abnormal share price reaction for the acquirer. We observe that bidder returns are substantially dispersed around a slightly positive mean of 1.89 per cent. Furthermore, we find that bidder acquisition experience, relative size of the target, owner control, conglomerate acquisitions, and international acquisitions have a positive effect on the return that the bidder realizes. While vertical acquisitions affect bidder returns negative. However, our estimated model explains 10 per cent of the variation in bidder return, indicating that there are other variables that have an effect on bidder returns.

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Keywords: M&A, mergers, acquisitions, bidder returns, CAR, event window

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Presentation Date: December 7th, 2007, 13¹⁵ - 15⁰⁰

Venue: 350

Discussants: Johan Ejerhed and Jonas Nyman

Acknowledgement

We would like to thank our tutor, Joakim Levin, for his insightful comments and helpful advice during the work with this Master's Thesis. Furthermore, we would like to thank Per-Olov Edlund and Ingvar Strid for their help and guidance with the statistical modelling. We would also like to express our appreciation to Jacob Spens, at Greenhill & Co., for his valuable time and dedication during the interview.

Stockholm 26 November 2007

Philip Jaskow and Susanna Grill

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1 Introduction

In 2006, the value of global Mergers and Acquisitions (M&A) was \$3.8 trillion, the highest value ever (Thomson Financial, 2007). This number can be compared to China's and India's combined GDP for 2006, which was \$3.2 trillion (CIA – The world Factbook, 2007). Given the large yearly value of global M&A, it plays an important role to investors as the potential returns are substantial.

As synergies between companies exist the combined return to target and bidder shareholders is expected to be positive. Yet, there exists a lively debate, among both practitioners and academics, whether or not M&A generate positive returns for the acquirer. One reason for this debate may be that previous research has shown that the distribution of the positive combined return is highly unevenly divided between the parties. The majority of the gains generally accrue to the targets' shareholders due to the premiums required by them in order to sell their shares. Hence, the returns to acquirers are historically shown to be neutral or even negative (Bild, 1998). However, some variation in returns around the mean is expected, and as companies choose to continue to acquire, it is of interest to investigate this further. The general purpose of this Master's Thesis is therefore to contribute with insight into how bidder returns are dispersed and to identify the common characteristics of acquisitions that generate positive or negative returns.

To operationalise the general purpose, we chose to study five specific variables. These variables are chosen as they are found to have substantial effect on bidder returns in previous studies. Furthermore, the combination of these variables is relatively unexplored, and to our knowledge no other study analyses this combination of specific factors' effect on bidder return.

The variables included in the study are:

- *Acquisition Experience* which encompasses the number of previous acquisitions made by the acquirer and is included to provide a better understanding if acquirers can learn from previous acquisitions and improve bidder return.
- *Owner Control* which identifies the formal control of the majority owner to explain to what extent the controlling owner affects bidder return.
- *Domestic/Cross Border* which is included to explain the potential difference in bidder return between acquisitions of domestic and international targets.
- *Industry Similarity* which aims at explaining any differences in bidder return due to the relationship of the industries that the bidders and targets operate in.
- *Relative Size of Target* which attempts to clarify if the size difference between the bidder and the target has any influence on bidder return.

Assuming that investors have rational expectations, the short term share price reaction should be a good approximation for bidder return, i.e. the long term benefits or disadvantages arising due to an acquisition.¹

With this background, the specific purpose of this Master's Thesis is to analyse the five variables' effect on bidder return.

1.1 Disposition

This paper is structured as follows: First, in section two we begin by discussing the methodology of our study. Secondly, we describe the selection criteria for our sample as well as comment on what sources we have used and the reliability of these. Thirdly, we explain how the variables are defined and our motivation for including them in the study. Fourthly, the theoretical framework behind each of the explanatory variables and the control variable will be discussed in section five. This section will also give an overview of previous empirical findings, and present the hypotheses. Fifthly, the data will be presented and analysed in order to comment on general trends. Sixthly, in section seven the results from the regressions will be analysed and commented on with regard to the hypotheses. This section will also provide a comment on the robustness of the estimated model. Finally, the conclusions from section six and seven will be discussed together with the theories and previous empirical studies presented in section five.

¹ This assumption is consistent with previous studies; see e.g. Eriksson & Spens (1997) and Hayward (2002). For a more in-depth discussion on the topic see sections 2.3 and 2.4.

2 Methodology

This section presents the assumptions and justification for the research methodology. Topics covered in this section include the methodological approach, underlying assumptions, and the model for calculating bidder Cumulative Abnormal Return.

2.1 Methodological Approach

The research methodology adopted in the study is the *Positivist Methodology*. This approach stems from the field of natural sciences where it is assumed that reality can be tested, and that a truth can hence be found. This methodology assumes that the researcher can apply an objective perspective by formulating hypotheses based on theories. These are validated by carefully designed tests using large and unbiased samples. Further, the approach builds on that results are replicable (Ryan, Scapens & Theobald, 2002).

Critique exists against this research methodology because of the assumptions inherent in it. Opponents to the positivist methodology suggest alternative methods, e.g. the *Hermeneutic Approach* which seeks to interpret the subjective and individual characteristics of variables (Ryan et al., 2002). Both approaches are interesting to apply to a study on M&A. However, the purpose with this Master's Thesis is to draw generalisable conclusions regarding the characteristics of an acquisition which should be applicable to other datasets, as opposed to drawing in-depth conclusions on individual acquisitions. Therefore, the *Positivist Methodology* will be applied in this study. This methodological approach is consistent with many previous similar studies.²

2.2 Shareholder Perspective

The perspective on bidder return adopted in this Master's Thesis is the *Shareholder Perspective*. It is important to make this clear, as the potential benefits from an acquisition can be measured in different ways depending on personal values and beliefs. An alternative perspective is to adopt the *Stakeholder Perspective*. Stakeholders are those that have an interest in the company, e.g. employees, customers or suppliers (Koller, Goedhart & Wessels, 2005). If the stakeholder perspective is adopted, the benefits and disadvantages to all parties concerned would have to be measured. This is outside the scope of this study, which is only concerned with the benefits generated to the owners of the acquiring company, i.e. the bidder return.

2.3 Market Efficiency Theory

Since this Master's Thesis studies short-term effects, theories considering market efficiency are important as a background to understand the event study methodology and results of the study. This study builds on the assumption that the benefits or disadvantages (bidder returns) due to an acquisition can be found by measuring the share price reaction at announcement.

² See e.g. Baharian & Nilsson (2005) and Hayward (2002).

For that, the market needs to function in such a way that it captures the value changes. Economists generally define three levels of market efficiency, which are classified according to how much information that is expected to be captured in the share price.

The lowest form, the *weak* form of market efficiency is said to only contain information from the records of historical share prices. Under this form, share prices will follow a random pattern and it is not possible to predict future share prices. Hence, it is not possible to measure bidder return due to share price reactions under this form.

The middle level of market efficiency, called the *semistrong* form of market efficiency, is said to contain information on historical share price development as well as information contained in all other publicly available information. Under this form, the share price will immediately adjust to new information in the market. E.g. if an acquisition is announced, the share price will adjust to this new information instantly.

The highest level of market efficiency is the *strong* form. Under this form all information that would give a perfect prediction of the future is incorporated in the share price. Under this form the acquisition announcement should have no share price effect as the acquisition announcement would already have been expected by the market, and hence incorporated into the share price at some earlier point in time (Brealy, Myers & Allen, 2006).

This study builds on the assumption that the *semistrong* form of market efficiency holds. This is consistent with previous event studies.³ An event window that spans seven business days (-3, 3) is chosen due to that information is expected to leak prior to announcement, and the market does not react immediately to the new information (Keown & Pinkerton, 1981).⁴

2.4 Cumulative Abnormal Return Model

An event study analyses the economic impact arising from a certain decision or event. The desired impact to be measured in this study is the bidder return, i.e. the benefits or disadvantages due to an acquisition. To measure bidder return the market adjusted return model based on the framework suggested by Brown & Warner (1985) is applied in this study. The specific measure used is the bidder Cumulative Abnormal Return (CAR), which is calculated as follows:

The abnormal return⁵, $\varepsilon_{i,t}$, is estimated with:

$$\varepsilon_{i,t} = r_{i,t} - r_{m,t}$$

Where $r_{i,t}$ is the return on share i on day t and $r_{m,t}$ is the industry return on day t .

To compute the market return, companies have been classified into industries, and a value weighted Affarsvärlden Index for that industry is used for calculating abnormal return.⁶ When

³ E.g. Eriksson & Spens (1997) and Hayward (2002).

⁴ Keown & Pinkerton (1981) find that information for acquisitions is leaked up to twelve days prior to acquisition.

⁵ Brown & Warner (1985) refer to this as the *Market adjusted return*.

⁶ Datastream contains data on 10 Affarsvärlden Industry Indexes. They are value weighted, and dividends are added back.

the industry of the acquirer could not be determined, Affarsvärlden General Index (AFGX) is used.⁷ All indexes have existed during the whole examination period.

Bidder CAR is computed as:

$$CAR(-t, t) = \sum_{j=-t}^t \varepsilon_j$$

Where $-t$ to t is the event window.

A seven business days event window $(-3, 3)$ is applied. This time period deviates from the eleven days event window, suggested by Brown & Warner (1985). The event window aims at capturing the effects of information leakage to the market and the fact that the market may need some time to react to the news post-announcement, but without distorting the effect of the acquisition due to noise.⁸ The explanation to use a seven business days event window, instead of eleven days, is twofold. First, capital markets have become more efficient since 1985 when Brown & Warner (1985) outlined their model, i.e. faster incorporating the effects contained in the announcement (Comment & Jarrell, 1995). Second, tougher regulation on insider trading and information leakage prevents the market from reacting in advance to the announcement.⁹ Thus, we believe that the desired effect is captured with a seven day event window, and using a larger event window would add noise and reduce the quality of the results.

An attempt has been made to improve the results using a market and risk adjusted model, the Capital Asset Pricing Model (CAPM), which uses estimates based on historical data. However, this does not improve the quality of our results.¹⁰ This is consistent with previous studies, which confirm that for short-term studies the results are not improved by using risk adjusted models (Koller et al., 2005). Additionally, some companies in the sample have performed multiple acquisitions, and hence the estimation of Beta for use in the CAPM is clouded by these previous acquisitions.¹¹

Bidder CAR is analysed in two steps. First, bidder Cumulative Average Abnormal Return (CAAR) is analysed, and secondly regression analyses are performed. Bidder CAAR provides an overview of the sample and indicates what results can be expected in the regression analysis. The regression analyses performed in this study enables the evaluation of each explanatory variable's effect on the dependant variable holding other explanatory variables constant. The linear regression model builds on the assumption that changes in the explanatory variables affects the dependant variable linearly.¹²

⁷ AFGX includes all companies listed on OMX Stockholm. This index is commonly used when evaluation market performance. It is value weighted, and dividends are added back.

⁸ Noise is defined as fluctuations in share price and volume that can confuse interpretation of market direction (Trader's Glossary).

⁹ Sweden introduced its first law regarding insider trading in 1990, and updated it in 2005 with yet tougher regulation.

¹⁰ In fact, on average we obtained the exact same results for bidder CAR to the second decimal with the CAPM method.

¹¹ See Brown & Warner (1980) for a comparative study of the two approaches.

¹² Gujarati defines a regression as: "Regression analysis is concerned with the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables, with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known of fixed (in repeated sampling) values of the latter."

3 Data Sample

In this section the sample and sources used in this study are presented. We will comment on how the sample has been selected, as well as the reliability of the sources.

3.1 Selection Criteria

This section describes the criteria which have been imposed to specify the sample that is analysed.

M&A is an area that is extensively researched. However, studies on Swedish data are relatively scarce. Analysing Swedish data from 1 January 2000 to 31 December 2006, with the combination of explanatory variables that are specified in this study to explain bidder CAR, has not been performed previously to our knowledge. Thus, the study is unique with regard to the sample period and combination of explanatory variables.

However, since this data has not been used in previous research, this study does not have a preset data sample.¹³ Hence, all data has been collected from a secondary database and filtrated using specified criteria. The criteria that an acquisition needs to meet in order to be included in the sample are specified below:

- The acquisition is announced between 1 January 2000 and 31 December 2006
- The acquirer is listed on OMX Stockholm
- The acquirer is incorporated in Sweden
- The share price data for the acquirer around the announcement of the acquisition is available
- The acquirer or target is not a holding company or investment fund
- The deal value (i.e. the market value of target firm's acquired equity plus potential premium) is at least €10m
- The acquirer has less than 50 per cent of the target's capital prior to the acquisition, and reaches 100 per cent of the target's capital in the acquisition
- The acquisition is made by a sole acquirer
- The acquisition must have been completed subsequently to the announcement¹⁴

The motivations to why this criteria is applied are presented below.

The most recent time period, 2000 to 2006, has been chosen for the study in order to capture current trends, and because this data has not been analysed to a great extent previously. Further, the period 2000 to 2006 captures the downturn after the technology bubble, as well as the economic pick up in the world economy since 2003, and can hence be seen as a good sample as it includes both a boom and bust. Swedish data has been chosen primarily due to that it is relatively unexplored compared to US or UK data. Furthermore, we have a natural

¹³ The research paper that best approximates the data that is intended to study in this Master's Thesis, is the Master's Thesis by Simensen & Åkesson (2005), looking at Swedish data from 1986 - 2003. However, they collected all their data from the database Förvärv & Fusioner which we have not had access to. Hence, the data from the last four years of their study could not be used since the data for the last three years of this study could not be collected from the same database and the compatibility of the sources could not be assured.

¹⁴ The status must be set to 'completed' on 2 May 2007.

interest in the performance of Swedish corporate transactions due to the focus of our education.

The cut-off point for acquisitions has been set to €10m in deal value. Although this is arbitrary and other alternatives exist, we believe that the cut-off point excludes economically insignificant acquisitions that may not receive attention from management and where little information is likely to be disclosed.¹⁵

The focal acquisition is the one where the acquirer increases the capital stake from less than 50 per cent of the target to 100 per cent. This cut-off is chosen because an owner of 100 per cent of the company is fully flexible in how to realise potential synergies, e.g. holding less than 100 per cent limits the restructuring of the target company. The maximum initial stake is set to 50 per cent because below this limit, the potential to realise synergies is limited. Thus, with these limits we are able to capture the fullest share price effect of possible synergies.¹⁶

Acquisitions made by investment funds or holding companies are excluded. The rationale behind excluding these transactions is that these acquisitions are seen as financial investments by the funds/holding companies. Hence, these acquisitions are not made with the goal of exploiting operational synergies. Acquisitions made by multiple acquirers are also excluded. The logic behind this is two-fold. First, multiple acquirers that set up a joint venture may not conduct the acquisition in order to exploit operational synergies, and secondly, it is difficult to measure the share price reaction due to that more than one share would have to be evaluated.¹⁷

Many similar studies exclude acquisitions made by financial services firms, such as banks, brokers and insurance companies. This is usually done with the motivation that these firms are heavily regulated and in order to make the studies more comparable with studies on US data which frequently exclude financial services firms.¹⁸ These acquisitions are included in this study as these acquisitions also offer potential for operational synergies, and are hence relevant for measuring what this study has set out to do.

The sample only includes transactions that have the status ‘completed’ by 2 May 2007. This criterion is set in order to exclude transactions that were announced, but then fall apart. Although these could potentially be included because the share price reaction is existent, they have been excluded because the reaction will most probably include a discount due to the uncertainty that the transaction will be completed. This may hence give an unrepresentative illustration of reality.¹⁹

3.2 Sources

The database Bureau van Dijk: Zephyr (Zephyr) is used to find which acquisitions are performed during the period with the specified criteria. Zephyr has also provided the data for a majority of the variables.²⁰ Annual Reports and company websites are used to identify

¹⁵ Finkelstein & Halebian (2002) use a cut-off at \$10m in total assets in their sample. Bergström & Nyholm (2003) use a cut-off ratio of 10 per cent in relative market capitalisation of the target.

¹⁶ Previous research on Swedish data (e.g. Bauer & Lundgren, 2003) has defined acquisitions where the bidder acquires more than 50 per cent of the targets capital.

¹⁷ This method is consistent with previous studies, e.g. Alpsten & Barck-Holst (1999).

¹⁸ See e.g. Bauer & Lundgren (2003).

¹⁹ We recognise that successful acquisitions may also contain a discount. However, the discount is assumed to be higher in transactions that are not completed due to the lower probability of it being completed.

²⁰ The data for the variables acquisition experience, domestic/cross border, industry similarity and public/private are taken from Zephyr.

which companies are holding companies or investment funds as well as the ownership structure in the bidder at the time of acquisitions, since this data cannot be deduced from Zephyr. The database Thomson Financial: Datastream (Datastream) is used to obtain share price data, and market capitalisation for the acquiring companies.²¹ Datastream is also used to find price data on Affarsvärlden Indexes as well as exchange rates. No missing values in daily share price data were encountered.

Zephyr generates a total of 364 085 acquisitions for the period 1 January 2000 to 31 December 2006²². Imposing the criteria on the total sample generated by Zephyr, the sample is narrowed down to 129 acquisitions with functions available in Zephyr. Thereafter, acquisitions (1) made by holding companies and investment funds, (2) made by multiple acquirers, (3) and for which share price data is not found, have been excluded.²³ In general, the aim is to impose cut-off points with the purpose to exclude economically unimportant transactions.

Table 3.1 *Number of acquisitions excluded due to sample selection criteria*

The acquisition is announced between 1 January 2000 and 31 December 2006	364085	364085
The acquirer is not listed on OMX Stockholm	-359728	4357
The acquirer is based outside Sweden	-1340	3017
The deal value is less than €10m	-2357	660
The acquirer does not reaches a final stake of 100 per cent of the target after the acquisition	-481	179
The deal status is not completed 2 May 2007	-50	129
The acquirer or target is a holding company or investment fund	-7	122
The acquisition is made by multiple acquirers	-4	118
Share price data is not available for acquirer	-5	113
Final Sample		113

3.3 Reliability of Sources

Datastream is a commonly used database for the collection of price data for public companies. However, it is a secondary source, and it is hence possible that certain data points are erroneous. Zephyr is a database generally recognised by the business community as a reliable source for data on M&A. Since it is a data service upon which business professionals base their decisions, the database is regarded as reliable. However, to confirm the accuracy of the sample, a number of randomly chosen acquisitions have been checked with the investor relations department of the acquiring companies. No erroneous data points were discovered.²⁴ In sum, the databases may remain a source of error and bias, albeit a minor one, and can be regarded as a good approximation of reality.

²¹ The reported market capitalisation does not include employee stock options or convertible debt, which may affect the market capitalisation in the future.

²² On 2 May 2007.

²³ We have failed to find share price data for companies that were in fact de-listed when Zephyr reported the announcement date for the acquisition. We suspect that this is due to an error in Zephyr, and have hence not been able to include these acquisitions in the sample.

²⁴ Six companies were contacted (SCA, Electrolux, Skanska, Nordea, Assa Abloy and Ericsson) regarding 21 acquisitions.

4 Description and Definition of Variables

In this section the definition of each variable included in the study will be presented as well as the reasons for including them. Five explanatory variables are included in the study, these are; acquisition experience, owner control, domestic/cross border, industry similarity, and relative size of the target. If the target is a public or private company is included as a control variable.

4.1 Acquisition Experience

Companies are increasingly adopting acquisition programmes. A growth strategy focused on acquisitions gives the company experience of the opportunities and problems related to that strategy. It is therefore interesting to investigate whether acquirers that have historically had a more aggressive acquisition strategy outperform acquirers with historically moderate or no acquisition strategies, i.e. the impact that acquisition experience has on bidder CAR.

Acquisition Experience is defined as the number of acquisitions the acquirer has performed in the three years leading up to the focal acquisition. For an acquisition to be recognised as a historical acquisition it needs to fulfil the same criteria²⁵ as the focal acquisition. This variable assumes a discrete number in the regression analyses.

4.2 Owner Control

Most previous research on the effects of owner control in a company have focused on US companies where ownership is generally widely dispersed and hence leads to an agency problem between managers and shareholders. In Sweden on the other hand, ownership is commonly highly concentrated. 62 per cent of the companies listed on OMX Stockholm are controlled by a family or a private individual (Angblad et al., 2000). Sweden also has the highest percentage of companies issuing dual class shares in Europe (Doukas, Holmén & Travlos, 2002). Since Swedish data is studied, it is thus desirable to include a factor that is tied to the level of owner control in the company, in order to analyse how the strength of owner control in the acquirer affects bidder CAR.

This study defines owner control as the largest owner's voting power in a company. The voting shareholding is analysed, as opposed to the capital shareholding, as the interest is to determine how control, as opposed to capital commitment determines bidder CAR. Examining the largest single owner gives us the best proxy for how an owner can exercise control in a company. This variable assumes a discrete number in the regression analyses.

4.3 Domestic/Cross Border

The global value of cross border acquisitions has risen steadily from about 0.5 per cent of world GDP in the mid 1980s to over 2 per cent in 2000. Further, cross border acquisitions have become the dominant means of internationalisation for companies, accounting for

²⁵ See section 3.1.

approximately 60 per cent of all foreign direct investments in 1999 (Hopkins, 1999). Therefore, in light of globalisation, it is interesting to study the effect of cross border acquisitions on bidder CAR compared to domestic ones.

The definition used for a domestic acquisition is when the target company is incorporated in Sweden, and the definition of a cross border acquisitions is when the target company is incorporated outside of Sweden. For this variable a dummy is used in the regression analyses and assumes the value 1 for cross border acquisitions.²⁶

4.4 Industry Similarity

Acquisitions are commonly classified as horizontal, vertical or conglomerate.²⁷ There are potential benefits for all types of acquisitions, and it is hence interesting to investigate which type performs the best.

A horizontal acquisition is defined as one where the first two numbers in the four number US Standard Industrial Classification (SIC) codes match.²⁸ For acquirers and targets that have multiple SIC codes, all SIC codes have to match. For acquisitions where the SIC codes did not match, it was investigated if a “clear vertical relationship” between the bidder and target exists. If one is determined to exist, the acquisition is classified as vertical, and if not, it is classified as a conglomerate acquisition.

As the sample is divided into three types of acquisitions, depending on the industry similarity, a base-case dummy is used in the regressions. Horizontal acquisitions are the base-case, and are hence always given the value 0. For the vertical dummy, vertical acquisitions are given the value 1 and the conglomerate acquisitions are set to 0. For the conglomerate dummy, the conglomerate acquisitions take the value 1 and vertical acquisitions are consequently set to 0. This allows us to determine how the vertical and conglomerate acquisitions deviate from horizontal ones, the base-case.

4.5 Relative Size of the Target

The variability in size of the target in an acquisition can be substantial. The relative size of the target will impact the challenges faced by the acquirer in the integration process. One can therefore question what effect this has on the potential return for the acquirer. It is thus interesting to include a variable that explains how the relative size of a target affects bidder CAR.

Relative size is defined as the market capitalisation, including bid premium, of the target divided by the market capitalisation of the acquirer at the time for the acquisition announcement. Alternative approaches that are commonly used in other studies include relative revenue or relative number of employees. These alternative approaches are used with the motivation that the data is more easily available. However, we have not experienced

²⁶ A dummy variable is a variable that takes on the value 0 or 1 to indicate the absence or presence of some categorical effect that may be expected to shift the outcome (Newbold, Carlson & Thorne, 2003).

²⁷ Studies that have used a more detailed breakdown of industry similarity usually include a group with acquisitions made by close end investment funds (See for example Eriksson & Spens, 1997 and Alpsten & Barck-Holst, 1999). However, since we have chosen not to include investment funds in the sample that group is not applicable to the study.

²⁸ A SIC code is defined as “A number used to specify what industry a particular company belongs to” (Marigold Technologies, 2007). We have chosen to use US SIC codes, due to that this is data is more complete in the database Zephyr.

difficulties with finding data on market capitalisation rates, and believe that the relative size measure selected is more comprehensive. The variable relative size assumes a discrete number in the regression analyses.

4.6 Public/Private Target

A private target is defined as one where the target is not a publicly traded company, and hence a public target is one where the target is publicly traded. This variable is included since it is shown to have significant economic and statistical effect on bidder CAR in previous studies.²⁹ By including it in the regression analyses, the effect of this variable can be held constant. It does hence not distort the results from the explanatory variables and the explanatory power will increase. For this variable a dummy is used in the regression analyses and assumes the value 1 for acquisitions of public targets.

²⁹ With economic significance we mean that the variable has tangible economic consequences. With statistic significance we refer to a significance level of 5 per cent.

5 Theoretical Framework

In this section the theories and previous findings regarding the explanatory and control variables are presented. These will be used to formulate hypotheses and to analyse the results. First an overview of the Swedish institutional setting will be presented.

5.1 The Swedish Institutional Setting

The purpose of this section is to give an overview of the Swedish institutional setting. Substantial differences exist across countries, and the reader should hence be aware of this when comparing the findings in this study, with findings on US or UK data.

The first difference between Anglo-Saxon countries, and Sweden, is the dual share system. Ownership and control in Swedish companies is sometimes split between A- and B-shares. Typically, A-shares are entitled to more votes per share than B-shares.³⁰ In effect, this allows shareholders to exercise control over a company with a relatively small shareholding in terms of capital owned. The second difference between Sweden and the Anglo-Saxon countries is the extensive regulation protecting minority shareholders in Sweden. E.g. before an acquirer can claim a whole company it needs 90 per cent voting rights in the target (Simensen & Åkesson, 2005).³¹

These differences in the institutional setting in Sweden has historically led to relatively few hostile takeovers, since a minority with an voting stake of 10 per cent or more can block a takeover.³² Further, this has resulted in that a handful of families have come to dominate Swedish business through large holdings of A shares (Simensen & Åkesson, 2005). Finally, the Swedish regulations and the presence of historically powerful families has reduced the principal-agent³³ problem in Swedish companies as the management is expected to be kept in check to a greater extent by the strong owners.

5.2 Acquisition Experience

If acquisition experience generates superior bidder CAR is a relatively unexplored area. A Booz Allen and Hamilton report (1960) found that higher acquisition experience leads to improved bidder CAR because individuals tend to become better at tasks with repetition. A conclusion which intuitively feels correct. However, more recent empirical studies show mixed results.

³⁰ Ericsson is a typical example of a Swedish company with a dual share classification. A-shares are given 10 votes for every vote that B-shares have. The share's right to dividend is equal.

³¹ Before the bidder can claim the rest of the shares, there is a thorough process for determining the price for the final shares.

³² A small shareholder can block a takeover bid due to the distribution of voting rights e.g. an owner with 1 per cent of the capital can potentially hold 10 per cent of the votes and hence be able to block a takeover.

³³ Anthony & Govindarajan (2005) define the agency problem as: "An agency relationship exists whenever one party (the principal) hires another party (the agent) to perform some service and, in so doing, delegates decision-making authority to the agent. Conflict of interest between principal and agent arise due to differences in risk appetite and work aversion by the agent".

Theoretical Framework

According to the *Learning Curve Theory* bidder CAR should increase with increased acquisition experience. This theory is derived from psychology and builds on the reasoning of task improvement due to repetition. The *Learning Curve Theory* is best applied to standardised manufacturing processes, where *Economies of Scale* are essential for success. It has been tested and confirmed in numerous studies of manufacturing companies.³⁴ The process of acquiring and integrating a target is of course not as standardised as a manufacturing process. However, applied on acquisition experience the *Learning Curve Theory* suggests that the more companies you buy the better you become at it. Experienced acquirers are expected to be superior at handling the integration process, to realise synergies and to handle cultural difficulties compared to inexperienced acquirers. In sum, the *Learning Curve Theory* predicts that the higher acquisition experience the bidder possess the higher bidder CAR (Finkelstein & Halebian, 2002).

On the other hand, the *Hubris Hypothesis* in acquisitions as presented by Roll (1996) predicts that individuals who have experienced multiple acquisitions become overconfident in their ability to acquire and integrate other companies. This can result in an overestimation of the value of the target, the ability to realise synergies or to integrate the acquired company into a combined organisation. Hence, it will make them more prone to overbid and engage in unsuccessful acquisitions. Thus, companies with high acquisition experience will suffer from lower bidder CAR due to hubris.

Empirical Findings

Hitt et al. (1998) study US acquisitions during 1980-1987. They find, using a sample of twelve high post-acquisition performance transactions and twelve acquisitions with highly unfavourable post-acquisition performance, that in nine of the twelve high performing acquisitions the acquirer had previous acquisition experience.

Finkelstein & Halebian (1999) examine 449 acquisitions within the manufacturing industry and find an inverted U-shape relationship between bidder CAR and acquisition experience. In other words, moderate acquisition experience will favour bidder CAR but as acquisition experience increases companies will at some point become inferior either at valuing the target, realise synergies or integrate the target which will decrease bidder CAR. Thus, Finkelstein & Halebian's (1999) findings support both the *Learning Curve Theory* and the *Hubris Hypothesis*. Their study also show that not only experience per se is relevant, but that the most valuable experience is the one gained from performing similar acquisitions.

³⁴ See e.g. Yelle (1979), and Butler, Dutton & Thomas (1984).

Table 5.1 *Acquisition Experience, previous empirical findings*

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Finkelstien & Haleblan (1999)	US/US	1980-1992	449	There is an inverted U-shaped relationship between bidder CAR and acquisition experience.
Hitt et al. (1998)	US/US	1980-1987	12 high performance and 12 low performance	Of the twelve high performing acquirers nine had previous acquisition experience.

Conclusion and Hypothesis

The theories and the empirical findings imply different effects of acquisition experience on bidder CAR. However, consistent with the *Learning Curve Theory*, and supported by a previous empirical finding, we expect a positive relationship between bidder CAR and acquisition experience.

Table 5.2 *Acquisition Experience, hypothesis*

Hypothesised effect of acquisition experience on bidder CAR	Main reasons
Positive	Consistent with the <i>Learning Curve Theory</i> and shown in a previous study.

5.3 Owner Control

The lack of studies of owner control on Swedish data, and the substantial differences in the ownership structure in Swedish and Anglo-Saxon companies, makes it interesting to analyse the effect of owner control in Swedish companies on bidder CAR.

Theoretical Framework

Shleifer & Vishny (1986) argue, in accordance with the *Agency Theory*, that managers will act in their best interest and not the shareholders', unless they are monitored by the owners. For a small shareholder the cost of monitoring the management may outweigh the potential benefits (increased capital gains and dividends). In other words, in a company with dispersed ownership no owner has the incentive to monitor the management which results in an increased risk of managers engaging in acquisitions with negative returns. For a large shareholder on the other hand, the return on the shares is sufficient to cover the monitoring costs. Hence, in a company with strong owner control there will be less risk of managers engaging in acquisitions with negative returns. Owner control thus has a positive effect on bidder CAR.

Fama & Jensen (1983) reason that large owners have the possibility to adapt the company's activities and strategies to match their own personal interests and not to suit the company's owners' interests as a whole. This could potentially have a negative effect on bidder CAR if there is a discrepancy between the interests of the large owners and the rest of the company's owners.

Empirical Findings

Amihud & Lev (1981) examine 309 acquiring US companies during 1961-1970. Since shareholders can achieve their own preferred degree of risk in their portfolios the authors try to explain the phenomena of conglomerate acquisitions, which they see only as a way to diversify risk.³⁵ Their findings show that manager-controlled companies, i.e. companies with dispersed ownership, engage in more conglomerate acquisitions than owner-controlled companies. They also show that regardless of the means by which a firm achieves diversification, operations in manager-controlled companies are more diversified than the operations in owner-controlled firms. In other words, they show that there is a discrepancy between managers' and shareholders' risk aversion, as managers seek risk diversification through conglomerate mergers, which owners do not. This will, in companies with dispersed ownership lead to conglomerate acquisitions based only on managers' desire to reduce the risk and result in costs for the shareholders, which should have a negative effect on bidder CAR.

Shlefier & Vishny (1986) prove, with their sample of 456 US companies, that high owner control is positively related to bidder CAR.

Alpsten & Barck-Holst (1999) find, with Swedish data from 1980 to 1995, that concentrated ownership in the bidder yields worse long-run performance than dispersed ownership. This implies, according to the authors, that in Sweden the conflict of interests is not between management and shareholders but rather between large and small shareholders.

Table 5.3 *Owner Control, previous empirical findings*

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Alpsten & Barck-Holst (1999)	Sweden/ Sweden	1980-1995	93	High owner control in the bidder yields worse long-run performance than dispersed ownership.
Amihud & Lev (1981)	US/All	1961-1970	309	Higher diversification of operations (sign of risk reduction) in companies with dispersed ownership which indicates a discrepancy between managers' and shareholders' risk aversion which lead to costs for the shareholders.
Shlefier & Vishny (1986)	US/US	1980-1984	456	High owner control is positively related to bidder return.

Conclusion and Hypothesis

The theories and studies regarding the owner control in acquirers effect on bidder CAR go apart. The US studies show a positive relation between bidder CAR and high control while the Swedish study shows a negative relation. Since the Swedish institutional setting is different to the US, we expect that owner control has a negative effect on bidder CAR.

³⁵ However, other benefits of conglomerate acquisitions have been presented and are discussed in section 5.5.

Table 5.4 Owner Control, hypothesis

Hypothesised relation between owner control and bidder CAR	Main reason
Negative	Supported by a previous Swedish empirical study

5.4 Domestic/Cross Border

The importance of cross border M&A for companies has increased rapidly. Cross border M&A constituted 25 per cent of global M&A in 2005, which is a considerable increase from 1995 when cross border M&A represented 15 per cent (Schoenberger & Seow, 2005). However, there are mixed evidence on whether cross border transactions have a relatively positive or negative effect on bidder CAR compared to domestic acquisitions.

Theoretical Framework

There are a number of ways in which a cross border acquisition is expected to influence bidder CAR. The perils with cross border acquisitions concern *Employee Resistance* and *Asymmetry of Information*³⁶ between bidder and target. The main opportunity with cross border transactions lies in the possibility to transfer country specific expertise between bidders and targets. International acquisitions are also expected to lead to higher *Rationalisation Gains* and increased *Economies of Scale*.

Finkelstein & Larsson (1999) present a theory of greater *Employee Resistance* in cross border transactions. They reason that the management style in companies from the same country is more similar than in companies from different countries. As employees react negatively to change, such as new management style, alternation of career paths or compensation structures, and change is expected to be greater in cross border acquisitions than in domestic acquisitions, international acquirers will underperform their domestic rivals.

The second reason why international acquisitions are expected to underperform domestic acquisitions stems from the problem of *Asymmetry of Information*. A cross border acquirer will be less informed due to interpretation difficulties that arise, as the bidder is located in another jurisdiction than the target where accounting, legal and institutional conditions are different. Moreover, cross border bidders will have a worse understanding of the cultural and political environment in the target's home country. This will, in combination with that the target is physically in another location lower the monitoring capacity of an international acquirer. The information asymmetry between bidders and targets will make international acquirers more prone to overbid and they will experience greater difficulties integrating the target than domestic acquirers (Gioia and Thomsen, 2004).

There exist a number of reasons why international acquirers are expected to outperform their domestic rivals. First, the acquisition of a foreign target may give the acquirer access to pivotal foreign cultures and routines. This allows the acquirer to implement improved practices in the entire company without having to go through a trial and error process to obtain the expertise (Jemison & Sitkin, 1986). A similar theory states that international acquirers will outperform domestic ones because they transfer their technological and managerial competencies to the target's home country, which will improve the performance

³⁶ *Asymmetry of Information* is defined as "A situation where economic agents do not all have the same information" (Black, 1997).

of the target (Bertrand & Zitoun, 2005). In other words, domestic acquirers will not be able to realise the same level of synergies or improve operations to the same extent as foreign acquirers, which should result in higher bidder CAR in cross border acquisitions.

Secondly, in cross border acquisitions there will be larger *Rationalisation Gains* than in domestic ones. These arise from e.g. that bidders and targets located in different countries are more likely to have different marginal production costs. The bidder can therefore cut costs by taking advantage of this and move the production to the country with the lowest cost (Bertrand & Zitouna, 2005).

Thirdly, a cross border acquisition grants access to new markets. This allows the combined company to increase sales and hence production which enables a cut in unit costs and thus an increase in the *Economies of Scale* of their combined production. In typical manufacturing businesses where scale is key to success, cross border acquisitions are therefore expected to prove superior (Morck & Yeung, 2003).

Empirical Findings

Bertrand & Zitouna (2005), using a sample of 371 French acquisitions between 1993 and 2000, find that domestic acquirers outperform their peers with international acquisition strategies in the long-term.

Aw & Chatterjee (2004) come to the same conclusion using a sample of 79 UK acquisitions from 1991 to 1996. Domestic acquisitions outperform international ones both in the short and long-term.

This is also shown by Conn et al. (2003), using a large sample of 4000 acquisition executed by UK companies between 1984 and 1998. Bidders that acquire domestic targets outperform bidders focusing on international acquisitions in the short- and long-term.

Table 5.5 Domestic/Cross Border, previous empirical findings

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Aw & Chatterjee (2004)	UK/UK	1991-1996	79	Domestic acquirers outperform international acquirers.
Bertrand & Zitouna (2005)	France/France	1993-2000	371	Domestic acquirers outperform international acquirers.
Conn et al. (2003)	UK/All	1984-1998	4000	Domestic acquirers outperform international acquirers.

Conclusion and Hypothesis

There are perils as well as opportunities with cross border acquisitions according to theory. However, all empirical findings come to the same conclusion; domestic acquirers outperform international acquirers.

Table 5.6 Domestic/Cross Border, hypothesis

Hypothesised effect of cross border acquisitions on bidder CAR compared to domestic acquisitions	Main reason
Negative	Supported by previous empirical studies.

5.5 Industry Similarity

Distinction is made between three levels of industrial similarity between the bidders and targets in the sample. Companies in the same industry are classified as horizontal acquisitions. If an acquisition is between companies in vertically related industries it is classified as a vertical acquisition. Acquisitions across different industries are classified as conglomerate acquisitions.

Most previous studies have only analysed focused (i.e. companies in the same industry) and diversified (i.e. companies in different industries) acquisitions. However, this definition leaves out vertical acquisitions. Therefore, by analysing vertical acquisitions as a separate group a more in-depth study can be made of the effect from industry similarity on bidder CAR.

Theoretical Framework

The theorised effects from horizontal, vertical, and conglomerate acquisitions will be presented below in that order.

In horizontal acquisitions benefits can arise from *Economies of Scale*, *Economies of Scope* and *Market Power*. All three should have a positive effect on bidder CAR.

First, *Economies of Scale* are present when capacity utilisation is increased through increased production of a specific product/service. In other words, a given bundle of resources is more fully utilised when companies work together on a larger scale than on a standalone basis (Montgomery & Singh, 1987).

Secondly, *Economies of Scope* arise when a given bundle of resources are used in joint production of several products/services. Companies act as complements to each other to increase capacity utilisation. Scope economies can occur within the production area, as well as outside, by e.g. sharing intangible assets, like brand names and specialised know-how between different products (Montgomery & Singh, 1987).

Finally, *Market Power* effects are present when a market participant has the ability to influence price, quantity and the nature of the product in the market place. These effects lead to excess profit for the company with *Market Power*. Through a horizontal acquisition a company can increase its size relative to its competitors and in turn its *Market Power* (Montgomery & Singh, 1987).

Vertical acquisitions are expected to perform strongly mainly due to the *Elimination of Transaction Costs*, and *Anticompetitive Effects*.

First, through forward or backward integration a company can eliminate costs of searching for prices, contracting, collection of claims, advertising and coordination of production and distribution. It also gives the company more predictable prices of inputs or demand for outputs. This enables better inventory planning and a better distribution system which in turn results in a more efficient production and thus higher bidder CAR (Hoag, Kwang & Weston 1990).

Secondly, *Anticompetitive Effects* rest on the assumption that the acquired company possesses monopoly power at one stage of the value chain. If the bidder can monopolise a crucial input through vertical integration it gives the bidder a stronger position to compete with its competitors. It also increases the barriers to enter the industry and the bidder can thereby decrease the number of new competitors, since new entrants have to enter both stages of the production (Hoag et al, 1990).

It is however important to notice that the reasons behind vertical acquisitions rely on the costliness of market interactions and contracting i.e. market failures.³⁷ Due to opportunistic behaviour of the participants on the market and a limited number of possible participants to transact with, market contracting will be exposed to hazards and the disability to write sufficiently specific contracts will lead to market failures (Hoag et al, 1990).

In conglomerate acquisitions there are no operational advantages. Instead the acquisitions are motivated with financial advantages; *Imperfect Financial Markets*, *Refinancing*, *Access to Internal Capital Markets* and *The Coinsurance of Debt Effect*.

First, if a company is temporarily undervalued by the market and can therefore be acquired at a price below its fair value the bidder can benefit from the bargaining purchase due to valuation error caused by *Imperfect Financial Markets*³⁸ (Lewellen, 1971).

Secondly, by acquiring a target with a high (low) debt-to-equity ratio a bidder can get an immediate refinancing and compensate for its own low (high) debt-to-equity ratio and thereby create a better financial structure (Lewellen, 1971).

Thirdly, a diversified company is able to rely more on intra-company cash-flows and can therefore limit its interaction with external capital markets, which will decrease the company's transaction cost (Comment & Jarrell, 1995).

Finally, by combining two companies that do not have perfectly correlated cash-flow streams the combination can achieve a lower variability in cash flows, *The Coinsurance of Debt Effect*. For shareholders this has no value in itself since they can themselves diversify the cash-flow streams in their individual portfolios. However, lower variability in cash-flows will lower the risk of bankruptcy. This in turn gives the conglomerate a larger borrowing capacity which enables greater use of debt without increasing the risk. Through additional tax shields³⁹ the value of the company will increase (Comment & Jarrell, 1995).

³⁷ *Market Failure* is defined as a situation when: "The market does not provide a panacea for all economic problems. There are various ways that an unregulated market may fail to produce an ideal state of affairs" (Black, 1997).

³⁸ *Market Imperfection* is defined as: "Divergence from any of the circumstances necessary to achieve perfect competition" (Dickson, Luukkainen & Sandelin, 1992).

³⁹ Tax shield is defined as "The decrease in tax expense due to an increase in the tax deductible expenses which lowers the taxable income" (Brealey, Meyers & Allen, 2006).

Worth noting is that the merits of several of these reasons depend on the imperfection of financial markets. For example, with a perfect financial market there would be no possibility to benefit on a temporary undervaluation of companies neither would transaction costs on internal capital markets be lower than on external.

Empirical Findings

Several studies report a change in the institutional setting during the 1960-1990 which has had a great impact on the industrial similarity's effect on bidder CAR in acquisitions. Improved financial markets, increased transparency and efficiency, has turned positive bidder CAR in diversified acquisitions, during the conglomerate boom in the 1960 and 70s, to negative bidder CAR in diversified acquisitions and a greater focus on horizontal acquisitions in the 1980s.

Matusaka (1993) studies 298 acquisitions made by companies listed on the New York Stock Exchange (NYSE) during 1968, 1971 and 1974, the days of glory for conglomerate acquisitions. The results show positive bidder CAR for conglomerate acquisitions but negative for horizontal acquisitions.

The negative development of bidder CAR in diversified acquisitions is observed by Morck, Schleifer & Vishny (1990). They find that bidder CAR, in their sample of 328 US acquisitions during 1975-1987, was slightly positive for diversifying acquisitions during 1975-1979 while substantially negative during 1980-1987.

In a study of 17 135 acquisitions on the NYSE during 1978 and 1989 Comment & Jarrell (1995) come to the same conclusion. Focused acquisitions result in higher market values of the companies. Their conclusion gains further support from their findings that many of the potential benefits of conglomerate acquisitions presented above go unrealised. The leverage of diversified companies was not significantly higher than for focused companies, indicating that the additional borrowing capacity due to a lower variability in cash-flows and lower default rates were not used. Neither was the reliance on internal capital markets higher for diversified companies than for focused ones.

Lang & Stulz (1994) show that firm value, measured as Tobin's q, and company diversification are negatively related throughout the 1980s. Montgomery & Singh (1987) on the other hand find positive bidder CAR for both diversified and focused acquisitions, however slightly more positive for focused ones, on data including 105 acquisitions during 1975-80.

Gross & Lindstädt (2006) find with more recent American and European data, from 1998 to 2001 for 227 transactions positive bidder CAR in general for both horizontal and vertical acquisitions. However, their data is divided into five different industries and there are big differences in bidder CAR depending on the industry settings.

Doukas et al (2002) analyse 101 Swedish acquisitions during 1980-1995 and find that diversifying acquisitions lead to negative market reactions both in the long and short term. Other studies on Swedish data during 1980-1995 (Alpsten & Barck-Holst, 1999) and 1985-1996 (Eriksson & Spens, 1997) find that horizontal acquisitions have better performance relative to vertical, conglomerate and close investment fund acquisitions.

Table 5.7 Industry Similarity, previous empirical findings

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Alpsten & Barch- Holst (1999)	Sweden/Sweden	1980-1995	93	Horizontal acquisitions perform better in the long term compared to vertical, conglomerate and close investment fund acquisitions.
Comment & Jarrell (1995)	US/US	1978-1989	17 135	Focused acquisitions result in higher market values of the companies. A majority of the potential benefits of conglomerate acquisitions go unrealized.
Doukas, Holmén & Travlos (2002)	Sweden/Sweden	1980-1995	101	Diversifying acquisitions lead to negative market reactions both in the short- and long-term.
Eriksson & Spens (1997)	Sweden/Sweden	1985-1996	112	Diversified acquisitions have a negative effect on bidder CAR.
Gross & Lindstädt (2006)	US and Europe/US and Europe	1998-2001	227	Positive bidder CAR in for both horizontal and vertical acquisitions in general. However differences between different industries exist.
Lang & Stulz (1994)	US/US	1978-1990	1449	Tobin's q, and company diversification are negatively related.
Matusaka (1993)	US/US	1968, 1971,	298	Positive bidder CAR for conglomerate acquisitions.
Montgomery & Singh (1987)	US/US	1975-1980	105	Negative bidder CAR for horizontal acquisitions. Positive bidder CAR for both diversified and focused acquisitions, however slightly more positive for focused.
Morck et al (1990)	US/US	1975-1979	328	For diversifying acquisitions; slightly positive bidder CAR during 1975-1979. Substantially negative bidder CAR during 1980-1987.

Conclusion and Hypotheses

There are potential benefits with all three types of acquisitions according to the theories. However, a vast majority of the previous empirical studies show that since the 1980s diversifying acquisitions have a negative effect on bidder CAR while focused acquisitions have a positive effect.

Table 5.8 Industry Similarity, hypotheses

Acquisition type	Hypothesised effect of vertical/conglomerate acquisitions on bidder return compared to horizontal	Main reasons
Vertical	Slightly negative	Supported by a vast majority of empirical studies.
Conglomerate	Considerably negative	Supported by a vast majority of empirical studies.

5.6 Relative Size of the Target

Acquirers can target companies that constitute anything from less than one per cent of their own market capitalisation, to companies that exceed their own market capitalisation. The motives for acquiring a relatively large or small target can differ substantially, e.g. an acquirer buying a small target may do so to access a technology, whereas an acquirer buying a large target may do so to gain *Economies of Scale* or *Market Power*.

Theoretical Framework

The relative size ratio between the target and the bidder can affect bidder CAR both during the actual acquisition process as well as during the integration process.

There are two opposing theories of how relative size will affect the integration process and the possibility to realise all potential synergies. The first one states that management will on average be less bothered with a smaller acquisition and are therefore likely not to dedicate sufficient attention to the integration process to realise all potential synergies if the target is relatively small (Diven, 1984; Ravenscraft & Scherer, 1987). Hunt & Morgan (1990) argue that there is a positive relation between the relative size of the target and the level of organisational integration between the bidder and target i.e. a small target is, on average, left alone to a greater extent, while a large target, on average, is more integrated into the acquirers operations. A target that is less integrated will prevent the combined entity from realising all potential synergies. Ansoff et al. (1971) referred to this relationship as the *Theory of Critical Mass*; a target has to be larger than a certain relative size for the bidder to integrate it into a combined entity and realise the possible synergies. In sum, relatively large targets will have a positive effect on bidder CAR.

Alpsten & Barck-Holst (1999) on the other hand, theorised that *Mergers of Equals*, where the relative size of the acquirer and target is similar, could lead to integration problems due to that no single culture would dictate how the new organisation would be run. They hence predicted that bidder CAR ought to be greatest when the relative size of the target is small.

Empirical Findings

Fuller, Netter & Stegemoller (2002), using a sample of 3135 acquisitions by US companies from 1990 to 2000, find that bidder CAR increase with relative target size in the short run for private targets.

With a sample of 214 acquisitions between companies listed on the New York or American Stock Exchange during 1963-1979, Asquith, Bruner & Mullins (1983), prove that bidder CAR is larger when targets with a relative market value of equity of 10 per cent or more are acquired.

Kitching (1967) finds using a sample of 69 acquisitions between 1960 and 1965, that acquisitions of target companies that have less than two per cent of the sales value of the acquirer are classified as failures 84 per cent of the instances.

Table 5.9 *Relative Size of the Target, previous empirical findings*

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Asquith, Bruner & Mullins (1983)	US/US	1963-1979	214	Acquisitions of targets with a relative market value of equity of 10 per cent or more give superior bidder return.
Fuller, Netter & Stegemoller (2002)	US/All	1990-2000	3135	Bidder returns increase with relative target size in the short term for private targets.
Kitching (1967)	US/All	1960-1965	69	Acquisitions of targets that have less than two percent of the sales value of the acquirer are classified as failures in 84 per cent of the cases.

Conclusion and Hypothesis

A majority of both theories and previous empirical studies show that bidder CAR increase with relative target size.

Table 5.10 *Relative Size of the Target, hypothesis*

Hypothesised effect of the relative size of the target on bidder return	Main reason
Positive	Supported by previous empirical studies.

5.7 Public/Private Target

Privately held firms tend to have higher owner control than public companies, as they are often owned by a family or an individual (Chang, 1998). In addition, since private companies are not publicly listed they are relatively illiquid compared to public companies. These two inherent differences between public and private companies have historically shown to have implications for bidder CAR.

With a high owner control there is less risk of an agency problem. This disables the management to engage in acquisitions that are in their best interest but not the owners'. Due to their big stake the shareholders are also likely to be better informed of the fair value of the company than owners of public company are. Furthermore, since private companies are less exposed to the public attention they face smaller pressure to accept a bid. All of these circumstances contribute to that the owners of a private company are able to demand a higher bid before they are willing to sell, which should have a negative effect on bidder CAR (Ang & Kohers, 2001).

On the other hand private companies are relatively illiquid which should reduce the number of competing bids (Conn et al., 2003). This is proved by Fuller et al. (2002) who investigate bidder CAR in companies that make five or more successful acquisitions within three years between 1990 and 2000. Their results indicate that bidder CAR is positive when a private company is acquired and negative when a public one is acquired. Thus, the results show a liquidity discount for private targets.

Table 5.11 Public/Private Target; previous empirical findings

Study	Country Bidder/ Target	Studied Period	Number of observations	Main Findings
Fuller et al. (2002)	US/US	1990- 2000	3135	Bidders have substantially negative returns when buying public targets and substantially positive returns when buying private targets.

Conclusion and Hypothesis

The theories are inconclusive. However, an empirical study shows that bidder CAR is positive in acquisitions of private targets and negative in acquisitions of public targets.

Table 5.12 Public/Private Target, hypothesis

Hypothesised effect of public acquisitions on bidder CAR compared to private acquisitions	Main reason
Negative	Supported by a empirical study.

5.8 Summary of Hypotheses

The hypotheses proposed above are summarised in the table below.

Table 5.13 Summary of hypotheses

Hypothesis	Variable	Symbol	Hypothesised effect on bidder CAR
1	Acquisition experience	AEX	Positive
2	Owner control	OWN	Negative
3	Cross border acquisitions compared to domestic acquisitions	DOM	Negative
4	Vertical acquisitions compared to horizontal acquisitions	VERT	Moderately negative
5	Conglomerate acquisitions compared to horizontal acquisitions	CONG	Substantially negative
6	Relative size of the target	L RES	Positive
7	Public acquisitions compared to private acquisitions	PRV	Negative

6 Descriptive Analysis

In this section the sample is presented in detail to give the reader a better understanding of the data used in this study. First, the entire sample is presented to help the reader evaluate the characteristics and quality of the sample. General trends will be commented on to facilitate the interpretation. Finally, the distribution of bidder CAAR will be commented on for each variable separately.

6.1 Entire Sample

Figure 6.1 presents the distribution of bidder CAR for the entire sample, plotted in ascending order according to bidder CAR. From the figure below, two conclusions can be drawn. First, the average return for the sample is positive, that is, acquisitions are on average shown to result in a positive short term share price reaction. CAAR is calculated to be 1.89 per cent, and the median CAR is 1.12 per cent. Secondly, the dispersion in the sample is extensive. This deviation, given that it is not entirely random, is interesting for the study, and will be attempted to be explained by analysing the influence of the explanatory variables.

Figure 6.1 *Distribution of bidder CAR, ascending*

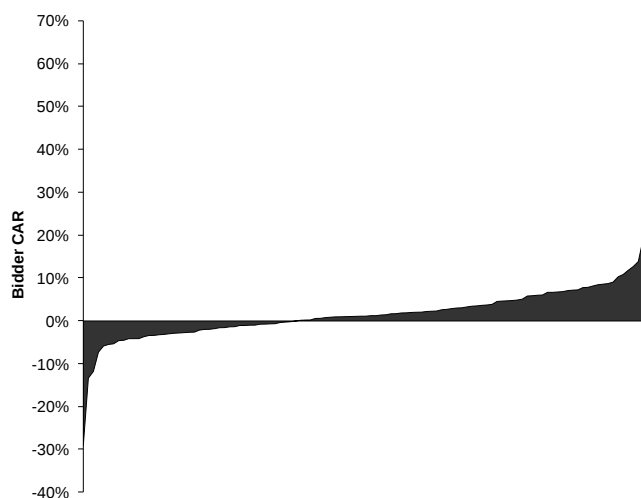


Table 6.1 presents the sample sorted by the year of acquisition, and contains information on the five explanatory variables. Six interesting observations can be seen in the table. First, both the number of acquisitions and the average deal value has progressively increased over the sample period. Secondly, the proportion of domestic acquisitions is on average $\frac{1}{4}$ of total acquisitions, and the trend is toward more international acquisitions, indicating a stronger international focus by Swedish acquirers. Thirdly, horizontal acquisitions are most common, constituting more than half of the sample. Fourthly, there is a clear trend that acquisitions toward the end of the period have been made by companies with owners with smaller dominating stakes. Fifthly, it appears that there is no clear trend in acquisition experience over the sample period. Finally, in terms of relative size of the target there is a small decreasing trend, with a peak in the middle. Bidder CAAR is positive for all years except 2001 and 2004,

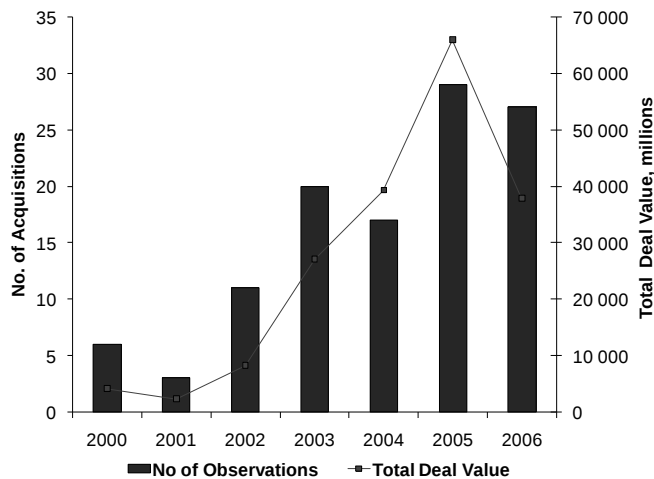
thus markets have tended to react positively to acquisition announcements, but no clear trend in CAAR can be observed over the sample period.

Table 6.1 *Summary of sample data, sorted by year of acquisition*

Year	Number of Acquisitions by							Acquisition Averages for			
	No of Ob- servations	Average Return	Nationality		Industry Similarity		Ownership	Experience	Size	Deal Value	
			Cross	Conglo-	Horizontal	Vertical					
			Domestic	Border			merate	Average	Average	Average	Average
2000	6	2.02%	3	3	1	5	0	42%	1.5	37%	693m
2001	3	-1.82%	1	2	2	1	0	44%	2.7	34%	786m
2002	11	1.70%	1	10	7	2	2	28%	1.1	3%	753m
2003	20	1.87%	4	16	15	4	1	29%	1.6	54%	1358m
2004	17	-0.84%	5	12	12	5	0	29%	2.1	25%	2314m
2005	29	3.77%	7	22	18	5	6	22%	4.5	25%	2341m
2006	27	2.07%	7	20	18	6	3	22%	2.0	11%	1406m

Figure 6.2 shows the relationship between the total deal value and the number of acquisitions per year. For the years 2000 to 2002 the total deal value moves in tandem with the number of acquisitions. Between 2002 and 2004 the total deal value increases more rapidly than the number of acquisitions. We observe an increase in the average deal value by approximately 75 per cent per year, while the number of acquisitions increases by approximately 25 per cent per year. In 2006 the average deal value decreases by about 40 per cent from the year before, also the number of acquisitions decreases, but by relatively less.

Figure 6.2 *Distribution of number of acquisitions and the total deal value, sorted by year of acquisition*



6.2 Variables

This section presents an overview of the sample, sorted by the explanatory variables. The variables will be presented separately to give an overview of how bidder CAR changes with the value that the explanatory variables assume. This section intends to give the reader an overview of all the variables in the sample, and their effect on bidder CAAR. Table 6.2 is a summary of bidder CAAR sorted by the explanatory and control variables.

Table 6.2 Summary of bidder CAAR, sorted by the explanatory variables

Classification	Owner Control	Relative Size	Acquisition Experience	Domestic/ Cross border	Industry Similarity	Public/ Private
< 10%	-0,06%					
10 - 19.99%	1,25%					
20 - 50%	2,86%					
> 50%	0,36%					
< 1%		0,11%				
1 - 9.99%		0,04%				
10 - 100%		4,09%				
> 100%		4,23%				
0 Acquisitions			1,04%			
1 - 2 Acquisitions			3,96%			
3 - 4 Acquisitions			-0,37%			
≥ 5 Acquisitions			3,11%			
Domestic				0,00%		
Cross border				2,51%		
Horizontal					1,79%	
Vertical					1,91%	
Conglomerate					2,46%	
Public						-1,07%
Private						2,34%

Table 6.3 is a summary the explanatory variables sorted by bidder CAR in quartiles. The first quartile contains the acquisitions with the lowest bidder CAR, and quartile four contains the best performing acquisitions.

Table 6.3 Summary of explanatory variables, sorted by bidder CAR in quartiles

Number of Acquisitions by									Acquisition Averages by		
	No of Ob- servations	Nationality		Industry Similarity			Target Type		Ownership Control	Acquisition Experience	Relative Size
		Domestic	Cross Border	Horizontal	Vertical	Conglo- merate	Public	Private	Average	Average	Average
Quartile 1	28	11	17	20	16	2	8	20	22.3%	2.1	21.2%
Quartile 2	28	6	22	18	7	3	0	28	29.7%	1.9	11.5%
Quartile 3	28	6	22	18	7	3	4	24	28.3%	2.2	30.0%
Quartile 4	29	5	24	17	8	4	3	26	25.8%	3.8	37.9%

Acquisition Experience

Figure 6.3 illustrates the dispersion in acquisition experience. The graph clearly illustrates that approximately one third of the companies in the sample lack experience from previous acquisitions and only 10 per cent of the sample has made more than four previous acquisitions. The number of acquisitions has increased over the sample period, but the same trend cannot be observed for acquisition experience. This indicates that companies have not increased their acquisition frequency over the period, but rather that a larger number of companies are engaging in acquisitions.

Figure 6.3 *Distribution of number of acquisitions, sorted by acquisition experience*

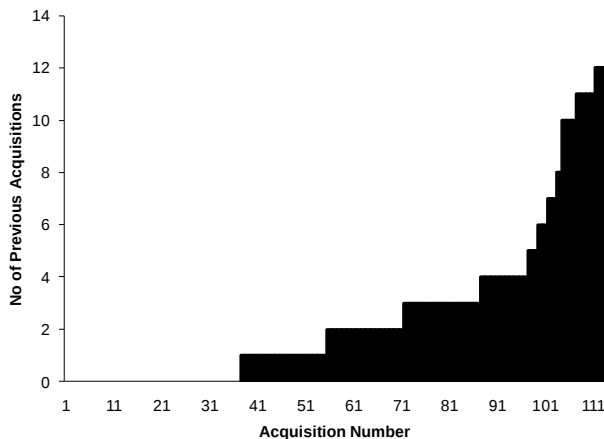
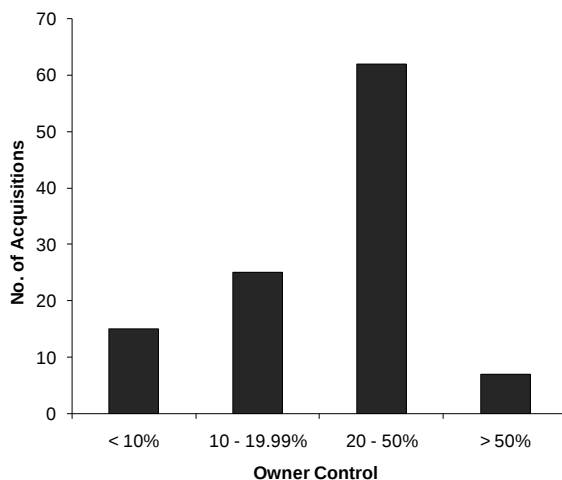


Table 6.2 shows that the experience from 1-2 previous acquisitions results in the highest bidder CAAR, 3.96 per cent. 3 - 4 previous acquisitions lead to negative bidder CAAR, while 0 and more than 5 previous acquisitions lead to 1.04 and 3.11 per cent bidder CAAR respectively. Thus, from these results no clear relation between bidder CAAR and acquisition experience can be observed. In Table 6.3 however, the results indicate a weak positive trend between bidder CAR and acquisition experience, as the top two quartiles have higher acquisition experience than the lower two.

Owner Control

Figure 6.4 shows the distribution of the number of acquisitions sorted by owner control. From the figure it can be observed that more than half of the acquisitions are performed by owners that have substantial influence, i.e. where the voting stake is in the range 20 to 50 per cent. The largest voting stake held by the largest shareholder is 72 per cent, while the smallest one is 4 per cent. The average for the sample is 26 per cent.

Figure 6.4 *Distribution of number of acquisitions, sorted by owner control*



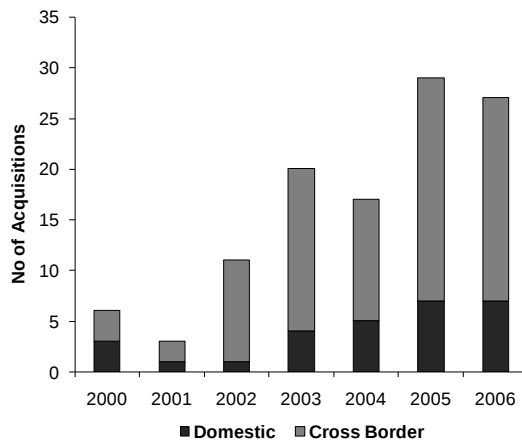
As illustrated in Table 6.2 a voting stake higher than 50 per cent or lower than 10 per cent will result in a bidder CAAR next to zero or even negative. The highest bidder CAAR is generated

in acquisitions made by companies where the largest owner has a voting stake between 20 and 50 per cent. No clear relation between bidder CAAR and owner control can be extracted from the results in the tables.

Domestic/Cross Border

International acquisitions dominate the sample, and three quarters of the acquisitions are of companies in another country. The dominance of international acquisition increases over the period. Figure 6.5 gives an overview of the number of cross border and domestic acquisitions per year.

Figure 6.5 *Distribution of number of acquisitions, sorted by domestic/cross border*

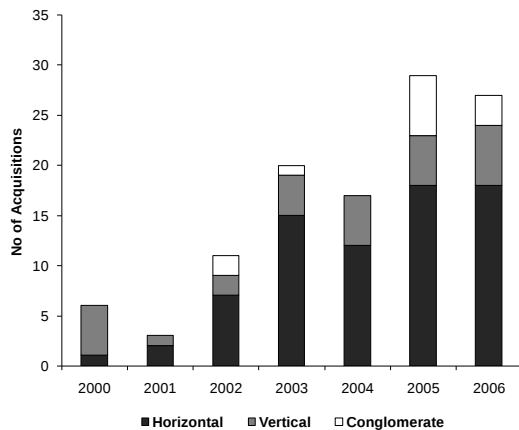


Bidder CAAR is substantially higher for cross boarder acquisitions than for domestic ones as shown in Table 6.2. The results thus indicate that international acquirers outperform domestic acquirers, which is in line with the hypothesis.

Industry Similarity

The sample is dominated by horizontal acquisitions which constitute approximately 75 per cent of the total sample. Over the sample period the number of horizontal acquisitions fluctuates, while the number of vertical acquisitions is relatively stable and conglomerate acquisitions increase in number. The distribution over time is illustrated in Figure 6.6.

Figure 6.6 *Distribution number of acquisitions, sorted by industry similarity*

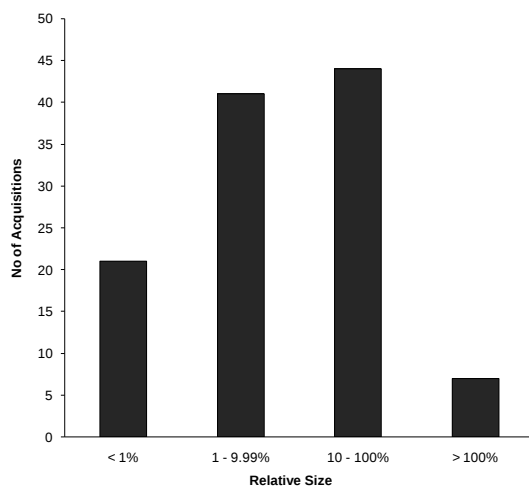


Opposing the hypothesis bidder CAAR decreases with industrial similarity i.e. bidder CAAR is highest for conglomerate acquisitions and lowest for horizontal ones, which is shown in Table 6.2.

Relative Size of the Target

Figure 6.7 illustrates the distribution of the number of acquisitions according to relative size. Targets that constitute less than 10 per cent of the acquirer's size represent more than half the sample and only seven acquisitions are of targets with a larger market capitalisation than the acquirer's. There is no clear trend in how the relative size of the targets has varied during the sample period as seen in Table 6.1.

Figure 6.7 *Distribution of number of acquisitions, sorted by relative size*



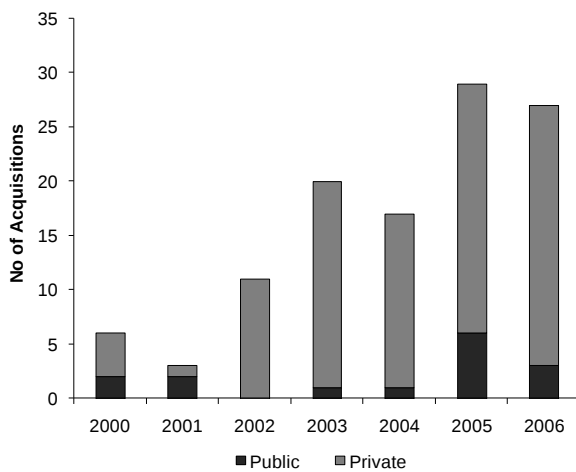
The bidders in the top two quartiles (as seen in Table 6.3) have on average acquired companies with a relative size of 37.9 and 30.0 per cent respectively. This can be compared with the two lowest quartiles where the relative size of the targets is 11.5 and 21.2 per cent respectively. Hence, smaller targets generally result in lower bidder CAR. This is also supported by the results in Table 6.2, which show that bidder CAAR is significantly higher

for acquisitions of targets with a relative size of 10 per cent or more. This is in line with hypotheses six, which states that bidder CAR increase with relative size of the target.

Public/Private Target

A vast majority, approximately 87 per cent of the sample consist of private targets. Over the period the number of private targets increases more compared to public targets. The distribution over the sample period is illustrated in Figure 6.8.

Figure 6.8 *Distribution of number of acquisitions, sorted by public/private target*



In Table 6.2 it is evident that acquisitions classified as private have a positive bidder CAAR and outperform public acquisitions, which have a negative bidder CAAR. This is in line with the hypothesis.

Correlations

Table 6.4 Correlation matrix

		Correlations							
		CAR	VERT	CONGL	RES	DOM(0)	OWN	AEX	PRV(0)
CAR	Pearson Correlation	1	,001	,025	,196*	,141	,071	,074	-,150
	Sig. (2-tailed)		,989	,791	,038	,138	,465	,437	,113
	N	113	113	113	113	113	109	113	113
VERT	Pearson Correlation	,001	1	-,198*	,201*	-,098	,167	-,164	,017
	Sig. (2-tailed)	,989		,036	,033	,302	,083	,082	,857
	N	113	113	113	113	113	109	113	113
CONGL	Pearson Correlation	,025	-,198*	1	-,126	-,002	-,098	,031	,034
	Sig. (2-tailed)	,791	,036		,184	,985	,312	,746	,717
	N	113	113	113	113	113	109	113	113
RES	Pearson Correlation	,196*	,201*	-,126	1	,042	,020	-,126	,007
	Sig. (2-tailed)	,038	,033	,184		,662	,840	,185	,945
	N	113	113	113	113	113	109	113	113
DOM(0)	Pearson Correlation	,141	-,098	-,002	,042	1	-,031	-,092	-,259**
	Sig. (2-tailed)	,138	,302	,985	,662		,747	,334	,006
	N	113	113	113	113	113	109	113	113
OWN	Pearson Correlation	,071	,167	-,098	,020	-,031	1	-,282**	-,095
	Sig. (2-tailed)	,465	,083	,312	,840	,747		,003	,326
	N	109	109	109	109	109	109	109	109
AEX	Pearson Correlation	,074	-,164	,031	-,126	-,092	-,282**	1	,127
	Sig. (2-tailed)	,437	,082	,746	,185	,334	,003		,180
	N	113	113	113	113	113	109	113	113
PRV(0)	Pearson Correlation	-,150	,017	,034	,007	-,259**	-,095	,127	1
	Sig. (2-tailed)	,113	,857	,717	,945	,006	,326	,180	
	N	113	113	113	113	113	109	113	113

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

In this section we comment on the correlations that we observe between the dependent, explanatory and control variables, as well as between the explanatory variables. In general, the correlations between the variables are very weak, and in this section we will only comment on the correlations that are statistically significant at the 10 per cent level.

The RES variable is positively correlated with bidder CAR at the 5 per cent significance level, which indicates that a larger target that is acquired will on average result in higher bidder CAR. This is in line with the hypothesis.

As illustrated in the correlation matrix there are further correlations between the explanatory and control variables. First, there is a positive correlation between the VERT dummy and RES at the 5 per cent significance level, indicating that vertical acquisitions will on average be larger than horizontal acquisitions. Secondly, there is a positive correlation between the owner control and the VERT dummy at the 10 per cent significance level, indicating that companies with dominant owners are more inclined to do vertical acquisitions than horizontal. Thirdly, the VERT dummy appears to be negatively correlated with acquisition experience at the 10 per cent significance level, indicating that vertical acquisitions are made by relatively inexperienced acquirers compared to horizontal acquisitions. Fourthly, the PRV dummy and the DOM dummy are negatively correlated at the 1 per cent level, indicating that public acquisitions will more probably be domestic than international. Finally, the data shows negative correlation between AEX and OWN at the 1 per cent significance level. This implies that companies with a stronger dominant shareholder will have lower acquisition experience.

7 Regression Analysis

This section presents the results from the Ordinary Least Square (OLS) regressions performed to test the hypotheses. The regressions are done in three steps. First, partial regressions of each variable have been regressed on bidder CAR. Secondly, all explanatory variables are regressed on bidder CAR, and finally, all explanatory and the control variable are regressed simultaneously. This allows us to assess the results in three steps. First, the effect of each explanatory variable is intended to be captured while not controlling for the other variables in the partial regression. Secondly, the full sample regression intends to show the effect of each explanatory variable, while controlling for the other explanatory variables. Thirdly, the full sample regression with control variable is intended to show the effect of each explanatory variable while controlling for the other explanatory variables and for a variable that has been shown to have significant impact in other studies. This regression is our final model, and is defined below.

$$CAR_i = \beta_1 + \beta_2 AEX_i + \beta_3 OWN_i + D\beta_4 DOM_i + D\beta_5 CONGL_i + D\beta_6 VERT_i + \beta_7 RES_i + D\beta_8 PRV_i + \varepsilon_i$$

In general, the statistic significance for the explanatory variables is improved when adding variables to the regression as well as the explanatory power, R^2 , which reaches 9.4 per cent in the third regression. Table 7.1 shows the results from the three regression analyses, where bidder CAR is regressed on five explanatory variables and one control variable.

Table 7.1 Regression Analyses Summary

	R^2	Coeff.	p-value	Estimated Model
Partial Regressions				
AEX	0.005	0.002	0.437	$CAR_i = \beta_1 + \beta_2 AEX_i + \varepsilon_i$
OWN	0.005	0.036	0.465	$CAR_i = \beta_1 + \beta_2 OWN_i + \varepsilon_i$
DOM	0.02	0.025	0.138	$CAR_i = \beta_1 + D\beta_2 DOM_i + \varepsilon_i$
CONGL	0.001	0.006	0.791	$CAR_i = \beta_1 + D\beta_2 CONGL_i + \varepsilon_i$
VERT	0	0	0.989	$CAR_i = \beta_1 + D\beta_2 VERT_i + \varepsilon_i$
RES	0.038	0.031**	0.038	$CAR_i = \beta_1 + \beta_2 RES_i + \varepsilon_i$
PRV	0.022	-0.034	0.113	$CAR_i = \beta_1 + D\beta_2 PRV_i + \varepsilon_i$
Full Regression				
	0.085			$CAR_i = \beta_1 + \beta_2 AEX_i + \beta_3 OWN_i + D\beta_4 DOM_i + D\beta_5 CONGL_i + D\beta_6 VERT_i + \beta_7 RES_i + \varepsilon_i$
AEX		0.004	0.109	
OWN		0.064	0.22	
DOM		0.021	0.226	
CONGL		0.014	0.553	
VERT		-0.002	0.901	
RES		0.035**	0.023	
Full Regression with Control Variable				
	0.094			$CAR_i = \beta_1 + \beta_2 AEX_i + \beta_3 OWN_i + D\beta_4 DOM_i + D\beta_5 CONGL_i + D\beta_6 VERT_i + \beta_7 RES_i + D\beta_8 PRV_i + \varepsilon_i$
AEX		0.004*	0.095	
OWN		0.059	0.255	
DOM		0.017	0.339	
CONGL		0.015	0.525	
VERT		-0.002	0.93	
RES		0.036**	0.021	
PRV		-0.023	0.299	

** Significance at the 0.05 level; * Significance at the 0.10 level

The purpose of this section is to determine how each variable affects bidder CAR. Each variable is discussed separately, and four aspects are commented on. These are how the three regressions relate to one another, if the regression results are in line with the proposed hypothesis, how to interpret the results, and what statistic and economic significance the results have. When commenting on the results we refer to the final regression unless stated otherwise. Ultimately, we will also comment on the robustness of the estimated model.

7.1 Acquisition Experience

The partial and full regressions show that the AEX variable has a positive effect on bidder CAR, but it is statistically insignificant. The full regression with control variable confirms a positive effect on bidder CAR, and is significant at the 10 per cent level. All regressions are in line with the hypothesised effect. The interpretation of the coefficient is that if the acquirer has done one more historical acquisition, bidder CAR in the focal acquisition will on average increase by 0.4 percentage units, holding all other variables constant. The economic significance is hence moderate.

Table 7.2 Summary of results – Acquisition Experience

	Predicted effect	Observed effect	
Hypothesis	on bidder CAR	on bidder CAR	Congruence
AEX	Positive	Positive	Supported*

** Significance at the 0.05 level; * Significance at the 0.1 level

7.2 Owner Control

The three regressions indicate that stronger ownership by the majority shareholder have a positive effect on bidder CAR. However, the effect is not statistically significant in any of the three regressions. The effect is not in line with the hypothesis. The coefficient should be interpreted that if the majority owner has one percentage unit higher voting power, bidder CAR will on average increase by 0.059 percentage units, holding all other variables constant. The variable's effect has thus moderate economic significance.

Table 7.3 Summary of results – Owner Control

	Predicted effect	Observed effect	
Hypothesis	on bidder CAR	on bidder CAR	Congruence
OWN	Negative	Positive	Not supported

** Significance at the 0.05 level; * Significance at the 0.1 level

7.3 Domestic Dummy

The DOM variable's positive coefficient indicates that international acquisitions will outperform domestic acquisitions. The same effect is observed in all three regressions, although the coefficient is highest in the partial regression, and declines as more variables are added. The observed effect is contrary to the hypothesised effect. However, the variable is statistically insignificant. The deduced effect from the coefficient is that if an acquisition is international, bidder CAR will on average be 1.7 percentage units higher, than if it has a domestic acquisition, holding all other variables in the model constant. This implies a very substantial economic significance.

Table 7.4 Summary of results – Domestic/Cross Border

	Predicted effect	Observed effect	
Hypothesis	on bidder CAR	on bidder CAR	Congruence
DOM	Negative	Positive	Not supported

** Significance at the 0.05 level; * Significance at the 0.1 level

7.4 Vertical Dummy

The VERT variable indicates that vertical acquisitions will underperform horizontal acquisitions (according to the full regression and the full regression with control variable, the effect is estimated to be neutral according to the partial regression). The effect in the full regressions is hence in line with the hypothesised effect. The coefficient should be interpreted

that if an acquisition is classified as vertical it will on average underperform acquisitions classified as horizontal by 0.2 percentage units. The VERT variable is statistically insignificant in all regressions, and the economic significance is moderate.

Table 7.5 Summary of results – Vertical

Hypothesis	Predicted effect on bidder CAR	Observed effect on bidder CAR	Congruence
VERT	Moderately negative	Negative	Supported

** Significance at the 0.05 level; * Significance at the 0.1 level

7.5 Conglomerate Dummy

The CONGL variable indicates that diversifying acquisitions will outperform horizontal acquisitions according to the three regressions. This effect is the opposite to the hypothesised effect. The coefficient and statistical significance of the variable increases as more variables are added to the regression. The interpretation of the coefficient is that if an acquisition is classified as a conglomerate acquisition, bidder CAR will on average be 1.5 percentage units higher, than if the acquisition were classified as a horizontal acquisition, holding all other variables constant. The statistical significance is low, but the economic significance is very substantial.

Table 7.6 Summary of results – Conglomerate

Hypothesis	Predicted effect on bidder CAR	Observed effect on bidder CAR	Congruence
CONGL	Considerably negative	Positive	Not supported

** Significance at the 0.05 level; * Significance at the 0.1 level

7.6 Relative Size of the Target

The results for the RES variable indicate that acquisitions of relatively large targets will outperform acquisitions of relatively small targets according to all three regressions. The effect of the variable and the statistical significance is shown to increase when more variables are included in the regression. The result is in line with the hypothesised effect. The coefficient shows that if the relative size of the target increases by one percentage unit, bidder CAR will on average increase by 0.036 percentage units, holding all other variables constant. The RES variable is statistically significant at the 5 per cent level in the three regressions. The economic significance is moderate.

Table 7.7 Summary of results – Relative Size of the Target

Hypothesis	Predicted effect on bidder CAR	Observed effect on bidder CAR	Congruence
RES	Positive	Positive	Supported**

** Significance at the 0.05 level; * Significance at the 0.1 level

7.7 Public/Private Target

The PRV variable indicates that acquisitions of public companies will result in lower bidder CAR than acquisitions of private companies. This is in line with the hypothesis. The coefficient in the final regression should be interpreted that if the target is public, bidder CAR will on average be 2.3 percentage units lower compared to private acquisitions, given that all other variables are held constant. The average and median bidder CAR in the sample is 1.89 percent and 1.12 percent respectively. This finding hence indicates that public acquisitions will on average result in negative returns. The effect is statistically insignificant, although the economic significance is substantial.

Table 7.8 Summary of results – Public/Private Target

	Predicted effect	Observed effect	
Hypothesis	on bidder CAR	on bidder CAR	Congruence
PRV	Negative	Negative	Supported
** Significance at the 0.05 level; * Significance at the 0.1 level			

7.8 Concluding remarks

This section makes two important points. First, out of the five explanatory variables one is significant at the 5 per cent level, and another is significant at the 10 per cent level. Three variables are not statistically significant at any acceptable level. It is often tempting to reject variables that are not statistically significant, however, the economic significance has been shown to be substantial, or at least moderate, which hence motivates their inclusion in the final model. Secondly, the majority of the coefficients are in line with the hypothesis (with exception for the CONGL, OWN and DOM dummy). The findings will be discussed more in depth in section 8.

7.9 Robustness of the model

To assure that the model produces valid results, it needs to meet certain criteria. The model has been rigorously tested in four key areas: Multicollinearity, Heteroscedasticity, Autocorrelation, and Normality. No significant problems have been detected. In section 13.2 the actual tests performed and the results are presented.

Multicollinearity arises when there is strong correlation between the explanatory variables. A typical sign of multicollinearity is that the R^2 value is high (0.8 or higher) coupled with insignificant slope coefficients. In the data used for this study, multicollinearity is not found.

Heteroscedasticity exists when the variance in the error term is not constant throughout the sample, and can be detected by studying scatterplots or performing the Spearman's Rank test. The data in our sample does not indicate heteroscedasticity.

Autocorrelation arises due to that the error term is correlated with itself. This leads to that the OLS estimators are not of minimum variance or efficient. One method for detecting autocorrelation is to perform a Runs Test. Autocorrelation is not found in our data.

The error term should to be normally distributed in order to make correct tests of the coefficients. We find that the error term is not normally distributed in our data. However, as we have a large number of observations we can justify the use of the normal distribution for tests, as we invoke the central limit theorem.

8 Analysis and Discussion

In this section we will analyse the conclusions drawn in the descriptive and regression analyses with reference to the theoretical framework and the hypotheses. Furthermore, alternative explanations to the variation in bidder CAR will be discussed in light of the interview performed. When we comment on the results we refer to the third regression unless stated otherwise.

8.1 Acquisition Experience

It was hypothesised that bidder CAR would increase with acquisition experience. All three regressions prove this hypothesis and in the third regression the coefficient is significant at the 10 per cent level. Our results are thus in line with the *Learning Curve Theory* as presented by Finkelstein & Haleblan (2002). The acquirers in the sample seem to improve their ability to integrate the target, realise synergies and to handle cultural difficulties as their experience increase. The conclusion can therefore be drawn that task improvement due to repetition is not only applicable to manufacturing processes⁴⁰ but also to M&A processes. This is interesting as acquisitions are much less standardised than manufacturing, but according to our results still not unique to the extent that experience is not applicable to future processes. Our results are also in line with the study by Hitt et al. (1998) and an interesting complement to their findings since their study was based on relatively old data from the US, while our study builds on new Swedish data. Thus, it appears as though this result is valid across geography and time.

Our results are contrary to the *Hubris Hypothesis* (Roll, 1996), which indicates that the companies in our sample do not become overconfident as to their ability to acquire and integrate targets. One potential explanation for this is the structure of our sample. As Figure 6.3 shows the companies in our sample have on average only conducted 2.48 historical acquisitions and only 10 per cent of our sample companies have performed more than four previous acquisitions. Hence, it may be that few (if any) of the companies in our sample have reached the critical level where hubris in acquisition processes leads to lower bidder CAR.

Since Finkelstein & Haleblan (1999) find an inverted U-shape relationship between bidder CAR and acquisition experience we also ran a regression with all the explanatory variables and the control variable, including the variable AEX^2 to investigate whether the same relation was present in our sample. An inverted U-shape relation would support both the *Learning Curve Theory* (Finkelstein & Haleblan, 2002) and the *Hubris Hypothesis* (Roll, 1996). The results from the regression, which can be seen in Table 8.1, indicate a U-shape relation rather than an inverted U-shape since the coefficients for AEX is negative and positive for AEX^2 . However, as the variable AEX^2 is not statistically significant and has a low economic significance, we have chosen to exclude it from the regression.

⁴⁰ As shown by for example Yelle (1979) and Butler, Dutton & Thomas (1984).

Table 8.1 Regression results including AEX²

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	-,016	,027		-,608
	AEX2	,001	,001	,297	,973
	VERT	-,002	,018	-,010	-,098
	CONGL	,009	,025	,038	,382
	RES	,033	,016	,211	2,125
	DOM (0)	,017	,017	,095	,965
	OWN	,053	,052	,102	1,010
	AEX	-,003	,008	-,114	-,370
	PRV (0)	-,028	,023	-,124	-,229

a. Dependent Variable: CAR

One can question whether it is the company or the people within the company that possess the experience from previous acquisitions. The answer plays a decisive role for the way a company should act to gain acquisition experience and for the stability of the experience over time. This study does not measure management turnover (or any other similar variable), and hence we cannot confirm or refute that it is the people within the organisation that possess the experience. It may be that the acquirers in our sample have had low turnover of management during the sample period, and that we therefore do not study the organisation's experience, but rather the experience possessed by the company's management. The regression analysis does however show that organisational learning is present as bidder CAR increases with acquisition experience.

8.2 Owner Control

Hypothesis two states that there is a negative relation between bidder CAR and owner control. The coefficient for owner control is positive in all three regressions. The results are thus not in line with the hypothesis and the coefficient is statistically insignificant.

The positive coefficient implies that a higher voting stake will on average result in higher bidder CAR. This result is in line with Shleifer & Vishny's (1986) theory that large owners, due to a higher stake, have the incentive to monitor the management which will reduce the agency problems and the risk that management engage the company in unsuccessful acquisitions. The result is also in line with previous studies on US data performed by Amihud & Lev (1981) and Shleifer & Vishny (1986). However, the results are contrary to the observations in Alpsten & Barck-Holst's (1999) study on Swedish data. Our results are quite surprising since the ownership structure in American and Swedish companies is quite the opposite. This hence implies that the proposed institutional differences between Sweden and Anglo-Saxon countries may not be as influential as expected or that the differences in the institutional setting are smaller than hypothesised.

Alpsten & Barck-Holst (1999) conclude that there is a conflict of interest between large and small shareholders and not between management and shareholders in Swedish companies, something our results do not support. In order to try to explain the discrepancy between our and Alpsten & Barck-Holst's (1999) results we investigate whether the ownership structure in the companies in our sample allows a conflict between owners by evaluating the voting stake of the second largest owner. The average voting stake held by the largest shareholder in our

sample is 26 per cent. For the second largest shareholder the average voting stake is 11 per cent. Since the second largest owners' voting stake is definitely not unsubstantial we believe that there is potential for a conflict between shareholders in the companies in our sample. Consequently, the relationship between the two largest shareholders cannot explain the discrepancy between our and Alpsten & Barck-Holst's (1999) results. However, other potential explanations could be that Alpsten & Barck-Holst (1999) study long run effect while our study has a short run perspective.

The strongest correlation that can be observed in our sample is between AEX and OWN variables. In the regression analysis strong owners are shown to enjoy higher bidder CAR, and as the correlation is negative between AEX and OWN this would imply that strong owners generate better bidder CAR due to some other variable than experience.

8.3 Domestic/Cross Border

The results from all three regressions show a positive effect on bidder CAR for cross border acquisitions compared to domestic acquisitions. These results are thus contrary to hypothesis three, which predicts that domestic acquisitions should outperform cross border acquisitions.

Our results indicate that the problems with greater *Employee Resistance* (Finkelstein & Larsson, 1999) and *Asymmetric Information* between the bidder and the target (Gioia & Thomsen, 2004), due to differences in management styles, cultures, legal frameworks and institutional conditions, do not have the expected impact. The negative aspects of cross border acquisitions are according to our results outweighed by the positive effects, such as the opportunity to easily implement new and essential foreign cultures and routines into the combined entity (Jemison & Sitkin, 1986). The results could also be explained by the possibility to realise larger *Rationalisation Gains* in cross border acquisitions than in domestic ones as acquirers can move the production to a county with lower marginal production costs more easily (Bertrand & Zitouna, 2005). Furthermore, the results also indicate that the access to new markets through an acquisition will increase the *Economies of Scale* in the combined entity and thus have a positive effect on bidder CAR as argued by Morck & Yeung (2003).

There are several theories that could explain why international acquisitions outperform domestic ones. However, previous studies conclude that domestic acquisitions outperform cross border acquisitions. We see several possible explanations for this discrepancy between our and previous studies. First, our study is based completely on Swedish data, while previous studies use data from other countries. This would thus indicate that Swedish companies' culture are more easily merged with other cultures or that Swedish companies are better at handling the differences in management styles, cultures and institutional setting to decrease the negative effects of *Employee Resistance* and *Asymmetric Information*. Swedish companies could also be better at extracting the positive effects from a cross border acquisition. A second explanation to the contradictory results is the difference in the sample periods. The data used in the previous studies only reach up to the year 2000 and our data is from 2000 - 2006. The world becomes more and more globalised and business is to a larger extent made on an international level today compared to 10 years ago. There are also more supranational frameworks that companies need to abide by today, e.g. the International Financial Reporting Standards (IFRS). We believe that the increased internationalisation of the world should decrease the differences in between domestic and international companies and the potential problems in a cross border acquisition, which facilitate a successful integration of an

international target. As globalisation is not expected to decrease, we believe that future studies will also find that international acquisitions outperform domestic ones.

8.4 Industry Similarity

It was hypothesised that bidder CAR would increase with industry similarity. However, the results from the three regressions show no clear trend between industry similarity and bidder CAR. Vertical acquisitions have a slightly negative effect on bidder CAR compared to horizontal acquisitions, which is in line with hypothesis four. Conglomerate acquisitions on the other hand, which were hypothesised to have a substantially negative effect on bidder CAR, have a positive effect on bidder CAR compared to horizontal acquisitions. The results are statistically insignificant.

Our results indicate that the financial advantages that can be gained in conglomerate acquisitions are greater than the operational advantages gained from horizontal acquisitions. There are two alternative ways for interpreting these findings. The first possibility is that the potential positive effects of *Economies of Scale*, *Economies of Scope* and *Market Power* on bidder CAR in horizontal acquisitions (Montgomery & Singh, 1987) are not as big as the financial benefits in conglomerate acquisitions. The second possibility is that the companies in our sample are superior at realising financial advantages than operational. Whichever, our results show that by taking advantage of *Imperfect Financial Markets*, *Refinancing Possibilities*, *The Access to Internal Capital Markets* and *The Coinsurance of Debt Effect* (Lewellen, 1971; Comment & Jarrell, 1995) conglomerate acquisitions obtain higher bidder CAR than horizontal acquisitions. During the conglomerate boom in the 1960s and 70s conglomerate acquisitions resulted in higher bidder CAR than horizontal or vertical acquisitions. Our results are thus in line with the studies on older data, such as Matusaka (1993) who studied acquisitions during 1968, 1971 and 1974. However, studies since the early 1980s in general show that bidder CAR is positively related to industry similarity which is partly contrary to what our study shows. Our results are thus opposite to the conclusions from the majority of the studies discussed in section 5.4. This is interesting as the positive effects for conglomerate acquisitions depend on the imperfection of financial markets. Our results thus indicate that financial markets are imperfect for the companies in our sample, which is surprising given the innovation in the financial markets since the 1970s. This can be interpreted in two ways, one explanation is that the development of financial markets has not been as strong for the companies in our sample as previous studies suggest, or that the companies in our study have somehow failed to take advantage of the development.

Furthermore, our results are contrary to the expected positive effects from vertical acquisitions. The *Elimination of Transaction Costs* (Hoag et al., 1990) and the possible gains from monopolising a crucial input through a vertical acquisition of a target with monopoly power (Hoag et al., 1990) have in our sample proved not to have a positive effect on bidder CAR. However, these positive effects rely on that there is a cost for market interactions and contracting i.e. market failures (Hoag et al., 1990). One can thus draw the conclusion from our results that the problems with market failures in our sample are not as great as hypothesised and hence, that the acquirers do not realise the benefits associated with vertical acquisitions.

8.5 Relative Size of the Target

The relative size of the target was hypothesised to have a positive effect on bidder CAR, which our results confirm at the 5 per cent level of significance. Our findings thus indicate that more attention is given to the integration process of relatively large targets which is in line with the theories presented by Diven (1984) and Ravenscraft & Scherer (1987). The results support Hunt & Morgan's (1990) theory that more synergies will be realised when a relatively large target is acquired, as it will be more integrated to the acquirer's operations. Our results are also in line with the *Theory of Critical Mass* presented by Ansoff et al. (1971). In section 6.2 we showed that the CAAR is substantially higher for acquisitions with a relative size of 10 per cent or more, which could indicate that the level at which critical mass is reached is 10 per cent in our sample. To further investigate this we performed a regression with a dummy variable (RES DUM) that was assigned the value 1 for acquisitions with relative size of 10 or more per cent. The results from the regression are presented in the table below. At the 1 per cent significance level the regression shows that acquisitions greater than 10 per cent, will on average result in 4.5 percentage units higher bidder CAR than if the target's relative size is less than 10 per cent, holding all the other variables constant. This thus supports what we observed with CAAR. These findings are in line with Asquith, Bruner & Mullins' (1983) study, which proved that bidder CAR are larger when targets have a relative market value of equity of 10 per cent or more.

Table 8.2 *Regression Analysis, including Relative Size Dummy*

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.032	.025		-1.302	.196
	RES DUM	.045	.015	.291	2.955	.004
	DOM (0)	.025	.017	.142	1.456	.148
	OWN	.024	.052	.046	.455	.650
	AEX	.002	.003	.093	.928	.356
	VERT	.004	.017	.023	.236	.814
	CONGL	.019	.024	.078	.809	.420
	PRV (0)	-.026	.022	-.114	-1.183	.240

a. Dependent Variable: CAR

Although we observe a general positive relationship between bidder CAR and relative size, we cannot with certainty refute the theory of *Mergers of Equals*, which predicts integration problems due to a cultural clash between two equally strong company cultures (Alpsten & Barck-Holst's, 1999). The general positive trend observed in the regression could be seen even though equally large targets could have lower bidder CAR. To investigate this further we have looked at bidder CAAR for targets with a relative market capitalisation of 60-140 per cent of the bidder's since a regression analysis was not possible due to the small number of observations with that size relation. Bidder CAAR was on average 8.22 per cent and the median was 3.02 per cent, which exceeds the average and median for the whole sample. This indicates that our results are contrary to the theory of *Mergers of Equals*.

Our results are also in line with the previous studies presented in section 5.5. What is interesting to point out is that the data in previous studies dates back to 1960, thus one can expect that the conclusion that bidder CAR will be higher when buying a relatively large target will be true even in the future.

8.6 Public/Private Target

According to our findings acquisitions of public companies will result in lower bidder CAR than acquisitions of private companies. This is in line with hypothesis seven. Our results are thus in line with the study made by Fuller et al. (2002) and the argument presented by Conn et al. (2003) that the relative illiquidity of private companies should reduced the number of competing bids.

8.7 Alternative Explanations

Due to that the low explanatory power of our estimated model, we decided to interview a M&A practitioner to get insight into how to specify a model with greater explanatory power. The purpose of the interview was not to provide an exhaustive alternative explanation to the variation in bidder return, but rather to determine if it is possible to explain the variation in bidder CAR based on formal explanatory variables and find common characteristics of acquisitions that generate positive or negative returns as we have intended to do.

The person interviewed was Jacob Spens. He has ten years of experience form M&A with SEB Enskilda and is currently Vice President at Greenhill & Co. It is interesting to contrast Spens' insight as a practitioner, with that of academics and more formal theories.

Spens stressed that there are an infinite number of factor affecting the outcome of an acquisition and that each transaction is unique to a certain extent. However, he highlighted ten factors, seven measurable and three non-measurable that he regarded to have the greatest impact on how an acquisition performs and is perceived by the market. The measurable variables that he considers to have the greatest effect are the multiple paid for the target, the industry similarity between bidder and target, deal financing, quantified synergies presented, the effect on pro forma earnings per share (EPS) due to the acquisition, ownership structure in the bidder, and the net flow of capital to/from the capital markets. The non measurable factors brought forth were primarily the psychology of the markets, i.e. what the general mood in the market is to a company or industry, communication, i.e. how well the bidding company markets the transaction with investors, and finally, the experience that management posses. We have not found several of the factors identified by Spens in previous studies, indicating that practitioners may have a different view on the topic than academics.

We interpret Spens' comments that it is not possible to estimate a model with full explanatory power. However, as we chose the explanatory variables included in this study based on what previous research has found to have a substantial impact on acquisition, several of the factors suggested by Spens are not included in our study. We therefore believe that it may be possible to estimate a model with higher explanatory power than what we have managed to do in this study.

9 Conclusion

We have studied acquisitions made by Swedish public companies from 1 January 2000 to 31 December 2006. In general we have found that acquisitions generate positive bidder returns. This is interesting as most previous studies reach the opposite conclusion. We have evaluated a unique combination of variables' effect on bidder return, and the findings for each of these are summarised below.

We found at a statistically significant level that bidders with greater acquisition experience obtain higher bidder CAR in the focal acquisition. Our results are thus in line with our hypothesis and a majority of the theories and previous findings discussed. Our findings imply that task improvement due to repetition is even applicable in such highly unstandardised processes as M&A. This is interesting as evidence on task improvement primarily exists for standardised processes, such as manufacturing. Furthermore, our results indicate that there is an element of organisational learning for acquisition processes. Hence, acquisition experience is not solely held by individuals within an organisation, but also by the organisation itself.

Our results show that acquirers with a stronger majority owner will on average generate a higher bidder CAR. Although statistically insignificant, our results are contrary to the hypothesis. Our results are in line with the results obtained in studies on US data and contrary to the study on Swedish acquisitions. This is surprising as the ownership structure in Swedish companies differs from US or UK companies. The result indicates that the difference in institutional setting is not as important for bidder CAR, or not as large as hypothesised, which we believe is one of the most interesting contributions of this study.

According to our results, international acquisitions will outperform domestic ones. This is contrary to our hypothesis, although the results are statistically insignificant. There are several theories that support our finding, however, all previous studies come to the opposite conclusion. We believe that this discrepancy may be explained by the effects of globalisation, such as the internationalisation of business and the increased use of supranational standards, e.g. the IFRS.

We find no clear relationship between industry similarity and bidder CAR. Vertical acquisitions generate negative bidder CAR compared to horizontal ones, while conglomerate acquisitions result in substantially higher bidder CAR than horizontal ones. These findings are partly in line with older studies, and contrary to studies performed after 1970. Two interesting conclusions can be drawn from these results. First, the merits of conglomerate acquisitions are financial and rely on the imperfection of financial markets. The positive effect on bidder CAR for conglomerate acquisitions indicates that the companies in our sample operate in a world of imperfect financial markets. This result implies that the development of financial markets since the 1970s may necessarily not have been as extensive as previous studies suggest, or that the companies in our sample somehow fail to take advantage of it. Secondly, the benefits from vertical acquisitions depend on market failure. Thus the negative bidder CAR for vertical acquisitions compared to horizontal ones show that the problems with market failure are smaller than hypothesised.

Our results show a positive relationship between the relative size of the target and bidder CAR. The results are statistically significant and in line with the hypothesis. The finding highlights the importance of acquiring a relatively large target, which is an interesting contribution of this Master's Thesis. The result is in line with several theories, e.g. the *Theory of Critical Mass* (Ansoff et al., 1971). As we observed a remarkable difference in CAAR between targets of a relative size above or below 10 per cent, we further analysed this with a regression analysis, and support was found for this level of critical mass.

The general purpose of this Master's Thesis was to investigate how bidder returns are dispersed and to identify the common characteristics of acquisitions that generate positive or negative returns. We believe that we have successfully shown the dispersion in bidder CAR for acquisitions by Swedish companies during 2000 - 2006. However, we have not been able to identify the common characteristic for successful acquisitions, to the extent that we explain the majority of the variability in bidder CAR. The low explanatory power in our regressions indicates that there are a large number of other variables that affect bidder CAR, which is also supported by our interviewee.

To conclude, the specific purpose was to analyse the five variables' effect on bidder return. We have shown all variables effect on bidder CAR. A majority of the variables had substantial economic significance, and two variables, acquisition experience and relative size, were also statistically significant. We can hence prove that bidder CAR will be higher in acquisitions where the acquirer is experienced and where the target is relatively large.

10 Validity & Reliability

In this section the inherent problems of our study are presented and discussed.

10.1 Validity

With validity is meant the extent to which the explanatory variables chosen are expected to give an actual representation of reality (Ryan et. al, 2002).

The validity of our study can be questioned in three key areas. First, the R^2 in the third regression analysis is 9.4 per cent, implying that the estimated model explains only a fraction of the variability in bidder CAR. This low explanatory power of the model suggests that there are other variables that explain the variability in bidder CAR. The variables included in the estimated model were chosen due to that they proved to have a high explanatory power in previous studies, and are relatively unexplored. They were thus expected to have a higher explanatory power of the variability in bidder CAR. The R^2 could have been increased by including more variables in the model, or by expanding the sample. However, as suggested by our interviewee, there are an infinite amount of factors that affect bidder CAR and some are not measurable. Therefore, we believe that a model with full explanatory power is not possible to estimate.

Secondly, the statistical significance of the explanatory variables was found to be rather poor. Two of the five explanatory variables were significant at the five or ten per cent level. We chose to maintain the statistically insignificant variables in the model due to that their economic significance was important. Furthermore, the findings are interesting *per se*, in that we fail to obtain statistical significance for variables that have been proved to be statistically significant in previous studies. The poor statistical significance could have been remedied by including more explanatory variables in the model, and thus controlling for more potential effects. However, including variables without theoretical support is data mining. Hence, despite an increased statistical significance, the results would be questionable.⁴¹ Another solution is to increase the data sample, however this was not possible due the scope of this study.

Thirdly, the CAR model used for estimating the long-term benefits or disadvantages of an acquisition builds on several assumptions. Primarily it is assumed that the *semi-strong* form of market efficiency holds, and that we can hence estimate the long-term benefits or disadvantages of an acquisition with the short-term share price reaction. There is risk that this assumption is not valid and that we therefore fail to capture the desired effects with the CAR model. However, this methodology is consistent with previous studies.⁴² A study where this assumption is questioned would be a study on *Market Efficiency*, which is not the topic of our study. Moreover, by e.g. increasing the event window it is probable that *Noise* would affect the share price and distort the effect due to the acquisition.

⁴¹ For a more in-depth discussion see Harvey (1990).

⁴² See e.g. Eriksson & Spens (1997) and Hayward (2002).

10.2 Reliability

Reliability refers to how independent the results are from the people performing the study, and hence how replicable and reliable the results are (Ryan et. al, 2002).

The critique of the reliability of our study that we would like to bring forth is three-fold. First, we have imposed an extensive selection criteria on the acquisitions included in our sample, in terms of e.g. value, time period and acquisition stake. This naturally leads to a certain bias in the sample. However, the delimitations we have made are done in line with other similar studies⁴³, and we therefore believe that the sample gives an appropriate representation of what we have set out to measure. In some instances we have left out acquisitions that are missing values for certain variables in the sample. It may be the case that the acquirer will not report data on the acquisition if it is less successful. Therefore, we may lack more data on unsuccessful acquisitions than on successful acquisitions and our sample could therefore potentially be biased toward successful acquisitions.

Secondly, we would like to bring forth the bias inherent in the dependent, explanatory, and control variables. The definitions of these are subjective, and it is possible that our findings would vary depending on the definitions. However, the variables have been defined after a thorough analysis of the definitions of the variables in other studies, and we therefore believe that they are a fair approximation for what we intend to measure.

A third potential source of bias is the perspective adopted in this study. The shareholder perspective may leave out benefits or disadvantages due to the acquisition to other stakeholder. Thus, our study is biased toward shareholders.

⁴³ See e.g. Simensen & Åkesson (2005), Bauer & Lundgren (2003) and Eriksson & Spens (1997).

11 Suggestions for further research

Having worked over the course of six months with this Master's Thesis it has provided us with a lot of insight into the multitude of different issues that can be raised in a study on M&A. We see a number of possibilities for further research based on this study.

Firstly, since this study estimates the benefits and disadvantages of acquisitions with a short-term share price reaction, a study which estimates the effects on bidder CAR with a long-term measure would be relevant. Using the same data and variables, such a study would allow a comparison between short-term and long-term estimates and enable a discussion on market efficiency, which would be interesting. Furthermore, a study on the effects on accounting and operational measures due to an acquisition would be a relevant complement to our study and would allow for an interesting comparison between the accounting and market based measures.

Secondly, although we do not believe that it is possible to estimate a model with full explanatory power one could still come to interesting results by expanding the study either in time or by including more explanatory variables. It would give a more complete image of the effects on bidder CAR.

Thirdly, a qualitative study on the same subject, analysing only a few acquisitions in depth, could be a good complement to this quantitative study permitting case-specific and detailed conclusions. Such a study could also encompass factors that are in general not measurable in a quantitative study, e.g. how well a transaction is marketed with investors.

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13 Appendix

13.1 Sample Summary

The sample is collected from the database Zephyr, and consists of 113 acquisitions between 1 January 2000 and 31 December 2006 by Swedish companies listed on OMX Stockholm.

Table 13.1 *Sample summary*

Announcement date	Bidder	Target
2000-01-01	Hufvudstaden AB	Vasaterminalen AB
2000-01-04	Sardus AB	3-Stjernet AS
2000-02-07	Nolato AB	Shieldmate Robotics
2000-09-13	TurnIT AB	Arete AB
2000-10-06	Bergman & Beving AB	FB Industri Holding AB
2000-11-17	Hexagon AB	Brown & Sharpe Manufacturing Company's metrology business
2001-02-05	Scribona AB	PC Lan ASA
2001-11-21	Svenska Cellulosa AB	Encore Paper Company Inc
2001-12-10	Teleca AB	AU-System AB
2002-01-07	Cardo AB	Amber Doors Holdings Ltd
2002-01-18	Getinge AB	Heraeus Medical Technology GmbH
2002-02-04	Autoliv AB	Visteon Corporation's restraint electronics business
2002-02-19	Svenska Cellulosa AB	Cartoinvest SpA
2002-05-02	Electrolux AB	Diamant Boart International
2002-07-17	Intrum Justitia AB	Stirling Park LLP
2002-08-29	Skanska AB	Yeager Construction Company
2002-08-29	Svenska Cellulosa AB	Bertako SL
2002-09-02	Eniro AB	Elisa Communications Corporation's Tampere-based directory operations
2002-09-20	Svenska Cellulosa AB	Benedetti Paper Division
2002-12-19	Svenska Cellulosa AB	Scaninge Holding AB's sawmill operations
2003-01-09	Nordea	Nordisk Renting AB
2003-01-21	LGP Telecom Holding AB	Allgon AB
2003-02-17	Tele2 AB	Alpha Telecom (UK) Ltd
2003-04-01	Höganäs AB	SCM Metal Products Inc.
2003-04-01	Securitas AB	Lincoln Security Services Inc.
2003-05-22	Getinge AB	Jostra AG
2003-06-17	Capio AB	UK Healthcare Limited Partnership Inc.
2003-07-01	Assa Abloy AB	Assa Abloy Door Group LLC
2003-07-21	Trelleborg AB	Polymer Sealing Solutions Ltd
2003-08-15	Getinge AB	Siemens Medical Solutions's Life Support Systems business unit
2003-09-08	Boliden AB	Outokumpu's mining and smelting operations within zinc and copper

2003-10-14	Meda AB	Medic Team A/S
2003-10-14	Pyrosequencing AB	Biotage LLC
2003-10-29	WM-data AB	Novo Group Oyj
2003-11-05	Pandox AB	Crowne Plaza Hotel, Brussels
2003-11-24	ProAct IT Group AB	Dimension AB
2003-12-01	Nobia AB	Gower Group Ltd
2003-12-01	Trelleborg AB	Metzeler Automotive Hose Systems GmbH
2003-12-03	Sweco AB	PI-Management Oy
2003-12-19	Billerud AB	Henry Cooke Ltd
2004-02-19	Atlas Copco AB	Ingersoll-Rand Drilling Solutions
2004-03-01	Svenska Cellulosa AB	Drypers Malaysia Sdn Bhd
2004-03-03	Trelleborg AB	Manuli Dynaflex
2004-03-17	WM-data AB	Parere AB
2004-03-26	Svenska Cellulosa AB	Carter Holt Harvey Ltd's tissue business
2004-03-29	Meda AB	Ipex Medical AB
2004-05-06	Sigma AB	RKS AB
2004-05-14	Aspiro AB	Cellus Norway AS
2004-06-15	Nordnet AB	Stocknet-Aston Securities ASA
2004-06-21	Electrolux AB	AEG brand
2004-07-09	TeliaSonera AB	Orange A/S
2004-09-06	CashGuard AB	SQS Security Qube System AB
2004-10-01	Securitas AB	Valiance Fiduciaire
2004-10-14	Tele2 AB	UTA Telekom AG
2004-10-18	Volvo AB	Prevost Car Inc.
2004-12-08	Svenska Cellulosa AB	Copamex Productos al Consumidor SA de CV
2004-12-14	Svenska Cellulosa AB	Smurfit Munksj AB's tissue operations
2005-01-10	LB Icon AB	Wheel Communications Ltd
2005-01-14	Securitas AB	Alert Services Holding SA
2005-01-17	Skandinaviska Enskilda Banken AB	Gamlestaden
2005-01-18	Elektro AB	IMPAC Medical Systems Inc.
2005-01-20	Meda AB	Novartis AG's Cibacen and Cibadrex brands
2005-01-27	Capio AB	Grupo Sanitario IDC
2005-02-04	Addtech AB	Bergman & Beving Meditech AB
2005-02-04	Fagerhult AB	LampGustaf AB
2005-02-09	Rnb Retail & Brands AB	C/O Department & Stores Nordic AB
2005-02-22	Biotage AB	Argonaut Technologies Inc's certain assets
2005-03-22	FreningsSparbanken AB	Hansapank AS
2005-04-13	Telelogic AB	Focal Point AB
2005-04-18	Telelogic AB	Popkin Software & Systems Ltd
2005-04-25	Skandinaviska Enskilda Banken AB	Privatbanken ASA
2005-05-04	SKF AB	Willy Vogel AG
2005-05-10	Framfab AB	Oyster Partners Ltd
2005-06-20	Telefonaktiebolaget LM Ericsson	Axxessit ASA
2005-08-08	Meda AB	Viatis GmbH & Co. KG
2005-08-15	Hexagon AB	Leica Geosystems Holding AG
2005-09-23	Alfa Laval AB	Tranter PHE Inc.
2005-09-23	VBG AB	Edscha AG's sliding roofs for trucks and trailers division
2005-09-26	Eniro AB	Findexa Ltd
2005-10-10	Fastighets AB Balder	Bygg-Fast Fastigheter AB
2005-10-25	Telefonaktiebolaget LM Ericsson	Marconi Corporation

2005-11-04	Fagerhult AB	Whitecroft Lighting Holdings Ltd
2005-12-15	Securitas AB	Black Star SL
2005-12-21	Trelleborg AB	CRP Group Ltd
2005-12-23	Fabege AB	LRT Acquisition AB
2005-12-28	Orc Software AB	Cameron Systems
2006-01-16	Capio AB	Arvita SA
2006-02-14	Nobia AB	Hygena Cuisines SA
2006-02-17	Cardo AB	Grupo Combursa SL
2006-04-03	SKF AB	SNFA SAS
2006-04-04	Capio AB	Centre Medico-Chirurgical de l'Atlantique
2006-04-11	Teleca AB	Telma
2006-05-08	Ångpanneföreningen AB	Benima AB
2006-05-09	Rnb Retail & Brands AB	JC AB
2006-05-11	Sandvik AB	Hagby-Asahi AB
2006-05-22	SKF AB	Economos Austria GmbH
2006-05-23	Assa Abloy AB	Fargo Electronics Inc.
2006-06-02	Klövern AB	Viktor Hanson Fastigheter AB
2006-06-05	Telefonaktiebolaget LM Ericsson	Netwise AB
2006-06-12	Saab AB	Ericsson Microwave Systems AB
2006-06-21	SKF AB	John Crane Safematic Oy
2006-06-30	WM-data AB	Proffice Service Centers AB
2006-07-03	Husqvarna AB	Dixon Industries Inc.' certain assets
2006-07-18	Tele2 AB	Vostok Mobile Northwest BV
2006-08-04	BTS Group AB	Advantage Performance Group LLC
2006-08-21	Capio AB	Deutsche Klinik GmbH
2006-09-04	Svenska Cellulosa AB	Manufacturas Papeleras Canarias SL
2006-09-19	OMX AB	Eignarhaldsfelagid Verdbrefathing HF
2006-09-21	Capio AB	Tonkin Patrimoine SAS
2006-11-09	Meda AB	3M Pharma's business in Europe
2006-11-21	Ballingslöv International AB	Geisler A/S
2006-12-08	Skanska AB	McNicholas plc
2006-12-19	Telefonaktiebolaget LM Ericsson	Redback Networks Inc.

13.2 Robustness Tests

Multicollinearity

The pairwise correlation among regressors shows no sign of multicollinearity, and all correlations are substantially below 0.5. The condition index for all variables, except the first one which is equal to one by definition, are below 30, indicating the absence of multicollinearity. The VIF values are all substantially below 10, further confirming the absence of multicollinearity.

Table 13.2 Multicollinearity

Collinearity Diagnostics ^a											
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	VERT	CONGL	RES	DOM(0)	OWN	AEX	PRV(0)
1	1	3,867	1,000	,01	,02	,01	,02	,01	,01	,02	,01
	2	1,124	1,855	,00	,14	,34	,12	,00	,00	,04	,02
	3	,882	2,093	,00	,01	,04	,00	,02	,01	,01	,77
	4	,721	2,316	,00	,02	,45	,21	,01	,00	,25	,02
	5	,636	2,467	,00	,40	,02	,58	,00	,01	,05	,00
	6	,480	2,837	,00	,33	,11	,04	,05	,06	,39	,09
	7	,227	4,125	,00	,07	,00	,01	,51	,42	,03	,02
	8	,062	7,876	,99	,02	,03	,02	,41	,48	,21	,06

a. Dependent Variable: CAR

Correlations									
		CAR	VERT	CONGL	RES	DOM(0)	OWN	AEX	PRV(0)
Pearson Correlation	CAR	1,000	,001	,024	,203	,112	,071	,096	-,112
	VERT	,001	1,000	-,202	,189	-,114	,167	-,153	,034
	CONGL	,024	-,202	1,000	-,129	-,002	-,098	,030	,040
	RES	,203	,189	-,129	1,000	,039	,020	-,122	,014
	DOM(0)	,112	-,114	-,002	,039	1,000	-,031	-,068	-,224
	OWN	,071	,167	-,098	,020	-,031	1,000	-,282	-,095
	AEX	,096	-,153	,030	-,122	-,068	-,282	1,000	,100
	PRV(0)	-,112	,034	,040	,014	-,224	-,095	,100	1,000
Sig. (1-tailed)	CAR	.	,497	,402	,017	,123	,233	,162	,123
	VERT	,497	.	,018	,025	,119	,041	,056	,364
	CONGL	,402	,018	.	,091	,492	,156	,378	,339
	RES	,017	,025	,091	.	,344	,420	,103	,445
	DOM(0)	,123	,119	,492	,344	.	,374	,240	,010
	OWN	,233	,041	,156	,420	,374	.	,001	,163
	AEX	,162	,056	,378	,103	,240	,001	.	,150
	PRV(0)	,123	,364	,339	,445	,010	,163	,150	.
N	CAR	109	109	109	109	109	109	109	109
	VERT	109	109	109	109	109	109	109	109
	CONGL	109	109	109	109	109	109	109	109
	RES	109	109	109	109	109	109	109	109
	DOM(0)	109	109	109	109	109	109	109	109
	OWN	109	109	109	109	109	109	109	109
	AEX	109	109	109	109	109	109	109	109
	PRV(0)	109	109	109	109	109	109	109	109

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-,027	,025		-1,087	,279		
	VERT	-,002	,018	-,009	-,088	,930	,886	1,128
	CONGL	,015	,024	,062	,637	,525	,943	1,060
	RES	,036	,015	,229	2,345	,021	,942	1,062
	DOM (0)	,017	,017	,094	,961	,339	,928	1,077
	OWN	,059	,052	,115	1,144	,255	,891	1,122
	AEX	,004	,003	,169	1,684	,095	,887	1,127
	PRV (0)	-,023	,023	-,102	-1,043	,299	,933	1,072

a. Dependent Variable: CAR

Heteroscedasticity

Two tests have been performed to test for heteroscedasticity. No signs of heteroscedasticity have been found. The first proof is that the scatterplot of predicted values vs. residual values illustrates that the error term appears to be homoscedastic. The second proof is the Spearman's rank test. As $\rho = 0.814 > 0.05$ (test at the 5 per cent level of significance), the error term is found to be homoscedastic.

Figure 13.1 Scatterplot of predicted values vs. residuals

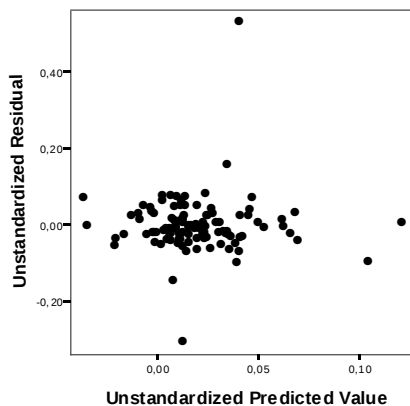


Table 13.3 Spearman's Rank Test

Correlations				
			ABSRES	Unstandardized Predicted Value
Spearman's rho	ABSRES	Correlation Coefficient	1,000	-,023
		Sig. (2-tailed)	.	,814
		N	109	109
	Unstandardized Predicted Value	Correlation Coefficient	-,023	1,000
		Sig. (2-tailed)	,814	.
		N	109	109

Autocorrelation

Two tests were performed to test for autocorrelation. First, the residuals were plotted against the lagged residuals showing no signs of autocorrelation. Secondly, the Runs Test has been performed. The critical value at the 5 per cent level with 62 negative and 47 positive residuals are 43 and 65 runs. The observed number is 53, which is inside the (43 ; 65) interval, and we can hence not reject the null hypothesis of a random series. Both tests show no autocorrelation.

Figure 13.2 Scatterplot of residuals vs. lagged residuals

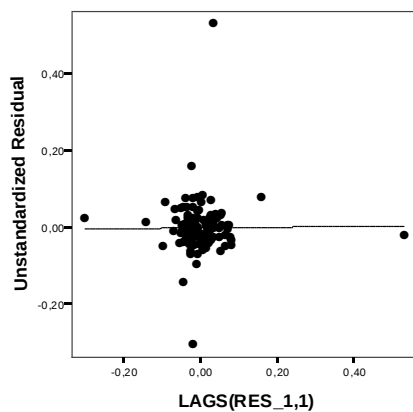


Table 13.4 Runs Test

Runs Test	
	Unstandardized Residual
Test Value ^a	,0000000
Cases < Test Value	62
Cases ≥ Test Value	47
Total Cases	109
Number of Runs	53
Z	-,288
Asymp. Sig. (2-tailed)	,773

a. Mean

Normality of residuals

To test for normality the Kolmogorov-Smirnov test is used. The p-value is $0,012 < 0,05$, and hence we cannot conclude that the error term is normally distributed. However, as our sample size is rather large, this does not constitute a problem, as the central limit theorem is invoked.

Table 13.5 Test of normality using Kolmogorov-Smirnov test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		109
Normal Parameters ^{a, b}	Mean	,0000000
	Std. Deviation	,07340498
Most Extreme Differences	Absolute	,153
	Positive	,134
	Negative	-,153
Kolmogorov-Smirnov Z		1,593
Asymp. Sig. (2-tailed)		,012

a. Test distribution is Normal.

b. Calculated from data.