Performance of Mergers & Acquisitions

A Research on how the Acquirer’s Level of Competitive Advantage, Information and Experience Impacts M&A Performance

Marie Louise Schoop
ANR: 450360

January 19, 2013
Performance of Mergers & Acquisitions

A Research on how the Acquirer’s Level of Competitive Advantage, Information and Experience Impacts M&A Performance

Graduation Thesis Master’s in Finance
Faculty of Economics and Business Administration
Department of Finance
Tilburg, Netherlands

Author: Marie Louise Schoop
ANR: 450360

Supervisor: Dr. Fabiana Penas
Second reader: Dr. Fabio Castiglionesi
Date: January 19, 2013
Abstract

As a means to explain the cross-sectional differentiation in acquirer performance, this study looked into both value-creating factors as well as elements that influence the total M&A investment cost. A firm’s competitive advantage is the primary base for core competencies and key to prevailing performance. Yet results showed that applying the acquirer competitive advantage, measured through intangible assets, over an increased scale, has devaluation of these resources as a consequence. As concerns the transaction-cost determinants, the data showed a non-linear relationship between acquisition experience and acquirer performance. Furthermore, results showed that having better information about the target does not improve M&A performance. Even when this information advantage is coupled with previous M&A experience there is no significant improvement in M&A performance.
Foreword

During the course of the last years I have gained a great amount of knowledge in the areas of accounting, which is the ability to read and understand financial statements; investing, which is the science of money making money; and the markets, which is the science of supply and demand. In addition this master’s program in finance has taught me the essentials of investments and corporate finance. This has really enriched my understanding of how the business world functions.

In the plane on my way to the Netherlands I doubted whether I would be able to achieve this. But reaching the end of this journey I am confident that perseverance and dedication are the keys to success. This is a valuable lesson that will help me in my future professional career.

In front of you is a thesis, the final step in my master’s program. The topic of my research, Mergers and Acquisitions (M&A), is an expansion strategy used by several companies to become bigger, stronger and more competitive. Besides enhancing my research, writing and analytical skills, this research has given me a better insight about the impact that such a transaction has on firms.

I am deeply grateful to my thesis supervisor, Professor María Fabiana Penas, for her guidance and insightful suggestions which led to key elements for completing my research. Also thanks to the Financial Data Support Department of Tilburg University, which was a source of advice and support during the data-collection process. And finally thanks to all persons who contributed with their good suggestions and support.
Table of Contents

1. Introduction .................................................................................................................. 7
2. Literature Review ......................................................................................................... 9
   2.1 M&A Motivations .................................................................................................. 9
   2.2 M&A Profitability ................................................................................................. 11
   2.3 M&A Profitability Determinants ......................................................................... 12
3. Hypothesis Development ............................................................................................ 15
   3.1 Value-Creation Determinants ............................................................................. 15
   3.2 Transaction-Cost Determinants ............................................................................ 17
   3.3 Summary ............................................................................................................. 18
4. Research Design ........................................................................................................ 19
   4.1 The Sample .......................................................................................................... 19
   4.2 The Methodology .................................................................................................. 20
   4.3 Description of the Measures ................................................................................ 21
      4.3.1. The Dependent variable .............................................................................. 21
      4.3.2. The Independent Variables ......................................................................... 22
      4.3.3 The Control Variables .................................................................................. 23
5. Data Analysis ............................................................................................................... 26
   5.1 Analysis of M&A Performance ............................................................................. 26
   5.2 Summary Statistics ............................................................................................... 27
6. Empirical Results ........................................................................................................ 30
   6.1 Regressions ........................................................................................................... 30
   6.2 Robustness Check ................................................................................................ 33
7. Conclusion .................................................................................................................... 34
   7.1 Conclusion and Implications ............................................................................... 34
   7.2 Discussion and Limitations .................................................................................. 35
   7.3 Recommendation for Future Research ............................................................... 36
Glossary ............................................................................................................................. 37
Works Cited ....................................................................................................................... 39
List of Tables & Figures

Table 1: Description of Variables................................................................. 24
Table 2: Summary Statistics. ................................................................. 27
Table 3: Result on M&A performance determinants. ........................................ 30
Table 4: Summary of Results .................................................................... 32
Table 5: Results on M&A performance determinants comparing large and small firms. .................. 32

Figure 1: Factors influencing M&A performance............................................. 18
Figure 2: Year distribution of M&A transactions ........................................... 19
Figure 3: Summary event study methodology used........................................... 22
Figure 4: Average effect of the event on the acquiring firm over the announcement period of (-5,5)........ 26
Figure 5: Comparison distribution year-average CAR (-1,1) for the acquiring firm with and without information about the target........................................................................ 29
Figure 6: Comparison distribution year-average CAR (-1,1) for the acquiring firm with and without information about the target........................................................................ 29
1. Introduction

When facing the decision to expand, a company can choose either to grow by means of strategic alliances with other firms or to expand by acquiring shares and control of another company.

Strategic alliances include strategies like joint ventures, franchising, licensing and subcontracting. These strategies allow a firm to easily access new markets while sharing risk. On the other hand, when a company expands by means of a merger or acquisition (M&A), the company is growing internally and consequently bears all the risks involved in the investment.

Yet by growing through M&A a firm can replace its old competitive advantages with new ones in order to continue to make economic profit. Additionally M&A’s give a company the opportunity to restructure its operations so it can exploit economies of scale and scope in production, distribution, and financing; to enhance monopoly or monopsony power; to take advantage of bargains; to take advantage of opportunities for diversification; and to build managerial empires (Ravenscraft & Scherer, 1989; Seth, 1990b; Andrade et al. 2001).

M&A’s are supposed to create value for the shareholders. However, studies have shown that M&A’s do not always realize the expected gains. Empirical evidence confirmed that shareholders of the targeted firms gain while the acquiring firms experience mixed results (Kaplan, 2006).

Previous researchers have identified several factors that explain this cross-sectional differentiation in acquirer performance. How the deal characteristics impact performance is one of the most researched topics in the literature of M&A’s. But despite the numerous studies on the determinants of M&A performance, an ideal model to predict M&A performance does not exist yet.

Besides a firm’s value and financial health a merger or an acquisition also affects a firm’s structure, operational efficiency and ability to generate value. This makes the development of a model that helps predict M&A performance a subject of interest. A deeper knowledge and understanding of the influential factors of M&A performance can contribute to the development of an early warning system that can help recognize and prevent “bad M&A decisions” and facilitate the investment decision and post-merger integration process.

Therefore the goal of this research is to enrich the research area of influential factors of M&A performance by providing a model that not only looks into value-creating factors, but also considers elements that may influence the total M&A investment cost. Thus this study aims to answer the following research question:

“How does the acquirer’s level of competitive advantage, information and experience impact M&A performance?”
The performance of the acquiring firm is delineated by the value created in the M&A transaction and the cost of the investment. The value created in the transaction depends on the acquiring firm’s ability to exploit its competitive advantage. The cost involved in an M&A transaction is influenced by the acquirer’s number of prior M&A experiences and the acquirer’s information about the targeted firm prior to the merger or acquisition. This perspective on M&A performance is tested through five hypotheses.

By means of OLS regressions the hypotheses on acquirer’s performance were tested while checking for deal and firm characteristics. The sample consists of 33,242 transactions obtained from the Securities Data Corporation’s (SDC) mergers database for the period of January 1985 to December 2005.

Based on the results it can be concluded that acquiring firms with a superior level of competitive advantage, measured through intangible assets, would not exhibit better M&A performance. Contrary to what was hypothesized, applying intangible assets over an increased scale has devaluation of these resources as a consequence. Even when there is a basis for the leveraging of these resources there is no significant improvement in performance.

Further, after a critical point, as the number of M&A’s undertaken increases so does the value created within the M&A transaction. Yet, having better information about the target does not improve M&A performance even if this information advantage is enhanced with previous M&A experience.

This thesis consists of seven sections. Section 2 presents the literature review. The literature review is to gain a better understanding of the issues related to the topic. Section 3 presents the hypothesis where the underlying logic behind the developed hypothesis is discussed. Section 4, the research & design section, discusses the methodology and proxies used. Section 5 looks into the raw data and section 6 presents the results of the developed models. Finally, section 7 presents the conclusions, discusses the results, the limitations and gives recommendations for future research.
2. Literature Review

During the past half century very extensive research has been done on the various aspects of mergers and acquisitions (M&A). The complex phenomena that M&A’s represent have captured the attention of different management disciplines. The focus has been on the financial, strategic, behavioral, operational and cross-cultural aspects of this challenging and high-risk activity.

The numerous studies on M&A’s in the different management disciplines has served as a great help to provide detailed insight into the different aspects of this investment decision. However, specialization has been at the cost of developing a comprehensive understanding of what determines their performance (Cartwright & Schoenberg, 2006).

Since this study focuses on acquirer performance, this literature review focuses on research done on the motivations to undertake a merger or an acquisition, on M&A performance and its determinants. This in order to gain a better understanding of the issues related to mergers and acquisitions.

2.1 M&A Motivations

Both Macro-level and micro-level factors may trigger firms to merge. Macro-level motives include technological development, transportation development and institutional developments such as changes in anti-trust laws (Capron, 1995). Micro-level motives are firm-specific motives and can be categorized in value-creating and non-value creating motives (Seth, 1990a).

Value-creating motives for M&A’s include those hypotheses that predict an increase in the value of the merged firm after the M&A by combining the resources of both firms. In general these motives are grouped in 3 categories: diversification of risk, enhancement of market power, and improvement of operating efficiency.

**Risk Reduction.** Risk reduction is among the most cited reason for mergers. This is most commonly achieved by combining income streams of unrelated businesses. The risk is then reduced due to the diversification effect of the combined equity by creating an internal capital market to efficiently allocate cash across different units and increase the liquidity of the merged firm.

A recent research that examined this relation in unrelated M&A’s showed that the overall acquirer’s risk neither increases nor decreases following a cross-border merger (Amihud, De Long, & Saunders, 2002). On the contrary, when the mergers occur in related industries there is a decrease in total risk (Lubatkin & O’Neill, 1987). This may be because these mergers occur in related industries where managers are familiar with the practices. But when using implied volatility of equity options to study the changes in risk of acquirers, the expected risk for shareholders increases after a merger (Geppert & Kamerschen, 2008).
Even though the empirical findings about the effect of M&A’s on risk are conflicting this argument is still used as a value-creating motive for M&A’s. One of the objections against this merger argument is that under a perfect capital market assumption individual investors can duplicate this diversification through personal portfolio diversification.

**Enhancement of market power.** A firm can enhance its ability to control prices or quantity produced by reducing the number of competitors in the market. In this context a merger is used as a tool to gain market power and improve competitive position in the market by for example sharing operating and R&D costs between the two now merged as one firm. This is a motivation to merge used by small market followers. This gives them the opportunity to achieve greater size and become a bigger and more influential player in the market.

**Improvement of operating efficiency.** One-third of takeovers reports operating synergies as the primary motive for the M&A (Bhidé, 1983). Synergies are achieved when the combined firms is more profitable and valuable than each firm is separately. Putting together the resources of the two firms leads to economies of scale or scope. Economies of scale can be realized when the average unit cost goes down as production increases (Brealey & Myers, 2006). By merging the firms will be able to enhance the performance of the merged firm by reducing total costs. Total cost reduction can be achieved by eliminating redundant capacity, and this way operating efficiency is achieved (Seth, 1990a).

Besides the value-creating motives for merger, researchers have also identified several non-value creating arguments that drive M&A’s. These arguments are not focused on a firm’s profitability but have factors that are unrelated to value creation as drivers. The most widely cited are the managerial discretion hypothesis and the hubris hypothesis.

**Hubris hypothesis.** Managers’ overestimation of their own competence and capabilities can make them think they can manage the merger better than the average managers (Roll, 1986). This overconfidence may lead to overvaluation of the possible synergies, leading to overpaying for the target. Overpaying has loss in wealth for the acquirer shareholder as a consequence.

**Managerial discretion hypothesis.** When corporate governance in the acquiring firm is weak, this creates the opportunity for managers to pursue their own interest even if this is not in the shareholder’s best interest (Jensen, 1986). By seeking corporate expansion these managers try to enhance power, job-security and salaries. According to Mathur et al (1994) managers that demonstrate this managerial discretionary behavior are managers of companies with excess free cash flow, managers in firms with slow-growth and limited investment opportunities and managers in declining industries.
2.2 M&A Profitability

Several methods have been used to measure merger profitability. These include outcome studies which study pre and post-merger performance, accounting-based studies that focus on accounting ratios and operating-performance studies that use operating performance measures.

The outcome study methodology is usually used by industrial organization economists. Outcome studies assess pre- and post-M&A performance by comparing the involved firms with matching firms or with the base industry. Using this approach Mueller (1986) found that acquiring firms suffer a loss in market share and rate of return on equity after M&A. Consistently, using the same methodology, Ravenscraft and Scherer (1987) found a similar deterioration effect of M&A’s.

There are limitations with this before and after M&A’s analysis. When the targeted firm is relatively small compared to the acquiring firm, less than 5% of the acquiring firm, the financial contribution of the targeted firm is likely to be “swamped” within the consolidated reports for the whole corporate entity (Ravenscraft & Scherer, 1989). It is also difficult to identify the new merged firm’s industry and to find appropriate comparable firms (Ravenscraft & Scherer, 1987).

Similarly, accounting- based studies do not always capture performance changes in M&A’s that are driven by technological and regulatory change, while these are the fundamental causes of M&A activities (Mitchell & Mulherin, 1996). This indicates that accounting-based studies are subject to a lot of noise.

The most commonly used method by financial economists is the evaluation of the change in firm value resulting from a merger. This method is known as event study. In an event study the attention is focused on the stock market reaction at the time of the event. The event study methodology assumes that the market is efficient and therefore changes in the share price of the firms involved reflect the value of the economic impact of the event, in this case the merger. In most cases this change is checked for general market movements and systematic risk.

Evaluating the empirical studies on M&A profitability, we can observe that there is a general consensus that the impact of M&A on the targeted firm is positive. The target company stock market price rises at the time of the event, creating a significant increase in return for the target company shareholders (Eckbo, 1983; Asquith, 1983).

On the contrary, the results on the effect of M&A’s on the acquiring firm’s profitability is less homogenous. Some research shows a positive relationship while other research shows the contrary. Schenk (2000) stated that one-third of published studies on acquiring firm’s profitability, using the announcement period as the event window, show a positive effect. These include, among others, research done by Asquith et al. (1983). Other studies that used the same methodology showed that the acquiring firms break even or earn a negative average cumulative abnormal return. These include, among others, a study done by Bradley et al. (1988). This indicates that the shareholders of the acquiring firms are bearing all the risk of the M&A by sometimes gaining and other times losing money in the transaction.
2.3 M&A Profitability Determinants

When evaluating the current literature on M&A’s profitability determinant, two main issues arise. Findings about the performance effect of the identified factors are not consistent and a comprehensive framework of M&A profitability determinants does not yet exist in the current literature.

One area of consensus among researchers is that the deal characteristics as well as the firm characteristics impact performance.

A considerable number of researchers paid attention to M&A transactions’ deal characteristics and their impact on the firm’s performance. Transaction deal characteristics include; the payment method, the deal atmosphere, the acquisition type and business relatedness.

**Payment method.** The concept behind most of the research on M&A’s payment method is that when the bidder firms’ managers acknowledge that the market is overvaluing their stocks they are more likely to pay for M&A with stocks than with cash (Shleifer & Vishny, 2003).

Research shows that, at announcement, the market reaction is less negative for the deals that are paid with cash compared to those paid with stock (Servaes, 1991). For acquisitions of publicly traded targets empirical evidence showed a significant negative average announcement return to acquirers when the method of payment was stock rather than cash (Travlos, 1987; Wansley et all., 1987; Amihud et all., 1990; Servaes, 1991; Brown & Ryngaert, 1991). One dominant explanation for this pattern is that stock financing creates an adverse selection effect similar to a seasoned stock offering.

**Deal atmosphere.** Deal atmosphere refers to the acquisition method and can be separated into two types: friendly and hostile M&A’s. Hostile takeovers are made regardless of opposition by the targeted company. The closing price of hostile takeovers is usually at substantially above the market price prior to the bid. This makes them more expensive and uncommon than friendly M&A’s. Only hostile takeovers with high expected synergies are expected to succeed. This means that hostility in corporate takeovers is supposed to be associated with positive performance of the merged company. However empirical evidence does not support this theory (Ghosh, 2001; Powell & Stark, 2005).

**Acquisition type.** Acquiring firms can choose between expanding their operations in their own country, domestic M&A, or in another country, cross-border M&A. Cross-border M&A’s are an entry mode into a new foreign market. When engaging in cross-border M&A’s a firm is faced with linguistic and cultural barriers, normative and institutional differences, less efficient information transmission, and higher fixed costs for the organization of transactions.

Moeller and Schlingemann (2004) found evidence of performance differentiation between cross-border and domestic M&A’s. More specifically their results showed that acquirers experience significantly lower stock and operating performance for cross-border than for domestic transactions. This shows that acquirers are not correctly valuing or capturing synergies in cross-border M&A’s (Moller & Schlingemann, 2004).
**Business relatedness.** Unrelated M&A’s refer to mergers between two firms that have different key success variables. Related M&A’s refer to mergers between companies that share at least one of the components along the value chain.

Operating efficiency and market power are more achievable in related M&A’s because the possibility exists to achieve economies of scale and economies of scope, to control the price and quantity of the products sold, and to form collusions. Unrelated M&A’s can create value by means of risk reduction via diversification. Unrelated M&A’s increase the liquidity of the merged firm by creating an internal capital market that allows efficient allocation of cash across different units.

How industry relatedness affects profitability is still unclear. Singh & Montgomery (1987) for example showed that related mergers give better abnormal return than unrelated mergers. On the contrary Chatterjee (1986) showed that unrelated mergers are more profitable for both the target and the acquiring firm shareholders.

Besides the deal characteristics, firm characteristics also impact the performance of M&A. These include the firm’s pre-merger level of profitability, the firm’s level of risk and the firm’s size.

**Pre-merger profitability.** Studying the impact of acquisitions on company performance, Dickerson, Gibson, and Tsakalotos (1997) found that the post-acquisition profitability is significantly less than in the pre-merger period, suggesting that acquisitions have a negative effect on profitability. But, linking pre-merger to post-merger profitability, Healy, Palepu, and Ruback (1992) found a positive relation between pre-merger operating profitability and announcement abnormal returns. On the other hand Andrade, Mitchell, and Stafford (2001) argue that the level of pre-merger profitability is unsustainable after a merger due to the costs involved in remolding the new merged firm.

**Acquiring firm risk.** The M&A decision is a corporate decision that affects a firm’s risk. Mergers are supposed to maximize shareholder value, and have as goal not only to improve efficiency but also to reduce risk. Risk reduction through a merger can allow a firm to increase its financial leverage and be able to profit from the tax-advantage of debt (Lewellen & Wilbur, 1971). Previous research has shown that on average mergers increase the default risk of the acquiring firm (Furfine & Rosen, 2006). This is because firms increase their financial leverage after a merger or acquisition due to an increase in debt capacity, consequently increasing volatility (Ghosh & Jain, 2000). A high level of volatility may make a company unable to repay its outstanding debt, with as a possible consequence bankruptcy. Therefore, Billett, Tao-Hsien, and David (2004) identified a firm’s pre-merger level of risk as one of the elements that affects performance.

**Acquirer Size.** Researchers found evidence that acquiring firms experience different abnormal return after a merger announcement (Jensen & Ruback, 1983; Jarrell, Brickley & Netter, 1988; Datta, Pinches & Narayanan, 1992). The size effect has been identified as a reason behind this cross-sectional differentiation.
Moeller, Schlingemann, and Stulz (2004) came to the conclusion that small firms perform better after M&A than large firms. Small acquirers outperform larger ones, irrespective of the country where acquirer is listed (Alexandridis, Petmezas, & Travlos, 2010). These results suggest that generally empirical data provide evidence of a negative relationship between acquirer size and M&A performance.

As reviewed in this section, the literature on M&A is a dynamic research area. Previous research developed several theories to explain why firms merge. The findings about the determinants of M&A performance are far from conclusive and some determinants regarding M&A’s are still under debate. This research investigates the influential factors of acquirer performance on a sample of U.S listed companies which completed a merger in the period of 1985-2005, focusing on elements that determine the values created in an M&A transaction and elements that affect the investment cost.
3. Hypothesis Development

When evaluating a project, the first step is to identify the costs and the benefits. The expected benefits have to outweigh the costs for a potential investment to be considered. This is the same when acquiring firms evaluate an expansion decision.

The performance of the acquiring firm is delineated by the value created in the M&A transaction and the cost of the investment. Therefore, this study examines both the factors that influence the realization of value as well as the factors that impact the investment cost of an M&A transaction. This is in order to address the research question, “How does the acquirer’s level of competitive advantage, information and experience impact M&A performance?”

The value created in an M&A transaction depends on the acquiring firm’s ability to exploit its competitive advantage, while the cost involved in an M&A transaction is influenced by the acquirer’s number of prior M&A experiences and the acquirer’s information about the targeted firm prior to the M&A. This perspective on M&A performance is tested through five hypotheses. The first two hypotheses relate to value creation and the last three relate to the transaction cost.

3.1 Value-Creation Determinants

Schumpeter (1948) argues that mergers and acquisitions are a process of creative destruction. This implies that when quiet periods in the market are punctuated by fundamental shocks that destroy old resources of competitive advantage, M&A’s are part of the process in replacing the old competitive advantages with new ones in order to continue to make economic profit. Economic profit is created when a firm generates greater value than expected from the resources it employs.

When a firm’s operations generate economic profit it is because this firm possesses a competitive advantage over its rivals (Ghemawat & Rivkin, 1999; Barney, 2002). Therefore a firm’s competitive advantage is the primary basis for core competencies and the key to prevailing performance.

3.1.1 Competitive Advantage Hypothesis.

Literature and managerial practices are converging on acknowledging intangible resources as the mainstays of business growth and value creation (Lev, 2001; Zingales, 2000). In comparison with tangible assets, intangible assets are less flexible, hard to accumulate, not easily transferred and mostly idiosyncratic to firms and their members. For these reasons, intangible assets are barely imitable by competitors (Chatterjee & Wernerfelt, 1991). These characteristics give intangible assets the potential to become the source of
differential, long-lasting positive performance for firms. Therefore a firm’s level of intangible assets form the foundation for competitive advantage and value realization (Surroca, Tribò, & Waddock, 2010).

A study that focused on S&P 500 stocks’ development over the last 10 years showed that growth in the stock price is more dependent upon the growth of the firm’s intangible assets than its tangible assets (Cardoza, Basara, Cooper, & Conroy, 2006). Moreover, Morck & Yeung (1992) measured a firm’s level of competitive advantage by the level of intangible assets and stated that they increase in value as the value of the firm increases. This indication illustrates that superior intangible assets could potentially add value to the acquiring firms when going through M&A’s.

But in order to realize its latent additional value a firm must internalize the market for these assets so as to reap the competitive advantages of making an acquisition of resources. This is because the market for the resources outlined above is characterized by a variety of imperfections, such as information asymmetry, treatment of moral hazards, immobility and risk of misappropriation.

The outside representative might be in the position to unilaterally terminate contracts and utilize the newly obtained knowledge in its own production facilities without properly compensating former trading partners. Even in case the outside representative wants to compensate the partner, firms may have different perceptions of the value of the intangible assets. Additionally, even if such resources could be traded on the market, market exchange can be accompanied by high risks of misappropriations.

Therefore, when firms possessing superior intangible assets expand their businesses through M&A, they are able to reap the rewards arising from internally applying their intangible assets over an increased scale. This should then be reflected in a firm’s market value.

*Hypothesis 1a: The relationship between the acquiring firm’s performance and its pre-merger level of intangible assets is positive.*

Hence the realization of the potential benefits of internalizing depends on the conditions for recognition and combinations of these resources. The type of expansion decision the firm is facing plays a role in the acquiring firm’s ability to reap the competitive advantages of making an acquisition of resources.

There should be a basis for the leveraging of the competitive advantages. How much of these resources could be applied in the acquisition is largely constrained by the scope of the businesses in question. The strategic resources that form the acquiring firm’s competitive advantage can be better transferred and applied in the target company if the acquiring firm merges with a firm that is in the same business line with similar production, technology, and marketing activities. Under such circumstances the acquiring firm is expanding into an already known market. Consequently the competitive advantages can be better transferred and applied in the target markets.
**Hypothesis 1b:** The relationship between performance of an acquiring firm which merges in related industries and its pre-merger level of intangible assets is positive.

### 3.2 Transaction-Cost Determinants

The second component that affects M&A performance is the cost involved in the transaction. These costs can be separated into two mayor types:

1. The searching, valuing and negotiation costs which are influenced by the acquiring firm’s previous experience with M&A’s.
2. The premium paid and integration costs which are influenced by the information the bidder has about the target firm.

#### 3.2.1 Prior M&A Experience Hypothesis

M&A deals and transactions are complicated, time consuming and the post-acquisition integration is a challenging process. When a firm already has experience with these types of transactions it will be able to manage the processes in an M&A more effectively. The skills acquired after completing an M&A process serve as an experience advantage when the firms faces a new merger process.

Firms could become more proficient at managing particular kinds of complicated organizational activities, such as an M&A, as they have more and more experience in undertaking such activities (Cyert & March, 1963). Therefore, firms with previous M&A experience are expected to perform better because they are more capable to negotiate and buy the target at a low premium and to manage the integration of the new firm.

**Hypothesis 2a:** Acquirer performance is positively related to its prior experience in undertaking M&A activities.

#### 3.2.2 Information Advantage Hypothesis

One of the risks involving in making acquisitions is overpaying for the targeted firms. This may occur when there is uncertainty about the targeted firm’s stand-alone value. When the acquiring firm already has information about the targeted firm it may be better able to assess the value of the targeted firm and the value of the potential synergies that an M&A transaction could generate.

A method used to overcome this information disadvantage is to first become involved in the targeted company by a small equity stake (Kang, 1993). This way the acquirer can collect relevant data of the target in a much more cost-effective way.

By facilitating the information flow by having a small ownership in the targeted company, the acquirer can accurately assess the true value of the target and the potential benefits of the merger. This enhances the net present value of the M&A.
**Hypothesis 2b:** Acquirer performance is positively related to the level of the acquirer’s information about the target firm prior to the acquisition.

By having prior M&A experience firms develop M&A negotiation and post-integrations skills. This makes them able to better estimate the intrinsic value of the targeted firm. This advantage should be amplified when the bidding firm has an information advantage, e.g. in the form of an equity stake in the targeted firm. Having inside information also gives the necessary tools to better estimate the intrinsic value of the targeted firm and having prior M&A experience gives the skills to better handle the M&A negotiation and post-integration process. This all together reduces the likelihood of overpaying for the targeted firm and enhances M&A performance.

**Hypothesis 2c:** Acquirer performance is positively related to the interaction between information about the target and prior M&A experience.

### 3.3 Summary

Figure 1 summarizes the factors hypothesized as influential determinants of M&A performance.

---

**Figure 1: Factors influencing M&A performance**

- **Value Creation:**
  - Productive resources that are transferable within the M&A

- **Investment Cost:**
  - Searching & Valuing cost
  - Negotiation & Premium Cost
  - Integration cost

- **Determinant:**
  - *Competitive Advantage*
  - *Conditions for recognition & combination*

- **Determinants:**
  - *Knowledge about Target*
  - *Prior M&A Experience*
4. Research Design

This section presents the research design used to test the hypotheses discussed in the previous section. Here the sample, the regression models and proxies used for the M&A performance determinants are discussed.

4.1 The Sample

This study looks into mergers and acquisitions with a focus on the acquiring firm. The sample is obtained from the Securities Data Corporation’s (SDC) mergers database for the period of January 1985 to December 2005. To refine the sample the following restrictions were imposed:

- Percentage of shares owned after transaction exceeds 50%
- The deal is completed
- Acquisitions by firms in the financial industry were eliminated because this is a regulated industry.
- The acquirer is a U.S. listed company
- The acquiring firm has annual financial statement information available in Compustat and stock return data from the University of Chicago’s Center for Research in Security Prices (CRSP) Daily Stock Price and Returns file.

The final sample size consists of 33,242 transactions. In the sample, 32% were cross-border M&A’s, while 68% were domestic. Further 54% occurred in related industries while 46% in unrelated industries.

As can be observed in figure 2 the number of M&A’s is not constant over time.

![Figure 2: Year distribution of M&A transactions for the period of 1985-2005 where the acquirer is a U.S. listed company, the percentage of shares owned after transaction exceeds 50%, the deal is completed, the firm has annual statement information available in Compustat and stock return data available in the CRSP database. The financial industry was excluded.](image)

As this graph indicates, there was an increase in the number of mergers between 1992 and 1998. 46% of all the transactions in the sample occurred during this period. Further we can observe a remarkable decrease in M&A activities from 1999 to 2003. This may be related to the M&A waves.
The U.S M&A history consists of six major waves. The sample period used in this study lies between the fourth and the sixth merger waves. The fourth wave (1982 to 1989) is characterized by the rise of highly leveraged deals and Junk bonds. In this wave the focus was on governance where conglomerates were broken up and different businesses were sold to strategic buyers. The fifth wave (1993 to 1999) is characterized by international diversification and globalization. 54% of the cross-border mergers in the sample occurred during this period.

Currently since 2004 the U.S. has been in the middle of the sixth wave. This is observable by the increase in M&A activities after the recession period. This wave is marked by the creation of large corporations equipped to take on global competition. However, in the sample distribution presented in figure 2 not all the merger peaks are observed. This is probably caused by the various sample restrictions.

4.2 The Methodology
This study examines M&A performance determinants by means of three multiple linear regressions models. These models describe the causal relationship in which the beta coefficient measures the exchange in the dependent variables caused by a ceteris paribus change in the independent variables (Brooks, 2008). In this study there is one dependent variable and a combination of independent variables; therefore, multiple regression is the appropriate model to use.

The first regression models audit the value creation and investment cost elements that were hypothesized as M&A performance determinants while checking for deal and firm characteristics. The regression equation is the following:

\[
CAR_i = \alpha_0 + \beta_1IA_i + \beta_2EXPERIENCE_i + \beta_3INFORMATION_i + \beta_4Pay Meth_i + \beta_5Acquis Meth_i + \beta_6Acquis type_i + \beta_7Relatedness_i + \beta_8Volatility_i + \beta_9Profitability_i + \beta_{10}Size_i + \epsilon_i
\]

The second regression model audits the same determinants but also tests for a possible curvilinear relationship between experience and acquirer performance. The regression equation is the following:

\[
CAR_i = \alpha_0 + \beta_1IA_i + \beta_2EXP1 + \beta_3EXP2_i + \beta_4INFORMATION_i + \beta_5Pay Meth_i + \beta_6Acquis Meth_i + \beta_7Acquis type_i + \beta_8Relatedness_i + \beta_9Volatility_i + \beta_{10}Profitability_i + \beta_{11}Size_i + \epsilon_i
\]

The third regression model not only looks into value-creation and transaction-cost determinants, but also explores interactions. The regression equation is the following:

\[
CAR_i = \alpha_0 + \beta_1IA_i + \beta_2EXPERIENCE_i + \beta_3INFORMATION_i + \beta_4IA_i \times Relatedness_i + \beta_5INFORMATION_i \times EXP_i + \beta_6Pay Meth_i + \beta_7Acquis Meth_i + \beta_8Acquis type_i + \beta_9Relatedness_i + \beta_{10}Volatility_i + \beta_{11}Profitability_i + \beta_{12}Size_i + \epsilon_i
\]
In the regression equations, $\beta_1$ to $\beta_{12}$ are the coefficients estimates relating to the explanatory variable of interest. Whether or not the estimator of beta provides a good approximation depends crucially upon the assumptions that are made about the distribution of the error term and its relation to the independent variable of interest. In fitting the regression model the assumptions imply that the error terms are uncorrelated drawings from a distribution with expectation of zero and a constant variance (Brooks, 2008).

This study has a very large sample in which calendar clustering creates a problem of cross-sectional dependence. Some of the M&A announcements occurred on the same day and consequently may be related to each other. This dependence between observations violates the above-mentioned assumptions. For this reason, when running the regressions, the regressions are clustered on announcement dates. This gives a much stronger test.

4.3 Description of the Measures
This paragraph describes the variables and collection method used for the variables in the above-presented regression models.

4.3.1. The Dependent variable
The dependent variable is the variable whose value depends on that of other variables. In this study the dependent variable is M&A performance.

This study assesses M&A performance by looking into the stock price behavior of the bidding firm during the corporate takeover. Stock price behavior has become very popular for measuring the impact of a strategic event, such as an M&A transaction, on a firm’s value. Contrary to accounting-based measures it cannot be manipulated by insiders. The stock price change should account for the financial impact of the event (McWilliams & Siegel, 1997).

This stock market behavior is measured by using the empirical methodology of event studies where the event date is the announcement date. The actual date of the takeover as the event date would not yield meaningful results as the announcement would have happened a long time before as well as the stock market reaction to the M&A transaction. Moreover, a study on the speed of price adjustment by Dann, Mayers, and Raab (1977) showed that the market reacts fully adjusted within 15 minutes of release of firm-specific information.

Empirical evidence showed that shortterm event windows captures the significant effect of an event (McWilliams & Siegel, 1997) while a long event window severely reduces the power of the test statistic. Additionally McWilliams and Siegel (1997) stated that an event window should be as short as possible to control for confounding effects. That’s why for this study a three-day event window (-1,0, +1) is applied with t=0 as the announcement date.

The benchmark used to calculate normal return is the market model:
\[ NR_t = \hat{\alpha}_t + \hat{\beta}_t R_{mt}. \]

Where \( \hat{\alpha}_t \) and \( \hat{\beta}_t \) are OLS estimates of the regression coefficients. The \( R_{mt} \) is the equally weighted index return retrieved from CRSP. The estimation period is from 300 to 30 days prior to the announcement.

Then the cumulative abnormal return is then calculated as the sum of the abnormal returns:

\[ CAR_{it} = \sum_{t=1}^{T} AR_{it}. \]

Where abnormal return is \( AR_{it} = R_{it} - NR_{it} \) and the normal return is the benchmark return.

The hypothesis to be tested is whether the cross-sectional average, the average cumulative abnormal return, is significantly different from zero. The cumulative abnormal return is assumed to measure the average effect of the event on the value of the firms. The significance of the abnormal return deduces whether the event had a significant impact on the values of the firms (Morck & Yeung, 1992).

Figure 3 summarizes the event study used in this research.

![Event study methodology](image)

Figure 3: Summary event study methodology used.

This methodology rests on three major assumptions: the stock market is efficient, the event was unanticipated, and no other relevant financial effects occurred during the event window.

By taking a short event window we control for no other relevant financial effects to occur during the event window. But to control for no confounding effects within the estimation period is difficult. The stock market is by nature inefficient, violating the first assumption, and this makes it questionable whether stock prices truly reflect the value of firms. But according to the World Bank studies the United States stock markets are characterized by low mispricing and high liquidity. The total value of shares traded at the stock exchanges is more than 40% of the country GDP. The World Bank even ranked the overall development of the United States stock markets in the fourth place (World Bank, 1995). This is considered as a justification to assume that the stock market of the United States are efficient.

4.3.2. The Independent Variables

**Intangible Assets** are used as a measure of the acquiring firm’s Competitive Advantage. Intangible assets commonly refer to non-material asset such as intellectual property, good will and trademarks. Financial reporting standards require companies to disclose their level of intangible assets on their balance sheet.
level of intangible assets and total assets is obtained from Compustat taken for the fiscal year previous to the M&A transaction. Intangible assets are divided by total assets to reduce heteroskedasticity problems.

A firm’s level of intangible assets is set to zero if intangible assets are listed by Compustat as not reported but all other standard financial data is available. This approach is justified since the firms with no level of intangible assets for the year prior to the M&A transaction almost always do not have intangible assets for the nearby years either.

**EXPERIENCE** is a measure for the acquiring firm’s prior M&A experience. To measure the acquiring firm’s prior M&A experience it was determined whether the acquiring firm had completed a merger previously. The number of previous M&A’s was obtained by looking at the company’s previous years’ records in the SDC merger database. The dummy variables EXPERIENCE is used to indicate whether the acquiring firm has any previous merge experience. EXPERIENCE is coded as one if the acquirer has any previous merger experience; otherwise it is coded as zero. Further the variable EXP2, a squared term of the number of previous M&A’s, is used to examine the potential curvilinear relationship between experience and acquirer performance.

**INFORMATION** measures acquirer’s information about the target prior to the M&A. The ownership of target equity provides the acquirer a better access to the information of the target firm. The SDC merger database provides information about the percentage of shares owned by the acquiring firms prior to the announcement of the M&A. The dummy variable INFORMATION is used to indicate the extent to which the acquiring firm has information about the target firm. INFORMATION is coded as one if the acquirer holds any share of the target firm; otherwise it is coded as zero.

### 4.3.3 The Control Variables

The information for the deal-related control variables is obtained from the SDC merger database while the information for the firm-related control variables is obtained from the merged CRSP/Compustat database for the fiscal year prior to the merger.

The deal-related control variables include variables that were identified as M&A profitability determinants by previous researchers, as discussed in the literature review. These include payment method, acquisition method, acquisition type, and business relatedness.

**Payment method** used for the acquisition is a dummy variable. The dummy is coded as one if the M&A is fully or partially financed by stock issuance in the announcement; otherwise it is coded as zero. This dummy variable is expected to be negatively related to performance since firms are more likely to pay with stock when the market is overvaluing their stock and stock financing creates an adverse selection effect similar to a seasoned stock offering.
Acquisition method refers to the deal atmosphere, which is friendly versus hostile. This variable is coded as one if the transaction is a hostile acquisition and zero otherwise. This dummy variable is expected to be positively related to performance since only takeovers with high synergies are expected to succeed.

Acquisition type refers to cross-border versus domestic acquisitions. This variable is coded one in the case of cross-border M&A’s and zero otherwise. According to Moller and Schlingemann (2004) the relationship between this dummy variable and performance is expected to be negative.

Business relatedness makes a distinction between related industries and unrelated industries. Relatedness is coded as one when the target and acquirer operate in the same industry; otherwise it is coded as zero. To make a distinction between the related and the unrelated M&A’s the business description of the 2-digit level SIC code is used (Doukas & Kan, 2004). The expected relationship between business relatedness and performance is ambiguous.

The control variables for the acquiring firm characteristics include the firm’s pre-merger level of profitability, pre-merger level of risk and firm size.

Profitability before the M&A transaction is measured by the level of overall operating efficiency, incorporating all of the expenses of daily business activity prior to the transaction. This control variable is calculated as earnings before interest and taxes (EBIT) divided by total sales. The expected relationship between profitability and performance is ambiguous.

Volatility refers to the firm’s pre-merger level of risk. Volatility is calculated as the ratio of retained earnings to total assets (Altman, 1968). The expected relationship between volatility and performance is ambiguous.

Size refers to the acquiring firm’s size. To check for the size effect the log of acquiring firm’s total sales is used as a measure for the acquiring firm’s size. The expected relationship between size and performance is expected to be negative since generally empirical data shows that small firms perform better after M&A’s than large firms.

Table 1 below summarizes the variables described above.

Table 1: Description of Variables

<table>
<thead>
<tr>
<th>Variables:</th>
<th>Measure of:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR (-1,1)</td>
<td>M&amp;A performance</td>
<td>Calculated using event study methodology</td>
</tr>
<tr>
<td>Intangible Assets</td>
<td>Competitive advantage</td>
<td>Intangible assets divided by total asset (IA/TA)</td>
</tr>
<tr>
<td>Experience</td>
<td>Acquiring firm’s prior M&amp;A experience</td>
<td>Coded 1 if the acquirer has previous merger experience; otherwise coded as 0</td>
</tr>
<tr>
<td>EXP</td>
<td>Acquiring firm’s prior M&amp;A experience</td>
<td>Number of previous M&amp;A’s completed</td>
</tr>
<tr>
<td>EXP2</td>
<td>Curvilinear relationship between</td>
<td>Squared term of the number of previous</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td>Information about target prior M&amp;A</td>
<td>Coded 1 if the acquirer holds any share of the target firm before the M&amp;A; otherwise coded as 0.</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Relatedness</strong></td>
<td>Business Relatedness</td>
<td>Coded 1 if related; otherwise coded as 0.</td>
</tr>
<tr>
<td><strong>Payment Method</strong></td>
<td>Payment method used for the acquisition</td>
<td>Coded 1 if stock; otherwise coded as 0</td>
</tr>
<tr>
<td><strong>Acquisition Method</strong></td>
<td>Mode of acquisition</td>
<td>Coded 1 if a hostile acquisition; otherwise coded as 0</td>
</tr>
<tr>
<td><strong>Acquisition Type</strong></td>
<td>Cross-border versus Domestic acquisitions</td>
<td>Coded 1 if a cross border M&amp;A; otherwise coded as 0</td>
</tr>
<tr>
<td><strong>Volatility</strong></td>
<td>Acquirer pre-merger level of risk</td>
<td>Retained Earnings/TA</td>
</tr>
<tr>
<td><strong>Profitability</strong></td>
<td>Acquirer pre-M&amp;A profitability</td>
<td>EBIT/sales</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Acquirer firm size</td>
<td>Log (sales)</td>
</tr>
</tbody>
</table>
5. Data Analysis

5.1 Analysis of M&A Performance
In this study the acquirer performance is measured by looking at the stock price movement surrounding the announcement of the M&A. Figure 4 shows the average effect of the event on the acquiring firm over an announcement period of five days prior to and five days after the announcement day. This plot of the time distribution of the cumulative average abnormal return (CAAR) shows the average market reaction to the announcement of M&A transactions.

Figure 4: Average effect of the event on the acquiring firm over the announcement period of (-5,5) where the day of the public M&A announcement is t=0. Abnormal returns are computed as the difference between the actual return and the benchmark return (expected returns).

As can be observed in the above figure, as expected, there is a substantial increase in the cumulative average abnormal return on the day of the merger announcement. The positive average abnormal return of 0.61% on the announcement day is significantly different from zero at 1% level. This shows that on average there was a significant positive stock market reaction to the M&A’s in the sample.

Furthermore, it can be observed that from four days before the M&A announcement there is a positive run-up in the average abnormal return. This suggests that before the M&A public announcement the market already reacts to the M&A. This may be based on media speculation, toehold purchases by acquirers or insider information. From one day after the announcement, the abnormal return starts to decrease. Extending the length of the time horizon examined up to five days after announcement this negative drift is continuous.

Consistently other researchers also observed a negative drift in the stock price post-acquisition. These post-merger negative cumulative abnormal returns differ from -13% for a three-year period (Meggison et al., 2004) to -24.4% for a five-year period (Loughran & Vijh, 1997). However, according to Jensen & Ruback (1986), “These post-merger negative abnormal returns are unsettling because they are inconsistent with market efficiency and suggest that changes in stock price overestimate the future efficiency gains of mergers” (Jensen & Ruback, 1986, p. 20).
5.2 Summary Statistics

Table 2 reports the summary statistics of the all the variables included in this research. Descriptive statistics are displayed in panel A and the simple correlation coefficients are displayed in panel B.

Table 2: Summary Statistics. For description of the variables see table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR (-1,1)</td>
<td>0.01</td>
<td>0.07</td>
<td>-0.48</td>
<td>1.38</td>
</tr>
<tr>
<td><strong>Independent variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>0.12</td>
<td>0.22</td>
<td>0.00</td>
<td>0.89</td>
</tr>
<tr>
<td>EXPERIENCE</td>
<td>0.66</td>
<td>0.20</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>EXP</td>
<td>2.00</td>
<td>1.07</td>
<td>0.00</td>
<td>7.00</td>
</tr>
<tr>
<td>EXP2</td>
<td>4.00</td>
<td>4.86</td>
<td>0.00</td>
<td>49.00</td>
</tr>
<tr>
<td>KNOWLGE</td>
<td>0.05</td>
<td>0.21</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Control Variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Border M&amp;A</td>
<td>0.32</td>
<td>0.47</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Hostile M&amp;A</td>
<td>0.15</td>
<td>0.26</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Stock-paid M&amp;A</td>
<td>0.18</td>
<td>0.38</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Related M&amp;A</td>
<td>0.54</td>
<td>0.50</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Volatility</td>
<td>0.24</td>
<td>0.53</td>
<td>-4.82</td>
<td>1.62</td>
</tr>
<tr>
<td>Profit</td>
<td>0.09</td>
<td>0.17</td>
<td>-4.97</td>
<td>0.77</td>
</tr>
<tr>
<td>Size</td>
<td>7.22</td>
<td>1.09</td>
<td>3.22</td>
<td>9.27</td>
</tr>
</tbody>
</table>

Panel B: Correlation matrix

Focusing on the deal characteristics, it can be observed that far more deals are paid with cash than with stock. Only 18% was paid with stock while 82% was paid with cash. In cash transactions, acquiring shareholders take on the entire risk that the expected synergy value embedded in the acquisition premium will not materialize while in stock transactions that risk is shared with selling shareholders.

Eighty-five percent of the transactions were friendly acquisitions and 15% hostile takeovers. Hostile takeovers are made regardless of opposition by the targeted company. The closing price of hostile takeovers is usually at substantially above the market price prior to the bid. This makes them more expensive and uncommon than friendly M&A’s.
Of the sample 32% consists of cross-border M&A’s. This high percentage is an indication of high interest in transnational acquisitions. This may be due to globalization and the integration of markets.

Focusing on the deal characteristics, the average level of volatility is 24% and the average level of profitability is 9%

From this study’s sample of 33,242 transactions, 47% had a negative three-day cumulative abnormal return, while 53% was positive. As shown in the table, the average cumulative abnormal return is 1% and is significantly different from zero at a 5% confidence interval. This suggests that on average the market considers M&A’s as good news. This positive effect on the acquirer performance is consistent with Bradley et al. (1988). He also reported a significant 1% acquirer cumulative average abnormal return for a sample period from 1963-1984.

Focusing on the first hypothesized component of M&A performance, intangible assets range from 12% of firm value to a maximum of 89% of firm value. As can be observed in panel B of table 1, intangible assets have a negative correlation with performance. Contrary to what is expected, this negative correlation coefficient suggests that as intangible assets increase, performance decreases. Additionally it can be seen that there is a high correlation between firm size and intangible assets.

The second component that was hypothesized as an M&A performance determinant is the cost involved in the transaction, which is influenced by the acquiring firm prior to the M&A experience and whether the acquiring firm has an equity stake in the targeted firm prior the M&A transaction. Sixty-six percent of the sample already had experience with M&A’s before the transaction of interest, while only 5% had an equity stake in the targeted firm prior to the merger. These values show that it is not very common for a firm to have an equity stake in a firm before acquiring it.

The correlation matrix shows that knowledge is positively correlated with performance, while experience and performance are negatively correlated. Experience has a much stronger correlation with performance compared to information.

The next figures give a graphical image as to how these two variables impact performance. Figure 5 shows a comparison of the year-average CAR (-1,1) for the acquiring firm’s with and without previous M&A experience. And figure 6 shows a comparison distribution of year-average CAR (-1,1) for the acquiring firms with and without information about the target in the form of an equity stake in the targeted firm prior to the M&A transaction. This is to obtain an impression of how firms with and without the variable of interest perform.
In figure 5 it can be observed that acquiring firms with prior M&A experience have a remarkably more constant and positive year-average CAR(-1,1) than acquiring firms with no previous M&A experience. The performance of acquiring firms with no previous M&A experience fluctuates over the years, and is even negative for some years. Based on this observation it can be inferred that firms with prior M&A experience have a relatively more constant and positive M&A performance than firms that do not have this experience advantage.

When focusing on the information advantage it can be observed that the year-average CAR (-1,1) of acquirees without an information advantage is less fluctuating and positive compared to the acquirees who have this information advantage. Only in the year of 1994 did the acquiree with an information advantage have a remarkably more positive year-average CAR (-1,1). Based on this observation it can be inferred that acquirees without an information advantage perform better on average. Therefore, having an information advantage does not improve M&A performance.

These results suggest that firms with an experience advantage have better performance while firms with an information advantage do not. The next section statistically assesses these M&A performance determinants by means of the multiple linear regression models presented in the methodology section.
6. Empirical Results

6.1 Regressions

Table 3 displays the results of the three multiple regression models presented in section 4.

Column (1) audits the value-creation and investment cost-elements that were hypothesized as M&A performance determinants while checking for deal and firm characteristics that also impact M&A performance. Column (2) audits the same determinants but also tests for a possible curvilinear relationship between experience and acquirer performance. Column (3) not only looks into the elements that affect value created in the transaction and the investment cost but also explores interactions.

Table 3: Result on M&A performance determinants. The sample consists of 33,242 merger transactions from 1985-2005. The table presents the parameter estimates from OLS regression on CAR (-1,1), controlled for clustering in announcement dates, for hypothesized M&A performance determinants while checking for deal and firm characteristics. For description of the variables see table 1.

<table>
<thead>
<tr>
<th>Dependent Variable: CAR(1,1)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>P-value</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intangible Asset</td>
<td>-0.052&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.004</td>
<td>-0.053&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>EXPERIENCE</td>
<td>-0.006</td>
<td>0.739</td>
<td>-0.005</td>
</tr>
<tr>
<td>EXP2</td>
<td>0.000&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.097</td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>-0.001</td>
<td>0.913</td>
<td>-0.001</td>
</tr>
<tr>
<td>IA× Relatedness</td>
<td>-0.002</td>
<td>0.552</td>
<td></td>
</tr>
<tr>
<td>Information × EXP</td>
<td>0.000</td>
<td>0.121</td>
<td></td>
</tr>
<tr>
<td>Acquisition Type</td>
<td>-0.009&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.064</td>
<td>-0.009&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Acquisition Meth</td>
<td>0.011</td>
<td>0.399</td>
<td>0.011</td>
</tr>
<tr>
<td>Payment Meth</td>
<td>0.004</td>
<td>0.506</td>
<td>0.003</td>
</tr>
<tr>
<td>Relatedness</td>
<td>0.000</td>
<td>0.975</td>
<td>0.000</td>
</tr>
<tr>
<td>Size</td>
<td>-0.010&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.024</td>
<td>-0.010&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Volatility</td>
<td>0.010</td>
<td>0.120</td>
<td>0.010</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.023</td>
<td>0.327</td>
<td>-0.023</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.0422</td>
<td>0.0420</td>
<td>0.0436</td>
</tr>
</tbody>
</table>

<sup>a</sup> indicates significance at 1% level. <sup>b</sup> indicates significance at 5% level. <sup>c</sup> indicates significance at 10% level.

The competitive advantage hypothesis stated that given the substantial transaction costs and imperfections in the market for firm resources, firms must internalize the resources through an M&A transaction so as to reap the competitive advantages of making an acquisition of resources. Therefore, a positive relationship is expected between M&A performance and intangible assets, since firms who expand through M&A are able to reap the rewards arising from internally applying their intangible assets over an increased scale. The
consistent negative significant coefficient estimates on intangible assets do not provide support for this hypothesis.

Additionally, the condition for recognition and combination of these resources was explored, since the realization of the potential benefits of internalizing depends on them. A positive relationship was expected between intangible advantage and acquirer performance of firms who go through a related M&A transaction since the firm is expanding into an already known market and the competitive advantages can be better transferred and applied in the target markets. The negative coefficient on the interaction between business relatedness and intangible assets does not provide support for this hypothesis.

The prior M&A experience hypothesis predicts that prior M&A experience is related to better M&A performance. A positive relationship is expected between EXPERIENCE and the dependent variable. In the table a consistent negative relationship is observed. These findings do not support this hypothesis. However, the positive and significant coefficient estimate on EXP2 provides evidence of a U-shaped relation between prior M&A experience and acquirer performance. The findings on both variables are consistent with the results of Haleblian & Finkelstein (1999).

The acquirer’s information about the target firm prior to the acquisition hypothesis predicted a positive relationship between acquirer performance and acquirer’s knowledge about the target firm. This hypothesis suggests that having an equity stake in the targeted company enables the acquiring firm to obtain more cost-effective and accurate information about the target. The results do not support this hypothesis, as the coefficient estimates are consistently negative. When this information advantage is reinforced with prior M&A experience the coefficient estimate become positive but is still insignificant.

Regarding the deal characteristics, only acquisition type is statistically significant, providing evidence that this aspect of a transaction has an impact on performance. This statistically significant coefficient estimate on acquisition type shows that there is a performance differentiation between cross-border and domestic M&A’s. This is consistent with the results of Moeller and Schlingemann (2004).

As for the firm characteristics control variables, the results provide evidence that the acquiring firm size impacts performance. Consistent with Schlingemann and Stulz (2004), the negative significant coefficient estimate shown on acquirer size in the above models indicates that smaller firms have significantly higher cumulative abnormal returns than large firms. This implies that a large firm’s stock price moves less than a small firm’s stock price as reaction to an M&A transaction.

Table 4 summarizes the results.
Table 4: Summary of Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>The relationship between the acquiring firm’s performance and its pre-merger level of intangible assets is positive.</td>
<td>Not Supported</td>
</tr>
<tr>
<td>The relationship between performance of an acquiring firm which merges in related industries and its pre-merger level of intangible assets is positive.</td>
<td>Not Supported</td>
</tr>
<tr>
<td>Acquirer performance is positively related to its prior experience in undertaking M&amp;A activities.</td>
<td>Partially Supported</td>
</tr>
<tr>
<td>Acquirer performance is positively related to the level of the acquirer’s information about the target firm prior to the acquisition.</td>
<td>Not Supported</td>
</tr>
<tr>
<td>Acquiring firms with prior M&amp;A experience and an equity stake in the target company has positive M&amp;A performance</td>
<td>Insignificant</td>
</tr>
</tbody>
</table>

Considering that firm size is significant in all the models presented above, additionally this study also looks into how M&A performance relates to the variables of interest for small and large firms separately. Table 5 shows the results of the impact of the variables of interest on firms that are smaller and larger than the median separately. Column (1) shows the results for large firms and column (2) shows the results for small firms.

Table 5: Results on M&A performance determinants comparing large and small firms. The table presents the parameter estimates from OLS regression on CAR (-1,1), controlled for clustering in announcement dates, for hypothesized M&A performance determinants while checking for deal and firm characteristics. For description of the variables see table 1.

| Dependent Variable: CAR(-1,1)                                                                 | (1)                      |                       |
|-----------------------------------------------------------------------------------------------|--------------------------|
| Independent Variable:                                                                        | Coefficient  | P-value | Coefficient | P-value  |
| Intangible Assets                                                                           | -0.013       | 0.055    | -0.065   | 0.021    |
| EXPERIENCE                                                                                  | -0.025\textsuperscript{a} | 0.000   | -0.006   | 0.754    |
| Information                                                                                 | 0.004        | 0.682    | -0.007   | 0.512    |
| Acquisition Type                                                                            | 0.000        | 0.965    | -0.016\textsuperscript{b} | 0.043    |
| Acquisition Meth                                                                            | 0.015        | 0.731    | 0.010    | 0.453    |
| Payment Meth                                                                                | 0.005        | 0.291    | 0.006    | 0.488    |
| Relatedness                                                                                 | 0.003        | 0.394    | -0.001  | 0.872    |
| Size                                                                                        | -0.001       | 0.903    | -0.020\textsuperscript{b} | 0.020    |
| Volatility                                                                                  | 0.007        | 0.759    | 0.016\textsuperscript{a} | 0.039    |
| Profitability                                                                               | -0.035       | 0.212    | -0.020  | 0.412    |

\textsuperscript{a} indicates significance at 1% level. \textsuperscript{b} indicates significance at 5% level. \textsuperscript{c} indicates significance at 10 level.
Looking at the variables of interest, intangible assets negatively affect M&A performance in both large and small firms. The coefficient estimate is higher in large firms than in small firms, indicating that the devaluation of intangible assets after an M&A event is larger in small firms.

Regarding the elements of transaction cost, experience significantly impacts performance of large acquirers but is unrelated to performance of small firms. On the other hand information does not statistically impact performance for either large or small firms. Furthermore, acquisition type remains significant for both small and large firms.

Focusing on firm characteristics, size and volatility significantly relate to performance in only small firms. Consistent with Geppert & Kamerschen (2008) the results indicate that in the case of small firm M&A’s the expected risk for shareholders increases.

6.2 Robustness Check
A robustness check was performed to examine how the regression coefficient estimates of the main variables behave when the regression specifications are modified. Fragility of regression coefficients is indicative of specification error and sensitivity analysis could help diagnose misspecification (Leamer, 1983). When performing a sensitivity analysis, by adding or removing independent variables, the sign and statistical significance of the regression coefficients did not change. Even when performing the regression models with and without controlling for acquirer size, since size has a high correlation with the variables of interest, the sign and statistical significance of the regression coefficients did not change.

Further, it was assessed how much impact each observation has on a particular predictor by estimating the DFBETA. The DFBETA is the difference between the regression coefficient calculated for all of the data and the regression coefficient calculated with the observation deleted, scaled by the standard error calculated with the observation deleted. This is to check whether the data is contaminated with influential observations. After removing the influential observations identified and re-running the regressions, the sign and statistical significance of all the main regression coefficients remain unchanged. Only the magnitude of the beta coefficients changed.

The robustness check performed showed that the regression coefficients are plausible and robust, which gives evidence of structural validity. However, the explanatory power of the three models is roughly 4%. This suggests that the observed correlations are weak and that still a lot of the variation in the cumulative abnormal acquirer returns remains unexplained.
7. Conclusion

7.1 Conclusion and Implications

The focus of this research was on the factors that drive the difference in performance between companies that go through an M&A transaction with the focus on the acquiring firm, since their shareholders bear all the cost and risk involved in the transaction. An extensive list of M&A performance determinants was used on a sample of 33,242 transactions obtained from the Securities Data Corporation’s (SDC) mergers database for the period of January 1985 to December 2005.

The research question was the following: “How does the acquirer’s level of competitive advantage, information and experience impact M&A performance?” In order to obtain a concrete answer, let’s split this research question into two components.

The first component of the research question is: “How does the acquirer’s level of competitive advantage impact M&A performance?” The empirical results showed that firms with a superior level of competitive advantage do not exhibit better M&A performance. Contrary to what was hypothesized, applying intangible assets over an increased scale has devaluation of these resources as a consequence, especially in small firms. Even when there is a basis for the leveraging of these resources there is no significant improvement in performance.

This implies that when firms go through an M&A transaction, the competitive advantage of the acquiring firm will not be amplified in the new merged company. In general, applying the current competitive advantage over an increased scale has a decrease in value of these resources as a consequence. Therefore, managers must work on building new sources of competitive advantage in the new merged entity in order to continue to make economic profit.

The second component of the research question is: “How does the acquirer’s level of experience and information impact M&A performance?” The data showed a U-shape relationship between acquisition experience and acquirer performance. This means that acquirer performance first declines, but after a critical point, as the number of M&A’s undertaken increases so does the value created within the M&A transaction. Especially in large firms experience does impact M&A performance.

However, having better information about the target does not improve M&A performance. This implies that while possessing better and more cost-effective information about the targeted company acquirers still may overpay for the targeted company, miscalculate the intrinsic value of the target or overestimate the potential benefits of the integration and consequently harm M&A performance. Even when this information advantage is fortified with previous M&A experience it does not significantly improve acquirer performance.
7.2 Discussion and Limitations

It was expected that when firms merge the acquirer’s competitive advantage would be amplified in the merged company, especially when expanding in related industries since the firm is expanding in an already known market. However, results showed that this is not the case. A possible explanation could be that companies, especially those in related industries, overlap in their resources, including the intangible assets. In this sense, the combination of the sources of competitive advantage, post acquisition, would be worth less than the sum of their stand-alone value prior to the M&A event.

Moreover, this study measured a firm’s competitive advantage by means of the firm’s level of intangibles. For a specific asset to be classified as an intangible assets in a firm’s balance sheet it must be under the firm’s control. Customer loyalty or a specific managerial talent, which do classify as a firm’s source of competitive advantage, may not be recognized in the level of intangible assets reported on the balance sheet since these are not under the firm’s control.

An example is the amount that firms spend on research and development (R&D). R&D expenses could be considered an indication of technological intangibles since they may lead to patents or copyrights which become sources of competitive advantage. Accounting standards do not recognize these resources as intangible assets since capitalizing them may lead to highly speculative assets on the balance sheet.

Companies record R&D spending costs as an expense whether the research was successful or not. The spending intensity on R&D is no guarantee of competitive advantage; that is why this study did not include R&D spending as an intangible asset.

As done in this study, the 2-digit SIC code is the most common measure used to identify industry relatedness. However, several researchers argue that this measure is a poor proxy for relatedness when assessing potential value creation. This is because the measure is not derived from a theoretical model of scope, spillovers, experimentation, or other reasons for diversification (Robins & Wiersema, 2003).

Regarding the effect of experience, a linear relationship was expected between M&A experience and M&A performance. However, this relationship is U-shaped. This may be because it takes time for the firm to improve its M&A negotiation and post-integration skills.

M&A performance declines in the early stages because in the first number of M&A’s the firm is confronted with many challenges and hazards for which it has not yet developed the resources to deal with. Post-acquisition integration is a complicated process which requires considerable management resources, including time, money and effort. Performance starts to increase after a number of M&A’s as the firm develops the necessary know-how to deal with these types of transactions and becomes able to handle post-merger integration more efficiently.

In relation to the proxy used for information, this study looked only at ownership via equity stake as a means to obtain better and more cost-effective information about the target. Yet previous business history and business relationship may also be a source of information and understanding of the targeted business.
Even though information does not significantly impact performance, the negative relationship shows the contrary effect to what was hypothesized. This suggests that having an equity stake in the targeted company can lead to overestimation of possible synergies which harms value creation and consequently lowers performance. Overconfidence could be a factor playing a role in this negative effect. Being in the possession of inside information could let managers overestimate their own capabilities and think they can handle the post-integration process better than they actually do.

With respect to the proxy for M&A performance, this study focused on the impact of the event on the acquiring firm’s value. This methodology was chosen since, according to Morck & Yeung (1992), an event study on acquirer performance is the appropriate method for testing causal linkage between M&A determinants directly. However, Kaplan (2006) argues that this approach is counterfactual for assessing the economic effect of an M&A transaction. The effect of the M&A event on the acquiring firm is extraneous for the overall shareholders; therefore the focus should be on what the effect of the event is on the combined entity (Kaplan S., 2006).

7.3 Recommendation for Future Research

The developed model used perspectives from Finance Theory, Internalization Theory and Resource-based View. However, this framework is not comprehensive. Several components are missing which require further attention and exploration.

One element missing in this framework is the role of the targeted firm. An M&A transaction is an activity that involves two parties. Interaction and characteristics of both parties may be a crucial determinant of the transaction performance. Including characteristics of the targets may help in creating a more complete model to predict M&A performance.

Another possible method to research M&A’s could be by assessing the specific cost of the transaction and audit what the factors are that impact this value. However, this would be a complex methodology to use for large samples. Yet taking a closer look at each transaction separately, by means of case studies, could help identify other elements that influence M&A performance.

A non-linear relationship was observed between M&A performance and experience. For future research it would be interesting to look into the nature, performance and timing of the M&A experience, with a view to gain a better understanding of what and when acquiring firms learn from their acquisition experience.

In the discussion section this researcher suggested that having better information about the target may lead to overestimation of the possible benefits of the M&A. It would be interesting to investigate whether the negative relationship between information and M&A performance has to do with the hubris hypothesis.
Glossary

A  Acquisition: One company acquires shares and control of another company

C  Ceteris paribus: Holding other things constant

Competitive advantage: The ability of a firm to outperform its industry, that is, to earn a higher rate of profit than industry norm.

Cross-sectional study: A study that involves a representative set of a population at one specific point in time

E  Economic profit: A concept that represents the difference between the profits earned by investing resources in a particular business activity, and the profits that could have been earned by investing the same resources in the most lucrative alternative activity

Economies of scale: Indicates that average costs decrease as output increases

Economies of scope: Cost savings that the firm achieves as it increases as it increases the variety of goods it produces

F  Finance theory: The field of study that deals with investment making decisions and the concept of the time value of money. The central importance is in explaining the formation of financial assets prices, investment in these assets, and how to protect oneself from risk

H  Heteroskedasticity: When the standard deviations of a variable are non-constant

I  Intangible asset: Non-material or physical assets

Internalization theory: This theory states that foreign direct investment creates value for a company when a firm is able to exploit internally its firm-specific intangible assets. This is due to the market imperfection for such assets


Intrinsic value: True value / fundamental value of a firm

**J**

Junk bonds: A security with a high level of risk

**L**

Linear regressions: The statistical technique that identifies the best-fitting line through a set of points. Ordinary least square (OLS) regression is the standard linear regression procedure

**M**

Median: The value lying on the midpoint of a distribution

Merger: Two companies come together to combine their resources and achieve a common goal

Merger waves: Peak of heavy activity followed by quiet troughs of few transactions in the takeover market

**N**

Net present value: The difference between the present value of a project or investment’s benefit and the present value of its costs

**R**

Resource-based theory: This theory states that for a competitive advantage to be sustainable, it must be underpinned by resources capabilities that are scarce and imperfectly mobile, which means that well-functioning markets for these resources and capabilities cannot exist

**S**

SIC-Code: The Standard Industrial Classification Code is a number used to specify what industry a particular company belongs to.

Reference:


