MIF Program

Research Paper

Do Mergers and Acquisitions Transactions Create Value for Shareholders?

A Theoretical and Empirical Approach on Value Creation in Cross-Border Mergers and Acquisitions Transactions in the Consumer Goods Industry

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Abstract

This study examines the nature of wealth changes in cross-border M&A transactions in the consumer goods industry as well as the sources of gains and losses in these transactions in the light of different underlying motives: synergy, managerialism and hubris. Concerning overall value creation it was found that on average total gains are positive for all transactions and that significant positive gains accrue to target shareholders. Moreover, it was found that the results are in line with the author's expectations, that multiple sources of value creation exist in cross-border M&A with positive total gains: financial diversification, market seeking and bank governance systems. However, for negative total gains transactions, no statistically significant results could be found. The results provided by this study reinforce the importance of considering different behavioral assumptions in empirical research for value creation in M&A and cross-border M&A.

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List of Abbreviations

CAR	Cumulative Abnormal Returns
DSC	Dollar Shave Club
e.g.	for example, from Latin *exempli gratia*
et al.	and others, from latin (*et alii*)
GDP	Gross Domestic Product
i.e.	that is, from Latin *id est*
M&A	Mergers and Acquisitions
NAV	Net Asset Value
OLS	Ordinary Least Squares
UK	United Kingdom
USA	United States of America
VIF	Variance of Inflation

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%TOTGAIN	Total gains for both target and acquirer shareholders around the announcement of the transaction
CARBID	Gains accruing to acquirer shareholders around the announcement of the transaction
INTANG	Variable describing the reverse internalization benefits from a transaction
RELSIZE	Variable describing the economies of scale and economies of scope benefits arising from a transaction
RELGDP	Variable describing the relation between the GDP-growth rates of the acquirer's country and the United States or Canada
GDPGROW	Variable derived from the variable *RELGDP* capturing the market seeking motives of the acquirer
REDVAR	Variable capturing the financial diversification benefits arising from the transaction
GOVMKT	Dependent dummy variable describing countries with "market-systems"
GOVGRP	Independent dummy variable describing countries with "group-systems"
GOVBANK	Independent dummy variable describing countries with "bank-systems"

I. Introduction

I.1 Background

Since the beginning of the financial crisis in 2008, the M&A industry suffered a downturn, which can be partially explained through managerial risk aversion in uncertain times and the sheer unavailability of sufficient debt financing. In the years following this crisis, however, M&A activity has been restored to pre-crisis levels culminating in 2015 with a total volume of 4,661 billion USD.

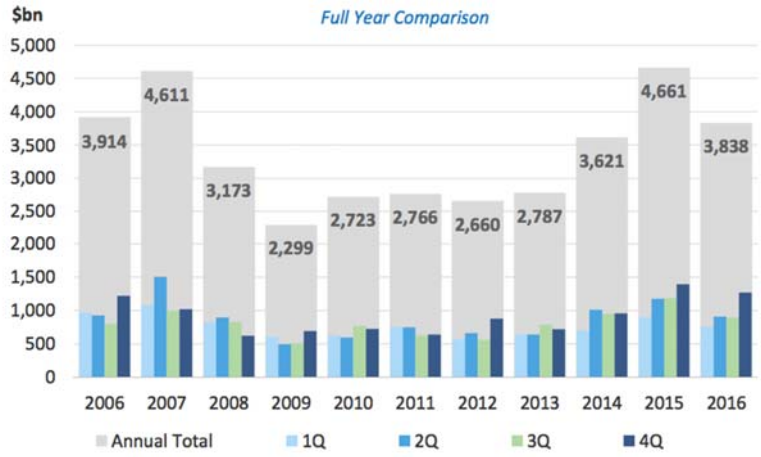

Figure 1: Yearly and quarterly overview of global M&A activity from 2006 to 2016[1] *(Roopray)*

In this environment, especially the consumer goods industry has experienced a trend of consolidation. Due to the liberalization of foreign investments and the ever-present subject of globalization, a large percentage of these transactions occurs on a cross-border or global basis. This development was explained by industry experts in response to fast-changing consumer preferences and the inability of large corporations to respond in time through organic growth in their own markets. While the motives for M&A are numerous the overarching question remains if such transactions result in any value creation for shareholders of both target and acquirer companies in such transactions. This very issue has been debated extensively in the business world as well as in academia over the past decades. However, barely any empirical analysis of shareholder value creation in cross-border consumer goods M&A has been undertaken so far. Hence, this study will add to existing literature and attempt to provide insight into the shareholder value creating effects of M&A transactions.

[1]This figure was taken from https://publishing.dealogic.com/ib/DealogicGlobalMAReviewFullYear2016FINALMEDIA.pdf

I.2 Problem Discussion and Thesis Outline

Do cross-border M&A transactions create value in the consumer goods industry? This question of wealth effects through M&A activity has been discussed heavily in the past as indicated above. So far, however, no general consensus among researchers has been reached.

One can distinguish between mainly three different types of questions when considering M&A transactions. The fist concerns the motive of such activity. The second and third ask if value is created for target and/or acquirer shareholders respectively (Seth et al. 2002, p.923). Since existing literature is divided concerning the answers to these questions, this study will try to provide insight into the value creating effects of M&A in the consumer goods industry based on an analysis of recent transactions.

After discussing past literature and evidence on the subject, the author will evaluate the motives for M&A empirically as well as the wealth effects for target and acquirer shareholders and the company as a whole. The United States and Canada were chosen as target markets, as they have displayed the highest volume in M&A activity over the recent years and thus this study expects them to be suitable to assess the question of value creation for target and acquirer shareholders.

II. Theoretical Background on Mergers and Acquisitions

II.1 Creating Value in Mergers and Acquisitions

II.1.1 Definitions

Existing literature provides several definitions for the term mergers and acquisition. Sudarsanam (2010), for instance, argues that a combination of businesses can be referred to as either a “merger” or an “acquisition (Sudarsanam 2010, p.21). A more detailed explanation is provided by the wording of the International Accounting Standards, IAS 22. It refers to mergers as “uniting of interests” and to acquisitions as a “purchase”. An acquisition is defined as “a business combination in which one of the enterprises, the acquirer, obtains control over the net assets and operations of another enterprise, the acquiree, in exchange for the transfer of assets, incurrence of a liability or issue of equity” (Deloitte). A merger is defined as “as a business combination in which the shareholders of the combining enterprises combine control over the whole, or effectively the whole, of their net assets and operations to achieve a continuing mutual sharing in the risks and benefits attaching to the combine entity such that neither party can be identified as the acquirer. Also called a pooling of interests” (Deloitte).

A merger transaction involves corporations that join forces in order to achieve shared objectives. As far as shareholders are concerned, they often remain shareholders of the newly established combined entity and sustain their interest in the company. Since none of the parties can be identified as an acquirer, such a transaction is often referred to as a "merger-of-equals" (Sudarsanam 2010, p.3).

In an acquisition, on the other hand, one firm purchases the assets of the other using several possible means such as cash, shares or a combination of the two. Contrary to a merger, the acquired firm becomes a subsidiary of the acquirer, and the shareholders (of the acquired company) cease to have an interest in the company post-acquisition (as long as they are solely paid in cash). Commonly, an acquisition is often described as a takeover, since one of the parties involved is usually the dominant player.

Mergers are usually categorized as horizontal, vertical or conglomerate (Gaughan 2007, p.13). A merger is horizontal when two competitors combine as they are on the same level of the supply chain. Vertical mergers, on the other hand, occur when two companies come together that have a buyer-seller-relationship and are at different levers within the same value chain. A conglomerate merger takes place when the companies involved are not competitors and do not have a buyer-seller relationship (Gaughan 2007, p.13).

II.1.2 Shareholder Value Creation in Mergers and Acquisitions

One of the most fundamental questions in M&A is how and for whom value is created through transactions. This discussion often involves shareholders and other stakeholders opposing each other in terms of who management should create value for first in the combined entity post-acquisition.

According to finance theory, shareholder wealth maximization is the supreme goal of the corporate investment and financing decisions (Sudarsanam 2010, p.52). It has been shown by Koller *et al.* (2015) that companies, that are dedicated to value creation are healthier and more robust – and that investing for sustainable growth builds stronger economies and higher living standards (Koller et al. 2015, p.6). The legal frameworks for the jurisdictions of the acquiring countries all indicate a fiduciary duty of directors to act in the best interest of the shareholders.

Pursuing shareholder value creation, however, does not necessarily imply that no value is created for other stakeholders (Koller et al. 2015, p.7). Koller *et al.* name employees as an example for possible stakeholders. A company trying to boost profits by providing a subpar work environment, by underpaying employees, or by skimping on benefits will have trouble

attracting and retaining high-quality employees. (Koller et al. 2015, p.7). This will lead to a higher staff churn rate and consequently higher recruiting as well as training costs. The same logic applies to most stakeholders that are affected by the board of directors' decisions. Consequently, if managers want to create value for shareholders in the long term, they must consider the effects of their decisions on stakeholder wealth as well.

II.1.3 The Impact of Market Efficiency on Shareholder Wealth Creation

Previous studies have typically evaluated shareholder wealth creation through the application of the event-study methodology. Tuch and O'Sullivan (2007) have shown that research varies regarding the length of the event window (Tuch, O'Sullivan 2007, p.144). This lack of consensus concerning event windows has its roots in the question of at what point in time all deal information is reflected in the respective stock prices. That is because capturing the changes in stock prices induced by a transaction is essential to the evaluation of shareholder value creation. When and how information is reflected in the stock prices is dependent on the form of efficiency the market is assumed to show.

The efficient-market hypothesis has been a topic of heated debate for the last decades. This theory claims that all information is reflected in the prices of securities. Consequently, the only mean to get a higher return is to take on more risk. This theory was first introduced by Fama in 1969, who introduces three different forms of market efficiency: (1) weak-form efficiency, (2) semi-strong form efficiency and (3) strong-form efficiency.

Under the weak-form efficiency it is assumed that current stock prices reflect all information contained in past prices. Consequently, under this form of efficiency, one should not be able to generate profits through technical analysis.

Under the semi-strong form efficiency, current prices reflect all information contained in past prices as well as all publicly available information. In this case, the stock price will adjust immediately to newly available public information such as the announcement of a transaction.

Finally, under the strong-form efficiency, current prices reflect all past information and all publicly available as well as private information. Here, not even insiders should be able to generate an abnormal return, since private information is already contained in the stock price. Moreover, the stock price should not be affected on the announcement date, since the announcement is already expected and thus already incorporated in the stock price.

Existing studies have assumed the semi-strong form efficiency for their event studies, indicating that share prices react in a timely and unbiased manner to new information and that the size of the gains reflects the value of the firm in forthcoming periods (Tuch, O'Sullivan 2007, p.142-143). Following this generally accepted assumption, this study will also assume the semi-strong form efficiency.

II.1.4 Measuring Value Creation through Cumulative Abnormal Returns (CAR)

Existing studies on the topic of value creation in M&A measured through cumulative abnormal returns vary in both research method and results. A summary of the most important studies and their findings can be found in the table below.

Year	Author	Period of study	Sample size	Country	Event Window	CAR
1990	**Mitchell and Lehn**	**1980 - 1988**	**228 hostile targets, 240 friendly targets, 232 bidders**	**US**	**-1 to +1 days**	**-**
1991	Lang *et al.*	1968 - 1986	87 targets	US	-5 to +5 days	-
1991	Limmack	1977 - 1986	529 mergers and acquisitions	UK	0 to +24 months	-
1992	Agrawal *et al.*	1955 - 1987	937 mergers	US	0 to 5 years	-
1994	**Smith and Kim**	**1980 - 1986**	**177 bidders and targets**	**US**	**5 days beofre the initial bid and 5 days after the final bid**	**-**
1997	**Holl and Kryiazis**	**1979 - 1989**	**178 successful bids**	**UK**	**0 to 2 months**	**+**
1997	Gregory	1955 - 1985	420 UK takeovers	UK	0 to +24 months	-
1997	Loughran and Vijh	1970 - 1989	434 mergers	US	0 to 5 years	-
1998	Higson and Elliot	1975 - 1990	1660 acquirers and targets	UK	0 to 3 months	+
2000	**Walker**	**1980 - 1996**	**278 acquisitions, 230 mergers, 48 tender offers**	**US**	**-2 to +2 days**	**-**
2003	**Sudarsanam and Mahate**	**1983 - 1995**	**519 listed acquirers**	**UK**	**-1 to +1 days**	**-**
2004	**Gupta and Misra**	**1980 - 1998**	**285 mergers and acquisitions**	**US**	**-10 to +10 days**	**-**
2004	**Song and Walking**	**1985 - 2001**	**726 mergers and acquisitions**	**US**	**-1 to 0 days**	**+**
2004	**Campa and Hernando**	**1998 - 2000**	**262 European mergers and acquisitions**	**EU**	**-30 to +30 days**	**-**
2005	Gregory and McCorriston	1984 - 1992	197 bids	UK	+1 to +750 days	-
2005	Conn *et al.*	1984 - 1998	131 cross-border targets	UK	0 to +36 months	-
2006	**Ben-Amar and Andre**	**1998 - 2000**	**238 mergers and acquisitions by 138 Canadian firms**	**Canada**	**-1 to +1 days**	**+**
2006	**Alexandritis *et al.***	**1991 - 1998**	**179 successful public acquiring firms**	**UK**	**0 to +36 months**	**-**

Table 1: Summary of studies[2] concerning value creation in M&A (studies with significant results are highlighted)

As can be seen from the table above, the majority of studies has been conducted on the UK or US market and find mostly negative returns. Moreover, this summary illustrates the range of event windows used, indicating that there is no consensus among scholars regarding which time frame to apply. The dispersion of both significant and insignificant negative or positive results contribute to this lack of consensus. Thus, one cannot identify a clear trend in past literature concerning value creation measured through cumulative abnormal returns.

[2] This table was taken from Tuch and O'Sullivan (2007) and includes studies from 1990 onwards, namely: Mitchell, Lehn 1990; Lang et al. 1991; Limmack 1991; Agrawal et al. 1992; Smith, Kim 1994; Holl, Kyriazis 1997; Gregory 1997; Loughran, Vijh 1997; Higson, Elliott 1998; Walker 2000; Sudarsanam, Mahate* 2003; Gupta, Misra 2004; Song, Walking 2004; Campa, Hernando 2004; Gregory, McCorriston 2005; Conn et al. 2005; Ben-Amar, Andre 2006; Antoniou et al. 2006, 2006

II.2 Cross-Border Mergers and Acquisitions

II.2.1 Value Creation in Cross-Border Mergers

The theory for positive returns from cross-border M&A follows the assumption that firms seek to enter foreign markets, to exploit its firm-specific resources in international markets by taking advantage of market imperfections (Shimizu et al. 2004, p.336). Existing literature states that cross-border M&A provide the benefits of internalization, risk diversification and synergy - therefore creating value for both the target and acquirer (Kang 1993, p.369; Morck, Yeung 1991, p.185; Markides, Ittner 1994, p.360). Regarding the tools to measure value creation however, a large variety of approaches can be found. The table below provides a summary of existing literature concerning the value creation in cross-border M&A.

Year	Author	Period of study	Sample size	Dependent variable	Results
1991	Harris and Ravenscraft	1970 - 1987	1273 U.S. firms (159 cross-border	Target gain, event study methodology	Targets of foreign buyers have higher wealth gains
1991	Servaes	1972 - 1987	704 takeovers	CAR firm takeover announcement until resolution	Target and bidder gains are larger with differing q ratios
1992	Morck and Yeung	1978 - 1988	332 foreign acquisitions by U.S firms	Abnormal returns of acquirer	Abnormal return for acquirers
1994	Manzon *et al.*	1975 - 1983	301 acquisitions made by 202 U.S firms	CAR	Firms with access to foreign tax credits earn larger abnormal returns
1993	Kang	1975 - 1988	119 Japanese bidders and 102 U.S. targets	CAR	Acquisitions create significant wealth gains for both target and acquirer
2002	Seth *et al.*	1981 - 1990	100 cross-border acquisitions of U.S. firms	Total Gain	Value creation differs by motive (synergistic, managerialist, hubris)
1994	Markides and Ittner	1975 - 1988	276 cross-boder acquisitions by U.S. firms	Acquirer abnormal return	International acquisitions create value on average
1995	Datta and Puia	1978 - 1990	112 large cross-border acquisitions by U.S. firms	CAR for U.S. acquirers	Cross-border acquisitions do not create value on average for acquirers

Table 2: Summary[3] of studies concerning value creation in cross-border M&A (studies using abnormal returns and CAR are displayed)

The question of value creation in cross-border M&A has been covered extensively by existing literature. The preferred methodology for assessing wealth increases has been the event study methodology, which computes cumulative abnormal returns to both target and acquirer shareholders around a specified date using stock price data. This paper will therefore also employ this approach.

In contrast to studies concerning regular M&A (Tuch and O'Sullivan (2007)), these studies find largely positive gains to both target shareholders and acquirers shareholders, indicating that cross-border M&A has a higher potential for value creation over domestic M&A.

[3] This table was taken from Shimizu et al. 2004 and contains results from the following studies: Harris, Ravenscraft 1991; Servaes 1991; Morck, Yeung 1991; Manzon et al. 1994; Kang 1993; Seth et al. 2002; Markides, Ittner 1994; Datta et al. 2013

II.2.2 Developments in the Consumer Goods Industry

For the past seven years, with the exception of 2016 and 2013, cross-border M&A in the consumer goods industry has seen a steady increase, both in volume and in value.

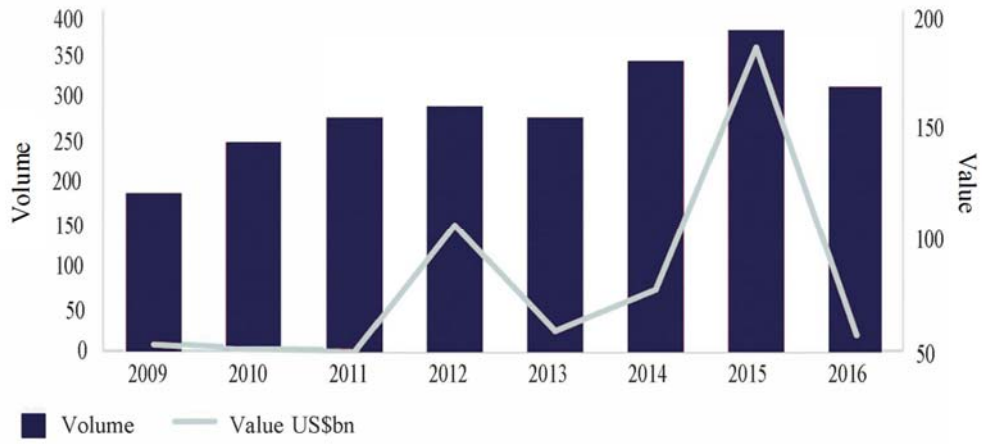

Figure 2: Volume and value of cross-border M&A from 2009 to 2016 taken from Baker McKenzie (Baker McKenzie 2016)

This increase in transaction activity is mainly due to two major trends in consumer preferences and behavior: Health-conscious living and Digitalization

Health-Conscious Living

In the past years, the awareness for organically sourced products and environmentally friendly manufacturing has increased steadily and has become a major purchase factor for a significant number of consumers, as evidenced by the following quote: “Organic, local, additive and cruelty-free are the labels that consumers crave – particularly millennials” (Baker McKenzie 2016). These products, however, are not cheap but consumers are willing to a pay a premium. According to Baker McKenzie’s David Scott, “healthier and premium products are driving, and will continue to drive a lot of growth in [consumer goods] M&A” (Baker McKenzie 2016). Moreover, he asserts that the margins in this sector are very attractive, indicating the revenue generation potential behind this trend.

Since large corporates are usually unable or too slow to meet changing consumer demands in time they turn to inorganic growth in the required sub-segments through M&A. Such an example would be the deal of Danone, which acquired WhiteWave Foods, a natural, health-focused beverage producer for a total consideration of 12bn USD in July 2016, making it the biggest deal in the consumer goods industry in this year (Baker McKenzie 2016). This

transaction enhanced Danone's healthy products portfolio and expanded its footprint in the USA.

Enhancing the company's bottom line, however, is not the only appealing factor driving M&A in the consumer goods industry. Premium products can lift brand perception for the corporation as a whole and increase pricing power. According to Baker McKenzie's Tim Gee "Unilever, for example, is moving into premium products in the personal care space, because it enables them to exert a bit more authority across the range" (Baker McKenzie 2016)

By allying the business with environmentally friendly and premium products, one can enhance the company's perception with consumers, increase retention and through higher pricing power, achieve an increased bottom line.

Digitalization

The pace of digitalization has increased exponentially over the last ten years and has had a significant impact on every industry, especially consumer goods. New platforms and business models are emerging every day, revolutionizing delivery systems and consequently making it easier and faster for customers to gain access to their desired products. Due to the pace of development, it is often not feasible for corporates to build their own platforms and new delivery systems. "[Consumer goods] companies are not good at developing their own technology platforms" (Baker McKenzie 2016) says Baker McKenzie's David Fleming. This, however, does not at all mitigate the willingness of corporates to take advantage of the new opportunities that digitalization offers. One approach chosen by some companies is the use of an incubator or an accelerator in their own corporation. Two examples would be Axel Springer's "Plug and Play" and Deutsche Telekom's "Hub:Raum". These investment vehicles are allocated a certain amount of money, with which they undertake strategic investments to enhance the corporation's portfolio and potentially gain access to above mentioned disruptive technologies.

The second, and more commonly chosen approach, is to engage in M&A. Digital innovation is creating a new type of transaction, since M&A in the consumer goods industry is no longer necessarily about vertical or horizontal integration but focuses on digital capability. According to Tim Gee, the most important innovation that companies will focus on, when engaging in M&A. is online sales since he considers this particular sector to be an area of growth. (Baker McKenzie 2016)

An example of such a deal would be Unilever's acquisition of the Dollar Shave Club (DSC) for a total of 1 billion USD. This company offered online subscriptions for shaving products on a monthly or weekly basis. Business models such as DSC are disrupting a previously unchallenged market and thus provide room for M&A in this sector. Tim Gee argues that "you will see plenty of corporate venture transactions where the majors buy up recently established, blossoming micro brands and then see if they can globalize them" (Baker McKenzie 2016).

The above-mentioned trends provide an overview of potential motives to engage in cross-border M&A in the consumer goods industry and illustrate the attractiveness of consolidation in this particular sector. The North American markets have been the most targeted in the consumer goods industry for cross-border M&A (Baker McKenzie 2016). Due to this high volume of M&A activity, this study expects the United States to represent an appropriate market to test the motives and extent of value creation for target and acquirer shareholders.

II.3 Rationales for Mergers and Acquisitions in a Cross-Border Context

The following section will outline the three main motives or rationales for engaging in in cross-border M&A, which are namely: synergies, managerialism and hubris.

II.3.1 Synergies as Strategic Rationale for Mergers and Acquisitions

There are various sources of synergies in cross-border acquisitions. Before elaborating on these aspects, however, basic definitions shall be given. Synergies in the case of M&A translate into the ability of the combined firm to be more profitable than the individual parts of the firms (Gaughan 2007, p.124). This anticipation of benefits allows the bidding firm to incur the expenses of such a transaction and still be able to pay target shareholders a premium (Gaughan 2007, p.124). Despite the premium paid and the acquisition cost, the existence of synergies allows the firm to have a positive *net asset value* (NAV) (Gaughan 2007, p.124).

$$NAV = V_{AB} - [V_A + V_B] - P - E$$

In this equation, V_{AB} is equal to the value of the combined firms. V_A and V_B are equal to the value of the target and the acquirer respectively. The variable *P* represents the premium paid by the bidder and *E* represents the transaction costs.

Reorganizing this equation yields the following result:

$$NAV = [V_{AB} - (V_A + V_B)] - (P + E)$$

Here $[V_{AB} - (V_A + V_B)]$ displays the synergy effect and $(P + E)$ represents the costs incurred by the bidder for the transaction. This equation illustrates that as long as the synergy effect is larger than the costs associated with a transaction the bidding firm should go through with the merger.

Especially in the context of cross-border M&A, various aspects concerning synergies need to be considered. The synergy hypothesis assumes that a company's unique and specialized resources are not costlessly appropriable by other firms and that market frictions exist preventing the firm from trading its stock of valuable excess resources (Seth et al. 2000, p.389). Such frictions include restrictions on information sharing, government regulation and differing levels of managerial skills across countries. Previous studies have argued that synergies may arise from domestic acquisition due to (1) high investments needs of entering into a new market, (2) the time and financial means required to establish the firm in a new market and (3) the entry barriers that may be overcome by acquiring an incumbent (Singh, Montgomery 1987, p.378-379).

Considering cross-border M&A additional factors are introduced that do not necessarily play a role in domestic transactions. The general theory of foreign direct investment suggests that "Internationalization serves to determine the reasons for the foreign production and sales of the [multi-national enterprise], namely that these activities take place in response to imperfections in the goods and factor markets" (Rugman 1980, p.24). The Heckscher-Ohlin model of free trade assumes frictionless markets, zero transportation costs and homogenous tastes (Rugman 1980, p.25; Caves 2007, p.45). In such a perfectly competitive environment there would be no incentive for a company to relocate and produce in another country since free flow and movement of goods will ensure that supply meets demand and the prices will be equalized across economies (Calvet 1981, p.50; Seth et al. 2002, p.924). As this is, however, only a theory, previous literature has examined the various potential sources of value creation in cross-border M&A, of which some are going to be addressed in this paper in the context of the consumer goods industry.

Caves (2007) argues that one source of value creation that can be derived from cross-border M&A lies in the potential of the combined firm to share intangible assets in the context of imperfect international markets (Caves 2007, p.50). Should a firm have, for example, certain know-how under its control and the sale or lease of those assets is inefficient, then the firm should use it within the organization (Seth et al. 2002, p.924). Some advantages arising from such an internalization may be that the firm is able to work a new plant at designed capacity

sooner than a competitor or a product innovation coming from the parent company may present economies of scale in a subsidiary (Caves 2007, p.72). Previous research agrees that transacting in an international environment does entail various costs, which will in turn reduce the value of the intangible assets owned by the firm (Buckley, Casson 2003, p.220; Seth et al. 2002, p.925). If these costs prevent the firm from selling or leasing such assets, it is the best option to internalize them.

Another source of value may be associated with the opposite view of internalization, or "reverse-internalization". In the case of reverse-internalization, the bidding firm acquires intangible assets from the target company that can be considered valuable in the bidder's home market (Seth et al. 2002, p.925). Despite the fact that internalization and reverse-internalization may seem quite similar a crucial difference lies in the direction of the flow of knowledge (Seth et al. 2002, p.925).

In the case of imperfect national capital markets characterized by information asymmetry or capital controls, previous research has shown that it is possible for the multinational corporation to reduce the risk of their profits by engaging in foreign operations (Rugman 1976, p.75). This is due to the imperfect correlation of different national markets, resulting in a reduction in overall return variability. In the case of domestic acquisitions, such benefits cannot be realized since shareholders can simply recreate the company's diversification strategies. In an international context however, a single shareholder is unlikely to be able to reproduce the exact diversification benefits of the corporation due to differences in transaction costs. Thus, one can assume that risk reduction activity in an international context does create shareholder value.

Value may also be realized through the reallocation of certain inputs to other areas of use. Penrose (2009) argues that inputs that are absorbed in one activity, may present a more profitable opportunity when put to a different use (Penrose 2009, p.155). If growth at home is limited, firms may seek to invest their excess resources abroad to assure long-run profitability of the organization. Similarly, for example in the presence of trade restrictions, exporting enterprises may only be able to take advantage of business opportunities in foreign markets through direct investment. This study will test the synergy hypothesis empirically in the context of cross-border M&A.

II.3.2 Managerialism Hypothesis as Rationale for Mergers and Acquisitions

The managerialism hypothesis as argued by Berkovitch and Narayanan (1993) suggests that "takeovers occur because they enhance the acquirer management's welfare at the expense of acquirer shareholders" (Berkovitch, Narayanan 1993, p.350). They found a negative correlation between acquirer gains and total gains in a subset of US acquisitions, which provides evidence for the hypothesis that managers pursue their own well-being at the expense of their principals. This constitutes the classical principal-agent conflict. While managerialism was proven before in domestic transactions, it may also present a valid argument for cross-border M&A. In the past mainly two types of motives have found interest in research questions: empire building and risk reduction (Seth et al. 2002, p.926).

The notion of empire building was first introduced by Berle and Means (1933) through their analysis of the relationship between ownership and control in the corporation. They suggest that "stockholders have traded their legal position of private ownership for the role of recipient of capital returns" (Berle, Means 1997, 1991, p.9). Several studies built on the idea introduced by Berle and Means, deriving various models that address the sales or growth maximizing ambitions pursued by managers at the expense of their shareholders (Mueller 1969; Marris 1964; Williamson 1963). This is due to the fact that management compensation is often positively connected to the amount of assets under their control, thus leading them to pursue an increase in assets rather than in profits (Seth et al. 2002, p.926). While all managerial theories share the same goal in that they intend to maximize the managers' welfare, they are limited by constraints put on them by the capital market (Trautwein 1990, p.287). Marris' model introduces the concept of sustainable growth as the goal for managers (Marris 1964, p.40-41). Williamson, on the other hand introduced the idea of managers' expense preferences, which were modeled as a variable containing factors such as excess staff or company cars (Trautwein 1990, p.288; Williamson 1963, p.40). Mueller argued that managers "maximize, or at least pursue as one of their goals, the growth in physical size of their corporation rather than its profits or stockholder welfare" (Mueller 1969, p.644).

The second concept that has been treated at length by existing literature is the pursuit of risk reduction by managers. Amihud and Lev (1981) addressed the idea of managers reducing their employment risk through conglomerate mergers. Such employment risk is closely related to the firm's risk, since management compensation is based on, e.g. profit-sharing agreements, bonuses and the value of stock options (Amihud, Lev 1981, p.606). Since human capital is not tradable managers cannot diversify their employment risk, which is why they engage in

conglomerate mergers in order to stabilize the corporation's income streams and thus the basis upon which their compensation is computed (Amihud, Lev 1981, p.606). As argued before, domestic diversification attempts do not create shareholder value, since the arising diversification benefits can be replicated by the shareholders themselves. Assuming that international capital markets are not segmented but integrated, the benefit from cross-border M&A in terms of reduction in return variability also ceases to exist (Seth et al. 2002, p.926). Managers may still, however, seek to smooth the earnings streams of their corporation given low earnings correlation in different countries. Consequently, they may engage in foreign acquisitions as vehicles for risk reduction and in the absence of control mechanisms, they may overpay for these transactions (Seth et al. 2002, p.926). This study will test the managerialism hypothesis empirically in the context of cross-border M&A in the consumer goods industry

II.3.3 Hubris Hypothesis as Rationale for Mergers and Acquisitions

The hubris hypothesis as presented by Roll (1986) indicates that a large part of the price increase in target firms may represent a simple transfer of wealth from the bidding firm. That is, the observed takeover premium overstates the increase in economic value of the corporate combination (Roll 1986, p.198). If no potential synergies exist, but some bidding firms think there are, this hypothesis argues that the valuation of the target itself can be considered a random variable with the target firm's current market price as mean (Roll 1986, p.199). When this variable exceeds the mean, an offer is made, whereas outcomes in the left tail of the distribution are never observed, i.e. the distribution is truncated to the left (Roll 1986, p.199). Thus, the takeover premium simply represents a random error made by the bidding firm and the observed error is always in the same direction (Roll 1986, p.199). In case there do exist some gains for certain corporate combinations, at least part of the observed takeover premium may still be prone to valuation error and hubris (Roll 1986, p.200).

Previous research has found evidence for the hubris hypothesis. Their findings can be summarized as follows: Should any synergistic gains exist in a transaction, a manager acting in the best interest of his shareholders will pursue such an opportunity. Despite the fact that these synergies may be positive, due to a flawed calculation of the target's value managers may overpay in some transactions, resulting in value destruction for the bidding firm's shareholders (Roll 1986). This study will test the hubris hypothesis empirically in the context of cross-border M&A.

III. Empirical Analysis and Predictions

III.1 Hypotheses

Synergy, hubris and managerialism, as outlined in the previous section, may all represent valid motives for cross-border M&A. Their importance in the context of cross-border acquisitions represents an empirical question. In order to answer this question, the average gains to both target and acquirer and the total gains arising from the acquisition were computed. Moreover, the proportion of acquisitions with positive total gains was computed (Bradley et al. 1988, p.14; Roll 1986, p.202; Seth et al. 2000, p.392). This paper will also test the relationships between target and acquirer gains and between target and total gains. In a second step, following Seth (2002), this study will test the overall total gains from an acquisition using a regression with several different independent variables. The following section will outline the hypotheses that will be tested empirically. The approach used by this study does consider the fact that all three reasons (synergy, and hubris) may be present in the samples.

III.1.1 The Relationship between Target and Acquirer Gains to Total Gains

The synergy hypothesis proposes that acquisitions occur when the value of the combined firms is larger than the value of the individual firms (Bradley et al. 1988, p.4). These total gains are shared between the target and acquirer, where the former commonly receives a larger proportion as there is competition in the bidding process for the target (Seth et al. 2002, p.924). As the target is expected to extract more gains from the transaction than the acquirer, a positive relationship between target gains and total gains is expected. Depending on the level of competition in the market, acquirer gains may be close to zero. In such a case, the expected relationship between target and acquirer gains will be also close to zero. One may also argue, that the target will not be able to extract all of the synergistic gains associated with the acquisition due to differences in bargaining power. In this case, the shareholders of the acquiring firm will capture some gains as well (Seth et al. 2000, p.392). These predictions lead to the following hypotheses concerning the synergy:

Hypothesis 1: The main driver for cross-border acquisitions is synergy. Due to this fact, the following will be observed:

a) Positive total gains in acquisitions on average
b) Acquirers will receive, on average, non-negative gains
c) Targets will receive, on average, positive gains
d) There will be a higher proportion of positive total gains than expected by chance

e) Target and acquirer gains will show a non-negative relationship
f) Target and total gains will show a positive relationship.

As presented above, the hubris hypothesis argues that M&A transactions represent simply a transfer of value from the acquirer to the target. This leads to the prediction that around the time of announcement of a merger, (a) the combined value of the firm should remain the same, (b) the value of the target should increase and (c) the value of the acquirer should decrease. Since the hubris hypothesis indicates that acquisitions are a mere transfer of value, there should be no correlation between total gain and gains to the target. Moreover, there should be a negative relationship between gains to acquirer and gains to target (Seth et al. 2000, p.392). These predictions lead to the following hypotheses concerning hubris:

Hypothesis 2: The main driver for cross-border acquisitions is hubris. Due to this fact, the following will be observed:

a) Zero total gains in acquisitions on average
b) Acquirers will receive, on average, negative gains
c) Targets will receive, on average, positive gains
d) There will be a proportion of acquisitions with positive total gains, equal to that expected by chance
e) There will be a negative relationship between target gains and acquirer gains
f) There will be no relationship between target gains and total gains

The managerialism hypothesis, as argued before suggests that bidder's managers engage in takeovers to enhance their own welfare at the expense of bidder's shareholders (Berkovitch, Narayanan 1993, p.350). In an acquisition, the bidder has identified the target as being the most suitable to increase the acquirer's welfare. Due to this fact, target shareholders have some bargaining power over the bidder's management, which is why positive gains to target shareholders can be expected (Berkovitch, Narayanan 1993, p.350). Since the acquisition is undertaken at the expense of acquirer shareholders, their wealth should decline. Moreover, since there is some transfer of wealth from the combined entity to the acquirer management, total gains in such an acquisition will be negative. As target shareholders will be able to extract some value from the transaction due to their bargaining power, a positive relationship between target gains and total value loss is expected. Furthermore, a positive relationship between loss in welfare to acquirer shareholders and gains to target shareholders is expected (Seth et al. 2000, p.393). These predictions, lead to the following hypotheses concerning managerialism:

Hypothesis 3: The main driver for cross-border acquisitions is managerialism. Due to this fact, the following will be observed

a) Negative total gains in acquisitions on average
b) Acquirers will receive, on average, negative gains
c) Targets will receive, on average, positive gains
d) There will be a higher proportion of negative total gains than expected by chance
e) There will be a negative relationship between target gains and acquirer gains
f) There will be a negative relationship between target gains and total gains

The listed hypotheses as stated above are mutually exclusive as they identify separate ways to test the three explanations (synergy, hubris, managerialism) for cross-border acquisitions in the full sample. However, because some acquisitions may present evidence for more than one of the explanations, it is possible that all three are present in the full dataset used in this study. The hypotheses as stated make opposing predictions for some of the tests, which is why their effects may cancel out (Seth et al. 2000, p.393). Therefore, this study assesses the effects of the three explanations on the subsets of transactions with positive and negative total gains.

As discussed above, transactions that present characteristics of managerialism often show negative total gains. Consequently, this hypothesis can be eliminated in the subset with positive total gains and it remains to analyze the effects of synergy and hubris. This study supposes that the synergy hypothesis is going to play a major explanatory role. It is, however, possible that at the same time hubris is also present. As discussed above, both hypotheses predict positive total gains on average to targets. If the synergy hypothesis represents a major explanatory factor, then acquirer gains should also be positive on average. Should hubris be present, it will have the effect of driving down these gains to acquirers. In order to establish to which extent one or the other affects the gains to targets and acquirers in the subset of positive total gains several tests will be applied to determine the relationship between target and acquirer gains. Within the subset of positive total gains acquirer gains may be positive or negative and this study analyzes, whether the relationship between target gains and acquirer gains is the same for the group of transactions with positive and negative acquirer gains respectively (Seth et al. 2000, p.394). If hubris is negligible, a positive relationship between the acquirer gains and the target gains should be displayed and this effect should be observable for both groups of transactions, i.e. with either positive or negative acquirer gains (Seth et al. 2000, p.394). If there is, on the other hand, coexistence of synergy and hubris, a strong positive relationship between gains to acquirers and targets for the group of transactions with positive acquirer gains is expected, as

suggested by the synergy hypothesis. In the group with negative acquirer gains, a strong negative relationship between gains to targets and acquirers is expected, as suggested by the hubris hypothesis (Seth et al. 2000, p.394). Moreover, a strong negative relationship between these two subsets is expected. The above predictions lead to the following hypotheses:

Hypothesis 4: In the subset with positive total gains, synergy is the main motive for cross-border acquisitions. Thus, one will observe:

a) Acquirers will receive, on average, positive total gains
b) Targets will receive, on average, positive total gains
c) A positive relationship between target and acquirer gains and there will be no difference between this relationship for the group with positive acquirer gains relative to the group with negative acquirer gains

Hypothesis 5: In the subset with positive total gains, synergy and hubris are the main motives for cross-border acquisitions. Thus, one will observe:

a) Acquirers will receive, on average, positive total gains
b) Targets will receive, on average, positive total gains
c) A positive relationship between target and acquirer gains for the group with positive acquirer gains and a negative relationship for the group with negative acquirer gains.

A similar assessment of the subset with negative total gains must be undertaken. For acquisitions with negative total gains one can assume that the synergy hypothesis is eliminated, since it predicts positive gains to both target and acquirer shareholders. This leaves hubris and managerialism as possible explanations for the observed returns. Both predict for this subset that acquirers will receive negative gains and targets will receive positive gains. Moreover, a negative relationship between target and acquirer gains is predicted (Seth et al. 2000, p.395). In order to examine whether managerialism or hubris dominates the subset, the relationship between target gains and total gains is assessed. If managerialism is the dominant explanation, there will be a negative relationship between target and total gains. As discussed above, managerialism suggests that targets will receive some of the gains extracted by the firm's managers from their shareholders, by virtue of their bargaining power in the transaction (Seth et al. 2000, p.395). According to the hubris explanation, however, such a relationship does not exist. These predictions lead to the following hypotheses:

Hypothesis 6: In the sub-sample with negative total gains hubris is the main motive for cross-border acquisitions. Thus, one will observe:

a) Acquirers will receive, on average, negative gains
b) Targets will receive, on average, positive gains
c) No relationship between target and acquirer gains

Hypothesis 7: In the sub-sample with negative total gains, Managerialism is the main motive for cross-border acquisitions.

a) Acquirers will receive, on average, negative gains
b) Targets will receive, on average, positive gains
c) A negative relationship between target and acquirer gains

As mentioned above, the second part of this study aims to provide an empirical evaluation of the total gains associated with the transaction in the data sample using a regression with various independent variables.

III.1.2 The Explanation of Total Gains through a Linear Regression

Referring to section II.3.1, various sources of value may coexist in synergistic acquisitions. In the above section, four different possibilities for value creation have been identified: (a) asset sharing, (b) reverse internalization, (c) market seeking and (d) financial diversification (Seth et al. 2002, p.925). If these concepts can provide an explanation for value creation in the dataset, one can predict a positive relationship between variables that act as proxies for the above possibilities and total gains. Thus, we can formulate the following hypothesis.

Hypothesis 8: Transactions in which synergies, i.e. positive total gains can be observed, a positive relationship will be observable between:

a) Value creation and asset sharing
b) Value creation and reverse internalization
c) Value creation and market seeking
d) Value creation and financial diversification

Referring to section II.3.2 this study will examine if one or both of the agency problems described above is associated with value loss in transactions with negative total gains i.e. transactions that can be considered managerialist. Assuming that both empire building and risk reduction correspond to value destruction, a negative relationship is predicted between the variables that act as their proxies and total gains. In turn, a positive relationship between those

proxies and acquirer losses is expected (Seth et al. 2002, p.927). According to these predictions the following hypotheses can be formulated:

Hypothesis 9: For transactions which can be characterized as managerialist, i.e. which feature negative total gains, a positive relationship will be observable between:

a) Value destruction and empire building
b) Value destruction and risk reduction

Hypothesis 10: For transactions which can be characterized as managerialist, i.e. which feature negative total gains, a positive relationship will be observable between:

a) Bidder losses and empire building
b) Bidder losses and risk reduction

IV. Methodology

This chapter will discuss the methodological approach used in the study as well as its reliability and validity.

IV.1 Sample and Data

If the results of a research paper are to be reliable, the data used to conduct the study has to be chosen in a way that the reader of the study is able to replicate the results achieved by a research paper. Consequently, reliability is defined by Stenbacka (2001) as: “a measurement method’s ability to produce the same research result over and over again” (Stenbacka 2001, p.552). The following section will elaborate on the data used for this study, to infer its reliability.

The sample of M&A transaction for this study was obtained from the *mergermarket* database. In order to check the reliability of the data from this source, the deal information was double-checked with respective press releases. Since *mergermarket* did not provide the information on the number of bidders involved in the M&A process, this information had to be sourced manually from press and news reports. For some of the transactions, this data was rather difficult to obtain, and since the data research was done manually, certain mistakes may have occurred over the data sourcing process.

The stock price data of the companies involved in the transactions was obtained from Bloomberg., which is considered to be a reliable data base, as it is widely used in practice and research. This data base was used, since it contains stock price data from delisted companies – an important feature, as in M&A deals the target company’s shares are often removed from the stock market post-merger. The stock price data used was adjusted by Bloomberg for potential stock splits and dividends in order to represent the most reliable information.

All other data used for the calculation of the variables in the regression was also obtained from Bloomberg in order to ensure consistency in data base usage across all parameters. Furthermore, all statistical calculations were computed using the software SPSS and should thus provide accurate results.

Another crucial factor one has to consider when conducting empirical research is the external and internal validity of results. Internal validity considers the question whether the conclusions derived from an experiment truly imply cause (Cooper, Schindler 2014, p.201). External validity, on the other hand, considers the question whether the conclusions derived from an experiment can be generalized (Cooper, Schindler 2014, p.201).

The research approach used by this study measures if the announcement of a deal is value creating for both target and acquirer shareholders. To answer this question, several factors have to be considered. Firstly, is it possible to measure the effects of such an announcement through share price development? Should this be the case, one requires a model to estimate the expected stock prices, had the event not taken place. The approaches used by existing literature are numerous concerning both the applied event windows, as well as the models used for calculating the normal, or expected, return. The methods used in this study are in line with past research and can thus be considered to be valid (Seth et al. 2002; Seth et al. 2000).

Regression analysis is used in this study to establish a causal relationship between firm-specific variables and share price performance of both the target and the acquirer. The variables used in this paper are in line with past research and thus validity can be assumed (Seth et al. 2000; Seth et al. 2002).

The external validity, as mentioned above, considers the question if one can generalize the results generated by this study. Since the results found by existing literature are numerous and often vastly different, one cannot make a clear statement about the validity of this study's results. Their external validity will be only known in the future.

IV.2 Event Study Methodology

Event studies have been used to establish shareholder wealth creation for various corporate events including M&A. The first research on this topic was conducted by James Dolley in 1933, who assessed share price effects in split-ups (Dolley 1933). His early efforts provide evidence that event studies have been of interest to the world of finance for almost eighty years. This research paper will follow the approach used by MacKinley (1997), who separates the process of conducting such a study into three distinct steps (MacKinlay 1997, p. 14).

Event Definition

The first step in measuring the value creating effect of M&A for target and acquirer shareholders through the event study methodology is to define the event itself. This study will use the approach outlined by Warner (1985), defining the event date as the day of the announcement of the merger (Brown, Warner 1985, p. 6).

In the next step, one has to define an event window in which to assess the effects of the event on the share prices of both target and acquirer. As mentioned above, we will assume for this study that the markets are in the semi-strong form according to Fama (1969) where "current

prices “fully reflect” all obviously publicly available information ” (Fama 1969, p.404). From this rationality of markets we can infer that “the effect of an event will be reflected immediately in asset prices” (MacKinlay 1997, p.149).

Concerning the length of the event window, one can find hardly any consensus in existing literature. They range for example from three days [-1;+1] (Sudarsanam, Mahate* 2003, p.308) to eighty-one days [-40;+40] (Weston et al. 2001, p.171), where the announcement date is 0. So far, not many studies have been conducted on value creation in cross-border M&A transactions. Due to this fact, this paper will follow to a certain extent Seth *et. al.* (2002), who used a twenty-day event window for their event studies. The event studies used for this study expanded this window to, where possible, forty-one days, i.e. [-20;+20]. Such a large event window, however, introduces a certain amount of noise into the model. Some research suggests that the statistically most reliable results come from short-term event windows, such as three days (Andrade et al. 2001, p.109). However, since the results of this event study will be used later for the calculation of total gains to target and acquirer shareholders, a prolonged event window is more likely to gather any and all value creating or destroying impacts from the respective M&A transaction and is thus considered to be more applicable.

Selection Criteria

After identifying the event date for the study, it is now necessary to determine the selection criteria for the inclusion of a given firm in the study (MacKinlay 1997, p.151). As mentioned above this study uses information from the data base *mergermarket*. The announcements that were studied include transactions that were subject to the following restricting criteria:

- The sample includes data from 01/01/2009 to 31/12/2016
- Both target and acquirer companies had to be listed on an exchange at the time of the transactions and stock price data has to be available through the databases that were at disposal.
- The target company is based in North America.
- The acquiring company may not be from the same country as the target.
- Both target and acquirer belong to the consumer goods industry
- The acquirer has to purchase a controlling stake in the company, i.e. own less than 50% pre-transaction and more than 50% post-transaction.

The dates were chosen to show recent developments in the consumer goods industry over a short time frame. As this study's aim is to assess the value creation effect in the context of North-America-bound M&A, the target company had to be headquartered in North America. Moreover, since this paper assesses the overall value creation in M&A transactions both target and acquirer have to be publicly listed at the time of the acquisitions (Seth et al. 2002, p.930). As some of the companies studied are not publicly listed anymore due to delisting procedures after the closing of the merger, it was crucial to the reliability of the study to obtain this data. Due to the very comprehensive nature of *Bloomberg's* data offering, the necessary data was easily found. In order to limit the sample to control transaction, the 50% criterion was adopted (Seth et al. 2002, p.928). These criteria result in a sample of a total of 24 transactions, 18 of which showed positive total gains and the remainder of which featured negative total gains.

Normal and abnormal returns

In order to evaluate the impact of the event, we have to define a measure for the abnormal return. The abnormal return can be defined as "the actual ex-post return of the security over the event window minus the normal return of the firm over the event window" (MacKinlay 1997, p.151). Thus, we first need to establish a measure for the normal return for the shares of both acquirer and target company.

To establish the normal return, one first has to calculate the actual return on the stock for the time period considered in the study. The following equation was used:

$$R_{Ai,t=1} = \frac{P_{i,t=1}}{P_{i,t=0}} - 1 \qquad (1)$$

$R_{i,t=1}$ is the actual return on security i today. Accordingly, $P_{i,t=1}$ represents the last price of security i at time t=1, and $P_{i,t=0}$ represents the last price of security I at time t=0. For this calculation, last price data from Bloomberg was used instead of average bid/ask price of the respective security. This may raise issues, since the last price is quoted as either the bid or the ask price. According to Blume (1983), this may result in an upwards bias of recorded closing prices, especially in smaller firms (Blume, Stambaugh 1983, p.388). Since all transactions included in the data sample represent M&A from larger companies, however, this effect should not compromise the calculation of the abnormal return.

The second step involved in calculating the abnormal return of a security, is the computation of the normal return, which can be defined as "(…) the return that would be expected if the event did not take place" (MacKinlay 1997, p.151). According to Weston *et al.*

(2001) there are basically three models of calculating the normal return: (1) The mean-adjusted return model; (2) The market model; (3) The market adjusted return model (Weston et al. 2001, p.171).

In the mean adjusted return model, a so-called clean period is chosen for which the average daily return is calculated. This period is always before, after or before and after the event period, but never during the event period (Weston et al. 2001, p.171).

The market adjusted return model simply assumes that the predicted or normal return during the event period is equal to the return of the chosen market index (Weston et al. 2001, p. 172).

Lastly, the market model is a statistical method and is estimated by performing a regression for the days in the period considered (Weston et al. 2001, p.172). One of the advantages of the market model over the market adjusted return and mean adjusted return model is that it reduces the variance in the abnormal return by removing the portion of return that is related to variation (MacKinlay 1997, p.155). Previous research suggests nonetheless that all models yield similar results (Brown, Warner 1985, p.25; Weston et al. 2001, p.171). Due to this fact, this paper will use the market model methodology to compute abnormal returns, since it provides some benefits over the market adjusted and mean adjusted return models.

$$R_{Ei,t} = \alpha_i + \beta_i * R_{M,t} + \epsilon_{i,t} \quad (2)$$

The above formula was used for the computation of the expected return $R_{Ei,t}$ for security i. In this equation, $R_{M,t}$ represents the return of the market portfolio at time t, and α_i and β_i represent the parameters of the model. The parameter $\epsilon_{i,t}$ describes the zero mean disturbance term (MacKinlay 1997, p.155).

As described above, the abnormal return represents the ex post return of a security less the expected return if the announcement had never happened. This results in the following computation:

$$AR_{i,t} = R_{i,t} - R_{Ei,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i * R_{M,t} \quad (3)$$

In this equation $AR_{i,t}$, $R_{i,t}$ and $R_{M,t}$ represent the abnormal return, the actual return and the return of the market portfolio of security *i* at time *t*. The coefficients $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the regression estimates for the estimation period before the announcement date.

Estimation Procedure

To calculate the normal return, a choice has to be made concerning the index and the estimation period, i.e. how many days of return data will be considered. As far as the index is concerned, this paper chose the MSCI WORLD/CONSUMER Index. This selection was made since all companies involved in the dataset belong to the consumer goods industry but are listed on different exchanges. The MSCI WORLD/CONSUMER Index captures all firms in the dataset and thus allows to reduce variation in the data sample.

For the estimation of the market mode,l one needs to use historical data for the pre-event window. There is no consensus among scholars concerning both the estimation period and the frequency at which the returns are measured. Some research suggests that the parameter estimates improve when one increases the number of returns measured (Merton 1980, p.354). Others suggest that the opposite is the case and that due to, for example, microstructure noise the values of the parameters may be distorted (Ryu 2011, p.1). Scholes and Williams (1977) argue that, because the closing prices that are reported typically present trades prior to the actual close of the trading day, returns measured tend to deviate from true returns. The resulting non-synchronization in returns for different securities introduces into the market model an econometric problem of errors in variables (Scholes, Williams 1977, p.324). They argue that this problem is especially severe with daily returns and thus advise to use monthly or weekly data. According to Brown and Warner (1985), however, even when biases in β exist, they do not necessarily imply misspecification in an event study (Brown, Warner 1985, p.16). They argue that by construction the OLS residuals for a security sum up to zero in the period considered, which consequently eliminates any bias in β through a bias in α (Brown, Warner 1985, p.16).

The author believes Brown and Warner's (1985) assessment to be correct. Due to data availability issues for some transaction different time frames had to be chosen. For most transactions, however, a total of 205 days was chosen in the window [-225;-20].

Testing Procedure

As mentioned above, the results of the event study were used to calculate the total gain (%*TOTGAIN*) associated with the announcement to acquire a target company (Seth et al. 2000, p.396). In order to do so, the cumulative abnormal returns (CARs) for each security are calculated over the event window $[\tau_1; \tau_2]$. This will be done using the following formula:

$$CAR(\tau_1;\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_\tau \quad (4)$$

To arrive at the variable *%TOTGAIN*, one further calculates the value for *PREVAL*, which is equal to the value of the target firm on day -21 (Seth et al. 2000, p.396).

$$PREVAL = S_{-21}^{i} * P_{-21}^{i} + \frac{1}{e} * S_{-21}^{j} * P_{-21}^{j} \quad (5)$$

S_{-21}^{i}, P_{-21}^{i}, S_{-21}^{j} and P_{-21}^{j} represent respectively the shares outstanding and stock prices for the securities from company *i* and *j*. The value for PREVAL is used to show the relative gain to both target and acquirer shareholders through the cumulative abnormal return around the announcement date.

$$\%TOTGAIN = \frac{(kS_{-21}^{i}P_{-21}^{i} * \sum_{\tau-20}^{\tau+20} AR_\tau^i + \frac{1}{e} * S_{-21}^{j} * P_{-21}^{j} * \sum_{\tau-20}^{\tau+20} AR_\tau^j}{S_{-21}^{i} * P_{-21}^{i} + \frac{1}{e} * S_{-21}^{j} * P_{-21}^{j}} \quad (6)$$

In the above equation, *k* represents the portion of target shares acquired and *e* represents the exchange rate from currency of the country of origin of the acquirer to the US Dollar. $\sum_{\tau-20}^{\tau+20} AR_\tau^i$ and $\sum_{\tau-20}^{\tau+20} AR_\tau^j$ display the cumulative abnormal returns for the target and acquirer respectively (Seth et al. 2000, p.396).

These percentage values enable the computation statistical tests in order to make a significant statement about the population as a whole. They, however, do not allow us to infer any relationship between acquirer and target gains or between gains to targets and the combined firm. Previous research argues that there may be large size discrepancies, which interfere with meaningful interpretation of the results (Seth et al. 2000; Berkovitch, Narayanan 1993, p.355). Following the approach of Seth (2000), this paper will use dollar gains to assess these relationships in detail. These dollar values can be obtained from the variable *PREVAL*, which is already quoted in US Dollar and from the dividend of the *%TOTGAIN* equation, where the first term represents the Dollar gains to the target and the second term the dollar gains to the acquirer.

In a first test, this paper will test the statistical significance of the percentage total gains (*%TOTGAIN*). To do so, one has to formulate a null and alternative hypothesis:

$$H_0: \%TOTGAIN = 0 \quad (7)$$

$$H_1: \%TOTGAIN \neq 0 \quad (8)$$

These hypotheses will be tested using a t-test. This type of test requires the estimation of variance in the sample used for the study. Previous research (Brown, Warner 1980, p.249; Patell 1976, p.273) has used pre-event return data to estimate the variance. By doing so, however, one implicitly assumes that there are no mean nor variance effects in the sample. In the dataset that this study assesses, it is reasonable to believe that the announcement of an acquisition itself has an impact on the variance of the security returns. This paper will only test for the mean effect, which when using the traditional approach might lead us to reject the null hypothesis in too many cases. In order to circumvent this problem, the computation cannot rely on pre-announcement returns. Previous research suggests a cross-sectional approach, where a cross section of abnormal returns is used to form an estimator of the variance (MacKinlay 1997, p.167; Boehmer 1991, p.259).

$$\widehat{VAR}[\overline{\%TOTGAIN}(\tau_1,\tau_2)] = \frac{1}{N^2} * \sum_{i=1}^{N}[\%TOTGAIN_i(\tau_1,\tau_2) + \overline{\%TOTGAIN}(\tau_1,\tau_2)]^2 \quad (9)$$

Furthermore, one has to make an assumption of uncorrelated abnormal returns for the estimator to be consistent (Ekholm, Svensson 2009, p.38). Previous research has established that if the event date is not the same for every company, then this assumption holds (Brown, Warner 1985, p.15-16). As this is also the case for this study's dataset, we can arrive at the following formula for the t-statistic:

$$t = \frac{\overline{\%TOTGAIN}(\tau_1,\tau_2)}{\sqrt{\widehat{VAR}[\overline{\%TOTGAIN}(\tau_1,\tau_2)]}} \quad (10)$$

Following Seth (2000), this paper also tests the statistical significance of the number of acquisitions with positive total gains. To do so, a binomial test was applied evaluating the following hypotheses:

$$H_0: \pi \leq 0.5 \quad (11)$$

$$H_1: \pi > 0.5 \quad (12)$$

This test will allow us to establish if the probability to observe positive total gains is smaller than 50%. In order to conduct this test, the following formula is used:

$$p - value = C_x^n * p^x * q^{n-x}$$

Here *n* represents the number of total observations and *x* represents the number of transactions with positive total gains. C_x^n is the combination of *n* over *x* observations. The parameters *p* and *q* represent the probabilities of observing and not observing positive total gains respectively.

IV.3 Regressions

The following section will outline the methodology for the regressions performed on the dataset to evaluate the relationship between target and acquirer gains to establish if the total gains associated with the announcement of the transaction can be explained through some independent firm-specific variables.

IV.3.1 Regression Model for the Relationship between Target and Acquirer Gains

As pointed out above, the variable *%TOTGAIN* allows us to make statistical examinations concerning the mean level of gains to targets, acquirers and the combined entity. (Seth et al. 2000, p.396). Alternatively, however, one can use the dollar gains to the acquirer and target, which will allow an assessment of their relationship using a regression.

In order to assess the relationship between target gains and acquirer gains in the sample, for all transactions during the event window (τ_1, τ_2) the following regression was used (Seth et al. 2000, p.398).:

$$Target\ Gain_{(\tau_1,\tau_2)} = \alpha + \beta_1 * (Acquirer\ Gain) \quad (13)$$

In this equation α and β_1 both represent the statistical parameter output of the regression performed on the dataset.

To test the coexistence of hubris and synergy hypothesis in the sample for positive total gains, a similar approach was used with the addition of a dummy variable:

$$DUM = \begin{cases} 0, if\ acquirer\ gain\ is\ positive \\ 1, if\ acquirer\ gain\ is\ negative \end{cases}$$

Following Seth (2000), this dummy variable allows the slope of the group of firms showing positive acquirer gains to differ from the slope for the group of firms that show negative acquirer gains (Seth et al. 2000, p.400). This permits us to test for the coexistence of synergy and hubris in the data sample (Seth et al. 2000, p.400).

$$Target\ Gain_{(\tau_1,\tau_2)} = \alpha + \beta_1 * (Acquirer\ Gain) + \beta_2 * DUM \quad (14)$$

In this equation, $\beta_1 + \beta_2$ represents the relationship between target gains and acquirer gains for the negative acquirer group of firms and β_2 shows whether the slopes for the two groups are different (Seth et al. 2000, p.400).

IV.3.2 Explanation of Variables

Dependent Variable

In this study's regression, the dependent variables are *%TOTGAIN* and *CARBID* (representing total gains and bidder gains respectively). The regression used in this study follows the outline of Seth (2002) and will use the *%TOTGAIN* and *CARBID* for the event period (τ_1, τ_2).

Explanatory Variables

The first variable introduced to the regression is *INTANG* and will be used to test the reverse internalization hypothesis. It is expected to display the extent to which intangible assets in the target firm are of value to the combined entity (Seth et al. 2002, p.930)

$$INTANG = \frac{Annual\ Research\ and\ Development,\ advertising\ and\ marketing\ expenditures\ of\ the\ target}{Annual\ sales\ revenue\ of\ target} \quad (15)$$

It is expected that this variable will have a positive relationship with both total gains as well as bidder gains in the positive total gains subset.

As argued by Seth (1990), economies of scale and scope may be exploited through related acquisitions to create value for the combined entity and thus its shareholders (Seth 1990, p.101-104). Following Seth (2002) this study captured the above effect through the proxy of the relative size of the target to the acquirer (Seth et al. 2002, p.930).

$$RELSIZE = \frac{Annual\ sales\ of\ target\ in\ USD}{Annual\ sales\ of\ acquirer\ in\ USD} \quad (16)$$

The sales data used for the calculation of this variable are as reported for the previous financial year for the respective firm. For the subset of positive total gains, a positive relationship between total gains and *RELSIZE* is expected, since transferring valuable intangible assets predicts such a positive association.

An argument for engaging in cross-border acquisitions lies in the market seeking motive of acquiring firms that wish to purchase companies from countries with faster growing markets than their own, which implies a higher growth potential (Seth et al. 2002, p.931). The proxy *GDPGROW* will be used in order to model this market seeking motive. Firstly, one computes:

$$RELGDP = \frac{(Average\ 5-year\ growth\ rate\ in\ real\ GDP)_N}{(Average\ 5-year\ growth\ rate\ in\ real\ GDP)_C} \quad (17)$$

The indices N and C represent the origin of the country, where N represents either Canada or the United States and C the home country of the acquirer. In a second step, one can now calculate the variable *GDPGROW*:

$$GDPGROW = \begin{cases} RELGDP, if\ RELGDP \geq 1 \\ 0, if\ RELGDP < 1 \end{cases} \quad (18)$$

If the growth rate in the home country of the acquirer is larger than in the United States or Canada, *RELGDP* will be smaller than one. In this case, market seeking as explained above is not relevant in explaining total gains (Seth et al. 2002, p.931). On the other hand, should the *RELGDP* will be larger than one, this implies that the United States' or Canada's growth rate is higher than that of the home country of the acquirer. Subsequently, market seeking may be a source of value creation (Seth et al. 2002, p.931). For the subset with positive total gains, a positive association is expected between *GDPGROW* and total gains due to the growth argument described above. In the subset for negative total gains it is expected that there will be a negative relationship between *GDPGROW* and total gains since managers may seek growth at the expense of profits and thus shareholder wealth (Seth et al. 2002, p.931).

Another motive for engaging in cross-border M&A is the financial diversification benefit that is represented by such a transaction. This diversification benefit arises from the imperfect correlation of the returns of the two companies in the different markets, assuming that financial markets are not integrated (Seth et al. 2002, p.931; Gubbi et al. 2010, p.408). The proxy used in the regression for this advantage was named *REDVAR* and was computed under the following assumptions:

- σ^a and σ^b represent the sample standard deviation of target and acquirer returns respectively
- ω^a and ω^b represent the weight fractions of the securities measured as their respective market capitalization in relation to the market value of equity of the combined entity

These assumptions lead to the following equation for the variance of the combined entity in case of a merger.

$$\sigma^{2C} = \omega^{2^a} * \sigma^{2^a} + \omega^{2^b} * \sigma^{2^b} + 2 * \rho * \omega^a * \omega^b * \sigma^a * \sigma^b \quad (19)$$

Here, ρ represents the correlation coefficient between the returns of the target and acquirer. Should a merger not lead to any reduction in variance then ρ will be equal to 1 (Seth et al. 2002, p.931). This will result in the following equation:

$$\sigma'^{2C} = \omega^{2^a} * \sigma^{2^a} + \omega^{2^b} * \sigma^{2^b} + 2 * \omega^a * \omega^b * \sigma^a * \sigma^b$$

Consequently, the diversification benefit arising from such a transaction will be the difference between those two variance terms:

$$REDVAR = \sigma^{2C} - \sigma'^{2C} = -2 * (1 - \rho) * \omega^a * \omega^b * \sigma^a * \sigma^b \quad (20)$$

A positive relationship between the absolute value of the variable *REDVAR* and total gains is expected for the positive total gains sample. In this subset no relationship is expected for bidder gains, since the potential sources of gains are relatively small to begin with (Seth et al. 2002, p.931). Concerning the subset with negative gains, however, a different outcome is predicted. As previously noted managers may not always act in the shareholders' best interest. Thus, they might seek out risk reduction without considering the effects on total shareholder wealth. Should acquisitions be undertaken only for the virtue of reducing risk in returns, then one should observe a negative relationship between the absolute value of the variable *REDVAR* and total gains (Seth et al. 2002, p.931).

Another variable worth considering in the attempt to explain total gains is the effectiveness of the market for corporate control. As Conn and Connell (1990) argue, "(…) imperfections in the local capital market may allow a multinational acquiring firm to extract monopsony returns" (Conn, Connell 1990, p.690). An example for such an event may be described if a multinational firm's bid for a local firm is well below the expected net benefits of the merger and if no competing bids from local firms occur, then this may result in abnormal returns to the acquirer (Conn, Connell 1990, p.690). This may be translated into a more general idea, i.e. there may be incentives for cross-border mergers if agency costs vary systematically across countries and foreign acquirers have specialized knowledge in reducing these agency costs (Seth et al. 2002, p.932). This leads to the question of which governance is the most effective, i.e. which system is the most effective in monitoring business activity. Previous research suggests that there is indeed a large variety in the effectiveness of national governance systems (Roe 1993, p.375). It does remain unclear, however, whether one system is superior to the other in terms of value creation (Seth et al. 2002, p.932).

This study follows Seth (2002) and Kay and Silberston (1995) concerning the influence of national governance systems on value creation through M&A transactions (Seth et al. 2002, p.932). According to Seth (2002), one has to distinguish between three distinct groups of governance systems, namely "*market-systems*", s"*bank-systems*" and "*group-systems*". In the United States and the United Kingdom "corporate governance is a market process rather than a

political one" (Kay, Silberston 1995, p.92). In *bank-systems*, banks play a critical monitoring role, whereas in *group-systems* ownership concentration is high and families or groups have relatively high ownership stakes (Seth et al. 2002, p.932). According to these criteria, three dummy variables were constructed:

$$GOVMKT = \begin{cases} 1 \; for \; acquirers \; from \; countries \; with \; market-systems \\ 0 \; otherwise \end{cases} \quad (21)$$

$$GOVGRP = \begin{cases} 1 \; for \; acquirers \; from \; countries \; with \; group-systems \\ 0 \; otherwise \end{cases} \quad (22)$$

$$GOVBANK = \begin{cases} 1 \; for \; acquirers \; from \; countries \; with \; bank-systems \\ 0 \; otherwise \end{cases} \quad (23)$$

The data sample this paper analyzes contains acquirers from twelve different countries. The United States, the United Kingdom and Sweden belong to the group of *market-systems*. Hongkong, Belgium, France, South Korea, Canada, South Africa and Mexico are considered to belong to the group of *group-systems*. The Netherlands and Japan belong to the group of *bank-systems*. As previously noted, one has to consider these variables with caution, as there is controversy regarding the effectiveness of corporate governance systems (Seth et al. 2002, p.933). This increases the difficulty in predicting the sign of the coefficient of the dummy variables *GOVGRP* and *GOVBANK* and the subsequent effect on the omitted dependent variable *GOVMKT*.

Lastly, a dummy variable is constructed in order to capture the effect of multiple bidders in a transaction (*MULBID*). Especially, for the subset of acquisitions with negative gains, a negative coefficient is expected (Seth et al. 2002, p.932).

IV.3.3 Regression Model

This study tests the above mentioned explanatory variables for both *%TOTGAIN* and the gains to acquirers *CARBID* using the approach outlined by Seth (2002), with the following regressions (Seth et al. 2002, p.929).

$$\%TOTGAIN = \alpha + \beta_1 * INTANG \pm \beta_2 * RELSIZE \pm \beta_3 * GDPGROW \pm \beta_4 * REDVAR \pm \beta_5 * GOVBANK \pm \beta_6 * GOVGRP \pm \beta_7 * MULBID$$

$$CARBID = \alpha + \beta_1 * INTANG \pm \beta_2 * RELSIZE \pm \beta_3 * GDPGROW \pm \beta_4 * REDVAR \pm \beta_5 * GOVBANK \pm \beta_6 * GOVGRP \pm \beta_7 * MULBID$$

To estimate the parameters α and β of this model, the ordinary least squares method will be used. To ensure that the basic assumptions of a linear regression are fulfilled, several tests were employed.

Following Brooks (2008), the first assumption that needs to be tested is that the average of the error terms is zero (Brooks 2008, p.131). “If a constant error term is included in the regression equation, this assumption will never be violated” (Brooks 2008, p.131). Since this study includes a constant intercept, this assumption is fulfilled.

The second assumption for the regression is that the variance of the error terms is constant, which is otherwise known as the assumption of heteroscedasticity (Brooks 2008, p.132). To test this assumption, this study used an abridged version of the White’s test. This test looks for significant parameters by running the squared residuals from the initial model as a function of the explanatory variables (Ekholm, Svensson 2009, p.42). Previous research suggests, that if heteroscedasticity is found, the interference could point in the wrong direction and the estimates resulting from the regression may not be the best estimators, i.e. they would not be the best linear unbiased estimators, or “BLUE”. Brooks (2008) suggests another approach called the generalized least squares test (Brooks 2008, p.132). This study will focus on the White’s test because the heteroscedasticity-robust standard errors used in the test allow to mitigate the above-mentioned effect (Brooks 2008, p.138).

Another assumption made by the OLS method is that explanatory variables are not correlated (Brooks 2008, p.170). In practice, it is unlikely to achieve zero correlation between the variables. If these correlations are small though, this multicollinearity will not affect the results (Brooks 2008, p. 171). This study computed the variance of inflation factors for each regression to determine if multicollinearity exists in the models.

V. Findings and Analysis

V.1 Cumulative abnormal Returns and Total Gains

In a first step, the tables and graphs below present the input data for the variable *%TOTGAIN*, which represent the cumulative abnormal returns. Average abnormal returns for all transactions, for both target and acquirer, are charted in the corresponding figures (Figure 3 and Figure 4). All figures were obtained using the market model.

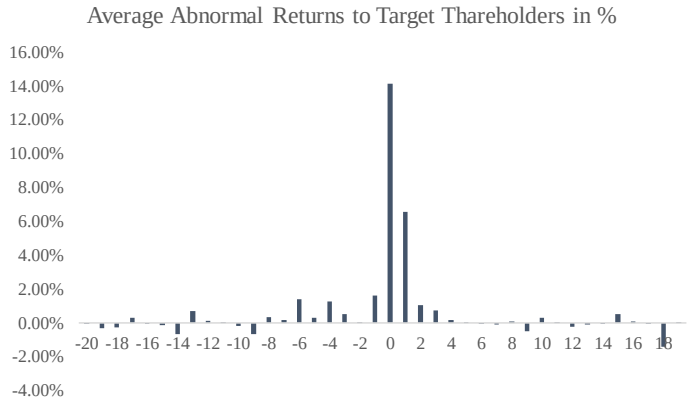

Figure 3: Average abnormal returns to target shareholders in %

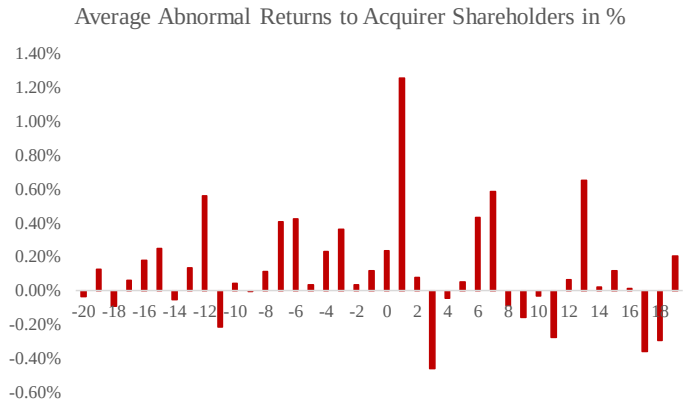

Figure 4: Average abnormal returns to acquirer shareholders in %

As expected, target shareholders receive abnormal gains on and around the announcement date of the merger. These average abnormal return amount to 14.15% on the announcement date of the merger. Concerning acquirer shareholders, the computed abnormal returns are not in line with expectations but do not show any significant deviation from theory. Acquirer shareholders receive an average abnormal return of 0.02% on the announcement date of the merger.

In a next step, cumulative abnormal returns were computed. A graphic representation of these returns can be seen below in Figure 5.

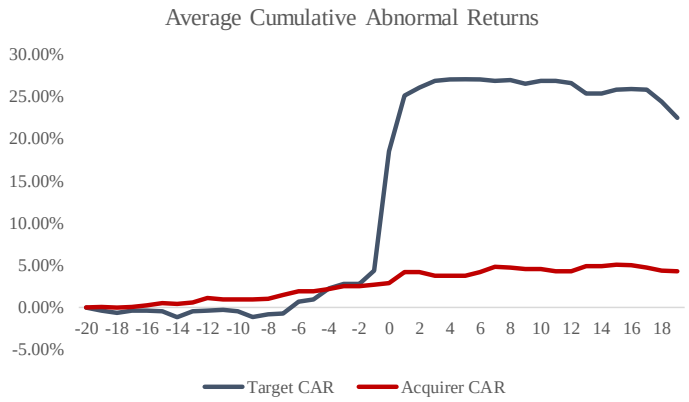

Figure 5: Average cumulative abnormal returns

As can be seen above, cumulative abnormal returns of target shareholders far outperform those of acquirer shareholders. This is in line with expectations since target shareholders receive a control premium for tendering their shares in return for giving up control of the company, which in turn increases, on average, target stock prices.

Lastly, the variable *%TOTGAIN* was computed for each transaction. On average the total gains amount to 12.85%. To test the statistical significance of this result, the t-test was conducted as described above. Furthermore, the binomial test was used to determine, if the number of positive transactions is statistically significant.

T-Test for Total Gains in Full Sample	
Count	**24**
Mean	**12.85**
Std Dev	**3.59**
hyp mean	0
alpha	0.01
tails	1
df	23
t-stat	**3.58**
p-value	**0.08%**
t-crit	2.50

Table 3: T-test for %TOTGAIN for the full sample

Binomial test	
#of acquisitions	**24**
#of positive gains acquisitions	**18**
#of negative gains acquisitions	**6**
probability to find positive gains	0.5
alpha	0.05
p-value	**1.13%**

Table 4: Binomial test for number of positive gains transactions

From the results above, we can conclude that the average total gain is significant at the one-percent-level, and thus we reject the null-hypothesis. Moreover, the number of acquisitions with positive total gains is also statistically significant at the one-percent-level, which results in

the rejection of the null-hypothesis that the probability to observe positive total gains is less than or equal to 0.5.

V.2 Analysis of Descriptive Statistics

Table 5 shows the results of the descriptive statistics for the sample of transactions. It includes the dependent variable *%TOTGAIN* as well as the explanatory variables discussed above.

Variable	Mean	Minimum	Maximum	Std. Dev.
%TOTGAIN	12.85%	-4.90%	62.03%	18.71%
INTANG	6.65%	0.00%	25.28%	8.84%
RELSIZE	18.09%	0.24%	74.78%	17.78%
GDPGROW	80.61%	0.00%	74.78%	120.65%
REDVAR	-0.01%	-0.03%	0.00%	0.01%
GOVGRP	62.50%	0.00	1.00	49.45%
GOVBANK	16.67%	0.00	1.00	38.07%
MULBID	25.00%	0.00	1.00	44.23%

Table 5: Descriptive statistics for the sample of transactions

As shown in the previous section the observed average value for *%TOTGAIN* is significant at the one-percent-level. One must, however, distinguish between the different acquirer countries, since there is an observable difference in value creation.

Country	N	Range of Total Gains in $m	Average total gains		Gains (in $m and in % of $ total gains)	
			m USD	as % of pre-offer value of the combined entity	Target	Acquirer
United Kingdom	4	2,177.8 to 10,413.4	6,256.6	14.61%	1,550.7 ; 17.9%	4,705.9 ; 82.1%
France	5	-2,009.6 to 2,746.4	402.6	1.01%	353.0 ; 16.9%	49.7 ; 3.1%
Belgium	1	24,147.9 to 24,147.9	24,147.9	9.02%	-1,466.4 ; -6.1%	25,614.3 ; 106.1%
HongKong	1	577.8 to 577.8	577.8	49.15%	587.9 ; 101.8%	-10.2 ; -1.8%
Netherlands	1	-225.6 to -225.6	-225.6	-0.45%	232.0 ; 102.9%	-457.6 ; -202.9%
Sweden	1	5.2 to 5.2	5.2	0.39%	157.4 ; 3001.1%	-152.2 ; -2901.1%
Japan	3	43.2 to 2,925.1	1,011.1	25.50%	1,147.7 ; 417.3%	-136.6 ; -317.3%
South Korea	1	1,699.9 to 1,699.9	1,699.9	28.86%	1,699.6 ; 100.0%	.3 ; 0.0%
Canada	5	-260.3 to 1,074.1	323.3	7.09%	27.2 ; 13.0%	296.1 ; 7.0%
Luxemburg (USA)	1	6,252.3 to .0	6,252.3	7.94%	-2,826.4 ; -45.2%	9,078.7 ; 145.2%
South Africa	1	1,289.7 to 1,289.7	1,289.7	47.53%	1,266.6 ; 98.2%	23.1 ; 1.8%
Mexico	1	-78.9 to -78.9	-78.9	-0.52%	-109.1 ; -138.2%	30.2 ; 38.2%
Entire list	***25***	***-2,009.6 to 24,147.9***	***3,471.83***	***15.84%***	***218.3 ; 306.6%***	***3,253.5 ; -253.3%***

Table 6: Total gains of the combined firm and value creation for acquirers and targets for each country

The above table indicates that shareholders from Belgium, HongKong, Sweden, Japan, South Korea, Luxembourg and South Africa experience on average positive abnormal returns around the acquisition announcement. There is, however, a difference in how these returns are shared between the acquirer and the target. Acquirers from Belgium, the United Kingdom and Luxemburg receive the largest share of total gains. The observation for the UK is in line with Cakici *et al.*, who find evidence of positive abnormal returns to UK shareholders in acquisitions of US firms (Cakici et al. 1996, p.326). As the sample of acquisitions is limited in size, one can

only make a suggestive analysis and cannot conclude on the statistical significance of these results. The most striking result is the transaction involving a Swedish acquirer. This result suggests that the target and acquirer gains almost cancel out and may indicate a high degree of bargaining power for the target since their return was unusually high. Similar characteristics can be derived from the transactions involving Japanese and Dutch acquirers, since they also present negative acquirer gains, although not to the same extent. The acquirers with positive gains differ in one more aspect. Since their returns are positive the evidence suggests that they have the ability to identify targets with a potential for value creation. While, however, acquirers from the UK or Luxemburg seem to benefit from this capability, French, South African and South Korean acquirers seem to transfer all gains to target shareholders.

V.3 Analysis of Hypotheses

The following section will cover the analysis of the empirical findings for the hypothesis stated above. This analysis will be segmented into (1) the hypotheses concerning the relationship between target and acquirer gains to total gains and (2) the regression model using independent variables to explain the variables *%TOTGAIN* and *CARBID*.

V.3.1 Analysis of Hypotheses concerning the Relationship between Target and Acquirer Gains to Total Gains

Hypotheses 1, 2 and 3 deal with the question whether the main motivation for cross-border M&A in this data sample is synergy, hubris or managerialism. As evidenced above, this study found statistically significant positive total gains and a statistically significant number of transactions with positive total gains, i.e. the probability to observe positive total gains is larger than 50%. This suggests that the main motive behind these transactions was likely the search for synergies. Consequently, the evidence is in line with predictions 1a) and 1d), and since these hypotheses are as mentioned above mutually exclusive, we can thus reject hypotheses 2a) and 2d) relating to hubris and hypotheses 3a) and 3d) relating to managerialism. The prediction concerning acquirer gains, hypotheses 1b), could not be accepted with statistical significance, which may be an indication for the occurrence of hubris and managerialism in the dataset. Since there overall is a large variation in gains to acquirers, however, this study can only suggest the reasons for these results and not provide any statistical evidence.

T-test for target gains in full sample	
Count	**24**
Mean	**1.96**
Std Dev	**1.22**
hyp mean	0
alpha	0.1
tails	1
df	23
t-stat	**1.60**
p-value	**6.14%**
t-crit	1.32

Table 7: T-test for %TOTGAIN for target gains

T-test for acquirer gains in full sample	
Count	**24**
Mean	**-1.46**
Std Dev	**1.20**
hyp mean	0
alpha	0.1
tails	1
df	23
t-stat	**-1.21**
p-value	**88.10%**
t-crit	1.32

Table 8: T-test for %TOTGAIN for acquirer gains

Table 7 shows that target gains are positive on average and significant at the ten percent level. This observation is in line with the predictions from hypotheses 1c), 2c) and 3c). Acquirer gains are negative on average, however, not at a statistically significant level.

In a next step this paper assessed descriptive statistics concerning the subsets of transactions with positive and negative total gains. As discussed above 18 transactions with positive total gains and 6 transactions with negative total gains were found. For the sub-sample with positive total gains, similar results were achieved concerning the motive of synergy for these transactions as was for the full sample.

T-test for target gains	
Count	**18**
Mean	**264%**
Std Dev	**158%**
hyp mean	0
alpha	0.1
tails	1
df	17.00
t-stat	**1.67**
p-value	**0.06**
t-crit	1.33

Table 9: T-Test for target gains (%TOTGAIN) in transactions with positive total gains

T-test for acquirer gains	
Count	**18**
Mean	**-164%**
Std Dev	**158%**
hyp mean	0
alpha	0.1
tails	1
df	17.00
t-stat	**-1.04**
p-value	**0.84**
t-crit	1.33

Table 10: T-Test for acquirer gains (%TOTGAIN) in transactions with positive total gains

For the sub-sample with positive total gains the evidence is consistent with the predictions from hypothesis 4b) as the t-statistic is significant at the ten percent level. Since, however, acquirer gains are on average negative for this sub-sample we cannot rule out

managerialism for this subset since hypotheses 6a) and 7a) predict on average negative gains to acquirers. As hypothesis 5a) also predicts average positive gains to targets, hubris can also not be ruled out. The variance and size of the sample, as argued above, do not allow for any statistically significant claims concerning acquirer gains, but give room for suggestions that hubris or managerialism may also be present.

For the subset with negative total gains the observations are in line with predictions 6a) and 7a). However, for both the hubris and managerialism hypothesis, positive gains to targets could not be observed and therefore hypotheses 6b) and 7b) could not be validated. Moreover, due to the restricted sample size, the observed results could not be validated on a statistically significant level, as can be seen in table 11 and 12.

T-Test for target gains	
Count	**6**
Mean	**-9%**
Std Dev	**39%**
hyp mean	0
alpha	0.1
tails	1
df	5.00
t-stat	**-0.23**
p-value	**0.59**
t-crit	1.48

Table 11: T-test for target gains (%TOTGAIN) in transactions with negative total gains

T-Test for acquirer gains	
Count	**6**
Mean	**-91%**
Std Dev	**39%**
hyp mean	0
alpha	0.05
tails	1
df	5.00
t-stat	**-2.32**
p-value	**0.97**
t-crit	2.02

Table 12: T-test for acquirer gains (%TOTGAIN) in transactions with negative total gains

In conclusion, this study provides statistically significant evidence that target shareholders receive positive gains and that this relationship holds also for targets in positive total gains transactions. For acquirers, on the other hand, the observations only indicate that they achieve on average negative gains, but not on a statistically significant level.

In a second step, this study analyzed the relationship between target, acquirer and total gains. As discussed in section IV.3.1, regressions were computed in order to determine an answer to the above-stated goal. However, no statistically significant relationship could be determined for all subsets, i.e. the full sample, the sample with positive total gains and the sample with negative total gains. This study believes that due to the limited size of the data sample, no noteworthy evidence could be achieved.

V.3.2 Analysis of Hypotheses concerning the Relationship between Total Gains and the independent Variables

Regression Output and Correlation Matrix

The regression models that were used in order to explain the *%TOTGAIN* and *CARBID* follow from chapter IV.3.3:

$$\%TOTGAIN = \alpha + \beta_1 * INTANG \pm \beta_2 * RELSIZE \pm \beta_3 * GDPGROW \pm \beta_4 * REDVAR \pm \beta_5 * GOVBANK \pm \beta_6 * GOVGRP \pm \beta_7 * MULBID$$

$$CARBID = \alpha + \beta_1 * INTANG \pm \beta_2 * RELSIZE \pm \beta_3 * GDPGROW \pm \beta_4 * REDVAR \pm \beta_5 * GOVBANK \pm \beta_6 * GOVGRP \pm \beta_7 * MULBID$$

As was mentioned before, a White's test, was conducted on the regressions and no sign of heteroscedasticity was found in both models. Hence, the model is run without standardized robust standard errors. Moreover, no evidence of multicollinearity could be found through the assessment of VIF (Variance of Inflation) factors.

Regression				
Dependent Variable:	*%TOTGAIN*			
Sample Size:	24			
	Coefficient	**Std. Error**	**T-Statistic**	**P-Value**
CONSTANT	0.003	0.104	0.032	0.975
INTANG	0.372	0.419	0.887	0.388
RELSIZE	0.171	0.215	0.795	0.438
GDPGROW	-0.032	0.031	-1.032	0.317
REDVAR	-1206.489	562.191	-2.146	0.048
GOVGRP	0.019	0.090	0.216	0.832
GOVBANK	0.201	0.122	1.644	0.120
MULBID	-0.082	0.084	-0.982	0.341
R-squared	45.06%			
Adjusted R-squared	21.03%			

Table 13: Ouput for OLS linear regression for %TOTGAIN variable for the full sample

Regression				
Dependent Variable:	*CARBID*			
Sample Size:	24			
	Coefficient	**Std. Error**	**T-Statistic**	**P-Value**
CONSTANT	-3.468	4.255	-0.815	0.427
INTANG	14.888	17.124	0.869	0.397
RELSIZE	7.426	8.769	0.847	0.410
GDPGROW	0.165	1.276	0.129	0.899
REDVAR	-2416.629	22972.396	-0.105	0.918
GOVGRP	-2.016	3.665	-0.550	0.590
GOVBANK	-2.064	4.999	-0.413	0.685
MULBID	4.036	3.416	1.182	0.255
R-squared	18.00%			
Adjusted R-squared	-17.88%			

Table 14: Ouput for OLS linear regression for CARBID variable for the full sample

Although the focus of this study is to assess the subsamples with positive and negative total gains Table 13 presents the results for the full sample of transactions. The results indicate that the only statistically significant variable in the model is REDVAR. Also, the relatively low R-squared of 45.06% indicates a low explanatory power of the model, which is reduced even further when adjusting for the number of variables (Adjusted R-squared of 21.03%).

Variable	INTANG	RELSIZE	GDPGROW	REDVAR	GOVGRP	GOVBANK	MULBID
INTANG	1.00						
RELSIZE	0.22	1.00					
GDPGROW	-0.02	0.01	1.00				
REDVAR	-0.22	-0.30	0.19	1.00			
GOVGRP	-0.04	-0.05	-0.04	-0.17	1.00		
GOVBANK	-0.16	-0.17	0.24	0.28	-0.58	1.00	
MULBID	-0.20	-0.20	-0.22	0.11	0.05	0.00	1.00

Table 15: Correlation matrix for independent variables

Table 15 displays a correlation matrix. Seth (2002) suggests that multiple bidding contests should be more limited when value creation in acquisitions is associated with a unique combination of skills from the acquirer and the target (Seth et al. 2002, p.934). Consequently, this study expected the variables *INTANG* and *RELSIZE* to represent a more unique combination of skills than the other variables (Seth et al. 2002, p.934). This leads to the prediction of a negative correlation between both *MULBID* and *INTANG* as well as *MULBID* and *RELSIZE*. The evidence shows that these correlations are as expected negative, indicating that for the firms in the sample economies from asset sharing present a source of value creation.

Analysis of Hypotheses

Regression				
Dependent Variable:		*%TOTGAIN*		
Sample Size:		18		
	Coefficient	**Std. Error**	**T-Statistic**	**P-Value**
CONSTANT	0.054	0.107	0.502	0.627
INTANG	0.005	0.436	0.012	0.991
RELSIZE	0.185	0.212	0.872	0.404
GDPGROW	-0.065	0.034	-1.870	0.091
REDVAR	-1237.911	578.530	-2.140	0.058
GOVGRP	0.081	0.091	0.891	0.394
GOVBANK	0.282	0.133	2.113	0.061
MULBID	-0.111	0.099	-1.130	0.285
R-squared	59.29%			
Adjusted R-squared	30.80%			

Table 16: Output for OLS linear regression for %TOTGAIN in synergy sample

Regression				
Dependent Variable:		*CARBID*		
Sample Size:		18		
	Coefficient	**Std. Error**	**T-Statistic**	**P-Value**
CONSTANT	-5.764	5.463	-1.055	0.316
INTANG	24.522	22.260	1.102	0.296
RELSIZE	8.660	10.794	0.802	0.441
GDPGROW	0.360	1.760	0.204	0.842
REDVAR	-9792.394	29518.599	-0.332	0.747
GOVGRP	-3.683	4.634	-0.795	0.445
GOVBANK	-0.519	6.810	-0.076	0.941
MULBID	6.320	5.028	1.257	0.237
R-squared	27.36%			
Adjusted R-squared	-23.49%			

Table 17: Output for OLS linear regression for CARBID in synergy sample

Hypotheses 8 and 9 focus on the synergy sample for both the variables *%TOTGAIN* and *CARBID*. The results from these regressions can be found in Table 16 and 17. For these regressions mixed results concerning heteroskedasticity were found. The White's test only indicates homoscedasticity for the model concerning *%TOTGAIN*. Thus, the model for *CARBID* is run with standardized robust standard errors.

This study finds for the full sample that there is a statistically significant relationship between value creation and *REDVAR*, the proxy for financial diversification. Moreover, there

is a significant relationship at the ten percent level for *GDPGROW,* indicating that market seeking is indeed a source of value creation in cross-border transactions in the consumer goods industry. This supports the fact outlined in the previous section, concerning growth opportunities in the consumer goods industry. Regarding the variables for governance, this study finds a significant relationship at the ten percent level for *GOVBANK*, indicating that bank-oriented-systems contribute to value creation in such transactions. This observation is in line with the results achieved by Thomsen and Pedersen (2000), who found that bank ownership is associated with value creation for shareholders in their sample of European transactions (Thomsen, Pedersen 2000, p.702-703).

Moreover, the regression indicates a negative relationship between *INTANG*, the proxy for reverse internalization, and *%TOTGAIN*, which is however not statistically significant. A positive relationship can be observed between *RELSIZE* and *%TOTGAIN* indicating that asset sharing is a source of value creation in cross-border transactions in the consumer goods industry. Thus, the evidence points toward a rejection of hypothesis 8a) but an acceptance of hypothesis 8b).

The results concerning the benefit of financial diversification are in line with the evidence provided by Kwok and Reeb (2000) and their *"up-stream hypothesis"*. They argued that the business risk among countries influences the risk impacts of foreign direct investments. Consequently, as firms invest in *"up-stream"* economies (or stable economies), they decrease their risk, while *"downstream"* investments lead to an increase of said risk (Kwok, Reeb 2000, p. 612). They show a negative association between internationalization of firms and risk for non-US firms (Kwok, Reeb 2000, p.619).

While the regression results concerning bidder gains are not statistically significant, they provide some indications. Following Seth (2002), this study anticipated a strong association between *RELSIZE* and *INTANG* with *CARBID as* compared to the relationship between *GDPGROW* and *REDVAR* with *CARBID.* The evidence indicates that there is a positive relationship between *INTANG* and *RELSIZE* with *CARBID*. Consequently, the results, while not significant, indicate that reverse internalization and asset sharing create value for acquirers in cross-border transactions.

Summarizing the above, this study provides evidence for Hypotheses 8c) and 8d), whereas 8a) and 8b) could not be proven on a statistically significant level.

The sample of transaction with negative total gains is limited in size to the number of six. Thus, a linear regression on such a small dataset does not provide any statistically significant empirical results, which is why this study cannot make any statement regarding Hypotheses 9a), 9b), 10a) and 10b).

Table 18 provides a summary of all results from the hypotheses analyzed in this study.

Hypotheses	Expectation	Findings
Hypothesis 1 : The main driver for cross-border acquisitions is synergy. Due to this fact, the following will be observed:		
a) Positive total gains in acquisitions on average	+	Accepted
b) Acquirers will receive, on average, non-negative gains	+	Rejected
c) Targets will receive, on average, positive gains	+	Accepted
d) There will be a higher proportion of positive total gains than expected by chance	+	Accepted
e) Target and acquirer gains will show a non-negative correlation	+	Rejected
f) Target and total gains will show a positive correlation.	+	Rejected
Hypothesis 3: The main driver for cross-border acquisitions is managerialism. Due to this fact, the following will be observed		
a) Negative total gains in acquisitions on average	-	Rejected
b) Acquirers will receive, on average, negative gains	-	Rejected
c) Targets will receive, on average, positive gains	+	Accepted
d) There will be a higher proportion of negative total gains than expected by chance	-	Rejected
e) There will be a negative relationship between target gains and acquirer gains	-	Rejected
f) There will be a negative relationship between target gains and total gains	-	Rejected
Hypothesis 4: In the subset with positive total gains synergy is the main motive for cross-border acquisitions. Thus, one will observe:		
a) Acquirers will receive, on average, positive total gains	+	Rejected
b) Targets will receive, on average, positive total gains	+	Accepted
c) A positive relationship between target and acquirer gains and there will be no difference between this relationship for the group with positive acquirer gains relative to the group with negative acquirer gains	+	Rejected
Hypothesis 5: In the subset with positive total gains synergy and hubris are the main motives for cross-border acquisitions. Thus, one will observe:		
a) Acquirers will receive, on average, positive total gains	+	Rejected
b) Targets will receive, on average, positive total gains	+	Accepted
c) A positive relationship between target and acquirer gains for the group with positive acquirer gains and a negative relationship for the group with negative acquirer gains.	+	Rejected
Hypothesis 6: In the sub-sample with negative total gains hubris is the main motive for cross-border acquisitions. Thus, one will observe:		
a) Acquirers will receive, on average, negative gains	-	Rejected
b) Targets will receive, on average, positive gains	+	Rejected
c) No relationship between target and acquirer gains	(-)	Rejected
Hypothesis 7: In the sub-sample with negative total gains Managerialism is the main motive for cross-border acquisitions.		
a) Acquirers will receive, on average, negative gains	-	Rejected
b) Targets will receive, on average, positive gains	+	Rejected
c) A negative relationship between target and acquirer gains	-	Rejected
Hypothesis 8: Transactions in which synergies, i.e. positive total gains can be observed, a positive relationship will be observable between:		
a) Value creation and asset sharing	+	Rejected
b) Value creation and reverse internalization	+	Rejected
c) Value creation and market seeking	+	Accepted
d) Value creation and financial diversification	+	Accepted
Hypothesis 9: Transactions which can be characterized as managerialist, i.e. with negative total gains, a positive relationship will be observable between:		
a) Value destruction and empire building	-	Rejected
b) Value destruction and risk reduction	-	Rejected
Hypothesis 10: Transactions which can be characterized as managerialist, i.e. with negative total gains, a positive relationship will be observable between:		
a) Bidder losses and empire building	-	Rejected
b) Bidder losses and risk reduction	-	Rejected

Table 18: Summary of expectations and findings for all hypotheses

VI. Conclusion and Implications for Future Research

The aim of this final chapter is to outline the conclusions that can be drawn from the empirical findings of this study. Moreover, this chapter will provide implications for future research.

VI.1 Conclusion

The main aim of this paper was to assess if cross-border M&A transactions in the consumer goods industry create value. Following Seth (2002), this study assessed different motives for these transactions, since previous research, that did not include these motives, did not find strong empirical evidence (Seth et al. 2002, p.938). They assumed that all transactions are characterized by the motive of synergy and that synergy is only explanatory factor for value creation. Consequently, this paper empirically assessed three distinctly different motives for cross-border M&A in the consumer goods industry: synergy, managerialism and hubris.

In a second step, this study aimed to provide statistically significant evidence to the nature of gains for both target and acquirer shareholders in such transactions. This was achieved through the computation of the variables *%TOTGAIN* and *CARBID*, on which statistical tests were conducted. Another area the author deemed worthy to explore was the relationship between target and acquirer gains.

Lastly, OLS regressions were computed on the dataset in order to find firm-specific and independent variables to explain the variables *%TOTGAIN* and *CARBID*.

For the first and second part of this study, the results achieved are in line with Seth (2000) and Seth (2002). They also found significant positive total gains, which in this study total 12.85% accruing to both target and acquirer shareholders. This indicates, that cross-border M&A in the consumer goods industry does create value for both parties complementing the rationales for the observed M&A activity in the consumer goods industry outlined in chapter II.2.2. Concerning the motives for these transactions, the results indicate that synergy is the main rationale. Since, this could not be proven with statistical significance, however, the data indicates that several motives are present in the dataset, as managerialism and hubris could not be ruled out.

Concerning the transactions with positive total gains, or synergistic acquisitions, this study evidenced that targets receive on average positive gains. The recorded acquirer gains, on the other hand, are not statistically significant but the observed values indicate negative gains on

average. This observation is in line with past research which provided clear evidence of acquirer losses (Sudarsanam, Mahate* 2003, p.1).

This study also set out to understand and prove the relationship between target and acquirer gains. Due to the limited size of the dataset, however, such a relationship could not be established with statistical significance.

Concerning the last part of this paper, one has to distinguish between the subsets with positive and negative total gains. This study finds that the data is in line with the expectations that multiple sources of value creation exist in cross-border M&A in the consumer goods industry: financial diversification and market seeking. Both asset sharing and reverse internalization as sources of value creation could not be confirmed. Nonetheless, this study provides evidence for various theories of foreign direct investment (Calvet 1981; Rugman 1980; Harris, Ravenscraft 1991) and suggests that the chosen approach is relevant in understanding performance differences in such transactions. Concerning the effect of governance systems on these transactions, this study found that acquirers from countries underlying bank-systems generate value creating M&A. This indicates that in states where banks play a critical monitoring role, cross-border M&A in the consumer goods industry is more likely to generate value than in countries following different governance systems.

Concerning the subset of negative total gains, which are believed to be driven by managerialism, none of the sources of value destruction could be found. Again, this may be due to limitations in terms of size of the dataset.

As mentioned above, one of the major challenges when conducting this study was represented by its data requirements, since all stock price data had to be sourced manually and validated through various secondary sources. This issue influenced the size of the dataset as well as the computation of variables.

VI.2 Implications for Future Research

Previous research on the topics of value creation in cross-border M&A is already quite substantial. By examining a single industry, this study adds to the literature by delivering a more focused view on the topic. Several topics, however, are still worth examining in the future, some of which are going to be outlined in this chapter.

Firstly, one could expand the size of the dataset, which would likely increase the statistical significance of this study due to the higher number of observations, and thus enhance its external validity. This could be achieved by, e.g., widening the country focus. This study

focused on the United States and Canada as target countries. By expanding this geographical reach, one may be able to analyze global trends in M&A value creation in the consumer goods industry.

As mentioned in section II.2.2, there are several trends that affect consumer preferences and thus consumer goods companies in a fundamental fashion. These effects, however, are not limited to this particular industry but present motives and rationales for M&A in other industries as well. It would thus be useful to assess the value creation in cross-border transactions in other industries that experience similar disruptive trends.

Section II.3 outlined several differences between domestic and cross-border M&A in terms of value creation. It would thus be interesting to explore these differences empirically, which would require a dataset containing both domestic and cross-border transactions in the consumer goods industry.

This study chose the event study methodology to assess value creation. While this is a valid approach for measuring changes in shareholder wealth, it only provides a snapshot picture and does not provide evidence for value creation in the long run for the company as a whole. Future studies may assess the transactions in this dataset in more detail, by analyzing company fundamentals over time, which will likely yield more detailed results on the extent of value creation for the organization.

These listed implications for future research are, however, only examples of the many possibilities for future studies on value creation in the context of M&A and cross-border M&A.

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VIII. Appendix

VIII.1 Deal Overview

Target	Country	Bidder	Country	Announcement Date
Span America Medical Systems	USA	Savaria Corporation	Canada	01.05.17
Mead Johnson	USA	Reckitt Benckiser Group	UK	10.02.17
Harman International Industries	USA	Samsung Electronics Co.	South Korea	14.11.16
CST Brands Inc.	USA	Alimentation Couche Tard	Canada	22.08.16
Mattress Firm Holding Corp	USA	Steinhoff International Holdings	South Africa	07.08.16
The WhiteWave Foods Company	USA	Danone SA	France	07.07.16
Tumi	USA	Samsonite	HongKong	03.03.16
Wausau Paper Corp.	USA	Svenska Cellulosa	Sweden	13.10.15
Keurig Green Mountain	USA	Mondelez International(Representative for the Acquisition Consortium9)	USA	12.07.15
The Pantry Inc.	USA	Alimentation Couche Tard	Canada	18.12.14
Reynolds American Inc	USA	Imperial Tobacco	UK	15.07.14
Coastal Contacts Inc	Canada	Essilor International	France	27.02.14
Zale Corporation	USA	Signet Jewelers	UK	19.02.14
Zale Corporation	USA	Signet Jewelers	UK	19.02.14
Canada Bread Company Ltd.	Canada	Grupo Bimbo S.A.B	Mexico	12.02.14
Beam Suntory	USA	Suntory Holding Limited	Japan	13.01.14
Morningstar Foods Inc.	USA	Saputo INC	Canada	03.12.12
Schiff Nutritional International INC	USA	Reckitt Benckiser Group	UK	15.11.12
Lacrosse Footwear Inc.	USA	ABC Corp	Japan	05.07.12
Volcom	USA	Kering	France	02.05.11
YoCream	USA	Danone SA	France	24.11.10
Alberto Culver	USA	Unilever	Netherlands	25.10.10
Casey's General Stores	USA	Alimentation Couche Tard	Canada	30.06.10
Bare Escentuals	USA	Shiseido	Japan	11.02.10

VIII.2 Regressions

Regression for the full sample of transactions for the relationship between target and acquirer gains

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.032[a]	0.001	-0.044	1274293470.849500000000000

a. Predictors: (Constant), Acquirer Gains

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35588891975213100.000	1	35588891975213100.000	0.022	.884[b]
	Residual	35724124696692900000.000	22	1623823849849680000.000		
	Total	35759713588668100000.000	23			

a. Dependent Variable: Target Gains

b. Predictors: (Constant), Acquirer Gains

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	506134623.128	284271500.449		1.780	0.089		
	Acquirer Gains	0.014	0.096	0.032	0.148	0.884	1.000	1.000

a. Dependent Variable: Target Gains

Collinearity Diagnostics[a]

				Variance Proportions	
Model		Eigenvalue	Condition Index	(Constant)	Acquirer Gains
1	1	1.403	1.000	0.30	0.30
	2	0.597	1.534	0.70	0.70

a. Dependent Variable: Target Gains

Regression for the sample of transactions with positive total gains for the relationship between target and acquirer gains

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.136[a]	0.018	-0.112	1483528154.213760000000000

a. Predictors: (Constant), V3, Acquirer Gains

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	621626071586603000.000	2	310813035793302000.000	0.141	.869[b]
	Residual	3301283676517310000.000	15	220085578434487000.000		
	Total	3363446283675970000.000	17			

a. Dependent Variable: Target Gains

b. Predictors: (Constant), V3, Acquirer Gains

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	625524106.168	509138237.222		1.229	0.238		
	Acquirer Gains	-0.014	0.133	-0.028	-0.101	0.921	0.861	1.162
	V3	404431440.032	906691215.949	0.123	0.446	0.662	0.861	1.162

a. Dependent Variable: Target Gains

Collinearity Diagnostics[a]

				Variance Proportions		
Model		Eigenvalue	Condition Index	(Constant)	Acquirer Gains	V3
1	1	1.710	1.000	0.14	0.10	0.08
	2	1.020	1.295	0.00	0.26	0.37
	3	0.270	2.515	0.86	0.64	0.54

a. Dependent Variable: Target Gains

Regression for the full sample of transactions for the variable %TOTGAIN

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671[a]	0.451	0.210	0.166223402476288

a. Predictors: (Constant), MULBID, GOVBANK, INTANG, RELSIZE, GDPGROW, REDVAR, GOVGRP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.363	7	0.052	1.875	.141[b]
	Residual	0.442	16	0.028		
	Total	0.805	23			

a. Dependent Variable: TOTAL GAIN

b. Predictors: (Constant), MULBID, GOVBANK, INTANG, RELSIZE, GDPGROW, REDVAR, GOVGRP

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	0.004	0.104		0.034	0.973		
	INTANG	0.371	0.419	0.176	0.886	0.389	0.875	1.143
	RELSIZE	0.170	0.215	0.161	0.790	0.441	0.825	1.213
	GDPGROW	-0.032	0.031	-0.208	-1.032	0.317	0.846	1.182
	REDVAR	-1207.737	562.246	-0.443	-2.148	0.047	0.806	1.241
	GOVGRP	0.019	0.090	0.051	0.214	0.834	0.611	1.637
	GOVBANK	0.201	0.122	0.409	1.643	0.120	0.554	1.805
	MULBID	-0.082	0.084	-0.194	-0.982	0.341	0.879	1.138

a. Dependent Variable: TOTAL GAIN

Collinearity Diagnostics[a]

				Variance Proportions							
Model		Eigenvalue	Condition Index	(Constant)	INTANG	RELSIZE	GDPGROW	REDVAR	GOVGRP	GOVBANK	MULBID
1	1	4.021	1.000	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.01
	2	1.205	1.827	0.00	0.01	0.00	0.09	0.04	0.01	0.23	0.00
	3	0.948	2.059	0.00	0.06	0.02	0.05	0.00	0.01	0.00	0.50
	4	0.633	2.520	0.00	0.11	0.02	0.35	0.05	0.08	0.12	0.01
	5	0.477	2.904	0.00	0.68	0.07	0.01	0.23	0.00	0.03	0.06
	6	0.361	3.339	0.00	0.02	0.69	0.01	0.25	0.05	0.06	0.07
	7	0.281	3.782	0.03	0.00	0.02	0.46	0.40	0.21	0.09	0.27
	8	0.074	7.388	0.96	0.10	0.17	0.00	0.01	0.64	0.47	0.07

a. Dependent Variable: TOTAL GAIN

Regression for the full sample of transactions for the variable CARBID

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.424[a]	0.180	-0.179	6.793236656177070

a. Predictors: (Constant), MULBID, GOVBANK, INTANG, RELSIZE, GDPGROW, REDVAR, GOVGRP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.041	7	23.149	0.502	.820[b]
	Residual	738.369	16	46.148		
	Total	900.410	23			

a. Dependent Variable: Acquirer Gains in %

b. Predictors: (Constant), MULBID, GOVBANK, INTANG, RELSIZE, GDPGROW, REDVAR, GOVGRP

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-3.467	4.255		-0.815	0.427		
	INTANG	14.888	17.125	0.210	0.869	0.397	0.875	1.143
	RELSIZE	7.425	8.771	0.211	0.847	0.410	0.825	1.213
	GDPGROW	0.165	1.276	0.032	0.129	0.899	0.846	1.182
	REDVAR	-2410.999	22977.919	-0.026	-0.105	0.918	0.806	1.241
	GOVGRP	-2.017	3.665	-0.159	-0.550	0.590	0.611	1.637
	GOVBANK	-2.064	4.999	-0.126	-0.413	0.685	0.554	1.805
	MULBID	4.036	3.416	0.285	1.182	0.255	0.879	1.138

a. Dependent Variable: Acquirer Gains in %

Collinearity Diagnostics[a]

				Variance Proportions							
Model		Eigenvalue	Condition Index	(Constant)	INTANG	RELSIZE	GDPGROW	REDVAR	GOVGRP	GOVBANK	MULBID
1	1	4.021	1.000	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.01
	2	1.205	1.827	0.00	0.01	0.00	0.09	0.04	0.01	0.23	0.00
	3	0.948	2.059	0.00	0.06	0.02	0.05	0.00	0.01	0.00	0.50
	4	0.633	2.520	0.00	0.11	0.02	0.35	0.05	0.08	0.12	0.01
	5	0.477	2.904	0.00	0.68	0.07	0.01	0.23	0.00	0.03	0.06
	6	0.361	3.339	0.00	0.02	0.69	0.01	0.25	0.05	0.06	0.07
	7	0.281	3.782	0.03	0.00	0.02	0.46	0.40	0.21	0.09	0.27
	8	0.074	7.388	0.96	0.10	0.17	0.00	0.01	0.64	0.47	0.07

a. Dependent Variable: Acquirer Gains in %

Regression for the positive total gains sample of transactions for the variable %TOTGAIN

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.770[a]	0.593	0.308	0.157934246887001

a. Predictors: (Constant), MULBID, REDVAR, RELSIZE, INTANG, GDPGROW, GOVGRP, GOVBANK

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.363	7	0.052	2.081	.142[b]
	Residual	0.249	10	0.025		
	Total	0.613	17			

a. Dependent Variable: TOTAL GAIN

b. Predictors: (Constant), MULBID, REDVAR, RELSIZE, INTANG, GDPGROW, GOVGRP, GOVBANK

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	0.054	0.107		0.504	0.625		
	INTANG	0.005	0.436	0.002	0.011	0.992	0.872	1.146
	RELSIZE	0.183	0.212	0.186	0.867	0.406	0.885	1.129
	GDPGROW	-0.065	0.034	-0.424	-1.870	0.091	0.792	1.263
	REDVAR	-1239.172	578.592	-0.480	-2.142	0.058	0.809	1.236
	GOVGRP	0.081	0.091	0.217	0.889	0.395	0.681	1.469
	GOVBANK	0.282	0.133	0.570	2.113	0.061	0.560	1.785
	MULBID	-0.111	0.099	-0.251	-1.130	0.285	0.826	1.211

a. Dependent Variable: TOTAL GAIN

Collinearity Diagnostics[a]

				Variance Proportions							
Model		Eigenvalue	Condition Index	(Constant)	INTANG	RELSIZE	GDPGROW	REDVAR	GOVGRP	GOVBANK	MULBID
1	1	4.131	1.000	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.01
	2	1.334	1.760	0.00	0.00	0.00	0.08	0.02	0.02	0.19	0.05
	3	0.873	2.176	0.00	0.08	0.03	0.01	0.03	0.01	0.01	0.48
	4	0.500	2.876	0.00	0.00	0.04	0.40	0.06	0.12	0.18	0.09
	5	0.428	3.107	0.00	0.66	0.03	0.01	0.30	0.01	0.00	0.04
	6	0.395	3.235	0.00	0.02	0.63	0.03	0.19	0.06	0.10	0.03
	7	0.249	4.072	0.02	0.07	0.05	0.45	0.32	0.45	0.10	0.16
	8	0.090	6.789	0.97	0.15	0.19	0.01	0.05	0.33	0.41	0.15

a. Dependent Variable: TOTAL GAIN

Regression for the positive total gains sample of transactions for the variable CARBID

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.523[a]	0.274	-0.235	8.059543238666250

a. Predictors: (Constant), MULBID, REDVAR, RELSIZE, INTANG, GDPGROW, GOVGRP, GOVBANK

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	244.615	7	34.945	0.538	.788[b]
	Residual	649.562	10	64.956		
	Total	894.177	17			

a. Dependent Variable: Acquirer Gains in %

b. Predictors: (Constant), MULBID, REDVAR, RELSIZE, INTANG, GDPGROW, GOVGRP, GOVBANK

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-5.763	5.462		-1.055	0.316		
	INTANG	24.521	22.260	0.318	1.102	0.296	0.872	1.146
	RELSIZE	8.657	10.796	0.230	0.802	0.441	0.885	1.129
	GDPGROW	0.360	1.760	0.062	0.204	0.842	0.792	1.263
	REDVAR	-9789.931	29526.153	-0.099	-0.332	0.747	0.809	1.236
	GOVGRP	-3.683	4.634	-0.260	-0.795	0.445	0.681	1.469
	GOVBANK	-0.520	6.810	-0.027	-0.076	0.941	0.560	1.785
	MULBID	6.320	5.028	0.373	1.257	0.237	0.826	1.211

a. Dependent Variable: Acquirer Gains in %

Collinearity Diagnostics[a]

				Variance Proportions							
Model		Eigenvalue	Condition Index	(Constant)	INTANG	RELSIZE	GDPGROW	REDVAR	GOVGRP	GOVBANK	MULBID
1	1	4.131	1.000	0.01	0.02	0.02	0.01	0.02	0.01	0.00	0.01
	2	1.334	1.760	0.00	0.00	0.00	0.08	0.02	0.02	0.19	0.05
	3	0.873	2.176	0.00	0.08	0.03	0.01	0.03	0.01	0.01	0.48
	4	0.500	2.876	0.00	0.00	0.04	0.40	0.06	0.12	0.18	0.09
	5	0.428	3.107	0.00	0.66	0.03	0.01	0.30	0.01	0.00	0.04
	6	0.395	3.235	0.00	0.02	0.63	0.03	0.19	0.06	0.10	0.03
	7	0.249	4.072	0.02	0.07	0.05	0.45	0.32	0.45	0.10	0.16
	8	0.090	6.789	0.97	0.15	0.19	0.01	0.05	0.33	0.41	0.15

a. Dependent Variable: Acquirer Gains in %

VIII.3 Heteroskedasticity Tests

Heteroskedasticity test (White's test) for the full sample of transactions for the variable %TOTGAIN

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.434[a]	0.188	0.111	0.02841

a. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

b. Dependent Variable: RES_12

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.004	2	0.002	2.437	.112[b]
	Residual	0.017	21	0.001		
	Total	0.021	23			

a. Dependent Variable: RES_12

b. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.003	0.009		0.288	0.776
	PRE_12	-0.403	0.274	-0.667	-1.471	0.156
	Unstandardized Predicted Value	0.222	0.109	0.924	2.040	0.054

a. Dependent Variable: RES_12

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-0.0062	0.0331	0.0184	0.01308	24
Residual	-0.02912	0.09961	0.00000	0.02715	24
Std. Predicted Value	-1.881	1.124	0.000	1.000	24
Std. Residual	-1.025	3.506	0.000	0.956	24

a. Dependent Variable: RES_12

Heteroskedasticity test (White's test) for the full sample of transactions for the variable CARBID

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.469[a]	0.220	0.146	105.90317

a. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

b. Dependent Variable: RES_12

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66481.833	2	33240.917	2.964	.073[b]
	Residual	235525.112	21	11215.482		
	Total	302006.945	23			

a. Dependent Variable: RES_12

b. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-19.785	30.533		-0.648	0.524
	PRE_12	6.013	3.828	0.504	1.571	0.131
	Unstandardized Predicted Value	1.914	13.850	0.044	0.138	0.891

a. Dependent Variable: RES_12

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-19.9286	132.9522	30.7654	53.76351	24
Residual	-108.96191	433.93466	0.00000	101.19398	24
Std. Predicted Value	-0.943	1.901	0.000	1.000	24
Std. Residual	-1.029	4.097	0.000	0.956	24

a. Dependent Variable: RES_12

Heteroskedasticity test (White's test) for the sample of transactions with positive total gains for the variable %TOTGAIN

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.677[a]	0.458	0.386	0.01266

a. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

b. Dependent Variable: RES_12

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.002	2	0.001	6.333	.010[b]
	Residual	0.002	15	0.000		
	Total	0.004	17			

a. Dependent Variable: RES_12

b. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.006	0.006		-0.979	0.343
	PRE_12	-0.268	0.111	-1.308	-2.414	0.029
	Unstandardized Predicted Value	0.190	0.060	1.722	3.178	0.006

a. Dependent Variable: RES_12

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-0.0074	0.0272	0.0139	0.01093	18
Residual	-0.02373	0.02611	0.00000	0.01189	18
Std. Predicted Value	-1.947	1.220	0.000	1.000	18
Std. Residual	-1.875	2.063	0.000	0.939	18

a. Dependent Variable: RES_12

Heteroskedasticity test (White's test) for the sample of transactions with positive total gains for the variable CARBID

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784[a]	0.615	0.564	63.03832

a. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

b. Dependent Variable: RES_12

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95186.707	2	47593.354	11.977	.001[b]
	Residual	59607.448	15	3973.830		
	Total	154794.155	17			

a. Dependent Variable: RES_12

b. Predictors: (Constant), Unstandardized Predicted Value, PRE_12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14.723	18.354		-0.802	0.435
	PRE_12	3.249	1.111	0.825	2.924	0.010
	Unstandardized Predicted Value	1.260	7.096	0.050	0.178	0.861

a. Dependent Variable: RES_12

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-14.8259	225.7650	36.0868	74.82792	18
Residual	-111.10530	182.76991	0.00000	59.21419	18
Std. Predicted Value	-0.680	2.535	0.000	1.000	18
Std. Residual	-1.763	2.899	0.000	0.939	18

a. Dependent Variable: RES_12