Value Creation through Cross-Border Mergers and Acquisitions

An Empirical Study on European Acquirers of US Targets

The Department of Business Administration
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ABSTRACT

The present paper analyzes the valuation effects of geographical diversification by examining mergers and acquisitions involving acquirers from 12 developed European countries and U.S. target firms over the period 1999-2007. Our findings suggest that acquisitions of overvalued U.S. targets do not cause, on average, any significant change in the excess values of European acquirers. However, after controlling for the undervaluation of the targets, we find that acquiring a fairly valued or undervalued company has no statistically significant influence at 10% level, but it is value enhancing at 12% significance level. Besides undervaluation of the target firm, other factors that influence the change in excess value of the acquirer are the cultural difference between the merging firms' countries (negative impact) and the strength of the bidder's currency (positive impact). Furthermore, it was found that target firm shareholders experience significant wealth gains of over 25% from the announcement date up until delisting

Proposal for Master Thesis in Finance

TITLE	**Value Creation through Cross-Border Mergers and Acquisitions -** An Empirical Study on European Acquirers of U.S. Targets
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THESIS TYPE	Empirical study
PURPOSE	The aim of this study is to determine to what extent cross-border mergers and acquisitions in related industries initiated by European companies on U.S. targets are value-enhancing. Further, the study is intended to measure the excess wealth gained by foreign target shareholders from announcement up until delisting. Prior research in the field of corporate international diversification has mainly been targeted on US acquirers. This study provides further evidence from developed European firms.
METHODOLOGY	This paper employs the same valuation methodology as Bodnar, Tang and Weintrop(2003) in order to determine excess value measures for the acquirers and foreign target companies. In addition, distribution analysis and regression analysis are used to observe how the excess value of acquirers varies with different variables.
EMPIRICAL FOUNDATION	Reuters database contains information on mergers and acquisitions. Datastream and Reuters databases are used to collect accounting data and share prices for the analyzed companies.
COCLUSIONS	Our results show that, on average, U.S. target firms are overvalued, less profitable, less financially levered and make fewer investments compared to European firms that have not yet diversified in the U.S. However, the target firm shareholders experience an increase in their wealth of over 25% from the announcement date to delisting. Overall, European bidders do not create or destroy value by adding an overvalued company relative to the year before the acquisition, but adding an overvalued company destroys the possible value created as an effect of the synergies resulting from the merger.

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1. INTRODUCTION

This chapter provides a background for international mergers and acquisitions; presents and motivates the choice of research topic and gives delimitation of the thesis purpose. The chapter ends with a description of the audience and a thesis outline.

1.1. Background

On May 7th 1998, Chrysler announced a $37 bn. merger with Daimler-Benz. The stock swap deal was the largest transatlantic transaction at the time and was considered a "marriage made in heaven" of two equal companies that would change the face of the industry.

Chrysler was the 3rd largest US car maker and the most profitable in the mid 1990's. Chrysler management forecasted the need of large amounts of cash to keep the products up to date and to expand to new and emerging markets in order to secure its position as one of the most important automaker company in the rapidly changing industry. The long term strategy was a merger that would help the company to reach this goal.

Daimler-Benz was a premium engineering automaker with strong brands that tried to find ways of improving efficiency and the economies of scale a merger offered seemed appealing.

The merger appeared promising combining the German engineering and the American marketing expertise into a new company, the 5th largest automaker in the world. The benefits stated at the time are among the most cited benefits of mergers: growth possibilities, increased market opportunities, increased purchasing power, synergies coming from shared distribution logistics, sharing know-how. The premiere global automotive company was

supposed to be of great strength, with combined presence around the world and limited product-overlap (Daimler-Benz focusing on premium segment and Chrysler on medium and economic segments). Centralized purchasing, distribution and administrative structure, shared R&D and the possibility of exchanging components would have brought about annual savings of $3 bn. in 3 years. Exploiting all these benefits and the new market opportunities would, in the end, have lead to increased shareholder value.

However, the market capitalization of the combined company, which was immediately after the merger around $100 bn. dropped in just 3 years to $44 bn., a value lower than the value of Daimler alone before merger. The synergies failed to appear; the distribution systems remained separated due to brand bias, Mercedes distributors refusing to include the less fancy Chrysler. The cultural differences had a strong impact, leading to discontent between employees and small scandals. Chrysler Group began to lose money. By last quarter of 2000 Daimler-Chrysler registered its first quarterly loss of about $269 mil. as a result of $1.4 bn. loss registered by Chrysler. The situation has not changed much with time. In 2006 Chrysler registered a $1.5 bn. loss and it was finally sold in 2007 to a private equity firm for 7.4 bn.

This is just one example of many failures in the merger activity. A merger that was very promising proved to be value destroying in the end. Shareholders of both companies saw their stake in Daimler-Chrysler shrink in value. One would think that managers had learned their lesson from value destroying mergers in the past. But have they?

1.2. Problem Discussion

It is well known that failures and mistakes are a taboo topic for practitioners and that few lessons were learnt by managers from past value destroying mergers and acquisitions. To shed further light on this important aspect of today's corporate activity, the current paper aims to reveal whether and to what extent corporate international diversification through mergers and acquisitions creates value for the acquiring and target firm's shareholders.

The poor reputation of mergers and acquisitions has its heredity in a number of spectacular failures in the 1990's, as well as in research papers that show value destruction for acquiring

shareholders in up to 80% of deals (see, for example, Datta & Puia, 1995; Christophe, 1997 and Denis, Denis and Yost, 2002). On the other hand, another group of scholars reached different conclusions, providing empirical evidence that, in fact, cross-border mergers and acquisitions create value for both acquirer and target firm's shareholders (Errunza and Senbert, 1981; Errunza and Senbert, 1984; Markides and Ittner, 1994, and Bodnar, Tang and Weintrop, 2003).

In addition to this "good news" provided by researchers, reasons why companies choose to engage in international merging activities include one or more of the following factors: improved operating margin through reduction of operating costs, diversification of product and service offerings in order to stay competitive, larger market share, reduction of financial risk, increased plant capacity, utilization of operational expertise and research and development. Additionally, a large number of mergers in the mid-1990's occurred as a response to the integration of global markets or due to deregulation, changes in technology and industry consolidation. Receptivity of both the equity and debt markets to large strategic transactions is another incentive for companies engaging in mergers and acquisitions, and so is the pressure to increase shareholder value.

Some argue that management aggrandizement is also a reason why companies continue to pursue mergers and studies proved that hubris-based M&A-s are usually the ones that are found to be value-destroying, as opposed to synergy-oriented M&A-s (Seth, Song and Pettit, 2002).

In spite of the vast amount of research in the field of corporate value creation through mergers and acquisitions, there are few, if any papers that focus on developed European companies acquiring targets from countries outside the European Union. This thesis analyzes a sample of mergers and acquisitions initiated by companies from 12 Western European countries (Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden and United Kingdom) having as targets US firms.

In the last two decades, mergers and acquisitions have become a truly global phenomenon and Europe begun experiencing a rapid growth in merger activity. European developed countries are chosen as acquirers as we expect them to have more harmonized legislation as a

result of European Union steps towards a more integrated market and therefore to offer representative results.

We focus on US targets as US is one of the major market that European companies invest in.

Table 1.1: Number of M&A initiated by European countries with non-European targets between 1999 - 2007

Country	Number of M&A 1999- 2007
United States	3135
Australia	301
Canada	291
Brazil	212
Russian Federation	174
South Africa	163
India	148
Argentina	146
Turkey	131
Mexico	118
China	116
Japan	95
Chile	80
Singapore	78
Hong Kong	71
Indonesia	36
Thailand	34
Egypt	33
New Zealand	32
Israel	31

Data source: Reuters Database

Table 1.1 presents the number of acquisitions by country made by Western European companies in other markets than Europe during 1999 – 2007. 57.8% of this kind of transactions had US targets suggesting extensive US-EU economic relations.

1.3. Purpose

The aim of this study is to determine to what extent cross-border mergers and acquisitions in related industries initiated by European companies with US targets are value-enhancing. We intend to establish how the correct valuation of the target influences the results and to what degree such a correct valuation leads to value creation for the shareholders of the acquiring firm. Further, it is determined how the cultural difference between the countries and the

strength of the acquirer currency influence the results alongside with corporate variables. The study will also determine the short term announcement effect on foreign target shareholder wealth (the return for target shareholders from announcement date to delisting).

1.4. Delimitations

Our study does not investigate the effects of industrial diversification as it is largely accepted that it is value destroying (Dos Santos, Errunza and Miller, 2008; Denis, Denis and Yost, 2002; Moeller and Schlingemann, 2005).

We will only be looking at the effects on shareholder value following mergers and acquisitions where both acquirer and target are publicly traded firms.

Due to lack of data, we will not take into consideration whether the company establishes operations abroad for the first time or not. We argue this will not impact our results as there is week evidence that premiere cross-border acquisitions add or destroy value, but rather the foreign targets are not fairly valued (Dos Santos, Errunza and Miller, 2008).

We also disregard companies in the financial, real estate and investment sectors, since they have certain particularities in terms of balance sheet structure and financing procedures.

1.5. Audience

Our study will be of interest to students at Master in Finance, participants to Master Seminar of School of Economics and Management of Lund University and academics in the field of corporate finance.

Another category of audience is represented by investors and managers, which have a market perspective on the subject rather than an academic one.

1.6. Thesis Outline

The remainder of the thesis is divided into five chapters:

Chapter 2: The purpose of this chapter is to review the mergers and acquisitions activity over time and to present the characteristics of each period, determinants of merger waves and new trends.

Chapter 3: Chapter three gives an overview of the theoretical framework related to international diversification. We also consider the methodologies used over the past three decades to value multinational companies.

Chapter 4: This chapter presents data collection and methodology used in the empirical study.

Chapter 5: The chapter shows the empirical findings following from the methodology presented previously and the results from the analysis performed.

Chapter 6: The last chapter consists of conclusions, reflections on the study, and comparison with previous studies.

2. HISTORY OF MERGERS

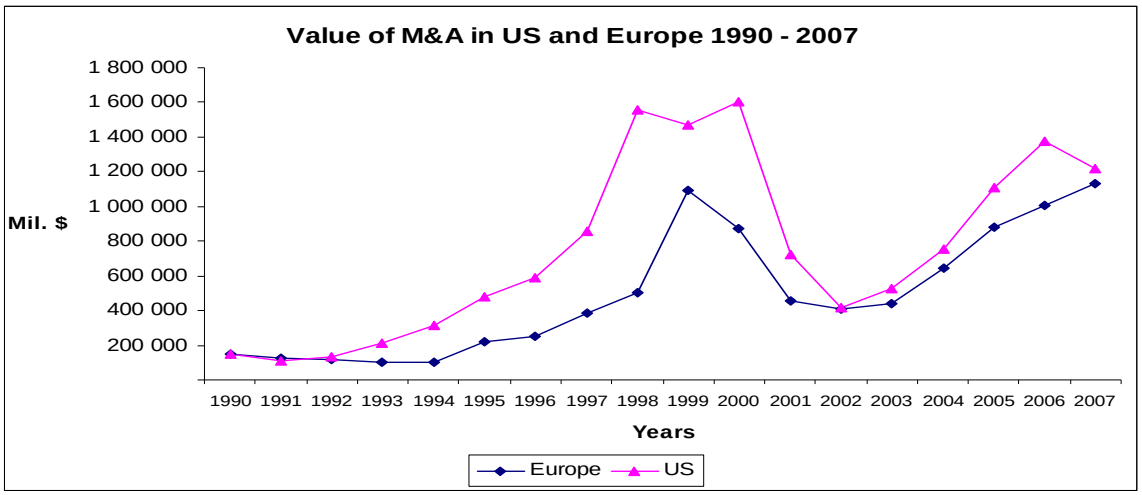
This chapter presents the merger activity over time, discusses the determinants, the impact of merger waves, the characteristics of each period and new trends.

2.1. General Considerations

It is considered that there are six waves in the merger activity (1893 to 1904, 1919 to 1929, 1955 to 1969, 1974-80 to 1989, 1993 to 2000 (Gaughan, 2007) and 2003 to present), each with its own unique structure of deals and characteristics. Each of them impacted industries changing their structure from a set of small size firms to the current state that includes powerful multinational companies, legal framework leading to the development of antitrust laws and fair practices, and the economic environment in general.

Mergers and acquisitions are a cyclic phenomenon, periods of high merger activity being followed by a relatively small number of acquisitions.

Figure 2.1: Value of M&A in US and Europe 1990 – 2007

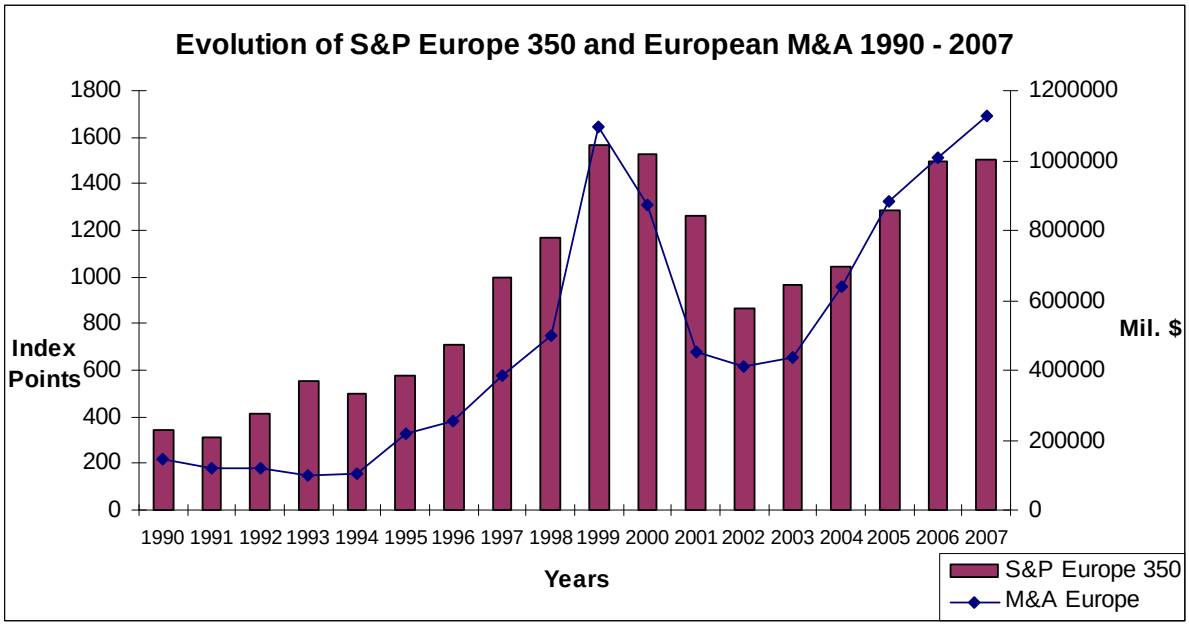


Data source: Thomson Financial, 2008

US are the stage where merger and acquisitions started and flourished and then spread to other markets. It is not until the fifth wave, that Europe can be considered as a major actor in merger activity (Gaughan, 2007). Acquisitions proved to be a global phenomenon and their changes in volume in Europe are similar with US (see Figure 2.1).

Merger activity is correlated with the economic activity, and the optimism of investors, following the trends of capital markets (see Figure 2.2). Most of the merger waves ended with the appearance of a recession or start of a war: the fifth wave in Europe ended with the burst of the Internet Bubble and the slump of capital market indexes; the latest merger wave is probably brought to an end by the current financial crisis.

Figure 2.2: Evolution of S&P Europe 350 and European M&A 1990 - 2007



Data source:
http://www2.standardandpoors.com/portal/site/sp/en/us/page.topic/indices_euro350/2,3,2,5,0,0,0,0,0,5,1,0,0,0,0,0.html, Thomson Financial, 2008

In general all the merger waves tend to be caused by a combination of economic, regulatory and technological shocks. The economic shocks come in the form of economic expansion – firms merge to meet rapidly growing demand, regulatory shocks refer to deregulation in certain industries, and technological shocks come in the form of technological changes that can dramatically alter an industry or create new ones. However, the appearance of such

shocks does not assure the start of a new wave. It has to be correlated with market misevaluations (Gaughan, 2007).

Martin Lipton in his Davies Lecture at Osgoode Hall Law School of York University on September 14, 2006 separates between exogenous factors affecting mergers and autogenous factors. The Exogenous factors consist of: accounting treatment (pooling vs. purchasing methods), existence of activist hedge funds, arbitrageurs, different currencies, LBO funds, movement towards market capitalism and privatization of state owned companies, deregulation of specific industries. The exogenous factors rather determine whether a merger is possible or not at a certain moment. The autogenous factors, on the other side, are reasons for engaging in merger activities: obtaining market power, improving operating margin, integrating back to the source of raw material or forward to control the means of distribution**,** having a more complete product line in order to be competitive, spreading the financial risk, spreading the huge cost of developing new technology.

We are further going to present the characteristics of each period as they are all important to the current state.

2.2. The First Wave (1893 to 1904), (Gaughan, 2007)

The first wave begun after the depression of 1893 and was dominated by horizontal mergers that led to the consolidation of eight major industries: primary metals, food products, petroleum products, chemicals, transportation equipment, fabricated metal products, machinery and bituminous coal.

Most of the industries at that time comprised of small and inefficient firms, or of companies competing on prices, trying to drive each other out. There was the need of reorganization of the industries which was done by holding company trusts. The merger activity was driven by the development of transportation system. Now firms could serve national markets and competition from distant rivals pressured mergers with local companies. Companies also considered the economies of scale a merger could offer in order to improve efficiency.

There was little and ineffective legislation regulating takeovers which led to appearance of takeover wars and voluntary ethical code – enforced by unwritten agreement between investment bankers. The giant companies that appeared during that period, some of which are still present DuPont Inc., Standard Oil, General electric, Eastman Kodak, American Tobacco, threatened to become, and some even became monopolies. The top 100 industrial corporations owned 18 % of the assets of all industrial corporations. New antitrust legislation in order to avoid the excessive dilution of competition and unethical behaviour was adopted.

The new companies were in need of new managerial skills in order to be effectively managed. Most of these mergers failed to achieve improved efficiency. The weak banking system and the stock market crash from 1904 brought this wave to an end.

2.3. The Second Wave (1919 to 1929), (Gaughan, 2007)

Compared with the first wave that resulted in monopolistic structures, the second one produced oligopolies. This period characterized by vertical integration was stimulated by the post World War I boom.

Even though the antitrust law was stricter, the government concentrated on amending unfair business practice rather than anticompetitive mergers. The limited enforcement of antitrust laws and the persistence of business cooperatives organized during the war contributed to the further consolidation of the industries. There were five industries that experienced excessive merger activity during the second merger wave: primary metals, petroleum products, food products, chemicals, transportation equipment. At the same time competition was enhanced by the large scale spread of radio.

We also assist to the first large scale development of conglomerates and significant use of debt which led to increased financial risk. In these conditions investment bankers had a very big influence as the banking industry was very concentrated and bankers did not compete with each other, founding their business on long term relationships with the clients.

The second wave ended in 1929 with the stock crash from October 29. This collapse led to a drop in business and investment confidence and the recession that followed brought a fall in consumer spending that forced the companies to avoid any additional risk.

2.4. The Third Wave (1955 to 1969)

The booming economy in that period eased the appearance of a new merger wave. Due to tougher antitrust legislation, mergers that significantly reduced the competition were illegal so companies in search of growth opportunities followed a diversification strategy. 80% of the mergers in that period were conglomerate mergers. As an effect this development did not lead to increased industrial concentration. The expansion in management science also accelerated the conglomerate movement as many managers started to believe they could manage a more complex corporate structure. (Gaughan, 2007)

Another characteristic of this period is that smaller firms acquired larger targets in contrast with earlier periods when the target was significantly smaller than the acquirer. (Gaughan, 2007)

Because the interest rate for credit financing was high and at the same time equity markets were facing a boom, most of the mergers were equity financed. Financing with stocks could result in a raise in earnings per share without incurring tax liabilities. Acquisitions were also fuelled by the possibility of accounting manipulations that would temporary support the stock value and by the use of convertible debentures rather than stock financing. These allowed for the earnings of the target company and the acquirer to be added together. The total amount of equity of the combined firms would be equal to the equity of the acquirer, thus leading to an increase in earnings per share. (Gaughan, 2007)

The conglomerate trend ended with the first fail of one of these complex companies. The merger wave was soon over, following the Tax Reform that ended accounting manipulating abuses, limited the valuation of undervalued assets in an acquisition and established that low rate convertible debt would be treated as stock. (Gaughan, 2007)

Conglomerate stock crashed when stock market fell in 1969. The companies didn't achieve the benefits they thought they would have from diversification. The third wave was an opposite movement from specialization, the latter being considered productivity enhancing. Most of the mergers failed and non-core activities were divested during the next years. The impact of these deals on shareholder value is negative as research has shown. However, the diversification discount declines over time. (Servaes, 1996)

2.5. The Fourth Wave (1974-80 to 1989)

The fourth merger period is generally referred to as the wave of the mega-mergers or the hostile takeover wave of the 1980s, even though it has its genesis in the 1974 first hostile takeover bid of Inco seeking to acquire ESB. The success of this transaction gave the green light for major investment banks to make hostile takeover bids on behalf of corporate raiders. Raiders look for companies with undervalued assets and attempt hostile takeovers by purchasing enough shares to gain a controlling interest, or, in most cases, make big profits by selling the target shares afterwards to the highest bidder. Arbitragers, such as Ivan Boesky, completely changed the strategy of takeovers, as they bought the stock of a target in anticipation of a takeover bid being made for it. (Gaughan, 2007)

In addition to hostile bids, the fourth wave was unique through the use of junk bond financing, the increasing volume and size of Leveraged Buyouts, as well as the aggressive role of investment bankers. Also, during this period, besieged companies made use of legal and political protection strategies against unwanted acquisition offers, some of which were considered infringement of interstate commerce by international regulators. Other particularities of the fourth merger wave include the role of deregulation, which in Europe gave way to many cross-border horizontal mergers, and the large number of international mega-mergers, as opposed to the acquisition of small and medium-sized businesses that predominated in the third wave. It is during the fourth wave that mergers in the billion-dollar range became common. (Gaughan, 2007)

Table 2.1 shows a list of the leading mega-mergers of the fourth wave.

Table 2.1. Ten Largest Acquisitions, 1981-89

Year	Buyer	Target	Price ($Billions)
1988	Kohlberg Kravis	RJR Nabisco	25.1
1984	Chevron	Gulf Oil	13.3
1988	Philip Morris	Kraft	13.1
1989	Bristol Myers	Squibb	12.5
1984	Texaco	Getty Oil	10.1
1981	DuPont	Conoco	8.0
1987	British Petroleum	Standard Oil of Ohio	7.8
1981	U.S. Steel	Marathon Oil	6.6
1988	Campeau	Federated Stores	6.5
1986	Kohlberg Kravis	Beatrice	6.2

Source: Wall Street Journal, November 1988

The end of the fourth merger wave was, surprisingly, neither determined by the introduction of the poison pill in the mid-1980s nor by the stock market crash in October 1987, but was due to the collapse of the junk bond market together with the relatively mild recession in 1989-1990.

2.6. The Fifth Wave (1993 to 2000)

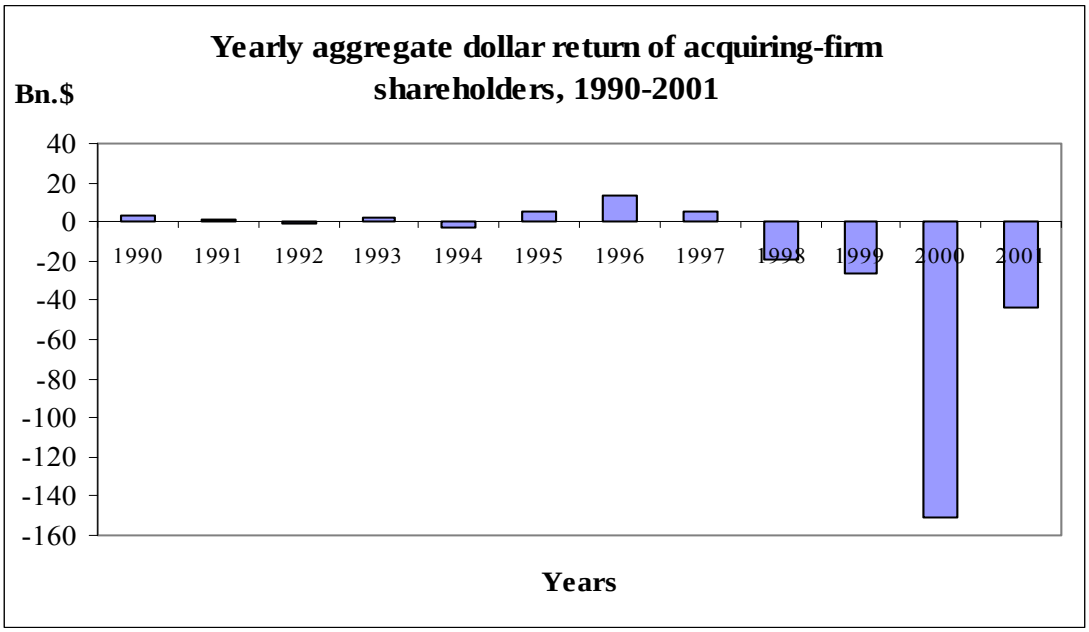
While the first four waves can fairly be called American, the fifth one is considered by researchers the first truly international takeover wave (Black, 2000). By 1999, the value of transactions in Europe was almost as large as the one in the United States. The fifth merger wave started in the context of the 1990s U.S. economy expansion and continued as a reaction to the increasing aggregate demand, the global view on competition and the relatively restrained antitrust environment (Gaughan, 2007).

Large mergers occurred at about the same level as they had during the fourth merger wave, but hostile takeover activity diminished. Instead, the opening words for a merger discussion were “would you be interested in discussing a merger of equals?”. This led to some of the largest deals in history, such as the mergers of Citibank and Travelers, Chrysler and Daimler

Benz, Exxon and Mobil, Boeing and McDonnell Douglas, AOL and Time Warner, and Vodafone and Mannesmann. (Lipton, 2006).

Whereas many of the mergers of the fourth wave were executed for short-run financial gains, mergers of this period emphasized longer term business strategies. There is empirical evidence that transactions made at the beginning of the fifth wave had positive effects on shareholder value (Moeller, Schlingemann and Stulz, 2005) However, between 1998 and 2001 striking losses occurred, partially due to hubris-filled managers who believed they were responsible for the high share prices, instead of the stock market bubble. Figure 2.3 displays the performance of fifth merger wave acquirers.

Figure 2.3: Yearly Aggregate Dollar Return of Acquiring-Firm Shareholders, 1990-2001



Source: Moeller, Schlingemann, and Stulz. "Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave." Journal of Finance, vol. 60, no. 2 (April 2005).

Debt-financed mergers were less common than they were during the fourth wave, being replaced by an increased use of equity. As another particularity of the fifth wave, certain industries such as banking and finance or telecommunications, media and technology (TMT) accounted for a disproportionate share of the total dollar volume of M&A in the United States, inflating the impact of these sectors. An additional factor that contributed to the large number of

bidders and targets during this period was the privatization of state-owned enterprises in less-developed countries, especially Eastern Europe. (Gaughan, 2007)

The fifth merger wave ended with the bursting of the Millennium Bubble, large M&A failures, like AOL/Time Warner and great scandals, like Enron, which led to an almost nonexistent junk bond market, tightened lending standards and not well received merger announcements. (Lipton, 2006).

2.7. The Sixth Wave (2003 to present)

The sixth merger wave began in 2003, less than three years following the end of the previous cycle. It was determined by factors such as globalization, government encouragement to create strong national or global champions (for example, France and Italy), commodity prices increase, the availability of low-interest financing, hedge funds and other shareholder activism and the remarkable growth of private equity funds purchasing large stakes in target companies (Lipton, 2006).

This sixth merger wave has been truly global, but perhaps most striking in Europe, and has so far seen more focus on strategic fit and paid attention to post-merger integration issues. As opposed to during fifth wave, managers are less rewarded nowadays with share options, having reduced their temptation to pursue deals that deliver a short-term pay-off at the cost of long-term value creation. Additionally, a bigger proportion of deals are being paid for in cash, a currency which executives tend to manage more prudently than shares. Finally, European reforms have opened the door to a genuine single market, forcing companies to focus on building a stronger pan-European competitive position (The Economist, September 1st 2005).

On the other hand, the sixth merger wave witnessed the rise in activity of financial buyers (hedge funds, private equity funds, and venture capital funds) who do not have strategic interests as their primary objective, but instead have the ability of pushing up prices for a company looking for a strategic merger. This can easily lead to paying excessive prices for reputation-enhancing acquisition, which is a slippery slope towards the mistakes made during

the previous merger wave. Then again, financial buyers can also have a beneficial influence, as they can sharpen up business performance through buying and fixing companies that few want and by providing liquidity to the market. (Moeller and Brady, 2007)

In 2005 Jeffrey Rosen of Lazard investment bank saw great potential for value-creating deals within the European Union, as fragmented national economies were merging into a single market. But big obstacles needed to be overcome, as some politicians hang on to the idea of "national champions" and create obstacles to cross-border mergers and acquisitions. A good example is the French government announcing its intention to come up with a list of strategic industries that will be protected from foreign takeover, right after the spread of a rumor that Danone, a food company that owns much-loved French brands, might be taken over by America's PepsiCo. (The Economist, September 1st 2005)

Up to 2007 more companies have been successful with their acquisitions rather than unsuccessful, although it was not clear whether this trend would continue or things will be similar to previous merger waves. The volume of worldwide mergers and acquisitions fell by 30% in 2008 compared with 2007, ending five consecutive years of M&A growth, according to Thomson Reuters. But the decline in announced deals would have been even larger without the government bailouts of financial institutions, which represented a significant share of M&A activity. The number of withdrawn M&A transactions reached an all-time record in 2008, including the $46.8 billion leveraged buyout of BCE, Canada's largest telecom group, which would have been the largest LBO ever if it had been completed. Microsoft's $41.9 billion bid to acquire Yahoo was another major announced deal that was withdrawn last year. While mergers and acquisitions in the United States declined by 37.2% in volume from 2007, the total M&A activity in the Asia-Pacific region fell by a relatively small 8.7%, sustained by deals in China and Southeast Asia (Gordon Platt, Global Finance, February 2009)

These days, abrupt stock price falls determine the negotiations between vendors and buyers to proceed under different terms. The current stock prices do not necessarily reflect the companies' real value but rather soak up the pessimistic views of investors. In this case, the

real prices lag probably between current low prices and the exaggerated expectations of target shareholders[1].

Will the deals from the sixth merger wave remain in history as value creating or value destroying? In this paper we intend to shed further light on whether or not the beginning of the twenty-first century merger wave brought value-enhancing deals for acquirers from developed European countries engaged in transatlantic M&A-s.

[1] http://www.wall-street.ro/articol/English-Version/63216/The-line-where-M-A-activity-intersects-stock-market.html

3. THEORETICAL FRAMEWORK

This third chapter presents the theoretical context of value creation through mergers and acquisitions, which is threefold. Firstly, a chronological review of earlier studies is presented, in accordance with whether or not evidence of value creation or value destruction was found. Secondly, earlier research was examined in line with the theoretical perspective it refers to. The chapter will be concluded with an answer to the question "to what extent do cross-border mergers and acquisition create more value for shareholders than domestic deals?" based on the previous mentioned literature.

3.1. Have Cross-Border M&As Created Value over the Years?

Although earlier empirical studies suggest positive returns for both shareholders of acquirer firm and target firm engaged in international diversification through M&A-s, recent evidence is mixed.

The theoretical basis of the first category of studies advocate for the capacity of firms to exploit market imperfections to their own benefit when entering a foreign market (Buckley and Casson, 1976; Wilson, 1980).

Cross-border M&A-s provide operational benefits and risk diversification and, as a result, create value for both acquirer and target-firm shareholders (Kang, 1993; Markides and Ittner, 1994). Strategic benefits are also a ground for M&A-s, as Caves, 1990, argues. Cross-border M&A-s may be considered as competition among oligopolistic firms in taking advantage of different opportunities.

There is a direct relation between the degree of international involvement and firm value, as suggested in Errunza and Senbet, 1981; Errunza and Senbet, 1984 and Kim and Lyn, 1986. They show that excess firm value is positively related to the growth in the degree of international involvement and that this relationship is stronger during periods with greater financial barriers.

Various theories are empirically tested by Mørck and Yeung, 1991: internalization theory, imperfect capital markets theory, agency theory. The results support internalization theory but engaging in international diversification per se does not impact significantly firm value.

Internalization suggests that international diversification is advisable when firms benefit from internalizing markets for intangible assets with high proprietary information such as superior production skills, patents, marketing abilities, managerial skills, or consumer goodwill (Caves, 1971; Harris and Ravenscraft, 1991).

Froot and Stein, 1989, propose a model in which acquirers will have an advantage if their currency is stronger relative to the currency in the target's country. More recently, Harris and Ravenscraft, 1991, found that the effect of international diversification on shareholder value is positively related to the weakness of the U.S. dollar, demonstrating that exchange rate has a major role in foreign direct investment.

Tax avoidance and low cost inputs are also considered to be reasons for engaging in merging activities (Scholes & Wolfson, 1990). The 1981 Economic Recovery Tax Act increased tax incentives for takeovers by U.S. firms, while the 1986 Tax Reform Act neutralized them.

More recent data samples yielded, however, a negative return for shareholder value. Datta and Puia, 1995, reached the conclusion that overall cross-border M&A-s do not create value for the bidder’s shareholders. They took into consideration industry relatedness which gave unclear results, as well as cultural fit. High cultural differences between countries lead to lower abnormal returns for acquiring firm shareholders.

Bodnar, Tang and Weintrop, 2003, found evidence of positive excess values for multinational corporations while Christophe, 1997, and Denis, Denis and Yost, 2002, using the same methodology, found evidence that international diversification had a negative impact on acquiring firm shareholders. In a more recent study Dos Santos, Errunza and Miller, 2008, found inconclusive effects of international diversification through M&A-s after controlling for the pre-acquisition value of the target.

Cakici, Hessel and Tandon, 1996, examine shareholder wealth gains for 195 foreign firms that acquired U.S. target firms during 1983-92 in comparison to 112 deals US firms that acquired non-US firms. The result was that foreign acquirers have positive and significant excess returns while U.S. acquiring firms destroy value in their purchases of foreign firms over the same period. Interestingly, they found opposite evidence from some of the earlier studies associated with relative size of target to bidder, extent of overseas exposure, R & D intensity, industry factors and value of foreign currency. Bidder abnormal returns are not related to any of these factors.

Seth, Song and Pettit, 2002, analyzed sources of gains and losses in cross-border acquisitions. In their view different results were a consequence of failing to take into consideration the motives for each acquisition. They concluded that deals are value creating if they are done in order to benefit form synergies and value-destroying if they are done because of managerialism or management hubris.

Moeller, Schlingemann and Stulz, 2005, found that deals done between 1998 and 2001 lost approximately $240 bn. and $7 bn. in the 1980's. The aggregate loss between 1998 and 2001 is so large because of a small number of failed acquisitions made by firms with extremely high valuations. Excluding these, the rest of the acquisitions would have been, on average, value creating for acquiring-firm shareholders.

3.2. Theoretical Perspectives on International M&A-s as a Value Creating Strategy

Prior research in the field of value creation through mergers and acquisitions are based on assumptions that impact the results of an empirical study, among which are worth mentioning: transaction cost economics (TCE), organizational learning, macroeconomics theory, agency theory, resource based view (RBV), managerialism, industrial organization economics and `national cultural differences. A theoretical perspective usually integrates two or more of these assumptions, depending on the question being asked in the study.

3.2.1. Transaction Cost Economics Perspective

When transaction-specific assets are likely to become valuable, firms are better off integrating a certain function according to transaction cost economics (see Anderson and Gatignon, 1986).

Using a TCE framework, Morck and Yeung, 1992 found positive and significant abnormal returns for US acquiring firms with characteristics suggesting the presence of information-based assets. These assets, represented by research and development (R&D), advertising and management quality allowed the bidders to internalize the assets of the target firms more efficiently. Via the same theoretical perspective but considering US firms as targets instead of acquirers, Harris and Ravenscraft, 1991 established that R&D intensive industries have more international merger activity than domestic merger activity. Deals in related industries account for three-fourths of cross-border acquisitions. When foreign buyers are involved in the mergers, US target firms have significantly higher abnormal returns than when bidders are from US. Exchange rates seem to influence the level of value creation, while tax variables yielded an inconclusive result. In a study performed by Servaes in 1991, a strong relation was found between targets with low q ratios and bidders with high q ratios on one hand, and target and bidder returns on the other hand. Finally, Li and Guisinger, 1991 and Nitsch, Beamish and Makino, 1996 found that acquisitions and joint ventures are not only less performing, but also more likely to fail than Greenfield investments.

3.2.2. Organizational Learning Perspective

Large firms often acquire small, know-how based companies in order to get access to new knowledge. However, many acquisitions fail to deliver the expected results, as the parties involved do not seem to adapt accordingly.

Barkema, Bell and Pennings, 1996, found that foreign ventures last longer the smaller the cultural difference between the home and the host country.

3.2.3 Macroeconomics Theory

Taxation system and the exchange rate movements seem to have the greatest influence of all macroeconomic factors, on the wealth effects deriving from mergers.

In an empirical study of acquisitions made by 202 U.S. firms between 1975– 1983, Manzon, Sharp and Travlos, 1994 found that if the target firm has a high-tax system, U.S. acquirers have higher abnormal returns than if they acquire a target from a low-tax country.

3.2.4. Agency Theory

One of the aspects of agency theory consists of the fact that higher debt supposedly reduces potential agency costs (Jensen, 1986).

Transaction cost economics and agency theory perspective were used by Kang, 1993 to study the financial characteristics of bidders. Using a sample of 119 Japanese bidders and 102 corresponding U.S. targets from 1975 to 1988, he found that Japanese acquisitions are value creating for both bidder and target firm shareholders. Total acquirer's debt and borrowings from financial institutions were reported to be positively correlated to the abnormal return to acquiring firm. Furthermore the appreciation of the acquirer's currency compared with the target's currency leads to higher wealth effects for the bidder.

3.2.5. Resource Based View and Managerialism Perspective

Resource-based view and managerialism perspective were used by Seth, Song and Pettit, 2002 to study the acquisition motive as a factor that influences value creation in cross border M&A-s. The findings were that wealth enhancing deals were done in order to benefit from synergies deriving form sharing complementary assets, reverse internalizing of intangible assets and reducing financial risk by financial diversification. In contrast, value destroying acquisitions were a consequence of incorrect target evaluation supported by managers that followed their personal interest rather than the shareholders interest.

3.2.6. Industrial Organization Economics

According to the industrial organization model, firm returns are determined by the industry structure, explained by the existence and value of barriers to entry, the number and relative size of firms, the existence and degree of product differentiation in the industry and the overall elasticity of demand for the industry.

Via TCE and industrial organization theoretical perspectives, Markides and Ittner, 1994 show that, on average, international M&A-s are value creating and that the wealth gains depends on whether the firms are in related industries or not, consolidation level and advertising intensity of the acquirer's industry, prior international experience of bidder and its current profitability, tax, regulations, strength of acquirer's currency.

3.2.7. National Cultural Differences Perspective

Chatterjee, Lubatkin, Schweiger and Weber, 1992 concluded that there is a negative correlation between shareholder abnormal returns of the firms involved in related mergers and the level of cultural distance between the combining companies.

3.2.8. An Integrative Perspective (Transaction Cost Economics, Resource Based View and National Cultural Differences)

Opposite conclusions from those reported above were drawn by Datta and Puia, 1995. For a slightly different sample period (1978–1990), they concluded that acquiring firm shareholders of companies engaged in international M&A-s do not create value as compared to domestic deals. It is not clear whether industry relatedness of the target and the buyer influences the value created by the acquirer, but the cultural difference between the countries of the two firms has a negative effect. The intuition for these results is that Datta and Puia used a relatively more recent sample compared to other studies that found value creation for both acquirer and target firms shareholders. One possible explanation is that globalization reduces the economic differences between countries and therefore reduces the benefits of making international acquisition such as tax effects or financial risk reduction.

3.3. Do Cross-Border M&As Create More Value than Domestic Deals?

It is argued that the market reacts differently to international than to domestic M&A-s. Domestic mergers empirically tested by Kaplan and Weisbach, 1992 are reported to diminish the acquirer shareholders wealth and increase the shareholder value for the target. On the other hand, acquirers purchasing non-US firms seem to be better off. Markides and Ittner, 1994 show that, on average, international M&A-s are value creating and that the wealth gains depends on whether the firms are in related industries or not, consolidation level and advertising intensity of the acquirer's industry, prior international experience of bidder and its current profitability, tax, regulations, strength of acquirer's currency. Mørck and Yeung, 1991 demonstrate that firms engaging in international diversification can be value creating only if firms can internalize markets. Furthermore, Kang, 1993 demonstrates that international bidders gain more than US bidders engaged in acquiring an US target.

On the other hand, Fatemi, 1984 studies purely domestic firms as compared to multinational companies. He demonstrates the risk-adjusted returns realized by the shareholders are

identical across the two groups, except where the multinational company operates in competitive foreign markets.

Doukas and Travlos, 1988, show that international acquisitions can be value creating or not depending on the existence of previous activities in the target country and whether the company expand internationally for the first time.

A study by Harris and Ravenscraft, 1991, suggests that costs and imperfections in product markets play an important role in foreign direct investment and as an effect international M&A-s are value creating. The results of the study also show that target shareholders of buyers from outside the U.S. gain significantly higher returns than do target shareholders of U.S. firms.

Overall, international M&A-s seem to be better performing than domestic ones. Not only the acquirer shareholders might experience an increase in wealth, but also the target shareholders gain more if they are engaged in an international merger.

3.4. Critical View on Previous Research

Previous studies in the field have yielded mixed and sometimes contradicting results. We are trying to evaluate how the methodology applied and the sample used influence the results.

It can be observed that the oldest articles focus more on explaining through economic theory (macroeconomic in general, equilibrium analysis and introduction of imperfections in an equilibrium framework) how the degree of international involvement should influence the returns of the companies (Caves, 1971; Buckley and Casson, 1976; Errunza and Senbert, 1981; Errunza and Senbert, 1984; Froot and Stein, 1989). Some empirical findings are presented in order to support the theories but in general the focus is on developing models. The theories can be considered strategies for multinationals (Caves, 1971; Buckley and Casson, 1976; Wilson 1980) in order to establish the speed of internationalization, the tradeoffs between product diversification and foreign market penetration or the means of diversifying internationally (through greenfield investments or M&As).

The following research tested existence of abnormal returns for companies diversified internationally in a static framework (not over time before and after the announcement of international diversification) trying to determine whether multinationals are more valuable than domestic firms and how the degree of international involvement influence the returns to investors (Errunza and Senbert, 1981; Errunza and Senbert, 1984; Kim and Lyn, 1986). This studies tested the 1970's cross-border diversification and concluded that it is value creating. They made use of excess value measures such as the ratio (market value of equity – net worth)/sales and market to book ratio. It can be concluded multinationals are more valuable than domestic firms but do not determine if each act of diversifying is value creating or not. It can be the case that a multinational company is more valuable than a domestic one but it destroys value for shareholders with the new acquisitions it makes.

Starting form the moment when scholars begun to test the reactions on the market when diversifying internationally was announced, the event study (using Fama's market model to determine the abnormal return) methodology was the most favoured (Fatemi, 1984; Doukas and Travlos, 1988 and most of the 1990's except for example the study of Mork and Yeung, 1991; Christophe, 1997). Event study was combined with regression analysis in order to control for different variables such as international tax system (Scholes and Wolfson, 1990; Markides and Ittner, 1994), leverage (Kang, 1993; Markides and Ittner, 1994), currency strength (Harris and Ravenschaft, 1991; Kang, 1993), R&D (Markides and Ittner, 1994) and cultural difference (Chatterjee, Lubatkin, Schweiger and Weber, 1992; Barkema, Bell and Pennings, 1996). Even though different event windows were used, the results mainly confirmed that international diversification is value enhancing for the sample comprising of deals in the 1970's. For 1980's beginning of 1990's there are conflicting results as a consequence of the fact the sample periods vary (Datta and Puia, 1995; Christohe, 1997 show value destruction). It can be assumed that the newer the deals there are fewer imperfections in the market that would yield an abnormal return.

The studies from 1990's do not generally differentiate between industrial and international diversification and those that initially do (Kaplan and Weisbach, 1992) found no difference between the returns to related acquisitions versus the returns to unrelated acquisitions.

Empirical studies conducted in the last decade focus on sample periods that include the 1990's (the fifth merger wave) and exhibit some common particularities (Denis, Denis and Yost, 2002; Bodnar, Tang and Weintrop, 2003; Moeller, Schlingemann and Stulz, 2005; Dos Santos, Errunza and Miller, 2008). The distinction between geographical and industrial diversification is more carefully analyzed, as these two approaches are found to yield different results for the first time[2]. On average, their results show that geographical diversification of firms does not create or destroy any value relative to a benchmark of un-diversified companies, whereas industrial diversification leads to value discounts relative to a benchmark of single-industry companies. The intuition for these results is that the sample period examined was characterized by an increase in both the extent and the incidence of geographical diversification and by the opposite trend for industrial diversification, due to the fact that it had repeatedly proven to be value-destroying.

Another common ground for the analyzed studies is that they focus more on the medium-to-long term effects of mergers and acquisitions on firm shareholders value. Instead of just measuring the announcement effect on stock price a few days before and after the event takes place, researchers are now more interested in studying how the companies perform up to 3 years surrounding the acquisition. Consequently, methodologies based on excess return measures are used instead of standard event study. Excess-market-value-of-equity to sales ratio, market-to-book value of assets or market value to imputed value ratio are used as proxies for measuring excess values.

Taking into account these particularities in the methodologies used and in the factors most likely to influence the results, value creation through M&A-s was found, on average, for the sample period 1990-1997. However, from 1998 to 2001 large losses occurred in acquiring-firm shareholders wealth as a result of a small number of acquisitions with extremely large losses that exceed many times the losses in the first part of the 1990's. The intuition behind these findings is the large number of overvalued targets that were taken over during 1998-

[2] Kaplan and Weisbach 1992 previously tested the impact of industrial diversification on firm value, but found that cumulative average abnormal returns around the events of related and unrelated mergers are not significantly different from each other.

2001, especially companies in the Software industry. The value lost through acquisitions that took place during 1998-2001 cancels out the positive result until 2007, resulting in an overall wealth-destroying fifth merger wave.

To our knowledge, no empirical studies have been conducted yet on the most recent sixth merger wave that involve European acquirer companies who geographically diversify in the U.S. Our paper would therefore analyse the wealth-effect of these mergers on both acquirer and target shareholders using a methodology based on the excess value measure, explained in the following chapters.

4. METHODOLOGY

This chapter describes the methodology used in order to perform the empirical study. The data collection process, the excess value measures and the regression variables are presented further.

4.1. Research Approach

There are two general research approaches: deductive and inductive. The deductive approach develops a theory and designs the research to test the previously-mentioned theory; the inductive approach develops theories as a result of data analysis (Saunders, Lewis, Thornhill, 2003).

The primary purpose of this thesis is to determine to what extent cross-border mergers are value-creating. The secondary goal is to establish the influence of different factors previously mentioned by the literature in this field, on the wealth creation. Therefore, as different theories regarding mergers and acquisitions are being tested in this study, a deductive approach will be employed.

In order to reach these goals, both quantitative and qualitative data is used. The quantitative information is used to objectively test the hypothesis and perform descriptive statistics. In order to have a thorough overview of the results that takes into consideration the contextual details, qualitative information is also analyzed, such as the cultural difference between

acquirer and target. The impact of the cultural difference on the value created by acquirers is controlled for by introducing it as an exogenous variable in the regression[3].

4.2. Data Collection

All the data used is secondary data gathered from the databases Thomson Reuters3000 and DataStream.

The list of mergers and acquisitions and the geographical diversification status of the companies we include in the benchmark are obtained from Reuters3000 database. Share-price and accounting data (Number of shares, Book value of Debt, Preferred stock, Sales, Total Assets, Leverage, R&D expenses and CAPEX) before and after the merger are obtained from DataStream database for each company. Acquirer and target companies with no data available - private companies or simply without information in DataStream are disregarded. Both acquirers and foreign target firms operating in the financial, real estate and investment sectors are excluded, since they have certain particularities in terms of balance sheet structure and financing procedures.

Data on completed mergers from 1999 to 2007 with acquirers from Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden and United Kingdom, and with US targets is collected (representing an initial sample of 3135 M&A-s).

The sample period (1999-2007) is explained mainly by the availability of data on M&A-s in Reuters3000 that does not go earlier than 1999 and by the fact that the latest studies in this field (see, for example, Dos Santos, Errunza and Miller, 2008) examined the period 1990-2000. Therefore, it has come to our awareness that no studies have been made on mergers and acquisitions initiated in the last decade. The sample period ends in 2007 because

[3] We will explain this concept in detail in subchapter 4.5.

accounting data is required for both acquirer and target one year after the acquisition and annual reports are available only up to 2008.

Our choice of acquirer countries is motivated by the fact that we initially wanted to consider only developed European countries (for availability of data purposes) that have adopted the EURO currency. Because our final sample would have been too small (only 66 completed M&As with share price and accounting data available for both acquirer and target companies), we also included mergers with acquirers from Denmark, Norway, Sweden and the United Kingdom.

Starting from the initial sample of all completed acquisitions announced during 1999 and 2007 (3135 firms) we considered the acquisitions for which both acquirer and target were publicly traded and were not operating in the financial, investment and real estate sectors. This reduced the sample to a number of 128 observations. We further disregard 10 other mergers for which the acquirer's industry was defined as "conglomerate industrials" as we are studying only the deals for which the acquirer and target have the same core industry. Six acquisitions (one from industrial machinery industry in United Kingdom, one from communications equipment industry in United Kingdom, two from software & computer services industry in United Kingdom and Germany and two from advertising industry in United Kingdom and Netherlands) are disregarded because of the lack of accounting data. From the 113 remaining deals one merger in the software & computer services industry in Germany is left out because its value is considerably lower than the rest of the acquisitions. This led to a final sample of 112 M&A-s with acquirers from developed European countries that diversify in the US.

It can be noticed that the few left out acquisitions are from different industries. Even though most of them are from United Kingdom, this country is still well represented in our final sample. Given the above stated remarks, we consider that the missing data will not influence our results significantly.

One particular problem that we are concerned about regarding the data sample is selection bias. Screening the companies present in our initial sample according to whether complete stock price and accounting data can be found for them in DataStream led to a number of 3023 M&A-s being left out (total sample 3135 firms minus final sample 112 firms). It also led to one country being excluded from our sample altogether, as no merger that involved an acquirer from Austria with both acquirer and target publicly traded was found[4]. We are worried that the missing deals may cause measures of statistical significance to appear much stronger than they are. However, the ratio of the number of M&A-s included in the final sample divided by the initial number of M&A-s is similar for every country (around 3%), therefore the heterogeneity problem is avoided. Moreover, this problem is common in previous studies in the field of M&A-s, because of accounting data scarcity.

The benchmark used in calculating Excess Values[5] is made up of companies from the same countries as the acquirers (developed European countries) that have not geographically diversified in the US up until 2007. This aspect is verified by checking the geographical diversification status available in Reuters3000, of every company that will potentially be included in the benchmark. One company was chosen from every industry in every country of the acquirers (the industry of the acquirer and the target is the same) and only companies with complete data are included in the final benchmark, which led to a number of 132 firms (11 industries multiplied by 12 acquirer countries) and 1188 firm-years. For each of these firms, data such as exchange rate, share-price and accounting information (Number of shares, Book value of Debt, Preferred stock, Sales, Total Assets, Leverage, R&D expenses and CAPEX) is collected from DataStream database.

4.3. Criticism of Data Sources

The secondary data used (share-price, accounting data, exchange rate) is all gathered from DataStream, which is an established database. The validity of this database can be proven by the fact that it is common for researchers to use this source to collect information for their

[4] We initially considered Austria in our study as one of the acquirer country
[5] This concept will be explained further in subchapter 4.4.

empirical studies. Reuters3000, used for identifying mergers and acquisitions and the geographical diversification status of benchmark companies, is an important international source for company data.

4.4. Calculating Excess Values

Most studies in the field of value creation trough mergers and acquisitions employ a standard event study methodology in order to measure the impact of acquisition announcements on shareholder wealth. The announcement of a merger between two firms is analyzed to see whether investors believe the merger will create or destroy value. The present paper is different in the sense that it aims at observing the change in excess value of acquirers and targets one year following the acquisition compared to one year prior to the acquisition. We base our methodology on the one used by Dos Santos, Errunza and Miller, 2008, which represents a variation of the multiplier approach originally developed by Berger and Ofek, 1995.

This value measure is mainly chosen because it controls for the geographical diversification effects on firm value. Morck and Yeung, 1991, and Lang and Stulz, 1994, employ a different methodology, the market-to-book ratio, which is a close proxy for *Tobin's q*. This approach is limited in controlling for geographical diversification effects and poorly examines the potential sources of gains or losses from diversification. Markides and Ittner, 1994, use a standard event study methodology to determine shareholder benefits from corporate international diversification. The drawback of this approach is that it is difficult to clearly identify investors' attitudes about diversification by examining an announcement- date stock price response.

On the other hand, a weakness of the excess value approach that we employ is its increased sensitivity to the choice of benchmark. This can cause a potential reliability problem, in the sense that if a different benchmark is chosen, the results could be significantly different from ours.

4.4.1. General Principles for Computing Excess Value

The excess value (EV) compares a firm's market value to its imputed value (IV) and it is calculated by taking the natural logarithm of the ratio of market to imputed value.

$$EV_{i,t} = \text{Ln}\left(\frac{MV_{i,t}}{IV_{i,t}}\right) \quad (1)$$

A company's market value is obtained by adding to the market value of common equity the book value of total debt plus the liquidating value of preferred stock. The imputed value is equal to the amount of sales of a firm ($w_{i,t}$) multiplied by the median of the total market value -to-sales ratio (θ_t) of the companies included in the benchmark.

$$IV_{i,t} = w_{i,t}\ \theta_t = w_{i,t}\ (\text{Median}(\theta_1, \theta_2, \ldots \theta_{k,t})) \quad (2)$$

The benchmark is made up of companies from the same countries as the acquirers (developed European countries) that have not geographically diversified in the US up until 2007. The final benchmark consists of 132 firms (1188 firm-years), one from every industry of the acquirer/target and from every country of the acquirer, in order to have a representative benchmark. Dos Santos, Errunza and Miller, 2008, were interested in studying the effect of both industrial and geographical diversification on firm value and therefore obtain their median multipliers from single-activity domestic firms only. Our study is only focusing on the geographical diversification effect on firm value, and this is why the benchmark is less restrictive, including firms from all industries of the acquirers/targets that have not yet diversified in the US.

The excess value measure will have a value of less than zero if the market value of the firm is less than the imputed market capitalization based upon the median market value-to-sales ratio of the geographically not-diversified firms included in the benchmark. This suggests that a firm is less valuable than it would be had it not internationally diversified across the Atlantic. Similarly, the measure will have a positive value if the market value of the firm is more than

the imputed value. This indicates that a firm creates more value for its shareholders than it would if it didn't geographically diversify in the US.

4.4.2. Excess Value of the Acquiring Firms' Shareholders

The unexplained change in excess value (ΔEV^{U}_{+1}) measures the additional value gain or loss (or nothing) that occurs beyond the effect of adding overvalued or undervalued (or "fairly valued") target firms to the acquiring firms. We can measure the unexplained change in excess values of the U.S. acquirers based on the actual change in excess values (ΔEV_{+1}), and the projected change in excess values (ΔEV^{P}_{+1}), as follows:

$$\Delta EV^{U}_{+1} = \Delta EV_{+1} - \Delta EV^{P}_{+1} = EV_{+1} - EV^{P}_{+1} \quad (3)$$

The actual change in excess values from year t = -1 to year t = + 1 (ΔEV_{+1}) equals the difference between the excess value (EV) for U.S. acquirers in the year following (EV_{+1}) and the year prior to (EV_{-1}) the acquisition.

The projected change in excess value (ΔEV^{P}_{+1}) is calculated as the difference between the projected excess value (EV^{P}_{+1}) and EV_{-1}. The projected excess value represents the excess value the merging firms would have if they combined their operations instantaneously in the year prior to the actual acquisition and is calculated as follows:

$$EV^{P}_{+1} = \text{Ln}\left(\frac{MV_{-1}^{Acq} + MV_{-1}^{Tg}}{IV_{-1}^{Acq} + IV_{-1}^{Tg}}\right) \quad (4)$$

where MV_{-1}^{Acq} and MV_{-1}^{Tg} stand for the market values of the U.S. acquiring and the foreign target firms at t = –1, respectively, while IV_{-1}^{Acq} and IV_{-1}^{Tg} are their corresponding imputed values.

Once we compute EV^{P}_{+1}, we then compare it to the excess value of the U.S. acquiring firm in the year prior to the acquisition (EV_{-1}) in order to compute the projected change in excess value.

4.4.3. Excess Value of the Target Firms' Shareholders

In order to determine to what extent corporate international diversification creates value for the target firm's shareholders, we calculate two measures of excess value for the target firms in their last year of operations as stand-alone firms.

The first measure is the pre-effective excess value (EV_{-1}^{E}) and is computed using the market value of common equity based on the last stock price available prior to the date on which the target firm is delisted. The second measure represents the preannouncement excess value (EV_{-1}^{A}) and is calculated using the market value of common equity observed one month before the announcement of the acquisition. Unlike the first measure, it does not incorporate the valuation effects due to the acquisition announcement.

Thus, the foreign target shareholders' wealth associated with the cross-border acquisition (ΔEV_{-1}) equals the difference between EV_{-1}^{E} and EV_{-1}^{A} (Dos Santos, Errunza and Miller, 2008).

4.5. Constructing the Regression

Further the relationship between excess value of acquirer (ΔEV_{+1}) and the excess value of the target firm as part of the projected change in excess value (ΔEV^{P}_{+1}) is analyzed using a cross-sectional regression framework. Consequently it can be concluded how much of the actual change in excess values is determined by the projected change in excess values or other factors.

4.5.1. The Dependent Variable

The dependent variable is the actual change in excess value (ΔEV_{+1}) of the acquirer one year after the merger as determined using the methodology presented above.

4.5.2. The Explanatory Variables

Diversification literature uses the following variables to assess the geographical diversification effect: R&D as a proxy for firm specific assets and leverage as a proxy for any financial benefit from being internationally diversified. Profitability, growth opportunities and firm size are used in measuring the industrial diversification effect. (Bodnar, Tang and Weintrop, 2003). We are not going to evaluate the industrial diversification in our study and as a result we are not going to use the variables that are considered to be of importance to this issue.

Since the dependent variable is a relative measure, we also measure the corporate control variables in relative terms (Bodnar, Tang and Weintrop, 2003). Thus, our corporate control variables (R&D/Sales and leverage) are measured relative to the value of the benchmark in the year prior to acquisition.

The explanatory variables are: the projected change in excess value (ΔEV^{P}_{+1}), the cultural difference (CD), the strength of the acquirer's currency (STR), R&D/Sales of the acquirer relative to the benchmark (RD), leverage (L) of the acquirer relative to benchmark and a dummy to account for overvaluation of the target.

The projected change in excess value (ΔEV^{P}_{+1}) is computed as shown in subchapter 4.4.2.

Cultural difference (CD) is determined using one of the fourth cultural measures from Hofstede, 1980: power distance index (PDI), uncertainty avoidance index (UAI), individualism index (IDV) and masculinity index (MAS). Because these variables are highly collinear (Markides and Ittner, 1994) we are going to use just one of these variables – power distance index (PDI).

The power distance is an issue of human equality. Status differential exist in all societies and PDI measures the extent to which the less powerful members of any type of organization accept and expect that power is distributed unequally (Hofstede, 1980). We consider this index to be the most representative in our case as the integration process following a merger is an issue of changing the hierarchy and integrating the new company into the organization. As a consequence the bigger the cultural difference the harder it is to integrate the new company and for employees to accept the new authority. If a company is not fully integrated in the organization it is expected that it would be value destroying as it cannot be fully supervised and it cannot benefit from synergies deriving from integration.

The index is a country's score following a questionnaire. The question that most clearly expresses power distance is: "How often in your experience does the following problem occur: employees being afraid to express disagreement with the manager?" (Hofstede, 1980). This is a question of people being concerned to express their own views, the higher the PDI score the more concerned people are.

Low PDI cultures favour less centralization, flatter organization pyramids, smaller proportion of superiority personnel, smaller wage difference. In low PDI cultures managers often make decisions after consulting with subordinates, close supervision is negatively evaluated by subordinates and employees are less afraid of disagreeing with their boss (Hofstede, 1980). Table 4.1 presents the scores for each country that is of interest to the present study.

Table 4.1: Power Distance Index

Country	PDI
Belgium	65
Denmark	18
Finland	33
France	68
Germany	35
Italy	50
Luxembourg	38
Netherlands	38
Norway	31
Spain	57
Sweden	31
United Kingdom	35
US	40

Source: Geert Hofstede, *Culture's consequences: International differences in work-related values,* Beverly Hills: Sage, 1980

PDI depends on education level, social class difference, gender, occupation, sexual orientation, personal achievements, family background, wealth, age, if respondents are parents or not, national environment, economic development of the country. Low PDI values appear for example for highly educated occupations in low PDI countries.

We compute the cultural distance (see Table 4.2) as the (absolute) difference between the acquirer's country PDI and US PDI.

Table 4.2: Cultural Difference – Normal Difference and Absolute Difference

Country	CD
Belgium	25
Denmark	-22
Finland	-7
France	28
Germany	-5
Italy	10
Luxembourg	-2
Netherlands	-2
Norway	-9
Spain	17
Sweden	-9
United Kingdom	-5

Country	CD
Belgium	25
Denmark	22
Finland	7
France	28
Germany	5
Italy	10
Luxembourg	2
Netherlands	2
Norway	9
Spain	17
Sweden	9
United Kingdom	5

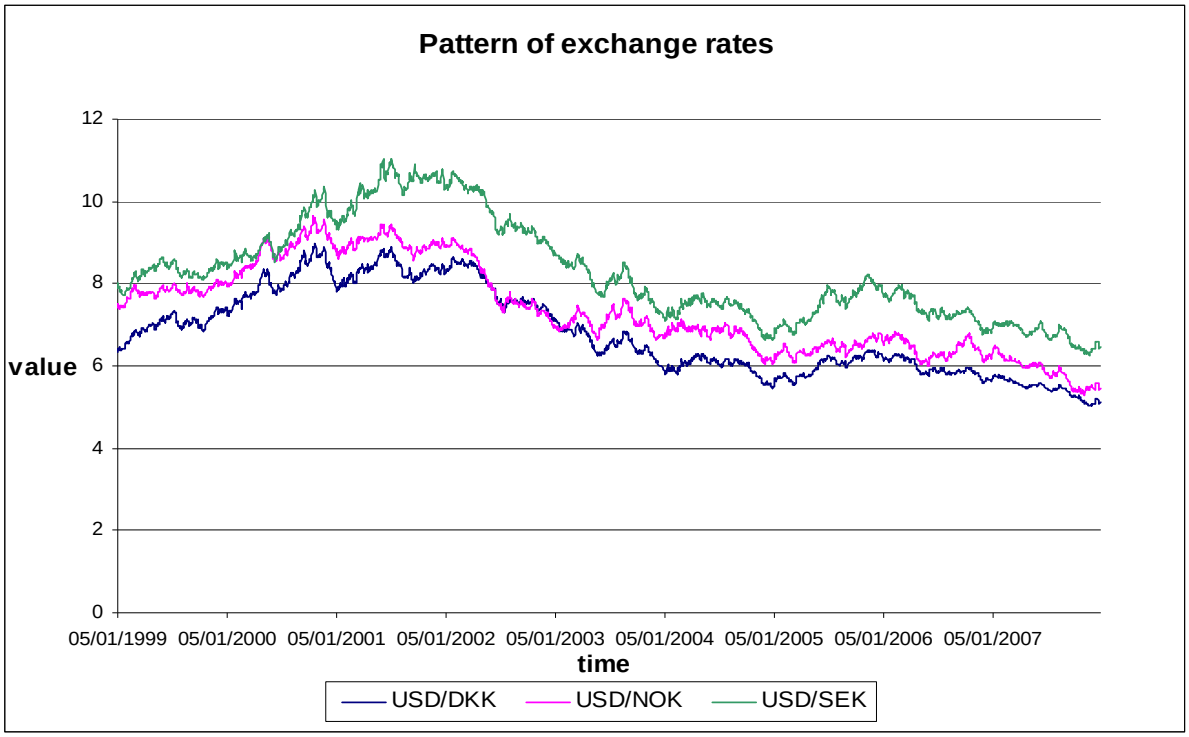
Source: Geert Hofstede, *Culture's consequences: International differences in work-related values,* Beverly Hills: Sage, 1980

We can observe cultural clustering: there are countries with large cultural difference - positive difference as Belgium and France and negative difference Denmark; and countries with small and negative difference: Luxembourg, Netherlands and United Kingdom.

As we are interested in just the cultural difference in general whether the difference between the PDI is positive or negative is irrelevant and can distort the results. Therefore the absolute difference is going to be used in the regression analysis.

The strength of the acquirer's currency (STR) is expressed by a dummy variable. The following graphs (Figure 4.1 and Figure 4.2) show the pattern of exchange rates during 1999 – 2007. We can observe a correlation between exchange rates (USD/DKK, USD/NOK and USD/SEK). In general they all increase in the first period, the dollar reaching a maximum in July 2001, then the exchange rates decrease reaching the lowest point in January 2005. It follows a short period of raise in values of the exchange rates until December 2005. After that the downward trend continues, the dollar getting weaker over the time.

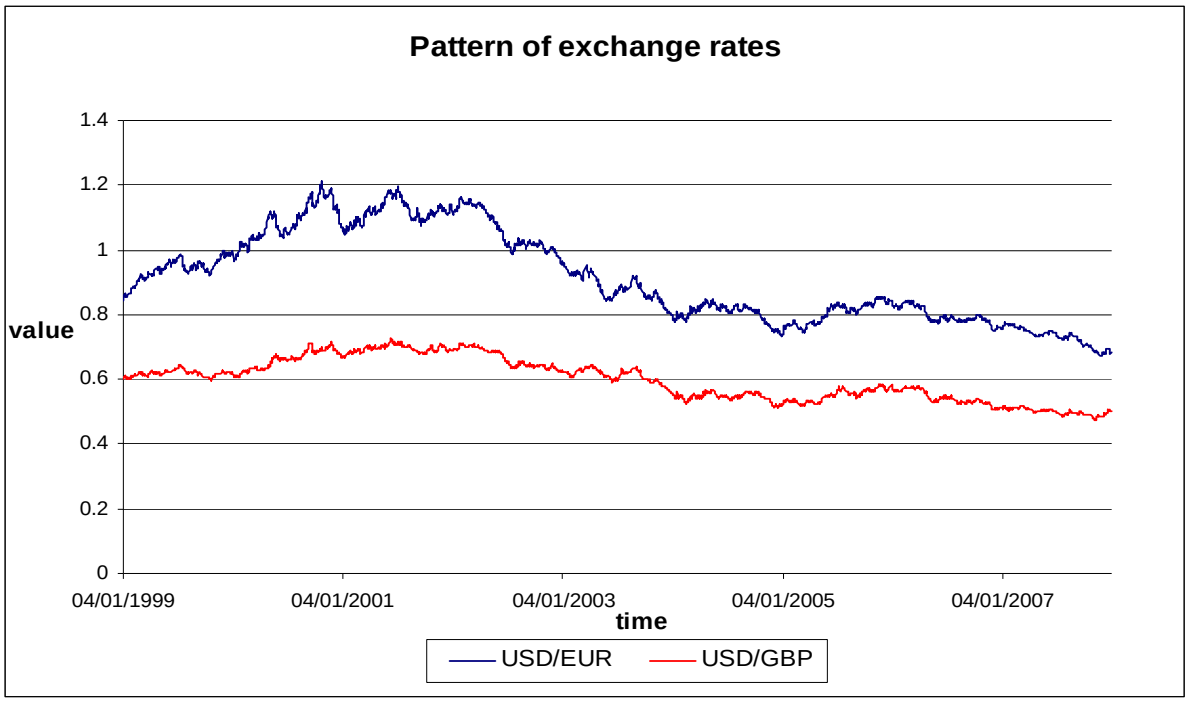
Figure 4.1: Pattern of Exchange Rates: USD/DKK, USD/NOK and USD/SEK



Data source: Datastream

We present USD/EUR and USD/GBP on a separate graph for a clear view. The time intervals are roughly the same. The first peak is in June 2001 and it is followed by a downward trend that temporarily bottoms out in December 2004. The following vague increase in exchange rate values ends in December 2005. Afterwards the dollar is getting weaker and the other currencies stronger.

Figure 4.2: Pattern of exchange rates: USD/EUR and USD/GBP



Data source: Datastream

As long as the exchange rate USD/XXX increases, the dollar values more and more, being stronger. Thus the other currency is weaker during the period of increase in exchange rates. We set the value for the dummy variable 0 when the acquirer currency is weaker and the dollar stronger and 1 for the other case.

For the Nordic countries we have the following results presented in Table 4.3:

Table 4.3: Strength of DKK, NOK and SEK relative to USD - dummy variable

DUMMY	PERIOD
0	January 1999 -July 2001
1	August 2001 - January 2005
0	February 2005 - December 2005
1	January 2006 - December 2007

The results for EUR and GBP are showed in Table 4.4:

Table 4.4: Strength of EUR and GBP relative to USD - dummy variable

DUMMY	PERIOD
0	January 1999 -June 2001
1	July 2001 - December 2004
0	January 2005 - December 2005
1	January 2006 - December 2007

For each merger we are going to consider the strength of the acquirer's currency as it is at the moment of the announcement.

R&D/Sales (RD) is the difference between the acquirer R&D expenditures to sales ratio in the year prior to the announcement and the mean of R&D expenditures to sales ratio of the benchmark firms in the year prior to the announcement.

Leverage (L) is the difference between acquirer leverage one year prior to the announcement and the mean leverage of the benchmark firms one year prior to the announcement.

Overvaluation of the target (OV) is a dummy variable that takes the value 1 when the excess value of the target at t-1 is greater than zero and 0 otherwise. We use this dummy in order to control for the overvaluation of the target[6]. The initial regression is re-estimated in order to determine if adding a fairly (under) valued firm is viewed by investors as a way of improving their wealth

4.5.3. The regression.

The following regression is tested in EViews:

Initial regression: $\Delta EV_{+1,\,i} = \alpha + \beta_1 * \Delta EV^{P}_{+1,\,i} + \beta_2 * CD_i + \beta_3 * STR_i + \beta_4 * RD_i + \beta_5 * L_i + \varepsilon_i$ (5)

Controlling for target overvaluation:

$\Delta EV_{+1,\,i} = \alpha + \beta_1 * \Delta EV^{P}_{+1,\,i} + \beta_2 * CD_i + \beta_3 * STR_i + \beta_4 * RD_i + \beta_5 * L_i + \beta_6 * OV_i + \varepsilon_i$ (6)

[6] As we will show in subchapter 5.2.3 the US targets are overvalued compared to the benchmark.

where:

- α illustrates if the merger is value creating beyond just adding a new company or a fairly/ undervalued subsidiary when we control for overvaluation of the target . If estimated α is greater than zero and significant then mergers increase the wealth of the acquirer shareholders, if it is smaller than zero and significant than mergers are value destroying, if α is statistically insignificant then the mergers do not destroy or add value beyond the value of the target. A is correspondent to the unexplained change in excess value presented in chapter 4.5 and it accounts for synergies resulting from the merger.
- β_1 shows how much of the change in excess value is determined by the projected change in excess value. It is anticipated that β has a positive sign.
- β_2 explains the influence of cultural difference. It is expected to have a negative sign
- β_3 accounts for the influence of acquirer's currency strength and we expect it to be positive.
- β_4 quantifies the influence of firm specific assets. We anticipate that it has a positive value.
- β_5 measures the influence of acquirer's leverage on the wealth creation and we expect it to have a positive sign
- β_6 shows the influence of overvaluation of the target. The sign of the coefficient is expected to be negative
- ε represents the residuals.

The multi-collinearity problem should not appear as the variables are anticipated to be uncorrelated. However this problem will be tested using the correlation matrix of the explanatory variables.

One problem that was reported by previous studies is the self-selection problem. This problem appears to be important only for geographical diversification. Self-selection means that if the initial values of acquirers are systematically different from the benchmark firms, then the effect on value determined using excess value measures do not represent the true impacts of diversification. If firms that diversify geographically were originally high value

firms then the results would exaggerate the value impact of diversification (Bodnar, Tang and Weintrop, 2003). Using the regression analysis and measuring the actual change in excess value as related to the projected change in excess value we control for that problem. Thus α would be a correspondent to the measure calculated in equation (3), the unexplained change in excess value.

4.6 Methodological Problems

When determining the impact of the results of it is important to consider two concepts: validity and reliability. Validity addresses the question: "does the research truly measures what it is intended to measure?" while reliability concerns the possibility of reproducing the results under the same methodology (Joppe, 2000).

4.6.1. Validity

Validity has two essential aspects: internal and external. Internal validity refers to the legitimacy of the results considering the way groups were selected, data collected, analysis performed. In this case the study can be considered internally valid as the data were all collected from the same database, using the same methodology. Even though some observations were disregarded because of lack of accounting or share-price information the sample is large enough to give representative results.

External validity also called "generalizability" assumes that the outcome of a study can be generalized to other groups, samples. On average the result of this study can be supposed to hold for European acquirers diversifying in the US. For other groups of countries, during other periods the result may differ due to different economical conditions, cultural background or choice of benchmark firms.

4.6.2. Reliability

The reliability is defined by Joppe, 2000, as the extent to which results are consistent over time. Assuming the same initial conditions for a study, the same results should be obtained

every time for the test to be considered reliable. In order to determine the reliability of our study, two main aspects are considered: the reliability of the collected data and of the methods used.

Data was collected from the databases Reuters and Datastream, which are known to contain reliable information. In order to make sure of this aspect, some observations were cross referenced between the sources and were found to be correct. The firm specific information on both Reuters and Datastream originates from companies' external reporting, which is reliable, or at least the best proxy for information available to external investors. Furthermore, only companies that use IFRS or US GAAP regulative frameworks to file their annual reports were included in the study, which increases the reliability of our data. The number of observations also influences data reliability. Our data consists of 112 observations, which is similar to what other studies in the field have used. Taking into account that all public available data for the particular countries of our interest are collected, we consider our data reliable from this perspective as well.

The excess value measure may contain reliability problems, as some assumptions have been made which need to be kept in mind by other researchers conducting this study. All accounting data for the year previous to the acquisition (t-1) and the year following the acquisition (t+1) is end-of-the-year data, as not all companies have quarterly reports available on DataStream. Also, the excess value measure is very sensitive to the choice of benchmark, so including different companies in the benchmark may lead to significantly different results.

The regression is run using OLS in the econometrics software EViews, a well used tool within statistical research. For OLS to present a correct result, certain assumptions have to be fulfilled. To control for these conditions a number of residual tests have been performed. This leads us to believe that OLS is an appropriate model in our case and that the results are reliable.

5. EMPIRICAL FINDINGS AND ANALYSIS

This chapter presents the empirical results from the study performed. A description of the sample distribution and deal characteristics is presented first. A comparison of the firm characteristics is performed in order to assess the difference between acquirer before and after the merger, between acquirer and target and between target and benchmark firms. Afterwards the excess value measures are evaluated. A regression analysis is used to verify our initial results and control for corporate variables, cultural difference and strength of the acquirer currency.

5.1. Sample Distribution and Deal Characteristics

Our final sample consists of 112 acquisitions. Table 5.1 presents the descriptive statistics for the overall sample. Cross border acquisitions are rather large deals with a mean value of $1.9 bn. and a median value of $498 mil. The smallest acquisition values $2.3 mil., while the largest values $24.9 bn.

Table 5.1: Sample deal characteristics

	Mean (USD)	Median (USD)	Minimum (USD)	Maximum (USD)
Deal Value	1,974,885,433	498,597,740	2,325,000	24,900,000,000

Source: Reuters3000 database

Table 5.2 shows the distribution of deals over time and the mean value for the acquisitions for each year. It can be observed that the number of deals vary over time is following the merger wave pattern. Our sample consists of mergers from the fifth and the sixth merger waves. The percent of total deals and the yearly average deal value are considerably higher in 2000 (25% of total deals with a average deal value of $2.9 bn.), 2005 (9.82% of total deals with a average deal value of $1.5 bn.), 2006 (13.39% of total deals with a average deal value

of $3.5 bn.) and 2007 (12.5% of total deals with a average deal value of $3.3 bn.). It can be observed from our sample that merger activity in Europe was visibly lower during 2002-2004. From 2004 to 2006 the average deal value doubled each year. This increase is consistent with the upward trend in the value of M&As during the same period.[7]

Table 5.2: Sample Distribution over Time

Period	Total Number	% of Total	Average Deal Value (USD)
1999	24	21.43%	735,309,674
2000	28	25.00%	2,935,100,928
2001	11	9.82%	392,747,435
2002	3	2.68%	94,441,667
2003	1	0.89%	14,300,000
2004	5	4.46%	750,013,109
2005	11	9.82%	1,505,657,054
2006	15	13.39%	3,520,108,715
2007	14	12.50%	3,297,678,086
Total	112	100.00%	1,974,885,433

Source: Reuters3000 database

In table 5.3 the sample is divided according to the acquirer nation. It also reports the average deal value for each county. As expected the country that has reported the most mergers is United Kingdom (29.46% of total), followed by France (21.43% of total). Germany, Netherlands and Sweden account for around 10% each. There are considerably fewer acquirers from the rest of the countries.

Table 5.3: Sample Distribution According to the Origin of the Acquirer

Acquirer Nation	Total Number	% of Total	Average Deal Value
Belgium	2	1.79%	30,393,458
Denmark	1	0.89%	121,000,000
Finland	5	4.46%	1,678,431,868
France	24	21.43%	1,581,634,483
Germany	15	13.39%	2,893,426,712
Italy	3	2.68%	2,367,414,350
Luxembourg	2	1.79%	2,675,537,173
Netherlands	12	10.71%	2,575,542,912
Norway	1	0.89%	2,345,958,828
Spain	3	2.68%	2,943,528,809
Sweden	11	9.82%	461,073,095
United Kingdom	33	29.46%	2,171,042,799
Total	112	100.00%	1,974,885,433

Source: Reuters3000 database

[7] For comparison see Figure 2.1

Seven countries have an average deal value over $2 bn., Finland and France report mergers with an average value just over $1.5 bn. while the rest of the countries (Belgium, Denmark and Sweden) favour smaller acquisitions.

5.2. Descriptive Statistics – Comparing Firm Characteristics

In order to have an overview of the differences in underlying characteristics among acquirers, U.S. targets and benchmarks, which will facilitate giving a more accurate interpretation of the empirical findings, a section on descriptive statistics is provided before the results.

Previous studies have shown that some firm characteristics may influence the value created through acquisitions. Such characteristics include firm size (for which we use Sales, Total Capital and Total Assets as a proxies), q-Ratio[8] calculated as the natural logarithm of total capital to sales, Leverage determined as the ratio of book value of total debt to total assets, profitability (represented by EBIT/Sales), R&D/Sales and CAPEX/Sales[9].

5.2.1. Acquirer Sample Characteristics over the Three-Year Period Surrounding the Acquisition

The descriptive statistics for firm characteristics of European acquirers one year prior to and one year following the acquisition, as well as the difference between them, are presented in Table 5.4. The significance of the difference in means is established using the parametric paired Student's t-test. The significance of the difference in medians is determined by conducting the nonparametric Wilcoxon sign rank test[10] (Wilcoxon, 1945).

[8] The q-Ratio is a proxy for a firm's incentive to invest in new assets, and it will do that as long as q>0. A positive q-Ratio is also considered an indicator of a company being overvalued and vice-versa.
[9] Bodnar, Tang and Weintrop, 2003; Denis, Denis and Yost, 2002, and Mork and Yeung, 1991, studied the influence of R&D expenses on value creation; Berger and Ofek, 1995, and Lang and Stulz, 1994, show that firm size is an important factor.
[10] The Wilcoxon sign rank test is a non-parametric statistical hypothesis test that compares the median of a single column of numbers against a hypothetical median. It can be used as an alternative to the paired Student's t-test when the population cannot be assumed to be normally distributed. However, it does assume that the data are distributed symmetrically around the median and that the errors are independent.

The asterisks *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Table 5.4: Acquirer Sample Characteristics over the Three-Year Period Surrounding the Acquisition

ACQUIRER (t-1)	Mean	Median	Standard Deviation	Nr Obs
Total capital	26,764,234.88	8,588,788.02	49,496,632.77	112
Sales	12,537,988.41	4,922,315.05	19,473,757.91	112
Total Assets	17,559,260.49	5,741,382.73	30,056,173.71	112
q ratio (Sales)	0.5717	0.6354	0.9471	112
Leverage	26.68%	25.67%	19.44%	112
R&D/Sales	6.96%	11.66%	8.54%	75
EBIT/Sales	12.50%	11.66%	13.65%	112
CAPEX/Sales	5.86%	4.03%	5.40%	112

ACQUIRER (t+1)	Mean	Median	Standard Deviation	Nr Obs
Total capital	33,123,151.85	10,654,506.22	54,921,931.26	112
Sales	15,936,878.47	6,515,749.70	22,392,001.36	112
Total Assets	26,223,469.11	8,280,297.27	44,774,434.67	112
q ratio (Sales)	0.5484	0.5294	0.8546	112
Leverage	29.66%	29.70%	16.57%	112
R&D/Sales	7.74%	10.87%	13.59%	78
EBIT/Sales	9.59%	10.87%	18.15%	112
CAPEX/Sales	6.65%	4.02%	7.40%	112

Post-merger difference	Mean	Median	Standard Deviation	p Value Mean	p Value Median	Nr Obs Pairs
Total capital	6,358,916.97	1,067,464.14	39,259,853.06	0.08929*	0.0001***	112
Sales	3,398,890.06	755,987.67	6,992,322.73	0.0000***	0.0000***	112
Total Assets	8,664,208.62	1,040,660.27	35,457,253.96	0.0110**	0.0000***	112
q ratio (Sales)	-0.0233	-0.0171	0.7618	0.74689	0.9745	112
Leverage	2.98%	2.59%	15.38%	0.0429**	0.0001***	112
R&D/Sales	0.63%	-0.81%	7.68%	0.38849	0.0365**	73
EBIT/Sales	-2.91%	-0.81%	14.39%	0.0347**	0.0115**	112
CAPEX/Sales	0.79%	-0.14%	5.02%	0.0995*	0.6216	112

The table shows that in the first year following the acquisition (t+1), the acquirers of U.S. targets experience an overall significant increase in their mean and median size. The acquirers' mean and median q-Ratios are positive in the year prior to and following the acquisition, but the difference between them, although positive, is statistically insignificant. We can observe a significant mean (median) rise in Leverage and decline in profitability, while for R&D/Sales and CAPEX/Sales the results are inconclusive.

5.2.2. Acquirer versus Target Firms Sample Characteristics in the Year Prior to the Acquisition

In order to have an image of the pre-merger difference in size, investment incentive, Leverage, profitability and firm-specific characteristics between European acquirers and U.S. targets involved in merger activities in the period 1999-2007, we constructed Table 5.5. The statistical significance of the mean and median is determined and indicated in the same way as in the previous subchapter.

Table 5.5: Paired-Sample Characteristics of Acquiring and Target Firms in the Year Prior to the Acquisition

ACQUIRER (t -1)	Mean	Median	Standard Deviation	Nr Obs.
Total capital	26,764,234.88	8,588,788.02	49,496,632.77	112
Sales	12,537,988.41	4,922,315.05	19,473,757.91	112
Total Assets	17,559,260.49	5,741,382.73	30,056,173.71	112
q ratio (Sales)	0.5717	0.6354	0.9471	112
Leverage	26.68%	25.67%	19.44%	112
R&D/Sales	6.96%	11.66%	8.54%	75
EBIT/Sales	12.50%	11.66%	13.65%	112
CAPEX/Sales	5.86%	4.03%	5.40%	112

Target (t -1)	Mean	Median	Standard Deviation	Nr Obs
Total capital	5,839,486.22	466,697.77	41,309,937.13	112
Sales	916,130.36	239,564.00	1,734,296.13	112
Total Assets	1,231,623.06	292,501.00	2,863,981.13	112
q ratio (Sales)	0.6803	0.6050	1.2581	112
Leverage	23.68%	14.90%	29.30%	112
R&D/Sales	17.88%	6.96%	36.92%	60
EBIT/Sales	-19.75%	6.96%	122.46%	112
CAPEX/Sales	9.45%	3.65%	16.19%	112

Pre-merger Difference	Mean	Median	Standard Deviation	p Value Mean	p Value Median	Nr Obs. Pairs
Total capital	20,924,748.66	5,817,488.01	63,994,881.04	0.0008***	0.0000***	112
Sales	11,621,858.05	3,992,258.28	19,161,153.08	0.0000***	0.0000***	112
Total Assets	16,327,637.42	5,346,189.38	29,843,898.23	0.0000***	0.0000***	112
q ratio (Sales)	-0.1086	-0.0056	1.2559	0.3621	0.7026	112
Leverage	3.00%	3.02%	29.03%	0.2766	0.0720*	112
R&D/Sales	-11.37%	5.51%	35.32%	0.0009***	0.0085***	45
EBIT/Sales	32.24%	5.51%	122.64%	0.0063***	0.0000***	112
CAPEX/Sales	-3.59%	0.11%	15.52%	0.0161**	0.5392	112

The results show strong evidence that European acquirers are significantly larger than their U.S. targets using all proxies (total capital, sales, total assets). For example, the mean (median) target companies' total assets correspond to 7 % (6 %) of the acquirers' mean (median) total assets before the mergers are completed. This is a somehow an expected result. The acquirers' mean (median) q-Ratio is smaller than that of the foreign targets', but the p-values do not show statistical significance, which means that the target firms are fairly valued relative to the acquirers. Furthermore, acquiring firms appear to be more profitable and financially levered than the foreign targets, but the latter is only slightly significant at a 10% level. We cannot draw any conclusions about the difference in R&D/Sales, but we can conclude that the target firms have marginally more growth opportunities than the acquirers (the pre-merger difference in CAPEX/Sales has a mean of -3.59 %, which is statistically significant at 5% level).

5.2.3. Target versus Benchmark Firms Sample Characteristics in the Year Prior to the Acquisition

We will further report the descriptive statistics for the sample of 112 U.S. target firm-years, 1188 firm-years included in the benchmark for the purpose of valuing the foreign targets, and the contemporaneous[11] differences between their sample characteristics. The results are plotted in table 5.6. The statistical significance of the mean and median is determined and indicated in the same way as in the previous subchapters.

There is strong evidence that U.S. targets are significantly smaller than the European firms included in the benchmark that have not yet diversified in the U.S. No matter what proxy we use for firm size (total capital, sales and total assets) the difference between targets and benchmarks is significant at 1% level. The q-Ratio is significantly larger for U.S. targets, which is a reason for us to think that they are overvalued compared to the European benchmark firms that have not geographically diversified in the U.S. The mean (median) q-Ratio is 43.78% (25.11%) larger than that of the benchmark firms' and it is significantly

[11] This is the reason we will have 112 available yearly observations (60 for R&D/Sales) for the targets, 1188 yearly observations for the benchmarks and 112 (60) yearly observations for the difference between them.

different from zero at 1% level. The fact that the targets are overvalued one year prior to the acquisition may influence our results, therefore we have to control for overvaluation of the targets by introducing it as a dummy variable in the regression for excess value[12]. Besides having higher mean R&D/Sales ratio, U.S. target firms have Leverage, profitability and CAPEX/Sales ratios that are lower relative to the European benchmark firms. For example, their mean (median) EBIT/Sales is about 32 % (5%) lower than that of the benchmark European firms at 1% level and their CAPEX/Sales is, on average, 4 %(8 %) smaller than the benchmark's at 1% level.

Table 5.6: Paired-Sample Characteristics of Foreign Target and Benchmark Firms

Target (t-1)	Mean	Median	Standard Deviation	Nr Obs
Total capital	5,839,486.22	466,697.77	41,309,937.13	112
Sales	916,130.36	239,564.00	1,734,296.13	112
Total Assets	1,231,623.06	292,501.00	2,863,981.13	112
q ratio (Sales)	0.6803	0.6050	1.2581	112
Leverage	23.68%	14.90%	29.30%	112
R&D/Sales	17.88%	6.96%	36.92%	60
EBIT/Sales	-19.75%	6.96%	122.46%	112
CAPEX/Sales	9.45%	3.65%	16.19%	112

Benchmark	Mean	Median	Standard Deviation	Nr Obs
Total capital	1,952,993.82	198,250.84	4,720,371.49	1188
Sales	1,551,293.60	197,803.00	3,996,485.55	1188
Total Assets	2,297,773.74	224,377.31	6,165,789.31	1188
q ratio (Sales)	0.1719	0.0278	1.1530	1188
Leverage	25.57%	26.03%	18.46%	1188
R&D/Sales	2.34%	0.52%	4.29%	1188
EBIT/Sales	9.04%	6.57%	109.48%	1188
CAPEX/Sales	27.77%	4.38%	408.61%	1188

Tg(t-1) - Benchm(t-1)	Mean	Median	Standard Deviation	p Value Mean	p Value Median	Nr Obs Pairs
Total capital	3,955,271.16	-1,264,066.70	41,283,960.33	0.3128	0.0000***	112
Sales	-546,250.30	-982,596.54	1,764,422.31	0.0014***	0.0000***	112
Total Assets	-1,093,201.99	-1,526,141.93	2,879,357.69	0.0001***	0.0000***	112
q ratio (Sales)	0.4378	0.2511	1.2724	0.0004***	0.0011***	112
Leverage	-1.13%	-10.60%	29.34%	0.6831	0.0151**	112
R&D/Sales	6.98%	-1.14%	28.51%	0.0108**	0.3138	60
EBIT/Sales	-32.30%	-5.22%	122.68%	0.0063***	0.0000***	112
CAPEX/Sales	-3.67%	-7.84%	16.62%	0.0213**	0.0000***	112

[12] The construction of the dummy variable that controls for overvaluation of the targets is described in the Methodology part of this paper, more specifically in subchapter 4.5.

Overall, the descriptive statistics part of this paper illustrates that U.S. target firms are smaller in size compared to their acquirers and to the benchmark firms and that they are overvalued, less profitable, less financially levered and make fewer investments than European firms that have not yet diversified in the U.S.

5.3. Analysis of the Excess Value Measures

Having observed the differences in characteristics among acquirers, targets and benchmarks, the next step is to determine to what extent the mergers in our sample created value for the European acquirers, the U.S. targets and to study the relationship between the merging firms' excess values.

5.3.1. Acquirer Shareholder Wealth Changes in Cross-Border Mergers and Acquisitions

The overall shareholder value created or destroyed by an acquiring company through a merger is represented by the actual change in excess value from t= -1 (the year prior to the acquisition) to t= +1 (the year following the acquisition). Table 5.7 summarizes the results of this valuation measure for our sample of 112 acquirers during the sample period 1999-2007. The statistical significance of the mean and median is determined and indicated in the same way as in the previous subchapters.

Table 5.7: Excess Value Measures for Acquirers. Acquirer Shareholder Wealth Changes

	Mean	Median	p Value Mean	p Value Median
EV-1	48.25%	55.60%	0.0000***	0.0000***
EV+1	47.70%	49.30%	0.0000***	0.0000***
ΔEV	-0.55%	-1.39%	0.9389	0.9687

In the year prior to the acquisition, acquiring firms are valued at a mean (median) premium of 48.24 % (55.6%) relative to the benchmark firms, and the excess values are significantly different from zero at 1% level. One year after the acquisition the acquirers are still overvalued, trading at a mean (median) premium of 47.7% (49.3%), significant at 1% level. Therefore, it is fair to say that European acquirers trade at a significant premium in the three-year period surrounding the acquisition, relative to European companies that have not yet

established operations in the U.S. However, the actual acquisitions of U.S. targets determine a negative, but insignificant, mean (median) actual change in excess value (ΔEV has a value of -0.5% (-1.4%)). Consequently, no evidence was found of a significant increase or decline in the excess values of acquirers due to the acquisitions of U.S. targets.

5.3.2. Target Shareholder Wealth Changes in Cross-Border Mergers and Acquisitions

The change in the target firms' shareholder wealth associated with the cross-border acquisitions (ΔEV_{-1}) is calculated as the difference between two measures of excess value: pre-effective excess value (EV_{-1}^{E}) and pre-announcement excess value (EV_{-1}^{A}).[13] The main difference between these two measures is that the latter does not take into account the valuation effects due to the acquisition announcement. The relative size of the acquisition is also examined here, defined as the ratio of the foreign target's sales to the sum of both foreign target and U.S. acquirer sales in the year prior to the acquisition.

Table 5.8 presents the two excess value measures as defined above and the change in target shareholders' wealth, as well as the relative size of the acquisitions. The statistical significance of the mean and median is determined and indicated in the same way as in the previous subchapters.

Table 5.8: Excess Value Measures for Targets. Target Shareholder Wealth Changes. Relative Sizes of Cross-Border M&As

	Mean	Median	P Value Mean	P Value Median
EV_{-1}^{A}	58.92%	46.03%	0.0000***	0.0000***
EV_{-1}^{E}	85.50%	65.58%	0.0000***	0.0000***
ΔEV_{-1}	26.58%	25.89%	0.0000***	0.0000***
Rel_Size_{-1}	16.47%	10.30%	0.0000***	4.008E-18***

The U.S. target companies are valued at a large premium relative to the benchmark firms one month prior to the announcement of the acquisition. The mean (median) pre-announcement excess value is 59% (56%) and it is significantly different from zero at 1% level. This result

[13] The concepts of pre-effective EV and pre-announcement EV are defined in the Methodology part of this paper, more specifically in subchapter 4.4.2.

is in concordance with our findings in the descriptive statistics part of this paper[14]. The announcement of the acquisitions has a positive effect on target firms' value, as it increases this premium even more. The mean (median) pre-effective excess value is 85.5% (65.58%), significantly different from zero at 1% level. The change in excess values reflects the wealth gains of foreign targets' shareholders and is above 25% and always significantly different from zero at 1% level. This outcome is consistent with Dos Santos, Errunza and Miller, 2008, who also found that the announcement of an acquisition creates value for the target firms' shareholders. The table also shows once more that the relative size of the cross-border acquisitions in our sample is fairly small[15]. The mean (median) ratio of the target's sales to the merging firms' combined sales is 16.47% (10.3%).

5.3.3. The Relationship between Excess Values of the Merging Firms

The unexplained change in excess value (ΔEV^{U}_{+1}) measures the additional value created for the acquiring firm shareholders from the acquisition event, after accounting for the underlying characteristics of the target firms (whether the target firms are overvalued, undervalued or "fairly" valued). ΔEV^{U}_{+1} is calculated as the difference between the actual change in excess value (ΔEV_{+1}) and the projected change in excess value (ΔEV^{P}_{+1})[16]. Simply stated, the projected excess value represents the excess value of the merging firms if they combined their operations instantaneously in the year prior to the acquisition. Table 5.9 presents the actual, projected and unexplained changes in excess values for acquirers of U.S. target firms from the year prior to the acquisition to the year following the acquisition. The statistical significance of the mean and median is determined and indicated in the same way as in the previous subchapters.

[14] In subchapter 5.2.3 we empirically determined that U.S. targets are overvalued compared to the European benchmark firms that have not geographically diversified in the U.S.
[15] European acquirers were found in subchapter 5.2.2 to be significantly larger than their U.S. targets using three different proxies for company size (total capital, sales and total assets).
[16] The concepts of actual change in EV and projected change in EV are presented in detail in the Methodology part of this paper, more specifically in subchapter 4.4.1.

Table 5.9: Actual, Projected and Unexplained Changes in Excess Values for Acquirers of U.S. Firms

	Mean	Median	p Value Mean	p Value Median
ΔEV_{+1}	-0.55%	-1.39%	0.9389	0.9687
ΔEV^{P}_{+1}	2.78%	2.19%	0.4415	0.8379
ΔEV^{U}_{+1}	-3.33%	-4.40%	0.6451	0.9894

The mean (median) actual change in excess value is -0.55% (-1.39%) and the projected change in excess value 2.78% (2.19%), but none of them are significantly different from zero at any significance level. Moreover, the mean and median unexplained changes in excess value are both negative but not significantly different from zero. This result is consistent with Dos Santos, Errunza and Miller, 2008, and indicates that geographical diversification of European bidders in the U.S. does not create or destroy value, even after considering the influence of the target firm's valuation status (whether the target firm is overvalued, undervalued or "fairly" valued). In other words, buying overvalued U.S. targets[17] does not cause any change in the excess values of European acquirers. A possible explanation would be that the value destroyed as a result of acquiring an overvalued company was compensated by the value created through synergies resulting from the merger.

5.4. Regression Analysis

The relationship between the excess value of the acquirer and of the target shareholders is further studied in a univariate regression framework. The intention is to determine how much of the actual change in the excess value is determined by the projected change in excess value and the influence of other factors: cultural difference, strength of the acquirer currency, acquirer's leverage and R&D to sales ratio. All variables except for the dummy are measured relative to the benchmark.

5.4.1. OLS Assumptions and Other Tests

We begin by checking the appropriateness of the OLS model testing the **OLS assumptions**. In order to have a normal distribution for the residuals two observations were left out because

[17] In subchapter 5.3.2 we found that U.S. targets are valued at a large premium relative to the benchmark firms at the time of the acquisitions.

they were distorting our results. Therefore our final sample consists of 110 observations. Further the results for the tests performed on this sample are presented.

1. $E(\varepsilon_i) = 0$. If a constant term is included this assumption is never violated (Brooks, 2002). A constant term is included regardless if it is statistically significant or not as the purpose of this analysis is to determine the value, sign and significance of this constant term that assesses the value creation through cross-border M&As.

2. $Var(\varepsilon_i) = \sigma^2 < \infty$. We test for heteroscedasticity by employing the White's Heteroscedasticity test (White, 1980) with cross-product terms. This is a test of both heteroscedasticity and specification bias. If a test with no cross-product terms would have been used, it would have been a test of pure heteroscedasticity. The results of the test are presented in *Appendix 1.* Both the F and the χ^2 versions of the test yield the same result that there is no evidence of heteroscedasticity. P values for both tests are considerably higher than the 5% level of significance (78.66% for F version of the test and 72.88% for the χ^2 version of the test)

3. $Cov(\varepsilon_i, \varepsilon_j) = 0$. In order to determine the presence of auto-correlation between residuals we conduct a Breusch – Godfrey Serial correlation LM Test (Breusch, 1979 and Godfrey, 1978) with 5 lags. We consider that any autocorrelation that exists between the residuals should appear in 5 lags. The P value is 1 leading us to believe that the null hypothesis of no autocorrelation cannot be rejected. For complete results see *Appendix 2.* Moreover because we have cross-sectional data any correlation existent can be avoided by changing the order of the observations.

4. $Cov(\varepsilon_i, \Delta EV_{+1,\,i}) = 0$. We test this assumption by regressing our dependent variable - the actual change in excess value with the residuals. The model should not explain any variation of the actual change in the excess value. The results for this auxiliary regression can be seen in *Appendix 3.* The model does not explain the movements of the dependent variable and the coefficient for the independent variable is not statistically different from zero. It can be concluded that there is no correlation between the residual and the dependent variable.

5. $\varepsilon \sim N(0, \sigma^2)$. We check if the residuals are normally distributed by using a Jarque - Berra test (Jarque and Berra, 1980). This is a large sample test and it can be employed in our case. The initial value of the test for the 112 observation sample led us to reject the normality

assumption. After removing two of the observation that yielded disproportionate residuals we perform the test again. The p-value for the Jarque – Berra (0.303720) is higher than the 5% level of significance leading to the conclusion that the normality condition is fulfilled (see *Appendix 4*).

An implicit assumption is made when using OLS: the explanatory variables are not correlated (Brooks, 2002). If they were highly correlated the **multi-collinearity problem** would appear leading to inflated R^2 and high standard errors for the coefficients. As a consequence the variables will not be significant, the coefficients will be very sensitive when adding or removing a variable and significance test will not give appropriate conclusions. We test for multi-collinearity by computing the correlation matrix of the coefficients.

Table 5.10: Coefficient Correlation Matrix

	ΔEV^{P}_{+1}	STR	CD	LEVERAGE	RD_SALES
ΔEV^{P}_{+1}	1	-0.0861	0.1949	-0.0182	0.0972
STR	-0.0861	1	0.04669	0.2629	0.3115
CD	0.1949	0.0466	1	-0.0480	0.1221
LEVERAGE	-0.0182	0.2629	-0.0480	1	0.4773
RD_SALES	0.0972	0.3115	0.1221	0.4773	1

As it can be observed the variables are not multi-collinear. The highest correlation coefficient is between leverage and R&D to sales ratio (0.4773). It is significantly smaller than 0.8 the level from which we can assume that the multi-collinearity is a important problem.

We also run a **Ramsey RESET test** (Ramsey, 1969), a general test of specification error up to 6 fitted terms or not in order to determine if the linear model is suitable. Both the F and the χ^2 versions of the test give the same result: there is no apparent nonlinearity in the regression as the p-values for both variants of the test exceed the 5% level of significance (0.365483 for F test and 0.270291 for χ^2). The result form the auxiliary regression is reported in *Appendix 5*.

5.4.2. Regression Results

We now analyze the relationship between the actual change in excess value of the acquirer and the projected change in excess value, cultural difference, strength of the acquirer

currency, R&D to sales ratio and leverage. The regression coefficients, their respective standard errors and p-values are presented in Table 5.11.

Table 5.11: Regression Coefficients[18]

	C	ΔEV^{P}_{+1}	CD	STR	RD	L
Coefficient	-0.0044	0.3853 *	-0.0149*	0.4319**	1.1756	0.3113
Standard error	0.1614	0.1977	0.0076	0.1584	0.9758	0.4008
P Value	0.9781	0.0554	0.0519	0.0081	0.2325	0.4402

As it can be seen from the table the actual change in the excess value of the acquirer is positively influenced by the projected change in excess value. The beta coefficient is 0.3853 and it is statistically significant and different from one as shown by employing a Wald test. This means that the projected change in excess value does not fully transform in an actual change but accounts for some part of the variation.

The cultural difference is significant at a 10% level and has a negative influence on the value creation as expected. This result is consistent with the study performed by Datta and Puia, 1995. They concluded that the cultural difference between countries negatively influences the wealth effects of cross-border M&A-s.

The strength of the acquirer's currency has a coefficient of 0.4319 statistically significant at 1% level. As Kang, 1993, and Froot and Stein, 1989 have argued before the bidder's return should be positively correlated with the strength of their currency.

The R&D to sales ratio is not statistically significant. This finding is consistent with the result of a previous study performed by Cakici, Hessel and Tandon, 1996, but opposite to others that have found that R&D intensive industries experience higher merger activity and the bidders are able to gain higher returns (Morck and Yeung, 1992; Harris and Ravenscraft, 1991).

[18] Statistical significance at the 10%, 5% and 1% levels is indicated by *, ** and ***, respectively.

The leverage is also insignificant showing that European investors do not put any value on any financial benefits that acquiring firms might have as a consequence of diversifying in US.

Finally, the intercept, which shows the additional value creation or destruction beyond adding a new firm and controlling for other corporate variables, is negative (-0.0044) could potentially suggest value destruction. However, since it is statistically insignificant it indicates no significant value loss. This result is consistent with our findings in subchapter 5.3.3. The unexplained change in excess value, which is a correspondent to the intercept in the regression framework, is also negative and insignificant.

It can be argued that the negative effect of the intercept on the bidder return is a consequence of adding an overvalued company. The European acquirer in search of opportunities to diversify internationally is buying an overvalued US firm as compared to a European benchmark.

The explanatory power of the model is high compared to similar studies (Dos Santos, Errunza and Miller, 2008) with an R-squared of 0.243886 and an adjusted R-square of 0.187460. The regression output from EViews can be seen in *Appendix 6.*

5.4.3. Controlling for Overvaluation of the Target

In order to control for the overvaluation of the target we compute a dummy variable that takes value 1 when the excess value of the target at t-1 is higher than zero (when the target is overvalued) and value 0 otherwise. This value is taken into account as an independent variable and the regression re-estimated. In this way we eliminate the effect of the overvaluation of the target from the intercept. We want to establish whether adding a fairly valued company is value-creating. We assume that synergies should be valuable and expressed by the intercept.

We run the regression and perform again all the tests. The results from the tests do not change and all the OLS assumptions still hold.

Table 5.12 presents the coefficients, standard errors and corresponding p-values from the new regression. For the complete results see *Appendix 7.*

Table 5.11: Regression Coefficients[19]

	C	ΔEV^{P}_{+1}	CD	STR	RD	L	OV
Coefficient	0.3435	0.4563**	-0.0162**	0.3777**	0.7878	0.3674	-0.4156**
Standard error	0.2152	0.1937	0.0073	0.1550	0.9587	0.3887	0.1769
P Value	0.1153	0.0215	0.0310	0.0175	0.4142	0.3480	0.0218

The coefficients slightly change and the significance improves. However R&D to sales ratio and leverage variables are still insignificant.

As expected the new dummy variable OV has a negative coefficient. The coefficient is significant at 5% level showing that by adding overvalued targets, acquirers destroy value.

The intercept becomes positive confirming our anticipations. It is still insignificant even at 10% level, but the p value (0.1153) improves a lot compared to the previous regression (0.9781). This shows that mergers are not simply value destroying, but rather depend on whether the target overvalued or not. However, due to insignificance of the intercept coefficient we cannot conclude that mergers are value destroying even when adding an overvalued company. Adding a fairly valued or undervalued company on the other hand can be considered to increase shareholder wealth if we accept a 12% significance level.

Our model explains now 30.23% of the total variation in the dependent variable according to R-square measure and 23.88% according to adjusted R-square measure.

Our results are somehow consistent with previous studies. Dos Santos, Errunza and Miller, 2008, showed that adding a fairly valued firm does not destroy value for the acquiring firm shareholders, Datta and Puia, 1995, found negative relation between cultural difference and bidder's return and Kang, 1993, determined positive correlation between acquirer returns and the strength of the bidder's currency.

[19] Statistical significance at the 10%, 5% and 1% levels is indicated by *, ** and ***, respectively

6. CONCLUSIONS AND PROPOSALS FOR FURTHER RESEARCH

Based on the results from the previous sections, this chapter offers concluding remarks and discusses the possibilities for further research.

6.1. Conclusions

The aim of this study is to determine to what extent cross-border mergers and acquisitions in related industries initiated by European companies with US targets are value-enhancing. We intend to establish how the correct valuation of the target influence the results and to what degree such a correct valuation leads to value creation for the shareholders of the acquiring firm. Further, it is determined to what extent the cultural difference between the countries and the strength of the acquirer currency influence the results alongside with corporate variables (R&D to sales ratio and leverage). The study will also determine the short term announcement effect on foreign target shareholder wealth (the return for target shareholders from announcement date to delisting).

Transatlantic deals are fairly large transactions. Their value has varied over time following the merger wave pattern, but overall the average deal value increased, 2006 and 2007 being on average the years with the largest deal values. We claim that it is very important to determine whether these kind of deals are value creating or not and what influences the wealth creation through cross-border M&As.

Our results show that, on average, U.S. target firms are overvalued, less profitable, less financially levered and make fewer investments compared to European firms that have not

yet diversified in the U.S. However, the target firm shareholders experience an increase in their wealth of over 25% from the announcement date up until delisting.

As far as the European companies that decide to engage in transatlantic acquisitions are concerned, they were also found to be trading at a considerable premium in the three-year period surrounding the acquisition, relative to European benchmarks. Consistent with Dos Santos, Errunza and Miller, 2008, no evidence was found of a significant increase or decline in the excess value of acquirers due to the acquisitions of U.S. targets in the year following the acquisition compared to the year prior to this event.

Overall, our findings suggest that acquiring overvalued U.S. targets does not cause any change in the excess values of European acquirers.

The results from the regression analysis confirm that adding overvalued targets do not destroy or create value. However, the overvalued firms seem to have a negative and significant influence on the shareholder value as it can be concluded from the second regression. On the other hand, acquiring a fairly valued or undervalued company has no statistically significant influence at 10% level, but is value creating at 12% significance level.

The cultural difference is negatively correlated with the bidder's return. The culturally farther away the countries are, the hardest it is to integrate the two entities and the acquiring firm shareholders experience a negative impact on their wealth.

The strength of the bidder currency seems to be of great importance to the return gained by the acquiring company: the stronger the currency relative to USD, the higher the value creation through M&As. This finding is consistent with the market timing strategy which managers can make use of when deciding on a merger deal.

Both R&D to sales ratio and leverage do not have any significant influence on the change in excess value of the bidder.

The projected change in excess value has a direct influence on the return of the acquiring firm, but the two measures are statistically different. The projected change in excess value accounts only for part of the actual change.

Overall the European bidders do not create or destroy value by adding an overvalued company relative to the year before the acquisition, but adding an overvalued company destroys the possible value created as an effect of the synergies resulting from the merger.

6.3 Proposals for Further Research

The R square suggests that there are other variables that influence the dependent variable. Future research may take into account the international involvement status of the acquiring firm (whether or not the bidder establishes operations abroad for the first time), whether the acquisitions is influenced by management hubris, if acquisitions is financed by stock or cash, the difference between tax systems and legislation between acquirer country and target country.

A study performed in the context of another target country, or during a different period might shed further light on whether or not acquiring a fairly valued target is value enhancing for the acquiring firm shareholders.

An interesting issue would be studying targets from Eastern European countries and China and South-East Asia as there is evidence that mergers and acquisitions volume is increasing in these markets.

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Appendix 1: White Heteroscedasticity Test

White Heteroskedasticity Test:

F-statistic	0.715499	Prob. F(19,53)	0.786607
Obs*R-squared	14.90209	Prob. Chi-Square(19)	0.728800

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/24/09 Time: 14:54
Sample: 1 110
Included observations: 73
Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.287201	0.312650	0.918603	0.3625
PROJECTED_CHANGE	1.168574	1.367611	0.854464	0.3967
PROJECTED_CHANGE^2	0.099528	0.376070	0.264652	0.7923
PROJECTED_CHANGE*STR	-0.892575	1.128680	-0.790814	0.4326
PROJECTED_CHANGE*CD	-0.050907	0.040274	-1.264015	0.2118
PROJECTED_CHANGE*LEVERAGE	0.468539	1.522772	0.307688	0.7595
PROJECTED_CHANGE*RD_SALES	0.796778	7.597931	0.104868	0.9169
STR	-0.003239	0.290219	-0.011160	0.9911
STR*CD	-0.008279	0.024641	-0.335981	0.7382
STR*LEVERAGE	1.264486	1.416964	0.892391	0.3762
STR*RD_SALES	-1.613399	3.612297	-0.446641	0.6570
CD	0.003896	0.066402	0.058666	0.9534
CD^2	0.000510	0.002140	0.238175	0.8127
CD*LEVERAGE	-0.264730	0.128716	-2.056705	0.0447
CD*RD_SALES	0.432334	0.235330	1.837140	0.0718
LEVERAGE	1.316447	1.323329	0.994799	0.3244
LEVERAGE^2	-0.485102	1.477505	-0.328325	0.7440
LEVERAGE*RD_SALES	5.163086	9.024578	0.572114	0.5697
RD_SALES	-1.388653	4.333535	-0.320443	0.7499
RD_SALES^2	-3.063926	9.848939	-0.311092	0.7570

R-squared	0.204138	Mean dependent var	0.346569
Adjusted R-squared	-0.081171	S.D. dependent var	0.574586
S.E. of regression	0.597451	Akaike info criterion	2.035488
Sum squared resid	18.91822	Schwarz criterion	2.663012
Log likelihood	-54.29533	F-statistic	0.715499
Durbin-Watson stat	2.115254	Prob(F-statistic)	0.786607

Appendix 2: Breusch-Godfrey Auto-Correlation Test:

Breusch-Godfrey Serial Correlation LM Test:

Obs*R-squared	0.000000	Prob. Chi-Square(5)	1.000000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/24/09 Time: 15:34
Sample: 1 110
Included observations: 73
Presample and interior missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROJECTED_CHANGE	-0.099975	0.210530	-0.474873	0.6365
STR	-0.069875	0.175587	-0.397950	0.6920
CD	0.005093	0.008205	0.620752	0.5370
LEVERAGE	0.092438	0.423605	0.218216	0.8280
RD_SALES	0.149127	1.035277	0.144046	0.8859
C	-0.006228	0.175047	-0.035582	0.9717
RESID(-1)	0.153906	0.176359	0.872687	0.3862
RESID(-2)	0.165440	0.167955	0.985030	0.3284
RESID(-3)	0.376274	0.163139	2.306465	0.0244
RESID(-4)	0.046584	0.187083	0.249001	0.8042
RESID(-5)	-0.112867	0.157377	-0.717176	0.4760

R-squared	-0.004704	Mean dependent var	-4.22E-17
Adjusted R-squared	-0.166753	S.D. dependent var	0.592775
S.E. of regression	0.640294	Akaike info criterion	2.084266
Sum squared resid	25.41854	Schwarz criterion	2.429404
Log likelihood	-65.07571	Durbin-Watson stat	2.043337

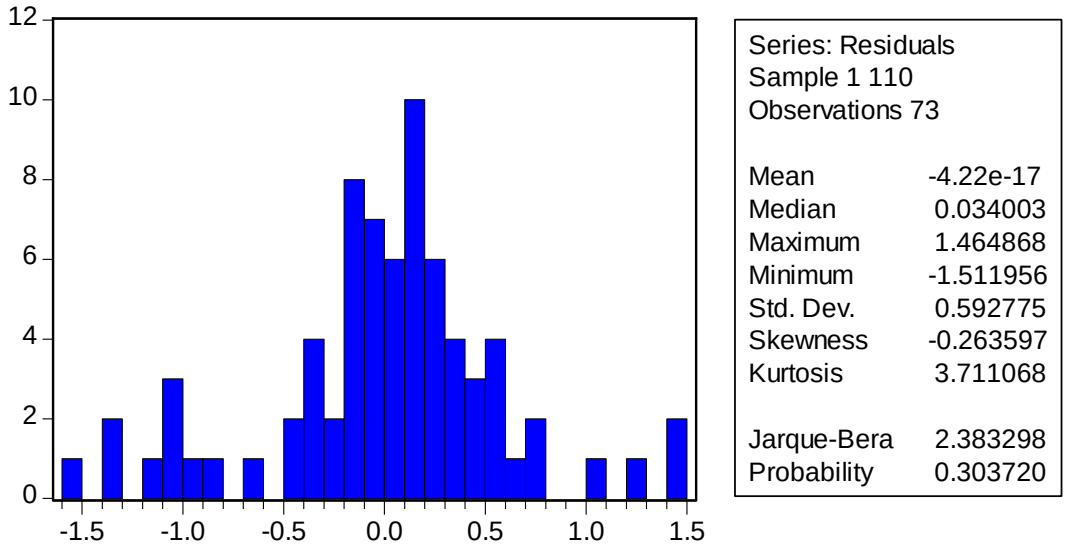
Appendix 3: Verifying the correlation between residuals and dependent variable

Dependent Variable: ACTUAL_CHANGE
Method: Least Squares
Date: 05/24/09 Time: 15:56
Sample (adjusted): 1 73
Included observations: 73 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESIDUAL	0.097233	0.154454	0.629524	0.5310
C	0.145691	0.090927	1.602281	0.1135

R-squared	0.005551	Mean dependent var	0.145691
Adjusted R-squared	-0.008456	S.D. dependent var	0.773621
S.E. of regression	0.776885	Akaike info criterion	2.359965
Sum squared resid	42.85202	Schwarz criterion	2.422717
Log likelihood	-84.13872	F-statistic	0.396300
Durbin-Watson stat	1.773841	Prob(F-statistic)	0.531027

Appendix 4: Jarque - Berra Normality Test



Appendix 5: Ramsey RESET Test

Ramsey RESET Test:

F-statistic	1.112846	Prob. F(6,61)	0.365483
Log likelihood ratio	7.582775	Prob. Chi-Square(6)	0.270291

Test Equation:
Dependent Variable: ACTUAL_CHANGE
Method: Least Squares
Date: 05/24/09 Time: 19:45
Sample: 1 110
Included observations: 73

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROJECTED_CHANGE	-0.207818	0.530421	-0.391799	0.6966
STR	0.186176	0.454685	0.409462	0.6836
CD	-0.001598	0.021057	-0.075875	0.9398
LEVERAGE	-0.372987	0.627155	-0.594729	0.5542
RD_SALES	0.573631	2.027621	0.282908	0.7782
C	-0.069039	0.209939	-0.328853	0.7434
FITTED^2	-0.909538	3.030689	-0.300109	0.7651
FITTED^3	3.238954	14.30947	0.226350	0.8217
FITTED^4	6.153834	14.09809	0.436501	0.6640
FITTED^5	1.280949	47.53878	0.026945	0.9786
FITTED^6	-4.553539	15.02772	-0.303009	0.7629
FITTED^7	-3.783241	43.52774	-0.086916	0.9310

R-squared	0.318485	Mean dependent var	0.075120
Adjusted R-squared	0.195589	S.D. dependent var	0.681705
S.E. of regression	0.611414	Akaike info criterion	2.003097
Sum squared resid	22.80347	Schwarz criterion	2.379611
Log likelihood	-61.11305	F-statistic	2.591495
Durbin-Watson stat	1.514156	Prob(F-statistic)	0.009020

Appendix 6: The Initial Regression

Dependent Variable: ACTUAL_CHANGE
Method: Least Squares
Date: 05/24/09 Time: 16:10
Sample (adjusted): 1 110
Included observations: 73 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROJECTED_CHANGE	0.385316	0.197653	1.949456	0.0554
STR	0.431910	0.158352	2.727533	0.0081
CD	-0.014949	0.007553	-1.979173	0.0519
LEVERAGE	0.311252	0.400817	0.776544	0.4402
RD_SALES	1.175556	0.975792	1.204720	0.2325
C	-0.004448	0.161410	-0.027556	0.9781

R-squared	0.243886	Mean dependent var	0.075120
Adjusted R-squared	0.187460	S.D. dependent var	0.681705
S.E. of regression	0.614496	Akaike info criterion	1.942587
Sum squared resid	25.29954	Schwarz criterion	2.130844
Log likelihood	-64.90444	F-statistic	4.322196
Durbin-Watson stat	1.438470	Prob(F-statistic)	0.001813

Appendix 7: Controlling for the overvaluation of the target

Dependent Variable: ACTUAL_CHANGE
Method: Least Squares
Date: 05/24/09 Time: 22:04
Sample (adjusted): 1 110
Included observations: 73 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROJECTED_CHANGE	0.456292	0.193671	2.356011	0.0215
CD	-0.016150	0.007329	-2.203731	0.0310
STR	0.377684	0.154991	2.436817	0.0175
RD_SALES	0.787758	0.958745	0.821655	0.4142
LEVERAGE	0.367386	0.388673	0.945234	0.3480
OVERVALUED_TARGET	-0.415634	0.176864	-2.350024	0.0218
C	0.343521	0.215245	1.595950	0.1153

R-squared	0.302269	Mean dependent var	0.075120
Adjusted R-squared	0.238839	S.D. dependent var	0.681705
S.E. of regression	0.594750	Akaike info criterion	1.889626
Sum squared resid	23.34604	Schwarz criterion	2.109259
Log likelihood	-61.97134	F-statistic	4.765395
Durbin-Watson stat	1.338410	Prob(F-statistic)	0.000432