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# Macroeconomic Factors Influencing Cross-Border Merger & Acquisitions Value

- An empirical study of UK acquirers on foreign targets

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# ABSTRACT

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**Title:** Macroeconomic factors influencing Cross-Border Merger & Acquisition value

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**Key words:** Event study, CBM&A, Cumulative Abnormal Return (CAR), Market Model, Macroeconomic factors, BRICS, MIKT, Developed, Developing

**Purpose:** This thesis intends to contribute to research by evaluating how the market responds to the announcement of a CBM&A transaction for acquiring shareholders and examining the extent to which macroeconomic & cultural factors influence shareholder value creation as well as whether there are any differences between developed and developing countries.

**Methodology:** A quantitative event study with a deductive approach is performed where the announcement of a CBM&A transaction is investigated during two event windows, [-2, 2 and -5, 5] to examine if abnormal returns exist. Multiple linear regressions are carried out to find a relation between abnormal returns and macroeconomic, explanatory variables.

**Theoretical perspective:** The main theoretical frame is the Efficient Market Hypothesis, the Signaling theory and theories regarding M&A and CBM&A including motives and factors affecting shareholder wealth. Previous relevant studies are emphasized.

**Empirical foundation:** A quantitative assembly of data has been collected to examine the abnormal returns over two event windows [-2, 2 and -5, 5] for CBM&A transactions during 1997-2012 on foreign targets. The acquirers are listed on the London Stock Exchange.

**Conclusions:** The authors cannot generally distinguish any abnormal returns in connection with CBM&A announcements for the event windows. The research cannot also find any significant relationships between abnormal returns and macroeconomic & cultural factors. Needless to say, there are still significant differences for these variables between developed and developing countries.

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*Jonathan Hegbrant*

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# 1. INTRODUCTION

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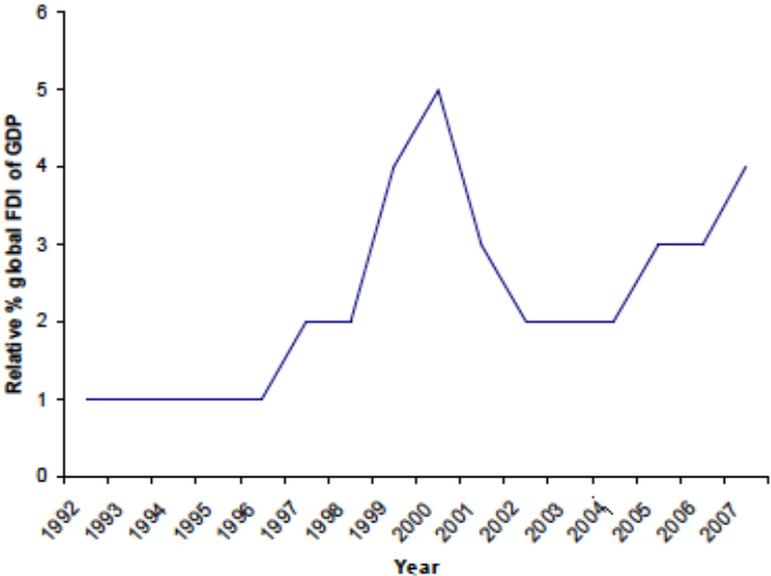
*This chapter begins by introducing the reader to the general mergers and acquisitions subject, which characteristics influence value creation for acquirers and the purpose of investigating macroeconomic and cultural factors in relation to cross-border deals. To conclude, demarcations, intended audience and outline of the remaining thesis are presented.*

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## 1.1 Background

Foreign direct investment (FDI) is a way for companies to expand their business into foreign markets. The majority of FDI belongs to cross-border M&A activity, peaking at over eighty percent in 1999 according to UNCTAD (2000). With a constantly growing globalization, Cross-Border Merger & Acquisitions (CBM&A) are gaining in importance. The global CBM&A value increased from \$200 billion in 1990 to \$1637 billion in 2007 (Sudarsanam, 2010).

**Diagram 1** - *Global foreign direct investment, net inflows (% of GDP) in the period 1992-2007.*



*Source: World Bank Development Indicators*

Due to the amount invested and its strategic importance for firms, the interest in M&A research has grown immensely. The M&A activity subsided in connection with the most

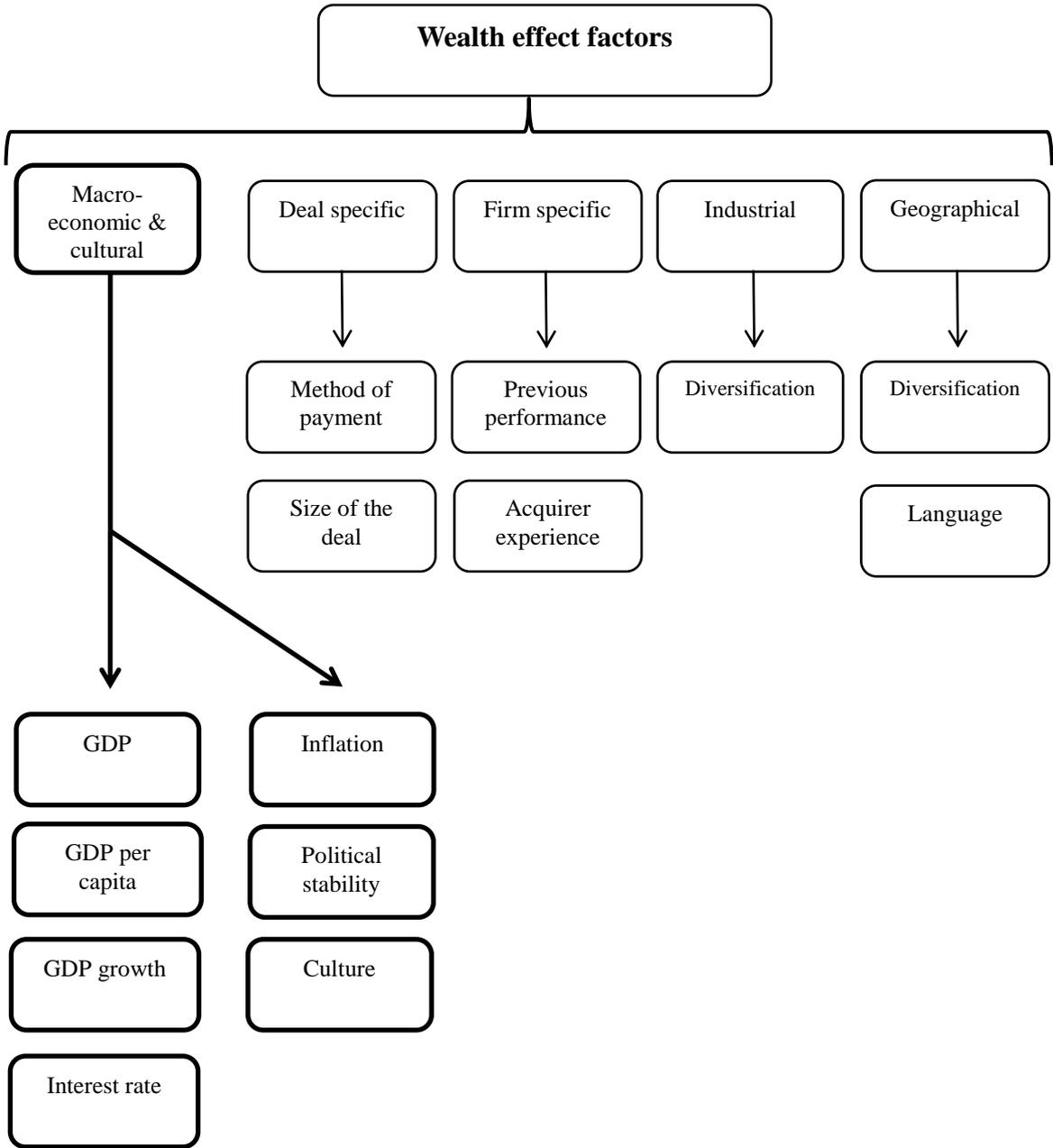
recent financial crisis, however, new research has shown that the M&A activity is on the rise again. A study involving 868 corporate managers performed by McKinsey, highlights the importance of M&A as a means to grow and create value (Uhlener & West, 2011). In connection with increased research, interest the variety of questions related to M&A has expanded. Questions such as, why M&A exists, which motives drive the activity, whether it creates value and if so which factors affect value creation are commonly asked. It is in particular the latter question which has dominated research attention, does M&A create value and if so, whether it is the shareholders of acquiring or target firm who benefit from the transaction. Previous research has provided a mixture of results; however, the majority of research agrees on that it is the shareholders of the target firm who benefit from M&A transactions, whereas the shareholders of the acquiring firm in general do not experience any effect (Gaughan, 2007). Seth (1990) argues those firms who utilize resources optimally to enhance productivity under current environmental restraints and opportunities are those that maximize the value creation process.

In an M&A setting, the foundation for value creation is the combination of the merging firms' resources and the situational opportunities and constraints. The ability for two or more firms to generate greater value as a single entity rather than separately, is often referred to as synergy (Goold and Campbell, 1998). Researchers have been able to conclude a range of characteristics, which affect value creation; *industrial diversification* (Doukas, Holmen & Travlos, 2002; Flanagan, 1996), *relative size of the deal* (Asquith, Bruner & Mullins 1983; Gupta & Misra, 2007; Bieshaar, Knight & van Wassenauer, 2001; Moeller, Schlingemann & Stulz, 2004), *method of payment* (Asquith et al., 1983; Yook, 2003), *previous experience of acquirer* (Fuller, Netter & Stegemoller, 2002; Haleblan & Finkelstein, 1999), *attitude of transaction* (Tuch & O'Sullivan, 2007) and *pre-bid performance of acquirer* (Rau & Vermaelen, 1998; Sudarsanam & Mahate, 2003).

All the aforementioned characteristics also hold for cross-border deals. These characteristics are described in *Cross-border M&A* (Shimizu, Hitt, Vaidyanath & Pisano, 2004; Doukas & Travlos, 1988). Since the national conditions between countries differ a great deal, the authors' contribution to the research is to investigate the effects of macroeconomic and cultural factors in CBM&A as a compliment to previous studies on acquiring shareholder value creation. Furthermore, these macroeconomic and cultural differences will be compared based on the target country's stage of development.

To better illustrate how the authors intend to contribute to past research, the characteristics affecting value creation have been divided into different categories i) macroeconomic and cultural factors ii) firm factors iii) deal factors iv) geographical diversification v) industrial diversification. As mentioned, this thesis focuses on macroeconomic and cultural factors whilst controlling for the remaining variables, as shown in Diagram 2.

**Diagram 2 – Examined factors affecting value in CBM&A**



Source: Authors

## 1.2 Problem discussion

Over the years, managers' ambitions to realize synergies and growth have caused some of the largest failures in corporate history, such as AOL Time Warner and HP Compaq. Perhaps one of most infamous CBM&A deals, referred to as "Transatlantic car crash", took place in May 1998 when Daimler-Benz agreed to acquire one of Detroit's big three automakers, Chrysler, at a deal originally valued at a staggering \$40 billion. Nine years and billions of dollars of losses later, Chrysler was sold off for a mere \$6 billion (Bloomberg Businessweek). The case begs the question; why value can be destroyed for acquiring shareholders in CBM&A transactions?

One explanation can be found in the motives for the M&A deal, which can cause either value creation or destruction. According to the agent theory put forward by Jensen (1986), corporate managers act in their own interests in order to increase their own utility and not necessarily in the interests of the shareholders. An example is the drive for managers to build empires or increase their own personal power, in which case, value is more often than not destroyed. Since many M&A deals during the second half of 20<sup>th</sup> century did not create value, they were explained to be driven by the managers' own interests and hubris (Roll, 1986). However, in the beginning of the 1990's, it became apparent that synergy effects were the underlying motive behind M&A transactions (Berkovitch & Narayanan, 1993).

There are three common theories which explain specifically CBM&A motives; the theory of comparative advantage, the imperfect markets theory and the product cycle theory (Madura, 2006). The *theory of comparative advantage* states that countries, which have comparative advantages can benefit from each other if they trade these goods and services freely. The *imperfect market theory* proposes that resources are not freely transferrable across borders, which brings additional costs when transferring these. Markets are deemed to be imperfect and as a result, firms seek to bridge these market shortcomings by investing in foreign countries. Finally, the *product cycle theory* argues that a firm will initially try to satisfy the domestic market but as competition increases the firms will attempt to penetrate foreign markets to enhance its competitive position (Madura, 2006).

In spite of the increased focus on the mentioned motives and the growing number of international transactions, from an acquiring company's perspective, few produced the desired or expected gains (Hitt, Harrison and Ireland, 2001). Research carried out by KPMG report that by only 17% of cross-border acquisitions create value, while 57% destroys it (Shimizu et

al., 2004), something which must be explained by external factors. As mentioned in the background, there are traditional characteristics, applicable to M&A as well as CBM&A deals, which empirically have shown to affect shareholder wealth. In addition to these traditional characteristics, previous studies have shown macroeconomic and cultural factors to impact shareholder value.

The fundamental idea behind CBM&A is that firms penetrate international markets in order to exploit the target's specific resources and take advantage of the imperfections in the market (Buckley & Casson, 1976; Morck & Yeung, 1991; Wilson, 1980). The size of the target country can be used as a representation for identifying these opportunities. Graham, Martey & Yawson, (2008) indicate that the size of the target economy is very important and is recognised as the Gross Domestic Product (GDP). Another important economic measurement, which indicates the health of the economic condition in a country, is the rate of inflation. It indicates an adverse economic condition for several reasons, the value loss of capital, the encouragement of underinvestment, the distortion of resource allocation and the depression of the market (McKinsey, 2010). It is possible to achieve financial synergy through access to external funds at a lower cost of capital in the acquiring country and competitors in the target country then have to use more expensive ways of raising capital (Uddin & Boateng, 2010). Further financial gains can be achieved through the relative strength or weakness of the acquiring versus the target currency and can affect the premium paid in a CBM&A. However, the impact the exchange rate has on the acquirer is still unknown since expected future cash flows is a function of future exchange rates. Needless to say, according to Kiymaz (2004), an acquirer would benefit from a strong home currency at the time of the transaction and a weak, at the time of the repatriation of cash flows.

In addition to the economic conditions in the target country mentioned previously, firms who engage CBM&A deals should also take political stability factors into consideration. Political stability entails numerous risks, such as internal and external conflicts, regime discontinuity and changes in the legal system (Meldrum, 2000; Brockmann, 2007). Cultural disparity signifies a larger cultural difference and according to Majidi (2007) cultural differences can be the underlying cause for miscommunications and conflicts. Subsequently, cultural differences can cause negative wealth effects for shareholders. Thus, as evident, there are numerous of variables to be taken into consideration in CBM&A transactions.

If corporate managers were aware of which factors affect value, regardless of motives, large CBM&A failures such as Daimler Chrysler could have been avoided. Since the CBM&A field is still in its infancy compared to traditional M&A, the question remains; how does the market respond to a CBM&A announcement and which macroeconomic and cultural factors influence shareholder value for acquiring firms?

### **1.3 Purpose**

Previous empirical studies describe how a set of macroeconomic and cultural factors influence shareholder value in CBM&A. Firms who are faced with the impending decision whether or not to expand internationally and engage in CBM&A, should be conscious of the fact that these macroeconomic and cultural factors might differ, depending on stage of development of the target country. To the best knowledge of the authors, limited research has been carried out of the differences between these factors depending on if the country is developed or developing. Therefore, this thesis intends to contribute to research by evaluating how the market responds to the announcement of a CBM&A transaction for acquiring shareholders and examining the extent to which macroeconomic & cultural factors influence shareholder value creation as well as whether there are any differences between developed and developing countries.

### **1.4 Demarcations**

The authors briefly describe the most essential demarcations that were carried out for the study. A complete thorough description can be found in the methodology chapter.

In regards to the choice of methodology, the authors are aware of the fact that there are several methods to calculate wealth effects other than the one applied in this thesis. The use of the market model to investigate the existence of abnormal returns was a deliberate choice, since it is proven to yield more reliable results than other models (MacKinley, 1997). Subsequently, we considered it superfluous to incorporate further models. In addition, the study focuses on the short-term wealth effects, because long event studies are statistically less appropriate (Andrade, Mitchell & Stafford, 2001). Finally, the authors assume that the theory regarding the efficient-market hypothesis (Fama, 1970) holds and as a result a short-term event study is more adequate to capture the reactions of the market in response to CBM&A announcements.

Only mergers and acquisitions will be considered in the thesis, other related entry modes, such as alliances, joint ventures and green field investments were left out. The reasoning is that CB&A is considered to be a faster way of exploiting the opportunities within foreign markets (Shimizu et al., 2004; Ma, Pagán & Chu, 2009; Seth, Song & Pettit, 2000) as a result; only M&A were taken into account for in the thesis.

### **1.5 Audience**

This thesis will be of interest and is particularly relevant for academic as well as the corporate management. From an academic point of view, the thesis strives to engage students as well as researchers within the fields of corporate finance, economics and international business. From a corporate viewpoint, the thesis is of particular relevance to managers, analysts and investors involved in CBM&A strategy.

### **1.6 Thesis outline**

In the first chapter, we have introduced background to the subject, problem discussion, the purpose of the paper and delimitations of this study as well as the audience for which the thesis is written. In the second chapter, literature review and an outline our hypotheses are presented. Chapter three presents the methodological approach to this study. The chapter includes research approach, event study, data collection regressions followed by the reliability and validity of the study. Chapter four contains empirical findings and analysis. Finally, the thesis ends with chapter five, which contains conclusion and suggestions for further research.

## 2. THEORETICAL BACKGROUND

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*In the theoretical background chapter, the authors want to provide support to the problem discussion and purpose of the thesis, by thoroughly explaining the current state of theoretical and empirical research. A range of expressions are defined which lay the foundation for the thesis. Furthermore, the authors present relevant value creation characteristics in regards to CBM&A transactions. Finally, in connection to applicable theory each of the hypotheses is presented.*

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### 2.1 Definition of M&A

In academic literature there are several terms used interchangeably to describe different types of corporate mergers and acquisitions, including expressions such as takeover, transaction, consolidation and fusion (Wübben, 2007). Due to the lack of a suitable definition, above-mentioned expressions are generally included under the broad term “mergers and acquisitions”.

The main occurrence of an M&A is the transfer of ownership, management and control rights from the target company to the acquiring company (Wübben, 2007). There are two main mechanisms, by which these aforementioned rights can change; either by an acquisition of the target firm, or through a merger with another company. (Berk & DeMarzo. 2007). Mergers, as well as acquisitions, are similar when referring to changes in the economic control of an entity, but differ in the perpetuation of the legal existence of the target company (Wübben, 2007).

A merger refers to the strategy of combining two separate companies in order to create one, single corporation unit (Ogden, Jen & O’Connor, 2003) or to create a new legal entity (Wübben 2007). Consequently, the legal existence of at least one of firm is removed (Wübben, 2007) and frequently, the shares of one of the firms are extinguished, whereas the shares of the other remain outstanding. Typically, the shareholders of the incorporated firm are compensated through shares of the existing firm or cash, whilst the surviving firm purchases the assets and liabilities of the defunct firm (Ogden et al. 2003). In general, mergers are only carried out by an affirmative, majority vote of the shareholders of both firms, governed by explicit laws (Wübben, 2007). The definition of an acquisition also can be used to describe the abovementioned action. The surviving firm could be seen as the acquirer or the

bidder, whereas the deduct firm also can be named the acquired firm or the target (Ogden et al. 2003). However, in contrast to a merger, in an acquisition, the target firm is incorporated into the corporate group of the acquirer, leaving the legal existence of the target initially unaffected (Wübben, 2007). Since it has been proven difficult in previous literature to distinguish between mentioned transactions, both will henceforward be referred to as M&A. An overview can be found in table 1.

**Table 1 – Method for categorizing M&A**

<i>Type of business combination</i>	<i>Strategic Direction</i>	<i>Acquisition structure</i>	<i>Status of the target</i>
- Acquisition - Merger	- Horizontal - Vertical - Concentric - Conglomerate	- Asset deal - Share deal	- Private - Public
<i>Attitude</i>	<i>Form of payment</i>	<i>Financing</i>	<i>Geographical focus</i>
- Friendly - Hostile	- Cash - Securities	- Equity - Debt - Hybrid	- Domestic - Cross-border

## **2.2 Theoretical foundation**

### **2.2.1 Efficient market hypothesis**

The efficient market hypothesis (EMH) has been the basis for much of the theoretical development within the field of financial economics. The modern interpretation of the hypothesis can be traced to the 1960s from the authors Fama and Samuelson.

In his hypothesis, Fama (1970) describes a market whose prices fully reflect the information available. He states that the market reacts immediately to any new information disclosed and the stock price is adjusted to a new equilibrium. The price is adjusted so quickly that investors do not have time to trade before anyone else i.e. investors cannot not receive any excess returns, thus receiving only a normal return on their investment. The price of a financial asset reflects all historical price information and it is not possible to predict future prices with the

help of historical. Subsequently, when financial assets are traded, the price is an accurate reflection of the expected future returns (Fama, 1970).

According to Fama (1970) there are three conditions that must be satisfied for the market to be efficient. Firstly, there are no transaction costs when trading assets. Secondly, all participants should have free access to all information. Thirdly, the participants should agree that the information available reflects the price of the asset. If all aforementioned criterions are fulfilled, the market is efficient. Nevertheless, this market does not exist due to the existence of transaction costs as well as information asymmetry. However, Fama (1970) states that this does not necessarily mean that the market is inefficient, but that there is a possibility that it could become inefficient (Fama, 1970).

For example, when studying an M&A transaction, the main difficulty is to distinguish the unexpected effect of the event on the stock price. According to the efficient market hypothesis, the stock price should only react due to the unexpected part of the announcement as the expected part is already reflected in the stock price. As a conclusion, the efficient-market hypothesis shows how efficient the market is in processing information and in explaining the pricing of stocks. In order to determine each market's degree of efficiency, Fama, divided the market efficiency into three different categories, which are briefly described below (Fama, 1970).

#### *Weak-form efficiency*

The weak-form efficiency is characterized by a market, which only reflects the stock price based on historical prices. It does not include any elements of future events. Thus, there are no trends or patterns in the price volatility, signifying that a technical analysis is not considered adding any value (Fama, 1970).

#### *Semi-strong-form efficiency*

The semi-strong efficient form means that historical prices, as well as available public information, are reflected in the stock price. Subsequently, the only participant who has the opportunity to beat the market is the investor who possesses inside information (Fama, 1970).

### *Strong-form efficiency*

In a market with strong-form efficiency, the stock prices are based on all available information, including insider information. All participants receive the same information at the same time and thus there are no ways to beat the market in the long term (Fama, 1970). Malkiel (2003) describes how it is not possible to create any excess returns as it not possible to affect the stock prices. He explains the concept as a study of monkeys throwing dart on a stock map and surpassing the result of many investors. He states, as Fama, that the market is efficient. Over the years, the theory of efficient markets has been questioned. Malkiel has recently been partly changed his view of the theory by adding the human factor. This is only applicable in the short term, when bad investments and misjudgements are made by investors, but in the long term the market will recover to be efficient (Malkiel, 2003). In short, the efficient-market hypothesis thus is based on rational investors immediately reacting on the announcement of an M&A transaction, which means that an effect on the stock price should occur immediately. Nevertheless, some time after the announcement there should not be any effects on the stock profit (Rosen, 2006). According to the efficient-market hypothesis, the stock price for a company that carries out an M&A, should only be affected by this event, as all other information available about the firm is considered to be accessible for anyone and has already been discounted by the market. This is a prerequisite for conclusions to be drawn based on the results of this thesis. In addition, only the unexpected part of the transaction should affect the stock price. Thus, any abnormal returns can be explained by investors' expectations either outperform the market or the opposite.

### **2.2.2 Signalling theory**

The signalling theory argues that markets are not fully efficient. The management has access to better information than the remaining shareholders and may act from it. The signals that management sends out can illustrate the future direction of the firm and which results the company faces. The management signals to demonstrate what it is doing to maximize the value of the firm (Van Horne & Wachowicz, 2005). The market is in need of information and reacts not only on what the management communicates but also on how it performs.

For example, the market reacts on dividends; if increasing the dividend of the firm, investors generally react positively. When the management shows that it believes in a as a positive

future and that it goes from words to action, the signalling theory can explain the market's positive reaction (Brealey, Myers & Allen, 2006).

Through its actions, the management sends out signals to the market and M&A transactions constitute signals that influence expectations of the investors. If there is a strong confidence in the management and the information about the transaction is explicit, it should be reflected in the reaction of the investors. If the signals are interpreted by the market as the management has an optimistic belief in the future, this should cause the stock price rise. This is also true for the reverse, when there is pessimistic belief in the future the opposite reaction is expected.

## **2.3 Theoretical background for M&A**

### **2.3.1 Motives for M&A**

Apart from the aforementioned factors, in previous studies, the existence of M&A has been explained by the underlying motives for such transactions. Three main categories of motives from earlier studies are; the agent problem, the hubris hypothesis and synergy effects (Berkovitch & Narayanan, 1993; Halebian, Devers & McNamara, 2009).

#### *Agent problem*

Through studies, it has been found that in some cases, M&A are completely motivated by agent problem, meaning that they are motivated by the acquiring company's management team's self interests. They are carried out with the expectation to maximize the personal utility, but not necessarily the wealth of the shareholders and are subsequently often value-destroying (Berkovitch & Narayanan, 1993). Different ways for the managers to practise their self-interests have been identified and two commonly known examples are that the management buys other companies in order to expand the size of its own firm (Jensen, 1986) and to lessen the risk by diversifying (Amihud & Lev, 1981). Another example is that managers carry out M&A within their own business areas where they have an edge in competence. In that way, the managers reinforce their position within the new, merged firm. It has been found that an M&A driven by such factors is carried out even though they are value-destroying for the shareholders of the acquiring firm (Shleifer & Vishny, 1989). When an M&A transaction yields a sufficient personal profit, the management is willing to sacrifice the market value of the firm in order to engage in an M&A. Subsequently, the managers will pay a premium containing such personal profits (Morck, Shleifer & Vishny, 1990). All

aforementioned actions lead to so-called agent costs, reducing the value of the consolidated company. In that way, value is destroyed for the shareholders of the acquiring firms when managers engage in M&A based on agent motives (Berkovitch & Narayanan, 1993).

### *Hubris hypothesis*

Roll (1986) contributed to the behavioural corporate finance literature by introducing the hubris hypothesis as a motive for engaging in M&As. The hubris hypothesis is based on a market without synergy effects where M&A transactions are motivated by hubris and bad judgements by the managers (Roll, 1986). Nevertheless, since it has been proven empirically that M&A create value, the hubris hypothesis does not completely hold. However, Roll (1986) states in despite the existence of synergy effects, managers often make bad judgements, which leads to acquisitions. This fact is often expressed as the decision makers being hubristic, overestimating their own ability to realize synergies, which leads to incorrect estimations (Roll, 1986). This in turn, makes the managers estimate the target firm to at a higher value than the present market value and the acquiring company ends up paying a surplus premium (Hodgkinson & Partington, 2008). The outcome is that value is created for the shareholders of the target firm, whereas value is destroyed for the shareholders of the acquiring firm (Berkovitch & Narayanan, 1993).

The management of the bidding firm overvalues the target because they overestimate their capacity of value-creation upon gaining control of the target's assets (Ogden et al. 2003). The fundamental prediction of the hypothesis is that at the day of the announcement, the general change in market value should be at least zero, since M&A is costly. (Ogden et al. 2003) This is because the market, apart from the management of the bidder, realizes that there are no synergy gains (Ogden et al. 2003). Roll further tried to show this valuation effect on acquisitions and takeover announcements to prove his point. The evidence shows that the shareholders of the target firm realize significant positive abnormal returns, whereas past research indicates that the effect on bidder's shareholders is insignificant (Ogden et al. 2003). Hence, Roll has shown that value is created in an acquisition or takeover but shareholders of the target firm receive all of the added value (Ogden et al. 2003).

### *Synergy hypothesis*

The synergy hypothesis suggests that companies engage in M&A, since there are synergy potentials, the value of the consolidated firm is higher than the value of each company alone (Seth et al., 2000). Another definition of synergy is a source of value-creating efficiency arising from combining the assets, operations and financial structures of two companies in a merger (Ogden et al. 2003). Synergy effects are normally divided into two groups; operational and financial (Berk & DeMarzo, 2007). All in all, operating synergy refers to either horizontal or vertical mergers whereas financial synergy includes a possibility of lowered cost of capital due to the incorporation of one or more companies (Gaughan, 2007). Synergies can also be explained as the present value of the net-increase of the cash flows generated by a consolidation of two companies that could not have been accomplished by any of the companies alone (Ficery, Herd & Pursche, 2007). The abovementioned can also be seen mathematically with the following equation:

$$Value (Consolidated) = Value (Acquiror) + Value (Target) + Synergy$$

Following the equation above, the maximal purchase price that the acquirer is willing to pay is; Value (Target) + Synergy (Davidson, 1985). Financial synergy can be achieved by lowered cost of capital, higher debt-to-equity ratio, lowered corporate tax rate (Jensen & Ruback, 1983), direct risk reduction and liquidity enhancement (Berk & DeMarzo, 2007). The operational synergy creates value by increasing the free cash flow in two ways; revenue enhancement and cost reductions (Ogden et al. 2003).

Operating synergy is achieved if the merger creates enhancements in any business function such as management, labour costs, production or distribution, resource acquisition and allocation and market power (Ogden et al. 2003). It can be divided into two groups; revenue enhancement and cost reductions (Sirower & Sahni, 2006; Chatterjee, 2007; Gaughan, 2007; Arnold, 2008).

There are various sources of revenue enhancement such as sharing of market opportunities through a cross-market of each merger partner's products, or the loan of the merger's well-reputed brand name to an upcoming product line of a merger partner. Revenue-enhancing synergy might also be accomplished from the merger of one company with a strong distribution network and a company with products of great potential but with difficulties

introducing them to the market (Gaughan, 2007). To conclude, revenue enhancements relate to the possibility of expanding and penetrating new markets as well as finding new consumers (Berk & DeMarzo, 2007). Nevertheless, revenue-enhancing synergies are sometimes difficult to achieve and hard to quantify, which is why cost reductions is cited as the most important source of operating synergy (Gaughan, 2007).

Synergy effects derived from revenue enhancement increase the growth rate for the merged firm, as opposed to two separate companies. Revenue enhancement can arise from cross-selling, cross-marketing, increased competitiveness and market power. Cross-selling and cross-marketing refer to companies benefitting each other's sales channels, customer basis, access to market and brand name to increase the consolidated sales compared to the sales of each company respectively (Sirower & Sahni, 2006; Gaughan, 2007). Nevertheless, it can easily be confused with marketing and shared sales channels where the purpose instead is to split aforementioned functions over additional product categories in order to reduce costs (Rappaport, 1986). Seth et al. (2000), state that in CBM&A, growth is achieved as a result of buying based on general know-how. Previous research has tried to identify how firms that have engaged in horizontal acquisitions have managed to increase their market power, for example by increasing their prices to customers (Kim & Singal, 1993; Sapienza, 2002).

Operating synergies related to cost reductions are more frequent and easier accomplished, since in practice, it normally leads to dismissal of employees and elimination of unnecessary resources (Berk & DeMarzo, 2007). One important source is economies of scale, i.e. decreased per-unit costs due to the increase in size or scale of the production (Gaughan, 2007). This is because the fixed costs of the firm's operating facilities are spread out over higher levels of output. Furthermore, companies can benefit from economies of scale by reducing manufacturing costs due to the possibility of renegotiating supplier contacts when acting as a larger corporation (Berk & DeMarzo, 2007). Other sources of cost reduction worth mentioning are increased specialization of labour management and more efficient use of facilities (Gaughan, 2007). Another term that is closely related is economies of scope, which is the capacity of a firm to use some inputs to provide a broader range of products and services (Gaughan, 2007). Economies of scope can create cost reductions deriving from savings due to a combination of the marketing and the distribution of diverse sorts of related products (Berk & DeMarzo, 2007).

Cost reductions are commonly referred to as economies of scale and economies of scope. The former, means that the cost per produced output (variable costs) for the merged firm are reduced compared to each company alone. Economies of scope refer to the average costs for all the products of the merged firm, since all the different product functions use the same resources (Gaughan, 2007). Synergy effects derived from cost reductions are often accomplished from taking advantage from already existing assets in a more efficient way, splitting the fixed cost, increase the specialization and subsequently and increase the efficiency of the firm (Gaughan, 2007).

Financial synergy is achieved in a merger if the extent of the financial configuration of the merged firm leads to a higher market value than the sum of the market values of the firms separately (Ogden et al. 2003). Nevertheless, financial is not achievable in an ideal capital market, as has been proven by Modigliani & Miller (1958) through the irrelevance of an individual company's capital structure (Ogden et al. 2003). Simply incorporating two companies will not create value even though the cash flow volatility of the merged firm will be smaller than a value-weighted average of the cash flow volatilities of the individual firms, this as a result of the diversification effect (Ogden et al. 2003). Financial synergy can also include the fact that merged firms might realize a higher optimal debt ratio due to the traditional trade-off theory of optimal capital structure. Consequently from the merger, the two firms can reduce its probability of bankruptcy as long as their cash flows are not perfectly correlated. In addition, the greater debt capacity brings an increase in tax benefits from the tax shield from interest deductibility and hence, an increase in total market value (Ogden et al. 2003).

### *Diversification*

According to the respondents of a survey carried out by Mukherjee & Kiymaz (2004), another important motive is diversification. Benefits from diversification consist of three different kinds; direct risk reduction, lower cost of debt or increased debt capacity and liquidity enhancement (Berk & DeMarzo, 2007).

A frequently used argument to justify an M&A, is that alike a large portfolio, larger firms hold less idiosyncratic risk (Berk & DeMarzo, 2007). However, investors can accomplish the benefits of diversification on their own by hedging their investments and in addition, there are

a lot of costs associated with merging and running a diversified firm (Berk & DeMarzo, 2007).

Ceteris paribus, larger, diversified firms are less exposed to the risk of bankruptcy given the same degree of leverage (Berk & DeMarzo, 2007). Therefore, such firms can increase their debt-to-equity-ratio and benefit from tax shield effects without fearing significant cost of financial distress. Hence, increased tax benefits and decreased bankruptcy-related costs from leverage are clear advantages of diversifying through mergers (Berk & DeMarzo, 2007).

Shareholders of private firms are often not hedged, since they have unbalanced share of their wealth invested in that specific firm. As a result, when an acquirer buys the private target, it offers the target's owners a way to decrease their exposure to risk by reinvesting their shares in a diversified portfolio. This is often a vital factor to why shareholders accept the takeover (Berk & DeMarzo, 2007).

### **2.3.2 Factors influencing shareholder value in M&A**

In addition to various motives when engaging in M&A transactions, there are certain factors that can impact an M&A, as a source of wealth creation. Expressed differently, these are the reasons considered to not be the underlying factors, when engaging in M&A but still affect the created value. Based on theories within the field of value creation, different variables have been examined to investigate their impact on the value creation at an M&A transaction. Hitt, King, Krishnan, Makri, Schijven, Shimizu and Zhu (2009) have performed a summarized study, which shows the most common variables from 89 articles. The most frequent are whether the transaction is focused or diversified (58 percent), the relative size of the firms (52 percent), the previous experience of M&A transaction for the acquiring firm (28 percent) and the method of payment (18 percent). These variables will be presented briefly.

#### *Method of payment*

There are various ways to finance an M&A transaction. In general, the deals include cash, equities or a combination of both. Previous literature demonstrates the impact of the method of payment on M&A transactions. Loughran and Vihj (1997) concluded that complete stock mergers yield significant negative excess returns of 25 percent, whereas transactions paid in full with cash generated positive excess returns of 61.8 percent. The authors state that, for complete stock transactions, the stock of the acquiring firm can be overvalued. Information

asymmetry is a complication within M&A and firms can use equity as a method of payment to mitigate this problem, especially when the target is likely to have proprietary information of its value. Since M&A transactions are difficult to estimate, it can be thought that bidders desire equity as method of payment. Equity is argued to have contingent-pricing characteristics and thus could surpass cash (Hansen, 1987). Nevertheless, targets in emerging countries are often hesitant to accept foreign equity, forcing acquirers to finance with cash (Chari, Parker Quinmet & Tesar, 2004). Eckbo & Thorburn (1990) argue that information asymmetry is two-sided, and thus deals with a combination of cash and equity would be optimal and surpass either complete share or cash transactions.

Information asymmetry is often mentioned as an explanation to use equity as a method of payment to mitigate the problem, especially when the target is considered to have proprietary information of its value. Since CBM&A deals are complex to evaluate, it could be assumed that acquirers prefer equity as method of payment. The equity is considered to have contingent-pricing characteristics and thus could surpass cash transactions (Hansen, 1987). Nevertheless, targets in emerging countries are often unwilling to accept foreign equity, which oblige acquirers to use cash (Chari et al., 2004). On the contrary, Eckbo & Thorburn (1990) stated that information asymmetry is two-sided, and thus deals with a joint finance method should represent equilibrium and surpass either complete share or cash deals as a method of payment.

### *Market to book*

Market to book (MTB) is often used as a proxy for pre-bid performance of the acquiring firm. A high value indicates high expectations on future performance and is thus considered positive (Tuch and O'Sullivan, 2007). Nevertheless, empirical research proves the opposite. Rau and Vermaelen (1998) argue that acquirers with a lower MTB value create significantly higher value than high MTB acquirers. This is accordance with the study of Sudarsanam and Mahate (2003). The hubris hypothesis (Roll, 1986) is often mentioned to be the reason. When managers have previously experienced success, the probability of becoming overconfident is imminent. Previous success might also increase the expectations of the markets on future performance. Furthermore, high MTB acquirers are considered to be overvalued due to their previous successes which might impede the evaluation of their deals whereas low MTB acquirers, due to their previous poor performance, are forced to estimate their deals more sincerely (Sudarsanam and Mahate 2003).

### *Acquirer experience*

Previous studies have found that the probability of an acquisition to be impacted by the acquirer CBM&A experience of similar transactions (Amburgey & Miner, 1992). Nevertheless, the evidence is diverse, (Haleblian et al., 2009). Zollo and Singh (2004) discovered that the performance of the acquiring companies was not affected by its previous experience solely, but positively affected from the process of learning the lessons from past CBM&A transactions. Another result has been proposed by Haleblian and Finkelstein (1999), who found that relatively inexperienced acquirers do not have the capacity to distinguish the specific characteristics of the acquisition, and subsequently inappropriately generalize experience from previous transactions to new deals. More experienced acquiring firms evade this mistake, as they are capable of identifying the different characteristics of the each acquisition. Thus the superior acquirers, are the ones with either extensive or no experience at all. Furthermore, Beckman and Haunschild (2002) found that the decision of whether to carry out the transaction or not, was influenced by their level of experience due to the fact that acquirers with previous experience has superior information and consequently pays a lower premium. However, Doukas and Travlos (1988) provide contradicting results and reason that CBM&A deals do not create any value if the acquirer is already operating within the target nation. Therefore, it is unclear whether experience affects value or not.

### *Size of the deal*

The size of the acquiring firm might influence the performance of CBM&A deals positively as well as negatively. Firstly, larger firms might hold the financial resources and knowledge to execute the pre-bid process, including due-diligence and negotiation, and the implementation of post-bid procedures more efficiently. Thus they might have better potential to create value for shareholders. Larger firms also have higher likelihood of benefitting from economies of scale and scope (Graham et al, 2008). Bhagat, Malhotra & Zhu (2011) found a positive relationship between relative size measured as transaction value divided by the acquirer's market capitalization, and the acquirers' cumulative abnormal return (CAR) for a three day event window surrounding the announcement of the transaction. This is in line with Graham et al, (2008) who concluded that larger firms are more likely to acquire firms in emerging markets. Conversely, Jensen (1986) argues that larger firms have a tendency to have a weaker ownership control and thus have more severe agent problem. These arguments are further supported by Moeller et al. (2004) who found a negative relationship between size and

the acquirers' CAR. This was thought to be due to managerial hubris since larger firms offered larger premiums.

### **2.3.3 Empirical evidence on motives for M&A**

Because of the complexity when determining which is the underlying motive to an M&A, research and several studies have tried to distinguish which motives drive M&A. Berkovitch & Narayanan (1993) summarize previous research and reason that agent problems and hubris should be the main motives for engaging in M&A activity during the 1980s, since M&A on average was value-destroying. The reasoning is in accordance with Malatesta (1983) conclusion that the agent problem is the largest motive. Berkovitch & Narayanan are in their study examining underlying motives by investigating which motives were value-creating in relation to how much value was created by M&A between 1963 and 1988. Their outcome was that synergy effects is the primary motive for an M&A (Berkovitch & Narayanan, 1993). In a similar study, Kiyamaz & Baker (2008) also conclude that synergy is the main factor to M&A within their sample selection of the 100 largest M&A transactions every year between 1992-2000.

Research and literature indicate that companies involved in M&A have learned from previous experience. The hubris hypothesis and the agent problem are not as commonly referred to, mainly because M&A has proven to create value, much of which however, is attributed to the shareholders of the target company. Subsequently, the most significant underlying motive for M&A of recent studies has been synergy effects.

### **2.3.4 Empirical evidence on M&A value effects**

Previous research indicates that M&A in general create value but the majority accrues the shareholders of the target company. The greater part of the empirical studies performed within the field, indicates that more than a third of the M&A carried out is value-destroying for the acquiring firm (Koller, Goedhart & Wessels, 2005). The study of 1415 M&A between 1997 and 2009 executed by McKinsey, gives evidence to an average increase of market value of 4 percent as a result of an M&A. When examining the outcome more closely, it became evident that the acquiring firm experience an average market value decrease of -5.8 percent, whereas the same value for the target firm was +9.8 percent (Rehm & Sivertsen, 2010). The reactions of the capital market have also been scrutinized by Moeller, Schlingemann & Stulz (2004),

who found that value, is destroyed for shareholders of the acquiring firm and that a value weighted average M&A leads to a drop of the stock price of the acquiring firm of -1-3 percent. Jensen & Ruback (1983), state that M&A does create value, but only for the shareholders of the target firm.

Bruner (2004) studied 14 informal and 100 scholar studies within the M&A field between 1971 and 2001 and also concludes that M&A creates value, if measuring the consolidated value creation. The cumulative abnormal return (CAR) of all companies in the study indicates positive results for the shareholders of the target company, whereas the results for the shareholders of the acquiring firm vary. According to aforementioned study, 24 out of 44 studies indicate a positive CAR for the acquiring firm and the remaining 20 show a negative CAR. The study of Bruner (2004) also illustrates that CAR has a tendency of declining over time. Subsequently, Bruner (2004) concludes that abnormal returns (AR) for the shareholders of the acquiring firm are equal to null over the wide spectrum of studies. Tuch & O'Sullivan (2007) agree with Bruner and state that independent of the time frame chosen for measuring the abnormal returns, few studies indicate a positive AR for the shareholders of the acquiring firm. Andrade et al. (2001) examine 4256 completed M&A between 1973 and 1998 and conclude that the total abnormal returns for both parties of the transaction were +1.8 percent, indicating, as in the study of Bruner (2004), that M&A in general creates value. Nevertheless, it is evident from the study that the value created only accrues the shareholders of the target firm.

To sum up, according to empirical studies M&A is value creating, but the value is only be accrued the shareholders of the target firm. The most significant reason for this is that the premium paid by the acquiring firm is approximately equal to the value created in an M&A transaction, why the shareholders of the target firm capture the value (Berk & DeMarzo, 2007).

## **2.4 Theoretical background for cross-border M&A**

### **2.4.1 CBM&A**

Firms operating in industries with intense competition often face the difficulty in maintaining high organic growth, which is why cross-border M&A (CBM&A) offers an option to ensure that a firm does not lose market shares to faster growing rivals. Subsequently, CBM&A is a

strategy for aforementioned firms to gain market shares (Gaughan, 2007). In general, CBM&A transactions yield higher synergy effects than domestic M&A deals due to the possible diversification synergies from the target company. Such effects are referred to as intangible assets (brand names), R&D expenditure and knowledge of the employees (Conn, Cosh, Guest & Hughes, 2003).

#### **2.4.2 Motives for CBM&A**

All the motives for M&A are also true for CBM&A, but this section emphasizes motives that are explicit for the geographical diversified deals. According to Madura (2006), there are three main theories for why firms expand abroad; the theory of comparative advantage, the imperfect market theory and the product cycle theory.

The theory of comparative advantage refers to the fact that a firm has an advantage relative others when it is able to manufacture the same products and services at a lower cost. The theory states that two firms can benefit from specializing their production in the service or goods where it has a principal advantage. The imperfect market theory states that available resources vary between firms. Hence, transferring products across firms is costly due to restrictions. As a result, since the markets are imperfect, firms have an incentive to engage in international opportunities, CBM&A. Companies manufacture products and services to fulfil the home market, however, the theory of the product cycle suggests that as the home market develops, competition will intensify. As this happens, the firm will turn to new, foreign markets (Madura, 2006).

In addition to aforementioned theories, the internationalization theory elaborated by Rugman (1979) and Caves (1990), states that internationalization will be valuable for a firm when it can benefit from intangible assets, enhanced knowledge, marketing and managerial capacity. These assets have different defects, such as limited information, monopoly and immobility. They are related to public goods and their value is set in proportion to the scale of the markets of the firm. The assets are based on patent protected information and for various reasons it is complex to exchange them. Nevertheless, by expanding to new, foreign markets for these assets, companies can avoid such transaction complications and consequently increase the value of the particular asset (Caves, 1990).

As with domestic M&A transactions, previous research has proven that companies wish to accomplish economies of scale and scope through CBM&A (Buckley & Ghauri, 2002). An

additional motive for firms to engage in CBM&A is to expand business relationship with clients in other countries (Weston, Mitchell, Mark & Mulherin, 2004). Furthermore, some studies propose purchasing strategic assets such as marketing skills, product differentiation, proprietary technology and managerial knowledge as a major factor for performing CBM&A transactions (Wang & Boateng, 2007). Aforementioned assets are important resources improving the competitive advantages of the company (Amit & Schoemaker, 1993). Empirically it has been shown that new environments will make firms change their organization structure and are thus forced to adapt new knowledge (Crossan, Lane & White, 1999).

As previously stated, an essential motive for CBM&A is to penetrate new, foreign markets. Numerous studies have been performed on CBM&A regarding the potential of firm engaging in CBM&A as a method to enter foreign markets (Harzing, 2002; Luo & Tung, 2007). Even though there are several ways to enter a new market, a successful acquisition has proven to be the quickest way (Wang & Boateng, 2007). In comparison with joint ventures and strategic alliances, an acquisition will allow the acquiring firm more effective control of the operations. (Raff, Ryan & Staehler, 2009). Furthermore, an acquisition is a less time and money consuming approach to take advantage of a mature operation (Gilroy & Lukas, 2006).

For firms, which wish to develop in a dynamic competition, learning is often considered to be one of the strategic means (Collins, Holcomb, Certo, Hitt & Lester, 2009). Companies would face complications that vary compared to their regular strategic and organizational circumstance, which would give the acquiring firms possibilities to learn through CBM&A. The learning process begins from the pre-CBM&A valuation and negotiation and continues throughout the entire CBM&A process. In addition, the ability will be improved and continued during the learning process (Haspeslagh & Jemison, 1991).

### **2.4.3 Factors influencing shareholder value in CBM&A**

Factors influencing M&A also affect CBM&A transactions but this section emphasizes variables that are specific to CBM&A deals. Previous studies such as di Giovanni (2005), Globberman and Shapiro (2005), Aminian and Campart (2005), Kamaly (2007) and Uddin & Boateng, (2010) examine macroeconomic factors affecting shareholder wealth and based on previous literature, the variables included in this thesis are briefly described in the coming sections.

### *Economic size*

The fundamental motive behind CBM&A transactions is the possibility to penetrate new markets to take advantage of the targets' specific resources and exploit the imperfection in the market (Buckley & Casson, 1976; Morck & Yeung, 1992; Wilson, 1980). This further generates arbitrage institutional restrictions such tax codes, antitrust provisions and financial limitations, for the involved firms (Doukas & Travlos, 1988); while at the same time increasing the operational flexibility of the companies by providing them with the possibility to benefit from different market conditions (Kogut, 1983). One way to measure these opportunities is through the size of the target country. A large economic market can offer advantageous investment opportunities for the acquiring firms, which have the resources to exploit them. CBM&A transactions in countries with a large economic size, a good economic condition and good economic forecast are probable to generate wealth effects for shareholders. Moosa (2002) proposes that the volume of FDI inflows into a country is influenced by its market size. In other words, the larger the market size of the country in terms of national GDP, the larger the inflow of FDI to that nation. The explanation to this is that large markets can generate economies of scale for the involved firms (Stoian & Filippaios, 2008). Relevant research such as Anand and Kogut (1997) and Globerman and Shapiro (1999) further support the opinion that higher GDP in the country tend to attract more acquisition FDI, because of the possibility of higher demand and potentially higher profits in the economy.

### *GDP*

High investments involve high risks and are only acceptable in large markets. Therefore, it is expected that acquisitions in countries with a larger economic size affects shareholder wealth positively.

**Hypothesis 1:** *GDP is expected to influence the shareholder value of the acquiring firm.*

### *GDP per capita*

It is important to complement the size of the economy with the economic condition of a country, as economic size alone, might be a result of a large population alone and therefore still has a relatively low purchasing power. According to Montero (2008), GDP is an indicator of a growing market that can support emerging economies of scale. The abovementioned

reasoning also holds for GDP per capita and subsequently GDP per capita is expected to positively affect shareholder wealth.

**Hypothesis 2:** *GDP per capita is expected to influence the shareholder value of the acquiring firm.*

#### *GDP growth*

In addition to the current situation of a nation, its future forecast is essential as well and sustained growth provides the promise of expanding opportunities (Montero, 2008). Firms often face the difficulty to maintain a high, organic growth why expanding in countries with higher growth is a solution (Gaughan, 2007). With a developing economy, the purchasing power rises, and hence creates more demand for products. Subsequently, GDP growth is expected to positively affect shareholder wealth.

**Hypothesis 3:** *GDP growth is expected to influence the shareholder value of the acquiring firm.*

#### *Interest rate*

There are other important economic measurements, which indicate the health of the economic condition in a country. In any CBM&A deal, an important component is the financing of the transaction. Pablo (2009) and Forssbaeck & Oxelheim (2008) claim that the capacity and propensity for a firm to carry out CBM&A transactions investment can be explained by the cost of capital and access to finance. For example, accessibility to lower cost of external funds yields a financial synergy and thus increases the probability of deals. Previous research states that the correlation between CBM&A activity and interest rates shows that lower interest rates reduces the cost of financing in the acquirer country because of the wealth of capital and thus encourages profitability of international expansion (Tolentino, 2010). Yang, Groenewold, & Tcha (2000) and Jeon and Rhee (2008) found further evidence by concluding the role of interest rates in attracting CBM&A to be important. Kish & Vasconcellos (1993) further propose that higher interest rate in the country discourages inflow of CBM&As. It is expected that the larger the difference in interest rate between target and acquirer country, the larger the positive wealth effects for shareholders for two reasons. Firstly, as mentioned, there is a possibility to gain financial synergy through access to external funds at a lower cost of capital in the acquirer country and secondly, competitors in the target country have to use more

expensive ways of raising capital (Uddin & Boateng, 2010).

**Hypothesis 4:** *Differences in interest rates between acquirer and target are expected to influence the shareholder value of the acquiring firm.*

#### *Inflation*

Another important economic measurement, which indicates the health of the economic condition in a country, is the rate of inflation. Black (2000), states that a lower rate of inflation was an important factor for the growth of CBM&A transactions in the 1990s. High rates of inflation signify a bad economic condition as inflation causes devaluation of capital whereas lower rates lead to lower prices in target and lower cost of debt, subsequently encouraging higher volumes of CBM&A transactions. On the contrary, higher inflation in the acquiring country will make the domestic targets more expensive, motivating potential acquirers to seek opportunities where the inflation rate is low (Uddin & Boateng, 2010). Apart from value loss of capital, inflation further causes encouragement of underinvestment, distortion of resource allocation and depression of the market. Therefore, it is expected that inflation in the target country is negatively correlated with shareholder wealth.

**Hypothesis 5:** *Inflation is expected to influence the shareholder value of the acquiring firm.*

#### *Exchange rate*

The relative strength or weakness of the acquiring versus the target currency can affect the premiums paid in an M&A. It can further affect the cost of the target, how the deal is financed and the value of the repatriated returns to the bidder. Several studies, such as Harris & Ravenscraft (1991) and Kiyamaz and Mukherjee (2000), claim that when the acquiring currency is strong relative the target currency, the target shareholders receive greater returns. This is since a stronger foreign currency allows the acquirer to pay a higher premium for the target. The impact the exchange rate has on the acquirer is still unknown since expected future cash flows is a function of future exchange rates. Overall, acquirers would benefit from a strong home currency at the time of the transaction and a weak home currency at the time of the repatriation of dividends and cash flows (Kiyamaz, 2004).

**Hypothesis 6:** *Differences between acquiring and target currency at the time of the transaction is expected to influence the shareholder value of the acquiring firm.*

### *Political stability*

In addition to the economic conditions in the target country mentioned previously, firms who engage in CBM&A deals also take political stability factors into consideration. Political stability entails numerous risks, such as internal and external conflicts, regime discontinuity and changes in the legal system (Meldrum, 2000; Brockmann, 2007). A CBM&A deal involves huge amounts of invested capital and especially when expanding in developing countries, regime changes and variations in the regulatory environment might jeopardize the invested capital (Aguiar & Gopiath, 2007). It is expected that there is a positive correlation between political stability and wealth effects for shareholders.

**Hypothesis 7:** *Political stability is expected to influence the shareholder value of the acquiring firm.*

### *Culture*

Another non-economically related factor is the culture, taking into account the four cultural dimensions; power distance, individualism, masculinity and uncertainty avoidance (Soares, Fehrangmehr & Shoham, 2007). Power distance deals with the fact that all people of a society are not equal, and the dimension expresses the attitude of the culture towards these inequities. Power distance can in other words, be defined as the extent to which the less powerful members of institutions and organisations within a nation expect and accept that power is distributed unequally". The fundamental idea of the individual dimension is whether people's self-image is defined as "I" or "We". In individualist societies, people are only looking after themselves and their own family whereas in a collectivist society people belong to groups, looking after these people in exchange for loyalty. A high masculinity dimension score specifies that a society is driven by competition, achievement and success, an attitude commencing in school. A low score indicates a feminine society where the dominant values are caring for others and quality of life and that standing out from the crowd is not admirable. Finally, uncertainty avoidance refers to the way a society deals with unknown situations; should one try to control it or just let it happen? This uncertainty causes anxiety and different cultures deal with this anxiety differently (Soares et al., 2007). According to Majidi (2007), higher disparity from the mentioned dimensions can be the underlying cause for miscommunications and conflicts that can cause negative wealth effects for shareholders.

**Hypothesis 8:** *Cultural differences are expected to influence the shareholder value of the acquiring firm.*

### *Language*

Language is the first of the CBM&A *control variables* in the thesis and refers to a common spoken language in both acquiring and target countries. According to Kiymaz (2004), a common spoken language, results in lower transactions costs, since it is believed that companies are able to communicate and understand each other efficiently. Moreover, a common language might signify a smaller cultural disparity why a transaction between two countries with a common language is supposed to be positively related to acquiring shareholder wealth (Kiymaz, 2004).

### *Geographical diversification*

Geographic Location refers to the effects of geographical diversification. Regions vary in global integration and consequently have different potential in terms of diversification. Previous research has proven that geographically diversified firms increase the risk-return trade-off. Moreover, CBM&A transactions might explain differences in wealth effects due to the various levels of economic development, economic integration and diversification potential (Kiymaz, 2004). A common legal environment can influence shareholder value positively since firms can benefit from operating in a common legal environment but might also influence firms from countries outside of the legal entity negatively, since transaction costs increase. Doukas & Travlos (1988) prove that the acquirer can benefit from entering a new market for the first time since valuable knowledge is accessed which is in line with the study of Shimizu et al. (2004), which states that geographical diversification is value-enhancing as it increases the growth opportunities.

### *Industrial diversification*

This refers to the potential industrial diversification between target and acquiring firms. Firms differ in their structure and therefore have different international diversification potential (Kiymaz, 2004). Doukas & Travlos (1988) conclude that wealth effects are greater when

diversifying across industries. It is expected that firms in different industries will create diversification gains and therefore positively affect shareholder wealth.

#### **2.4.4 Empirical evidence on motives for CBM&A**

Madura (2006) summarizes relevant theories to why firms engage in CBM&A transactions. He states that the theory of comparative advantages, the imperfect market theory and the product cycle theory are major motives for CBM&A deals. Morck & Yeung (1991) confirms the influence of the internationalization theory, that cross-border deals are expected to benefit firms in form of important intangible assets such as patents, brand and goodwill. They state that firms engaging in CBM&A transactions are firms that *“posses useful intangible asset to the value of which is proportional to the firm’s degree of multinationality”*. Internationalization can further be argued to be rivalry between oligopolistic firms to head off opportunities and maturing niches. Harris & Ravenscraft (1991) agree and reason that CBM&A transactions are more frequent within R&D intensive branches than domestic M&A deals.

A further motive stated by Gaughan (2007) is that firms facing the difficulty to maintain a high, organic growth can gain market shares from competitors through engaging in CBM&A strategy. In general, CBM&A transactions yield higher synergy effects than domestic M&A deals due to the possible diversification synergies from the target company. Such effects are referred to as intangible assets (brand names), R&D expenditure and knowledge of the employees (Conn et al., 2003). Finally, firms might want to follow their clients abroad to maintain and further develop the business relationship (Weston et al., 2004).

Previous literature shows that the three theories summed together by Madura (2006) are together with the internationalization theory (Morck & Yeung, 1991) that multinational companies can take advantage of the market imperfections for their intangible assets abroad. Similar to general M&A deals, synergy effects seem to be an important motive also for cross-border mergers and acquisitions since diversification synergies are considered to surpass domestic synergies (Conn et al., 2003).

#### **2.4.5 Empirical evidence on CBM&A value effects**

In CBM&A, the average value creation for the shareholders of the acquiring firm seem to be more positive than for domestic M&A transactions. Markides and Oyon (1998) examined

wealth effects of 236 acquisitions between 1975 and 1988 and discovered positive and statistically significant wealth effects of 0.4 percent. Moeller & Schlingemann (2005) studied value creation of 383 transactions in the period 1985 to 1995 and found positive but statistically insignificant, abnormal returns of 0.3 percent. Other similar studies performed for US acquiring firms conclude similar outcomes (Doukas, Travlos, 1988; Markides & Ittner, 1994). Campa and Hernando (2004) analyzed 80 European CBM&A transactions during 1998 to 2000 and discovered abnormal returns of 0.1 percent. Lowinski, Schiereck & Thomas (2004) also conclude positive effects for CBM&A shareholders in his study of 91 CBM&A deals between 1990 and 2001 and finding statistically significant shareholder value creation of 1.3 percent.

The majority of previous literature within the field of shareholder wealth effects focuses on firm or deal factors, such as the relative size of the target to the acquirer, the method of payment, strategic direction and experience of the acquiring firm. Even though some studies have included macroeconomic factors such as exchange rates (Moeller & Schlingemann, 2005) few expand on it in greater detail. Kiyamaz and Mukherjee (2000) study wealth effects for acquiring shareholders in 112 CBM&A transactions between 1982 and 1991. The purpose of the study is to examine the effect of country diversification on shareholder wealth. The authors state that the effects increase with higher differences between the acquiring and target country. Furthermore, the authors investigate the influence of exchange rates as well as firm and deal factors to explain value creation for shareholders.

The influence of macroeconomic factors on wealth effects is further investigated by another study of Kiyamaz. Kiyamaz (2004) scrutinizes 207 CBM&A transactions between 1989 and 1999 and the wealth effects are analyzed by testing macroeconomic factors such as the economic condition, level of economic development and exchange rate volatility. Moreover, firm and deal factors are also included. The results show that macroeconomic factors are essential when clarifying wealth effects in CBM&A. Kiyamaz (2004) discovered that the foreign economic condition and exchange rate volatility influence shareholder wealth negatively. Furthermore, transactions in developing nations proved to result in higher value creation than deals in developed countries. The strength of the foreign currency and the correlation in GNP growth between the two nations do not seem to influence shareholder wealth. Markides & Ittner (1994) carried out another study that analyzes the impact of macroeconomic factors. They examine wealth effects from 276 CBM&A between 1975 and 1988. The study includes macroeconomic variables such as tax regulations, the strength of the

US dollar, and the difference in GDP growth between the acquiring and target nation as well as the inflation. The authors concluded that the strength of the US dollar had a positive relationship with shareholder wealth effects but none of the remaining variables proved to impact value creation.

To summarize, when studying shareholder wealth effects, firm and deal specific variables are often tested. From the few studies examining the effects of macroeconomic factors, the majority found a significant correlation between these and shareholder wealth. However, different studies have investigated different variables and the majority focuses on a limited set of variables, which do not include the whole spectrum; economic, financial, cultural and political variables.

## 3. METHODOLOGY

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*This chapter begins initially by explaining the research approach of the thesis and continues by describing the criterion for collection and process for the data. The implementation of the study is described thoroughly in the event study after which the explanatory variables and regression model is specified. The chapter ends with method limitations; reliability and validity.*

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### 3.1 Research approach

The methodology applied in this thesis was built around a comprehensive review of CBM&A literature from theory and empirical results. The authors research approach is best described as deductive, meaning that hypotheses were formulated based on existing theories regarding macroeconomic and cultural factors affecting shareholder wealth (Bryman & Bell, 2011). These hypotheses were then the fundamental focus during the empirical data collection process, which consisted of data from a large sample of UK acquiring companies. Subsequently, in order to test the hypotheses we applied a quantitative method through the use of an event study (Bryman & Bell, 2011). The quantitative approach was therefore the most appropriate since the purpose of the thesis was to draw general and statistical conclusions from a large sample rather than focusing on a single transaction (Holme & Solvang, 1997). Moreover, the quantitative nature of the approach makes it replicable ensuring that the analysis is objective (Bryman & Bell, 2011). The findings were statistically tested to determine whether or not to reject the hypotheses using the mentioned quantitative strategy (Bryman & Bell, 2011).

### 3.2 Choice of acquirer and target

#### 3.2.1 The acquirer

Traditionally, developed countries, and in particular the developed countries of the European Union (EU15) and the United States, have been the largest acquirers in CBM&As. Over the 2003-2005 period, developed countries accounted for 85 percent of the \$465 billion cross-border M&A, 47 percent and 23 percent of which respectively pertain EU15 and US firms either as acquirer or as target countries (UNCTAD, 2006). According to recent reports from Allen & Overy (2012), UK confirmed its position as the world's second largest cross-border

acquirer and the world's largest flow of M&A transactions exists between U.S. and U.K. Furthermore, as non-member of the European Single Currency, the UK can influence its own interest rate and other macroeconomic policies, as opposed to other European economies. A majority of CBM&A had UK firms as the acquirers, signifying an extensive UK-BRIC and UK-MINT economic relation with the intended target countries. The combination of the aforementioned factors is what made the U.K as a suitable acquirer candidate to investigate.

### **3.2.2 The targets**

Since the purpose of this thesis is to examine the impact of macroeconomic and cultural conditions in CBM&A transactions the selection of countries to investigate was imperative for the outcome for the study. Macroeconomic and cultural conditions differ a great deal depending on extent of the development of the country. In order to capture as large a variation as possible for the event study, we selected a range of countries dependent on their stage of development and geographical location. The countries that were selected were either categorized into developed or developing.

#### *Developed countries*

Although there is no universal, agreed-upon criterion for what makes a country developed or developing, one generally accepted method of measuring the development is the use of a Human Development Index (HDI), which serves as a frame of reference for both social and economic development. Thus, for the event study, the top ten countries with the highest HDI-score were selected. The countries selected in descending order: Norway, Australia, United States, Netherlands, Germany, New Zealand, Ireland, Sweden, Switzerland and Japan (UN development index, 2014).

#### *Developing countries*

The developing countries were broken down into two further sub-categories, consisting of two acronyms coined by economists Jim O'Neill, former employee at Goldman Sachs. These acronyms are referred as BRICS and MIKT and are widely recognized in the academic world as developing countries with high growth potential (O'Neill, 2013).

BRICS whose initials stand for the developing markets Brazil, Russia, India, China and South

Africa was originally coined by Jim O'Neill, a global economist at Goldman Sachs, in 2001. Ever since then the vast economic potential of the BRIC countries have become commonplace in discussions in the economic, corporate and political settings, turning this Goldman Sachs's invention into more than just a brilliant marketing ploy. These countries are some of the largest in the world covering 25 percent of the world's total landmass; they are home to around 40 percent of the world's population and are increasingly run as global market economies (Hult, 2009).

MIKT is yet another acronym originally coined by Fidelity, a Boston-based asset management firm, but also made popular by Jim O'Neill. MIKT refers to the economies of Mexico, Indonesia, South Korea, and Turkey. The term is primarily used in the economic and financial spheres and regarded as the next set of big growth economies after BRICS (O'Neill 2013).

### 3.3 Data collection

The investigation of wealth creation for acquiring firms in CBM&A for UK firms required a significant amount of data. Previous studies within the field have used a range of databases, such as CRSP (Berkovitch & Narayanan, 1993), SDC (Moeller et al., 2004). The authors concluded that the most suitable database for our purpose was to use Zephyr, a comprehensive database for M&A transactions and its characteristics. Thompsons Reuters Datastream Advanced was used for the collection of secondary data such as, historical stock prices, market indices.

**Table 2** – *Databases and sources*

<i>Data sources</i>	<i>Data</i>
Datastream database	Exchange rates, market indices, stock prices, interest rates
Capital IQ	Market to book ratio
The Hofstede Centre	Country scores for the four cultural dimensions of Hofstede
Thompson Reuters Eikon database	Firm specific data (company experience)
The World Development Indicators & Global Development Finance database of the World Bank	Macroeconomic data (i.e. GDP, GDP per capita, GDP growth rates and inflation rates)
The World Governance Indicators database of the World Bank	Political stability indicator
Zephyr database	Deal specific information (i.e. deal type, deal value, method of payment and SIC codes)

### 3.4 Selection criteria

For the initial selections sample the following restrictions Zephyr database were applied on the data, after which some further selection criteria were made by the authors.

#### *Selection criteria applied in Zephyr*

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<u>Criterion</u>	<u>Remaining deals</u>
- All available transactions	1,157,052
- The acquiring company was British	101,755
- The acquiring company was listed on London Stock Exchange	29,778
- The M&A is announced between 1997-01-01 and 2013-01-01 and the transaction was “announced”	26,360
- The target was based in: Brazil, Russia, India, China, South Africa, Mexico, Indonesia, South Korea, Turkey, Norway, Australia, United States, Netherlands, Germany, New Zealand, Ireland, Sweden, Switzerland and Japan	3,667
- Type of transaction: Merger & Acquisition (All other types such as: IPO, Joint Venture, MBO, MBI, Demerger, Minority stake, and share buyback were excluded)	1,913
- Acquiring company purchased a majority stake (51%)	1,703
- All acquisitions have a known value	1,301

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*Selection criteria applied by authors*

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<b><u>Criterion</u></b>	<b><u>Remaining deals</u></b>
- Method of payment was available	1,123
- The acquiring and target firms' primary UK SIC-codes were available from Zephyr	1,056
- The acquisition exceeded £5 million	779
- No duplicate offers for same target (only first one was used)	768
- Acquiring company: no more than one M&A within a eleven-day period (event window)	746
- Stock prices available -295 and +10 trading days of the announcement	655
- Relative size: The value of the transaction is at least 1 % of acquiring company's equity	540

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The requirement for the acquiring firms selected for this thesis was that they had to be listed in the London Stock Exchange, with an announcement between the years 1997-01-01 and 2012-12-31. The acquiring companies needed to be listed so that the authors could obtain share price performance. However, since only acquirer value was examined, it was not necessary for the target company to be publicly listed. The deal value also had to be known in order to control for the relative size of the transactions as described later. The primary reasoning behind examining acquisitions from the aforementioned period is that it gave the study a substantial sample size but also enabled the authors to review a complete trough-to-peak-to-trough macroeconomic cycle in accordance with Herd & McManus (2012).

As evident from 2.3 in our theory chapter, the size of the deal has an impact on the value creation. It was therefore necessary to mitigate the impact of size by excluding deal with a relative size of less than 5 percent. According to Walker (2000), the relative size can be defined as value of the deal divided by the acquiring company's market value three months preceding the announcement date. Finally, the acquiring company needs to have been listed on the stock exchange for at least six months prior to the acquisition announcement in order to calculate a fair normal return. Firms who have engaged in multi-acquisitions during the event window will not be included since it will be difficult to measure the effect of each transaction. With all necessary criterions fulfilled we were left with 540 related CBM&A deals.

To achieve enough variation for the event study, the authors decided that 200 observations would be sufficient and was reasonable given the timeframe. 100 observations were selected from the developed countries and 100 from the developing countries. The number of transactions in the countries varies a great deal. As a result, there is an over-representation of CBM&A deals for some countries, such as USA and Germany. For this reason the authors introduced a random sample selection method based on the pool of observations which satisfied the selection criterion. Every available observation from the developing sample was chosen since they in total did not amount to 100. As for the developed sample, the countries had to be represented ten times each, amounting to 100 observations. Whenever there were more than ten observations for a developed country they were randomly selected from each country pool. These observations were randomly selected in Excel. Thus, no developed country was represented more than ten times. Whenever there were insufficient observations for a country all the available ones were selected. The final sample outcome after the randomization is shown in the table 4 in the empirical and analysis chapter.

### **3.5 Measures of M&A profitability**

There are numerous of different approaches to measure M&A profitability (Bruner 2004). Accounting Studies examine financial statements of acquirers before and after acquisitions to observe how the performance has changed. Surveys of Executives entail asking a sample of executives through a standardized questionnaire whether the acquisition created value. Clinical Studies is an inductive research, which focus on one transaction or a small sample in great depth, usually deriving from field interviews (Bruner 2004). However, in contrast to the aforementioned methods, Event Studies are forward-looking and have since the 1970's arguably dominated the field.

## **3.6 Event Study - measuring short-term abnormal returns**

### **3.6.1 Introduction**

The fundamental idea of an event study is to observe stock prices around a specific event and measure the change due to the event (Peterson, 1989). This event study observed the abnormal returns to the shareholder in the interval surrounding the announcement of a transaction. The raw return for any given day is the difference in opening and closing prices of a stock. The abnormal return therefore is the raw return less the investor's requirement (normal return), which is typically dictated by the capital asset pricing model (CAPM) (Bruner 2004). By that same logic, normal return can be described as the expected return that an investor should anticipate given that an announcement (event) does not taken place.

In this thesis, the event study methodology was used to examine wealth effects of cross-border M&A. The wealth of the acquisitions is measured as Cumulative Abnormal Return (CAR). The event study is defined as the day when the acquisition becomes public, i.e. the announcement day. The event window only measures the market reaction over a few days, thus eliminating the surrounding factors i.e. *noise*, which can affect the stock price. Even though the event study only measures the short-term return, the market has been proven to be very effective at pricing the wealth effects and as a result has been a well-established method of measuring value creation in M&A (for example, Andrade et al., 2001; Gupta & Misra, 2007). According to Sirower (1997), the short-term fluctuations in the stock price surrounding the announcement date are also a good indication of the stock's long-term performance.

### **3.6.2 The Event Study**

There are numerous of different approaches to perform an event study. In this thesis the authors chose to work with the *market model*, which is based on the stock price's market index to estimate the normal return. The market model will be discussed further in depth in chapter 3.7.3. The fundamental cornerstone in an event study is defining the announcement date, the estimation period and the event window (Benninga, 2008). In conformity with MacKinlay (1997), we have used daily intervals instead of monthly in the event study. This increases the "power" and yields a better and more reliable result.

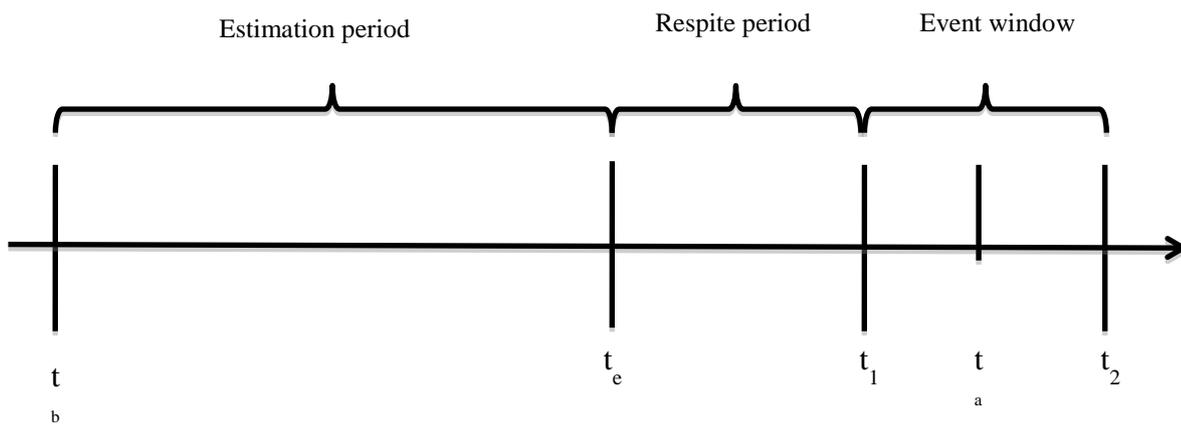
### 3.6.3 Announcement date

In order to measure the wealth effects in M&A for the acquiring company, the authors first had to define which date acts as the transaction day, for the event study. Based on previous studies such as MacKinlay (1997), Brown & Warner (1985), the authors chose henceforward, to define the announcement day as moment the firm announces the M&A transaction to the public via a press release.

### 3.6.4 Estimation period and event window

The time around the announcement day is called the “event window”. Normal returns are estimated using a period prior to the event window: the so-called “estimation period” (Peterson, 1989). Diagram 3 illustrates the relationship.

**Diagram 3** – *The components of the event study*



where

$t_b$  = The beginning of period used in the estimation of a normal security return

$t_e$  = The end of period used in the estimation of a normal security return

$t_1$  = The first period used in the calculation of abnormal returns

$t_a$  = The announcement date

$t_2$  = The last period used in the calculation of abnormal returns

Source: Illustration by authors based on Peterson (1989)

### *Estimation period*

In order to employ the market model we had to define the time period in which the normal return was estimated. It is important that the estimation of the normal return is not affected by the announcement, which is why the estimation period and event window should not overlap each other (MacKinlay, 1997). According to Schwert (1996), the market starts to react of M&A news 42 days prior to the completion. Kuenzi & Chatterjee (2001) discuss the importance of keeping the estimation period separate from the event since it can lead to biased results due to leakage of transaction information. To obtain a reliable as possible estimation, we used a 45-day respite period between the event window and estimation period, similar to Gerbaud & York (2007). To increase the robustness of the results there should be at least 126 observations in the estimation period. Any fewer then there is a significant risk that the *alfa* and *beta* coefficients in the market model do not represent reliable proxies of the stock price (Benninga, 2008). Furthermore, the use of a longer estimation period will mitigate the errors in the estimation of the parameters leading to a more robust study as the correlation between the abnormal returns is eliminated (MacKinlay, 1997). Subsequently, to obtain a dependable estimation we used a period of 250 trading days, which approximately is equal to a full calendar year (Brown & Warner, 1985). The main advantage of using a whole year is that it reduces the effects of seasonal variation, which might affect the estimation. However, the use of a more extensive period (improved prediction model) must be weighed against the cost of the longer period (model parameter instability) (Peterson, 1989). Based on the aforementioned reasoning, we chose an estimation period of -296 days to -46 days prior to the announcement date.

### *Event Window*

The event window can be defined as the time frame in which the effects of the value creation are captured. The event window often incorporates several days surrounding the actual announcement date (MacKinlay, 1997). A great deal of variations of time periods can be used, but researchers in general have agreed upon shorter event windows of 3,5,10 or 20 days. There is a distinct trade-off when selecting the event window. If it is too narrow then there is a risk in missing early market reaction, such as information leakage prior to the announcement. On the other hand, too long and there is a risk of capturing the effects of unrelated events (Haleblian & Finkelstein, 1999). A way to mitigate this issue is to measure the results from several event windows and therefore the authors selected event windows consisting of 11 days

[-5,+5] and 3 days [-1,+1]. The selections are empirically supported from its implementation in previous research, such as (Aybar and Ficic, 2009) and (Ma et al 2009).

### **3.7 Cumulative abnormal return (CAR)**

Wealth effects for shareholders are measured by the cumulative abnormal return (CAR), which in turn is defined as the aggregate of the abnormal returns.

#### **3.7.1 Abnormal returns**

Abnormal returns are measured by subtracting the normal return from raw return:

$$AR_{it} = R_{it} - NR_{it}$$

where

$AR_{it}$  = the abnormal return on stock i on day t

$R_{it}$  = the raw return on stock i on day t

$NR_{it}$  = the normal return on stock i on day t

#### **3.7.2 Raw return**

The raw return for any given day is the difference in opening and closing prices of a stock (Bruner 2004). It is calculated using the following formula:

$$R_{it} = \frac{(P_{it} - P_{it-1})}{P_{it-1}}$$

where

$R_{it}$  = the raw return on stock i on day t

$P_{it}$  = the stock price of stock i on day t

$P_{it-1}$  = the stock price of stock i on day t-1

### 3.7.3 Normal return

There are several approaches to measure normal returns. The two of the most prominent methods that are generally applied are the constant mean return model and the market model (MacKinlay, 1997). According to the same author, the former method assumes that the mean for any given stock is constant over time, whereas, the market model assumes a linear relationship between market return and stock return. Even though the constant mean return model is generally regarded as a simplified model it has proven to yield similar results as the more refined ones (Brown & Warner, 1980 and 1985).

That notwithstanding, the market model has an advantage over the constant mean return model in that it takes into account market movements. Stock price changes could derive from overall market movements rather than the event. This would mean that the results are biased as stock price movements are instead partially or completely produced by the market. The constant mean return model attempts to solve this problem by introducing a market index to represent normal returns so that market movements are included. However, this solution assumes that all stocks follow the exact market movements, in other words,  $\beta$  is equal to one. This approach does not obviously accurately represent the true market conditions. The market model allows for different co-movements of stocks by estimating the  $\beta$  for each stock. Subsequently, the portion of the return that is related to the variation in the market's return is removed (MacKinley, 1997).

Since the purpose of this study was to examine the event effects, the most appropriate method therefore was the market model. The choice of market index was divided into four groups depending on where the acquiring firm was listed on the London Stock Exchange (FTSE). This was introduced to achieve as representative as possible market index for each firm. The four different indices applied were: FTSE 100, FTSE 250, FTSE all-share and FTSE small-cap.

### *Market model*

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where

$R_{it}$  = the return on stock i on day t

$R_{mt}$  = the return on the market index m on day t

$\alpha, \beta$  = regression coefficients

$\varepsilon_{it}$  = error term

The market model was applied to obtain the fitted values of the regression coefficients. The regression coefficients were calculated for the entire estimation period. The fitted values of the regression coefficients were then used to estimate the normal returns.

$$NR_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt}$$

where

$NR_{it}$  = the normal return on stock i on day t

$R_{mt}$  = the return on the market index m on day t

$\hat{\alpha}, \hat{\beta}$  = the fitted values of the regression coefficients

### 3.7.4 Calculating CAR

The abnormal returns for each security over the event window  $[t_1, t_2]$  were aggregated to form individual cumulative abnormal returns (Campbell, Lo & MacKinlay, 1997).

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it}$$

The average CAR for N observations can then be calculated as follows:

$$\overline{CAR}(t_1, t_2) = \frac{1}{N} \sum_{i=1}^N CAR_i(t_1, t_2)$$

$\overline{CAR}$  for the periods  $[-1,1]$  and  $[-5,5]$  surrounding the date of the announcement were calculated.

### 3.7.5 Significance and hypotheses testing

To determine the extent to which the results can be generalized in the study a test for statistical significance was carried out, where the degree of reliability for the mean of the sample was determined. The sample cannot be generalized if there is a sample error, which in turn means that the results would not have shown high enough validity (Bryman & Bell, 2011).

According to Körner & Wahlgren (2006), depending on the distribution of the data and size of the observations, a range of statistical tests can be carried out. The t-test is a parametric test, which can be employed if the sample is normally distributed. If the sample size consists of at least 30 observations, the distribution can be assumed to be approximately normally distributed, in accordance with the *central limit theorem*. The disadvantage of using parametric tests is that the distribution can be affected by extreme values. Non-parametric tests, such as rank and sign tests, can be performed even if the sample is not normally distributed and contains extreme values (Körner & Wahlgren, 2006).

The authors chose to carry out a t-test in Excel since the data sample was assumed to be normally distributed and did not contain any extreme values.

$$t = \frac{(\bar{\chi} - \mu)}{(s\sqrt{N})}$$

where

$\bar{\chi}$	= mean value of sample
$\mu$	= mean value of population
s	= standard error of sample
N	= number of observations

The hypothesis testing commences with a construction of a null-hypothesis, which includes two variables not related to each other (Körner & Wahlgren, 2006). The null-hypothesis of this thesis, states that there is no relationship between the change in stock price and announcement of an M&A transaction. An appropriate statistical significance level ( $\alpha$ ) was selected, which is a measure of the probability that the null-hypothesis is rejected even though it should have been accepted. In the statistical programs, a p-value (probability value) is calculated, which is the probability that's the sample is the randomly distributed, expressed as a percentage. For this study, the authors decided on a significance level of 5 percent, which is the critical value where a null-hypothesis should be rejected.

To identify whether M&A creates value for the acquirer, as debated in the problem discussion, the null-hypothesis is constructed in the following way:

*H<sub>1</sub> : There are abnormal returns for the acquiring firm related the announcement day of an M&A (AR ≠ 0)*

A t-test was performed on abnormal returns (AR) for every day during the event window, as well as on the cumulative abnormal returns (CAR). It important to note that the test is based on the mean values AAR and CAAR. Subsequently the following hypotheses were formulated:

*H<sub>1</sub> : There are cumulative abnormal returns for the acquiring firm related the announcement of an M&A over the event window (CAR ≠ 0)*

### **3.8 Regression analysis**

A multiple linear regression was applied in order to further investigate the factors affecting abnormal returns and whether it can be explained by differences in macroeconomic conditions. The choice of model for determining these effects was based in part due to the nature of the problem discussion and the purpose but also the limitations and assumptions in the statistical model. To explain a correlation between a dependent variable and independent explanatory variables, a regression analysis is the most appropriate (Körner & Wahlgren, 2006). The more independent explanatory variables included in the regression, the worse the precision for each variable, which is why the application of a simpler model is justified (Ramanathan, 2002). Even though the inclusion of more variables increases the overall determination coefficient ( $R^2$ ), the degrees of freedom (df) are reduced for each included variable resulting in a weak strength of the test (Ramanathan, 2002). Weaker test strength increased the risk of a type II error, i.e., the risk of not rejecting a false null hypothesis (Körner & Wahlgren, 2006). Therefore there is a trade-off between high determination coefficient and test strength.

The interpretation of regression models is partly carried out by examining the determination coefficient, which explains to what extent the dependent variable is explained by the all the independent variables together. The significance level of the entire regression model is measured by an f-test whereas the significance level of each of the independent variables is measured by a t-test. If the f-test is significant, at least one of the independent variables has a linear relationship with the dependent variable. If any of the independent variables fails to fulfil the t-test, correlation between the variables could exist leading to an overlapping determination coefficient. A high p-value indicates that the explanatory variable should be excluded from the model (Westerlund, 2005).

The multiple linear regression was carried out in Eviews. A cross-sectional (OLS) regression of factors affecting abnormal returns was carried out on cumulative abnormal returns (CAR) measured in percent, to identify the impact of the determinants on the value creation around the announcement date. The choice of independent variables was based on previous research and theory as well as the availability of data. The regression was carried out on the whole data sample from period 1997-01-01 to 2013-01-01. Furthermore, two separate regressions were performed, one consisting only of data from developed countries and the other from developing. In the case that an independent variable had a high p-value, the model was would

be evaluated to possible adjustment, by excluding such variables and a new regression would be constructed consisting of remaining variables. The regression model is illustrated as below:

$$CAR[t_1; t_2]_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_{ki} x_{ki} + \varepsilon_i, \quad i=1, \dots, N$$

where

$CAR[t_1; t_2]_i$	= cumulative abnormal returns on stock i from day t <sub>1</sub> to day t <sub>2</sub> (T <sub>1</sub> < t <sub>1</sub> ≤ t <sub>2</sub> ≤ T <sub>2</sub> ),
$x_{ki}$	= factors affecting cumulative abnormal returns,
$\beta_0$	= the regression constant,
$\beta_{ki}$	= coefficients of the factors,
$\varepsilon_i$	= the error term of stock i.

### 3.8.1 Diagnostic testing

In order for the regression model to show reliable results, some assumptions and criteria for the data sample had to be fulfilled. The error terms, so-called residuals, had to be independent of each other, normally distributed, homoscedastic and have the same distribution (Davidson & MacKinnon, 2004). All together, six criteria had to be satisfied (Westerlund, 2005).

1. The dependent variable had to be correctly described by the chosen linear function model. With a RESET-test the model can be examined against the existence of incorrectly omitted variables as well as incorrect function form. If an independent explanatory variable is omitted, the function model inaccurately specified, which means that assumption one and two do not hold (Westerlund, 2005). RESET-test shows that the model does not satisfy the criterion for a perfect linear model.
2. The expected value of the residuals has to be equal to zero (Westerlund, 2005). According to the RESET-test the same reasoning as above has to be applied.
3. The residuals have to have the same variance, i.e. have to be homoscedastic. By performing a White-test it is possible to determine whether the assumption is satisfied and furthermore enables correction for heteroscedasticity (Westerlund, 2005).

4. The residuals cannot be auto correlated. To detect auto correlation a LM-test can be performed (Westerlund, 2005).

5. The independent variables are not random and thus cannot be written as an exact linear function of each other. Multicollinearity in the data sample can be detected with the help of a correlation matrix. There is a problem if the correlation exceeds 0.8 between two variables. (Westerlund, 2005).

6. The residuals have to be normally distributed. With a Jarque-Bera test the data sample can be tested for normal distribution if the number of observations falls short of 30 observations (Westerlund, 2005).

### **3.8.2 Dependent variable**

The dependent variable in the regression analysis as shown in the equation above was the cumulative abnormal returns (CAR) of stock  $i$ , from day  $t_1$  to day  $t_2$ . The regressions were run against the CAR derived from the market model and for the event windows  $[-1,1]$  and  $[-5,5]$ .

### **3.8.3 Independent variables**

The categories affecting value in CBM&A are several and the authors divided them into the following five categories: i) macroeconomic and cultural factors, ii) firm factors and iii) deal factor iv) geographical v) industry variables. The purpose of this study was to focus on macroeconomic and cultural conditions.

#### *Gross Domestic Product (LN\_GDP)*

The economic size of a country can be measured by the GDP. In our thesis, the variable *GDP* was calculated by logging GDP values of the year before the announcement (GDP values in 2005 constant US dollars). As is evident from section 2.4.3, CBM&A involves a significant investment. Large investments imply high risk, which can only be justified in larger markets. Engaging in M&A in countries with a larger economic size is expected to increase shareholder wealth.

### *Gross Domestic Product per Capita (LN\_GDP\_CAP)*

A good complement to the size of the economy is to take the economic condition into consideration. This represents the purchasing power of a country and is measured by the GDP per capita. *GDP per Capita* was calculated in the same way as *GDP* meaning that the values in the year prior to the announcement were logged (GDP per capita values in 2005 constant US dollars). It was important to put the economic size of an economy in relation to its population i.e. a large economy might be the result of a large population instead of a strong purchasing power.

### *Gross Domestic Product Annual Growth (GDP\_G)*

As a further complement to the aforementioned factors, a third dimension indicates the economic prospect of a country. This was measured as the annual GDP growth rate. The variable *GDP Growth* consisted of the annual growth rates the year prior to the announcement. As described in section 2.4.3, one of the key motives behind CBM&A is to capture the GDP growth of the target country. As mentioned, GDP growth represents the future prospect of a country. Economies with higher growth are therefore considered to be in the ascendency, which is often followed, by an increased purchasing power and ultimately a higher demand for products. In the developed countries, markets tend to be saturated and with slow growth rates. Consequently, companies might seek to exploit markets where the GDP growth is higher. These countries are more often than not, developing countries. Therefore, firms acquiring companies in high growth markets are expected to generate positive shareholder wealth effects. In addition to capturing the growth, companies establish footholds in future markets which further has a positive impact on wealth effects.

### *Interest rate (INT)*

There are other important economic measurements, which indicate the health of the economic condition in a country. In any acquisition, an important component is the financing of the transaction. A target country's interest rate is a measurement of the cost of external capital. Countries with a stable economic condition and easy access to capital tend to have lower interest rates. Subsequently, financing acquisitions is less costly. The variable *Interest Rate* was measured as the difference in interest rate between the target and acquiring company for the year of the transaction. To attain consistency, the interest rate equivalent to each country's

central bank rate was chosen. The larger the difference, the more expensive the financing of the transaction will be in the target country compared to the acquirer company. It was expected that the larger the difference in interest rate between target and acquirer country, the larger the positive wealth effects for shareholders. There are two theoretical reasons for this, as to why this is the case. Firstly, there is a possibility to gain financial synergy through access to external funds at a lower cost of capital in the acquirer country. Secondly, competitors in the target country have to use more expensive ways of raising capital (Uddin & Boateng, 2010).

#### *Inflation (INFL)*

Another important economic measurement, which indicates the health of the economic condition in a country, is the rate of inflation. The variable inflation simply measures the inflation rate of the target country for the year of the transaction. As described in section 2.4.3, inflation indicates an adverse economic condition because of the value loss of capital, the encouragement of underinvestment, the distortion of resource allocation and the depression of the market. Therefore, it was expected that inflation in the target country is negatively correlated with shareholder wealth (McKinsey, 2010).

#### *Exchange rate (EXC\_RATE)*

The relative strength or weakness of the acquiring versus the target currency can affect the premiums paid in a CBM&A. A measurement was implemented to account for the strength of the foreign exchange rate. Exchange rate strength was devised in accordance to Kiyamaz (2004) who used a two-step approach. Firstly, the exchange rate of the foreign currency in terms of British Pounds in the year of the announcement is subtracted from the average exchange rate of the foreign currency for the selected study period. Secondly, this difference is then divided by the average exchange rate. A positive value denotes that the foreign currency is stronger relative the British Pound and vice versa. The impact the exchange rate has on the acquirer is still unknown since expected future cash flows is a function of future exchange rates. Overall, acquirers would benefit from a strong home currency at the time of the transaction and a weak home currency at the time of the repatriation of dividends and cash flows (Kiyamaz, 2004).

### *Political Stability (POL\_STAB)*

In addition to the economic conditions in the target country mentioned previously, firms who engage CBM&A deals also take political stability factors into consideration. The variable *Political Stability* entails numerous risks, such as internal and external conflicts, regime discontinuity and changes in the legal system (Meldrum, 2000; Brockmann, 2007). It was expected that there is a positive correlation between political stability and wealth effects for shareholders. The World Bank Political Stability Indication was used to determine the political stability in the target country. The indicator was transformed into a scale ranging from zero to five, where five indicates strong political stability. The variable measures the political stability score of the target country in the year prior to the transaction. Since the index is highly related with other World Bank indicators such as, Voice and Accountability, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption and thus was used as a proxy for the these factors.

### *Culture (CULT)*

Another non-economically related factor is the variable *Culture*, measured using Hofstede's four Cultural dimensions; Power distance, Individualism, Masculinity and Uncertainty avoidance. To compute the variable, the difference between acquiring and target scores for all four cultural dimensions were calculated individually. Thereafter, these differences were added together to give each country an aggregated difference. A higher cultural disparity score signifies a larger cultural difference and according to Majidi (2007) cultural differences can be the underlying cause for miscommunications and conflicts. Large cultural differences were therefore expected to cause negative wealth effects for shareholders.

### **3.8.4 Control variables**

When constructing a linear multiple regression it was necessary to create control variables to increase strength of the outcome in the testing of hypotheses. The control variables included in the regression model were all dummy variables. A dummy variable is a binary variable that only takes two values, 0 or 1. It takes the value of 1 if a statement is true and 0 otherwise (Westerlund, 2005). Variables that, based on previous research, have shown to affect the value creation of M&A and thus important to include in the regression were categorized into the following groups;

### *Firm variables*

The dummy variable *Market-to-Book* (MTB) was used as a proxy for the performance previous to the transaction of the M&A. Firms with high MTB were expected to achieve less abnormal returns than firms with low MTB (Rau & Vermaelen, 1998). The acquiring firm's MTB ratio collected in the year prior to the transaction. The variable takes a value of 1 if the firm's MTB ratio was higher than the S&P 500 related industry average for that firm and 0 otherwise.

The dummy variable *Acquiring Firm Experience* (*EXP01*) refers to whether the acquiring firm has undertaken M&A transactions previous to the current transaction. Empirically, literature is divided on the impact on the wealth effects; however Haleblan & Finkelstein (1999) and Beckman & Haunschild (2002) showed a positive relationship between the experience of the acquiring firm and wealth effect for the shareholders. The variable takes the value of 1 if the acquiring firm has performed at least five M&A deals prior to the current transaction and 0 otherwise.

### *Deal variables*

*Method of Payment* (*MOP*) variable reflects the market reaction. A transaction purchased with cash indicated an undervalued target price, meaning that the true value of the stock is higher. Furthermore, a payment in stocks would indicate the opposite, i.e. that the stock value is overpriced (Kiyamaz, 2004). Subsequently, cash payment is expected to have a positive impact on wealth effects for shareholders. The variable takes the value of 1 if the payment is financed in cash and 0 otherwise.

The variable *Relative Size* (*SIZE*) was calculated by dividing target size of firm by the market capitalization of the acquiring firm in the year prior to the announcement. The deal value (in £) was used as a proxy for the target size. Previous research has shown that there is a positive relation between relative size of the target to the acquirer (Jarrell & Poulsen, 1989; Markides & Ittner, 1994; Moeller & Schlingmann, 2005). The variable takes the value of 1 if the size of the deal is larger than 10 percent and 0 otherwise.

### *Geographical variables*

The dummy variable *Language (LANG)* refers to a common spoken language in both acquiring and target countries. According to Kiymaz (2004), a common spoken language, results in lower transactions costs, since it is believed that companies are able to communicate and understand each other efficiently. Therefore, a common language is expected to have a positive impact on wealth effects. The variable takes the value of 1 if the official language in target and acquiring countries is the same and 0 otherwise.

The dummy variable *Geographic Location (GEO)* refers to the effects of geographical diversification. Regions vary in global integration and consequently have different potential in terms of diversification (Kiymaz 2004). It is expected that geographical diversification has a positive effect on shareholder wealth. The variable takes the value of 1 if the target country is situated on the same continent as the acquiring country and 0 otherwise.

### *Industry variables*

The dummy variable *Industry (IND)* illustrates the potential industrial diversification between target and acquiring firms. Firms differ in their structure and therefore have different international diversification potential (Kiymaz, 2004). It is expected that firms in different industries will create diversification gains and therefore positively affect shareholder wealth. The variable takes the value of 1 if, the two first digits of the primary UK SIC code correspond and 0 otherwise.

## **3.9 Method limitations**

### **3.9.1 Measurement and interpreting difficulties**

Sometimes difficulties can arise when defining the effect of the acquisition on the acquiring firm's stock price. The stock price reflects whether there are differences in expectations surrounding a transaction; if the transaction is expected, the effect is already included in the stock price. For firms regularly engaging in M&A, a future transaction might already be partially or fully incorporated in the stock price. This in turn means that the stock price change of this firm is less significant than compared to firms who do not have a regular M&A strategy. If however, abnormal returns still exist, this information only reflects the return from the specific transaction and not the M&A strategy of the firm (Jensen & Ruback, 1983).

Another important aspect in this study is taking into account when a transaction is expected to have a positive net present value (NPV). If the stock price movement post transaction corresponds with the expected return, this might indicate that the company has satisfied the investors' required return. In that case the normal return in connection with the transaction can be considered as acceptable from the firm and investors' point of view. In this type of study, however, a positive NPV is commonly associated with positive abnormal returns. As a result, the transaction can have a positive NPV but not as high as the market would have expected, leading to a drop in stock price even though the transaction has created value (Guest, Bild & Runsten, 2010).

Furthermore, another factor contributing to lowering the overall change in stock price for the transaction is if the acquiring firm has a market capitalization, which is significantly larger than the purchase price. Possible gains in connection with the transaction will then to a lesser extent affect the acquiring firm (Jensen & Ruback, 1983).

A rational reaction from the investors is necessary in order for abnormal returns to take place. If reactions are not rational, the demand for the stock does not increase even though the transaction was shown to be a good investment. As a result the stock price does not increase which means that there is no difference between raw return and expected return (Jarrell & Poulsen, 1989).

### **3.9.2 Validity**

Validity is defined as the absence of systematic measurement errors (Lundahl & Skärvad, 2009). Validity is classified into two parts, external and internal. In order to achieve internal validity the measuring instrument should only be used for its intended purpose. Additionally, it is necessary to be conscious of whether the measuring instrument is measuring the correct data and to the proper extent (Lundahl & Skärvad, 2009). Bryman and Bell (2011) describes the factor that has a causal influence as the independent variable and its effect as the dependent variable. The internal validity of this study is difficult to determine, since it cannot be certain that the abnormal returns, dependent variable, are only an effect of the transaction, the independent variable. For this study it was impossible to fully isolate the external effects on the dependent variable. To mitigate this problem the event window selected was short thus reducing the probability of outside effects; however, there was still a possibility that other factors such as dividend announcements played a role (MacKinlay, 1997). In such an event

there is covariance between the variables but not necessarily causality. In addition to covariance, in order for causality to exist, it is necessary to control for all other relations as well as the relevant variables (Jacobsen, 2002).

External validity measures how well the chosen indicator and the relation examined corresponds, not only for the specific study but also in general (Bryman & Bell, 2011). For this study it was important to be able to draw conclusions regarding the observations in the data sample, which can be applied for the whole population, i.e. all firms on the London Stock Exchange within the selected time frame. Nevertheless, the study should first and foremost give indications regarding how the stock price can be affected by an M&A transaction and the underlying reasons. Since the method in thesis, event study and abnormal returns, is a common occurrence in studies such as this, it can therefore be replicated for new circumstances with different selection criteria.

Construct validity is defined to which degree a test measures what it claims to be measuring (Bryman & Bell, 2011). For the quantitative approach that was selected for this thesis, the question regarding construct validity addresses whether the shareholder return correctly reflects the wealth creation for the shareholders of the acquiring firm. In order to assess the construct validity the measurement has to be reliable and not vary. The reliability of the study is a requirement for the validity to be achieved (Bryman & Bell, 2011).

### **3.9.3 Reliability**

The measurement reliability can be defined as the absence of random measurement errors (Lundahl & Skärvad, 2009). The reliability is partly affected by who performs the measurement but also by how it is performed. These two factors could cause the measurement to be impacted by coincidences and thus the outcomes would not be identical if they were to be repeated. As mentioned before, reliability is a requirement for the validity to be achieved. In order to accomplish the utmost attainable level of reliability, the authors constructed a system of formulas in Excel, which were consistently applied throughout the entire selection of transactions. This method is in accordance with the guidelines set by Benninga of how data sampling for event studies in Excel should be performed (Benninga, 2008). Regular random samples were frequently carried out to mitigate the risk of incorrect data entry. The authors critically scrutinized all results in the study and thus it could easily be replicated.

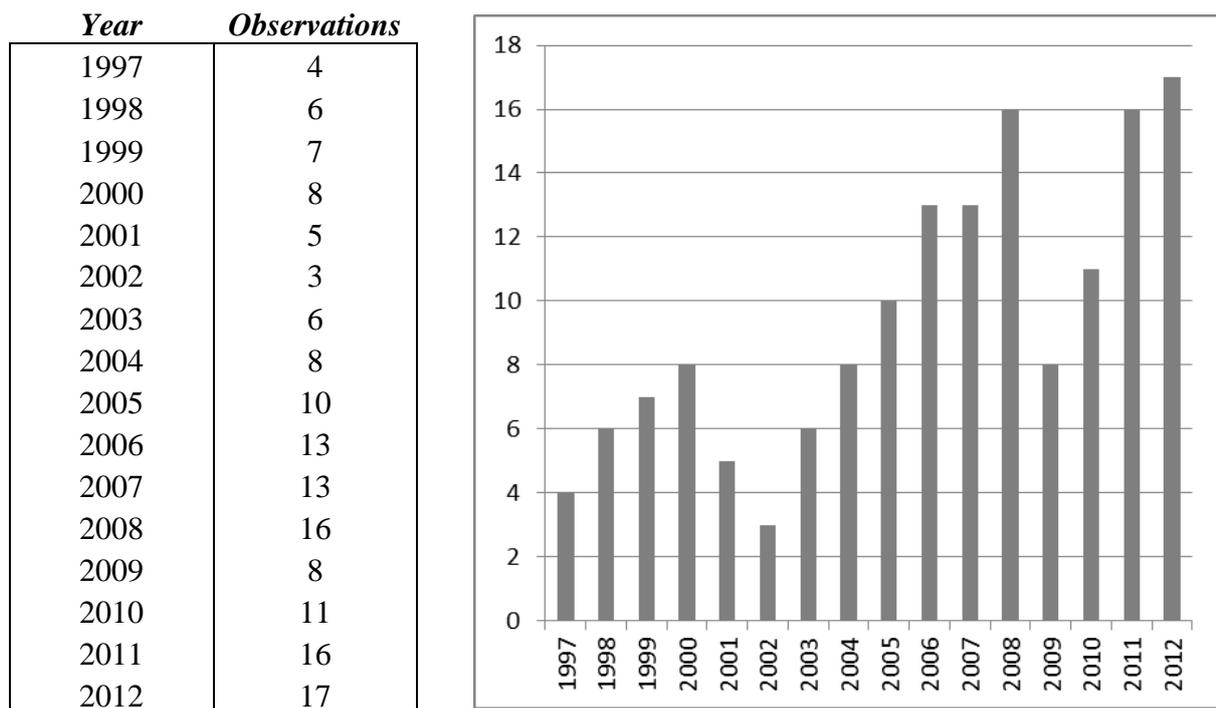
## 4. RESULTS & ANALYSIS

*In this chapter the authors first present the characteristics of the data collection. The results are then simultaneously presented and analysed based on any similarities, differences or patterns that have arisen compared to the relevant theoretical research.*

### 4.1 Descriptive Statistics and Data Analysis

The whole sample consisted of 151 transactions between 1997 and 2013 as shown in table 3 and diagram 4. Based on the distribution of observations over the years, there is a pattern, where most of the transactions are carried out between the years 2005-2008 and 2010-2012. This reflects the M&A activity during the period and the general business cycle.

**Table 3 & Diagram 4** – *Sample distribution per year*



In accordance with the methodology of the study, the 151 observations are distributed across 19 countries, 10 developed and 9 developing. All observations from the developing countries that fulfilled the selection criterion have been selected, all together 64 observations. Furthermore, in order to create an even as possible distribution, ten observations for each

developed country were selected apart from Japan (5) and New Zealand (2), totalling 87 observations. The distribution can be seen in table 4.

**Table 4 – Sample distribution per country**

<i>Target Country</i>	<i>Observations</i>
Australia	10
Brazil	13
China	5
Germany	10
India	9
Indonesia	5
Ireland	10
Japan	5
Mexico	3
Netherlands	10
New Zealand	2
Norway	10
Russia	9
South Africa	10
South Korea	2
Sweden	10
Switzerland	10
Turkey	8
United States	10

Company size, expressed as market capitalisation varied a great deal across out whole sample and the authors wanted to capture effects from both sides of the spectrum. As described in the methodology, it was therefore important to assign a representative index to each company. The distribution of market indices is shown in table 5.

**Table 5 – Sample distribution per market index**

<i>Index</i>	<i>Observations</i>
FTSE 100	60
FTSE 250	50
FTSE Small Cap	22
FTSE All-Share	19

The average size of acquiring and target firms are presented and shown below.

Average size of acquiring firm (pre-deal market capitalization, Mil £)	7403
Average size of transaction (deal value, Mil £)	1083

**Table 6** – *Distribution of dummy variables*

Industry		Method of Payment		Market to Book		Experience	
<i>Same</i>	<i>Different</i>	<i>Cash</i>	<i>Other</i>	<i>High</i>	<i>Low</i>	<i>Yes</i>	<i>No</i>
89	62	108	43	71	80	112	39

Geography		Language		Size		EM/DV	
<i>EU</i>	<i>NON EU</i>	<i>Same</i>	<i>Other</i>	<i>&gt;10%</i>	<i>&lt;10%</i>	<i>Developing</i>	<i>Developed</i>
77	74	52	99	56	95	64	87

As shown in table 6, the distribution of observations for each dummy variable is fairly even, thus there is enough variation to include them in the regression model. Furthermore, the authors had previously decided to investigate the impact that hostile versus friendly transactions had on shareholder wealth, but since all but one of the 151 observations were friendly, the dummy variable was excluded from the regression model.

## 4.2 Cumulative abnormal return analysis

### 4.2.1 Results

#### *Comparison and choice of event windows*

As described in the methodology chapter, the event study consisted of two different event windows where cumulative abnormal returns were examined over a 5 as well as an 11 day period. The results for both event windows are displayed in table 7.

**Table 7- Abnormal average returns over event windows**

	<i>T-test</i>	<i>P-value</i>	<i>Standard dev.</i>	<i>Average</i>
CAAR 5	0,07380	0,94126	0,06956	-0,01060
CAAR 11	0,04668	0,96283	0,07713	-0,01259

As evident from table 7, both event windows are not significant at any level. There is only a marginal difference between the two in terms of standard deviation and both show a similar negative average CAR of approximately one percent. It should be noted that it is statistically more likely to receive significance the longer the event window is, thus no major conclusions can be drawn from the results.

Henceforward, the authors decided only to further analyse the effects during the five-day event window. The reasoning behind this decision was concluded from the examination of the multiple linear regressions that were carried out. See tables 11 and 12. As evident when comparing the results from the two regressions, CAR 5 better captured the effects of the independent variables displayed as the determination coefficient and its corresponding p-value. Based on these results the authors concluded that the market responds to the announcement relatively quickly, thus the CAR 5 model is more appropriate.

The results for the CAR 5 event window are presented and divided into three groups, the entire sample (table 11), the developed sample (table 14) and the developing sample (table 13). Each point in time (T), all represent henceforward the closing prices of that day. The difference between T-1 and T0 is therefore the stock price increase on the announcement day of the transaction (T0). The average abnormal return (AAR) and the cumulative average abnormal return (CAAR) for the entire sample is illustrated in the table 8. As apparent, the average abnormal returns for the entire sample are not substantially different from zero and lies in between an interval around zero. A small degree of negative abnormal return is observed around T0. This means that the raw return does not exceed the expected return over the event window, which can be noticed by observing CAAR. CAAR for the entire event window amounts to approximately minus one percent.

**Table 8** – Overview of event window for entire sample (151 observations)

	<i>T-2</i>	<i>T-1</i>	<i>T<sub>0</sub></i>	<i>T+1</i>	<i>T+2</i>	<i>CAR</i>
AAR	0,295%	0,007%	0,901%	-0,170%	-0,308%	-
CAAR	0,295%	0,303%	0,599%	-0,769%	-1,076%	-
Number deals with positive abnormal returns	85	74	68	73	81	
Number deals with negative abnormal returns	66	77	83	78	70	
Average	0,00295	0,00007	0,00901	0,00170	0,00308	-0,01060
Standard deviation	0,01875	0,02358	0,04809	0,02564	0,02360	0,06956
T-test	0,05499	0,86586	0,02246	0,36539	0,12212	0,07380
P-value	0,95622	0,38795	0,98211	0,71534	0,90297	0,94126

As apparent from table 8, the number of deals with positive AAR and negative AAR respectively is fairly evenly distributed, where the number of positive deals sometimes exceeds negative and vice versa. As a conclusion no positive AAR was generated for the shareholders of the acquiring firm over the event window.

The t-test, which was performed to examine whether the result can be generalised, does not significantly differ from zero when looking at the p-values. This is true for each and every individual day as well as for the entire event window. The null hypothesis cannot be rejected for the event window at any significance level. Subsequently, it is not possible to statistically prove the existence of abnormal returns in connection to the announcement of an M&A transaction. *The null hypotheses are accepted for AR and CAR.*

When comparing the entire sample to the two sub-samples, developed and developing countries, it is apparent that there were no noteworthy differences from the original. As with entire sample, no abnormal returns were observed for either sub-sample over the event period. The distribution of positive versus negative observations is fairly even for both sub-sample but for the developing there are higher fluctuations. CAAR for the event periods in the sub-sample differs somewhat from the entire sample, in the developed sample the CAAR was -0,8

percent and -1,14 percent for the developing. Thus for the developing sample the value destruction observed around the transaction was marginally higher. The p-values showed that no observed days during the event window for the sub-samples were significant at any significance level. Therefore the null hypotheses are accepted for AR and CAR. The sub-samples are displayed in table 9 and 10.

**Table 9** – *Overview of event window for developed countries (87 observations)*

	<i>T-2</i>	<i>T-1</i>	<i>T0</i>	<i>T+1</i>	<i>T+2</i>	<i>CAR</i>
AAR	0,297%	0,199%	0,753%	-0,015%	-0,566%	-
CAAR	0,297%	0,496%	0,257%	-0,272%	-0,837%	-
Number deals with positive abnormal returns	43	51	39	41	42	
Number deals with negative abnormal returns	44	36	48	46	45	
Average	0,00297	0,00199	0,00753	0,00015	0,00566	-0,00809
Standard deviation	0,01982	0,02273	0,04673	0,02535	0,02515	0,06714
T-test	0,16600	0,31439	0,13558	0,86311	0,04646	0,22574
P-value	0,86838	0,75366	0,89234	0,38946	0,96300	0,82171

**Table 10** – *Overview of event window developing countries (64 observations)*

	<i>T-2</i>	<i>T-1</i>	<i>T0</i>	<i>T+1</i>	<i>T+2</i>	<i>CAR</i>
AAR	0,293%	-0,253%	1,103%	-0,380%	0,043%	-
CAAR	0,293%	0,039%	1,063%	-1,444%	-1,401%	-
Number deals with positive abnormal returns	42	23	29	32	39	
Number deals with negative abnormal returns	22	41	35	32	25	
Average	0,00293	0,00253	0,01103	0,00380	0,00043	-0,01401
Standard deviation	0,01734	0,02463	0,05018	0,02608	0,02101	0,07357
T-test	0,18177	0,41368	0,08360	0,24683	0,89120	0,13260
P-value	0,85601	0,67970	0,93349	0,80538	0,37425	0,89469

Even though none of the samples show significance at a five-percent level, there is still enough standard deviation in the results in order to justify testing which variables influence CAAR.

#### 4.2.2 Analysis

For all transactions the effect of M&A announcement, as mentioned, is not statistically significant. This means that when a UK firm announces an M&A transaction, no abnormal return is expected in the short term over the event window. If anything, the AAR is significantly negative around T0 for the entire sample.

It is possible that the financial uncertainty in the economy could have had an impact on the stock price for examined time period. According to Schwert (1989), the volatility of the stock price is higher during a recession compared to periods of expansion. Even though the study is based upon US data, the authors cannot find any logical reasons as to why the UK market would behave differently. If the stock is very volatile there could be measurement implications when using the market model, which in turn might affect the results since a great

deal of observations is announced during periods of recession (e.g. Financial crisis 2008-2009) (WorldBank, 2014).

To relate to previous studies, Campa & Hernando (2004) and Andrade et al., (2001) all came to the conclusion that the abnormal returns were not significantly different from zero. A great deal of previous studies has shown that M&A transactions are value destroying for the acquiring firm. The studies are performed based on the US and European markets under similar circumstances in this study.

In order to achieve reliability in the results in the study the requirement is that investors trade in a rational manner. Rationality in this case refers to the absence of bad investment or fails to realise investment opportunities. The fact that no abnormal returns were generated could indicate that the existing shareholders retain their stock in the firm, whereas the market actively chooses not to invest. Alternatively, the positive and negative abnormal returns might cancel each other out. Malkiel (2003) refers to the human factor in his study. If investors trade on a random basis the effects of their actions will also cancel each other out. This assumption regarding positive and negative abnormal returns is further supported by the results illustrated in table 8, where the distribution of positive versus negative observations is fairly equal. According to Bieshaar, Knight & van Wassenars (2001), around half of all the M&A transactions generate a negative return for the shareholders, which is in line with the distribution presented in this study. The randomness of the market could be a contributing factor as to why the authors did not find any significant abnormal returns over the event window.

The efficiency of the UK stock market affects the extent to which the market reacts to new information. According to a study performed by Firth (1976), the UK stock market has shown to be semi-strong-form and this assumption is deemed to be reasonable for this study. For many of the individual firms there is a clear deviation in stock price upon the announcement of the transaction, which is an indication of a semi-strong-form market efficiency. Under the assumption that the market efficiency is semi-strong, the signalling theory can help to explain how the stock price reacts. The market interprets the signals that the management of a firm sends out through its communication and actions. Future expectations stems from the available information. At the time of the announcement of a potential transaction, the signals that are connected with the transaction are interpreted in relation to previous expectations. If the deal signals positive future expectations and exceeds the investor requirements, the stock

price in theory should increase. If, however, the transaction is in line with the previous expectations, the reaction of the market should only be marginal. The results in this study implies that the contents of the signals in connection with the M&A deal, is already incorporated into the expectations since the majority of the transactions has relatively low or negative abnormal returns.

The motives for M&A as discussed in the theoretical framework are varied and there are reasons for the management to engage in acquisitions regardless of whether or not the investors' requirements are satisfied in the short-term. If the motive behind the transaction is not to create instant shareholder wealth, it could instead be a means to expand and grow or to realise synergy effects such as economies of scale. According to the efficient-market theory, only the immediate expectations of investors are reflected in the stock price. Expectations in regards to future synergy effects and cost reductions appear in the form of abnormal returns. Subsequently, different motives can be an explanation to whether abnormal returns are generated. Nevertheless, it is problematic to measure which motives affect the expectations. The results of this study have shown that in general the investor expectations regarding M&A transactions are fulfilled and that investors have confidence in the motives of the management. This is explained by the fact that AAR is close to zero. This assumption is in accordance with the study carried out by Guest et al., (2010). The transactions are therefore expected to satisfy expectations in future cash flows, as a result they should be correctly priced. The aforementioned reasoning is based upon the rational actions of the investors. With the modern technology at hand, such as the different advanced financial instruments, the availability of information is greater thus it decreased the uncertainty. This in turn should lead to investors responding faster to new information. Subsequently the market adjusts quicker which leads to increased efficiency. With reduced uncertainty, investors can calculate more accurate expectations, which in turn can be assumed to create less abnormal returns. Altogether this increases the means for investors to act more rationally.

To summarize, the results point towards the fact that M&A transactions in general do not generate abnormal returns for the acquiring firm in the short term in the UK stock market. There are two main explanations for the results. Firstly, given that the UK market is characterised by a semi-strong efficiency and that investors act rationally, the low abnormal returns can be explained by the investors' confidence in the management's actions and motives to match their expectations. Secondly, the investors act randomly and their actions therefore cancel each other out.

## 4.3 Multiple Linear Regression Results and Analysis

### 4.3.1 Entire Sample – CAR 5

**Table 11** – Multiple linear regression for entire data sample – CAR 5

Dependent Variable: CAR\_5

Method: Least Squares

Included observations: 151

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CULT	-0.032496	0.026188	-1.240845	0.2168
EM_DV	-8.192510	3.899279	-2.101032	0.0375
EXC_RATE	-1.018133	3.559296	-0.286049	0.7753
EXP01	0.844660	1.545354	0.546580	0.5856
GDP_G	0.079354	0.189608	0.418515	0.6762
GEO	-0.658520	1.970393	-0.334208	0.7387
IND	-0.044426	1.156845	-0.038402	0.9694
INFL	0.066881	0.114312	0.585075	0.5595
INT	0.172586	0.211900	0.814469	0.4168
LANG	-0.118007	1.791511	-0.065870	0.9476
LN_GDP	-0.958829	1.714280	-0.559319	0.5769
LN_GDP_CAP	-2.446582	3.214201	-0.761179	0.4479
MOP	-0.009496	1.366860	-0.006948	0.9945
MTB	-3.807318	1.154640	-3.297406	0.0012
POL_STAB	-1.538045	1.431624	-1.074336	0.2846
SIZE	-2.207867	1.462225	-1.509937	0.1334
C	30.86907	28.77048	1.072943	0.2852
R-squared	0.142917	Mean dependent var		-1.066715
Adjusted R-squared	0.040579	S.D. dependent var		6.918964
S.E. of regression	6.777130	Akaike info criterion		6.770710
Sum squared resid	6154.551	Schwarz criterion		7.110404
Log likelihood	-494.1886	Hannan-Quinn criter.		6.908711
F-statistic	1.396515	Durbin-Watson stat		1.828775
Prob(F-statistic)	0.152474	Wald F-statistic		1.274536
Prob(Wald F-statistic)	0.222407			

The multiple linear regression for entire data sample with the event window CAR 5, displayed a determination coefficient (R-squared) of 0.1429 (table 11). This means that the variation in

abnormal returns as a result of the transaction is by 14.29 percent explained by the included independent explanatory and dummy variables. The R-square should ideally be as close to one as possible. One explanation to the relatively low R-square is the existence of *noise* in the model which is due to the fact that there are countless variables that affect M&A deals.

The whole regression was significant at a very low level (20 percent), with a p-value of 0.1525. In order to reject the null hypothesis, that all coefficients are equal to zero and subsequently do not have any explanatory value, the p-value should in academic research be at least less than 0.10. The p-value of the regression means that there is 15.25% risk that the assumption of the included variables does not hold.

The control variables that had a significant coefficient were; market to book (1 percent level), emerging/developed (5 percent) and size was (15 percent). The remaining variables were not significant, which means that they can not be generalised with a linear relationship with CAR. In spite of this, the authors chose not to exclude the remaining variables from the regression model since a redundant test showed that the inclusion of the variables did not negatively impact the overall regression. None of the coefficients was worth interpreting further since the slopes of the coefficients with almost certainty would change if accounting for the omitted explanatory variables. This is due to the fact that assumption one and two for the OLS regression model were not satisfied, which means that the model is incorrectly specified since there were additional explanatory variables that were not included.

### 4.3.2 Entire Sample – CAR 11

**Table 12** – Multiple linear regression for entire data sample – CAR 11

Dependent Variable: CAR\_11

Method: Least Squares

Included observations: 151

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CULT	-0.009399	0.030517	-0.307987	0.7586
EM_DV	-6.205917	4.344688	-1.428392	0.1555
EXC_RATE	-0.693833	3.699067	-0.187570	0.8515
EXP01	0.296361	1.599208	0.185317	0.8533
GDP_G	-0.013779	0.214927	-0.064109	0.9490
GEO	-0.242698	2.330938	-0.104120	0.9172
IND	-0.320846	1.345078	-0.238533	0.8118
INFL	0.049381	0.124143	0.397777	0.6914
INT	0.202231	0.248368	0.814241	0.4170
LANG	-0.095446	2.093475	-0.045592	0.9637
LN_GDP	-0.001649	1.779205	-0.000927	0.9993
LN_GDP_CAP	-0.906946	3.874184	-0.234100	0.8153
MOP	-0.235796	1.567947	-0.150385	0.8807
MTB	-2.400889	1.343979	-1.786403	0.0763
POL_STAB	-1.978379	1.637141	-1.208436	0.2290
SIZE	-1.199227	1.569532	-0.764066	0.4462
C	12.35813	31.69117	0.389955	0.6972
R-squared	0.071010	Mean dependent var		-1.246775
Adjusted R-squared	-0.039914	S.D. dependent var		7.714710
S.E. of regression	7.867166	Akaike info criterion		7.068998
Sum squared resid	8293.568	Schwarz criterion		7.408692
Log likelihood	-516.7094	Hannan-Quinn criter.		7.207000
F-statistic	0.640169	Durbin-Watson stat		1.877170
Prob(F-statistic)	0.846210	Wald F-statistic		0.620053
Prob(Wald F-statistic)	0.863347			

The multiple linear regression for entire data sample with the event window CAR 11, displayed a determination coefficient (R-squared) of 0.0710 (table 12). The whole regression was not significant at any significance level, with a p-value of 0.8462. Therefore for this event

window the null hypothesis cannot be rejected. As with the CAR 5 regression model, the dummy variable emerging/developed had a significant coefficient but at a much lower level of significance (20 percent). Furthermore, market to book was significant (10 percent). The remaining variables were not significant.

Based on the results from the two regressions, CAR 5 better captured the effects of the independent variables displayed as the determination coefficient and its corresponding p-value. As mentioned earlier, the authors concluded that the market responds to the announcement relatively quickly, thus the CAR 5 model is more appropriate and henceforward the only one examined.

#### **4.3.3 Regression results and analysis for sub samples**

The dummy variable emerging/developed (em\_dv) took the value of one if the transaction took place in a developing country and zero otherwise. Since the variable was significant at a five percent level, there seemed to be a relationship between abnormal returns and target country. Therefore, the authors decided to split the entire sample into two sub samples, consisting of developing and developed countries respectively. A new regression was performed for with CAR 5 as dependent variable, for each sub sample, to investigate how the remaining variables were affected by the difference in target country.

The tables are displayed on the following pages.

**Table 13** – Multiple linear regression for developing data sample – CAR 5

Dependent Variable: EM\_CAR\_5

Method: Least Squares

Included observations: 64

White heteroskedasticity-consistent standard errors &amp; covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EM_CULT	0.007241	0.114683	0.063141	0.9499
EM_EXC_RATE	-1.108025	5.525542	-0.200528	0.8419
EM_EXP	-0.178473	2.511262	-0.071069	0.9436
EM_GDP_G	0.191509	0.213453	0.897197	0.3741
EM_GEO	-4.044032	4.429852	-0.912905	0.3659
EM_IND	0.975878	2.054192	0.475067	0.6369
EM_INFL	0.213542	0.141330	1.510950	0.1374
EM_INT	-0.126536	0.272854	-0.463750	0.6449
EM_LANG	0.513162	4.297090	0.119421	0.9054
EM_LN_GDP	1.400276	5.924791	0.236342	0.8142
EM_LN_GDP_CAP	1.861788	5.407980	0.344267	0.7321
EM_MOP	0.038484	2.359428	0.016311	0.9871
EM_MTB	-3.223470	1.958815	-1.645622	0.1064
EM_POL_STAB	-2.664818	2.408683	-1.106338	0.2741
EM_SIZE	-6.038555	2.927742	-2.062530	0.0446
C	-17.66161	86.92145	-0.203190	0.8398
R-squared	0.230917	Mean dependent var		-1.213594
Adjusted R-squared	-0.009421	S.D. dependent var		7.101540
S.E. of regression	7.134915	Akaike info criterion		6.980196
Sum squared resid	2443.536	Schwarz criterion		7.519916
Log likelihood	-207.3663	Hannan-Quinn criter.		7.192819
F-statistic	0.960800	Durbin-Watson stat		1.739914
Prob(F-statistic)	0.508351	Wald F-statistic		1.004167
Prob(Wald F-statistic)	0.466806			

**Table 14** – Multiple linear regression for developed data sample – CAR 5

Dependent Variable: DV\_CAR\_5

Method: Least Squares

Included observations: 87

White heteroskedasticity-consistent standard errors &amp; covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DV_CULT	-0.021355	0.030892	-0.691258	0.4917
DV_EXC_RATE	0.413314	5.103876	0.080980	0.9357
DV_EXP	1.051011	1.745018	0.602293	0.5489
DV_GDP_G	0.246980	0.319344	0.773397	0.4419
DV_GEO	2.676147	2.567336	1.042383	0.3008
DV_IND	-2.498069	1.343571	-1.859276	0.0671
DV_INFL	0.470105	0.691519	0.679816	0.4988
DV_INT	0.932464	0.388484	2.400264	0.0190
DV_LANG	0.553260	2.350863	0.235343	0.8146
DV_LN_GDP	1.108443	1.908906	0.580669	0.5633
DV_LN_GDP_CAP	-18.52381	8.624257	-2.147873	0.0351
DV_MOP	-0.192056	1.601899	-0.119892	0.9049
DV_MTB	-4.824811	1.591586	-3.031449	0.0034
DV_POL_STAB	0.423621	1.672831	0.253236	0.8008
DV_SIZE	0.708626	1.611541	0.439720	0.6615
C	69.67152	39.35338	1.770407	0.0810
R-squared	0.275559	Mean dependent var		-0.958667
Adjusted R-squared	0.122508	S.D. dependent var		6.820971
S.E. of regression	6.389514	Akaike info criterion		6.711781
Sum squared resid	2898.638	Schwarz criterion		7.165282
Log likelihood	-275.9625	Hannan-Quinn criter.		6.894392
F-statistic	1.800438	Durbin-Watson stat		1.991613
Prob(F-statistic)	0.051469	Wald F-statistic		1.464529
Prob(Wald F-statistic)	0.142659			

The multiple linear regression for the developing sub sample showed a determination coefficient (R-squared) of 0.2309 (table 13) and 0.2756 for developed (table 14). These values were both higher compared to the entire sample (0.1429); consequently, the sub sample models are thus better at explaining the dependent variable. The regression for the developed sample was significant at a 10 percent level, with a p-value of 0.0515. Therefore, for this sample, the null hypothesis can be rejected. The same does not apply for the developing sample which had a p-value of 0.5084.

When examining the individual variables for the developing sample, relative size proved to be significant at a 5 percent level. No further variables were significant for this sample. However, for the developed sample there were more variables that showed significance. Namely, industrial diversification (10 percent), GDP per capita (5 percent), market to book (0.1 percent) and interestingly enough, interest rate (2.5 percent).

Firstly, it was worth noting that size did not have a significant impact in developing targets whereas in the developing countries there was a strong relationship between relative size of the deal and abnormal returns. In the developing sample, if the relative size of the deal to the market capitalisation of the acquiring firm is larger than ten percent then value was destroyed. Since acquisitions in general do not create value and in some cases destroys value for the shareholders, an explanation for the results might be size simply magnifies the extent to which value is destroyed.

When UK firms acquired companies in developed countries there were more variables which significantly explained the abnormal returns. Industrial diversification seemed to destroy value, with a negative coefficient value (-2.4981). This means that firms, which acquire other firms in the same industries, destroy value. This is in accordance with industrial diversification theory (Kiymaz 2004), which states that diversification is expected to create value. GDP per capita was also significant, with a negative coefficient value of (-18.52). This implies that the purchasing power of an economy is not positively related to abnormal returns. Based on these results, acquiring firms cannot create value by simply purchasing firms in countries with large purchasing power per capita. Market to book is a proxy for performance previous to the transaction of M&A. In accordance to the theory by Rau & Vermaelen (1998), our results showed that firms with high previous market to book values achieved less abnormal returns, in this case the coefficient value was negative (-4.8248). Finally, interest rates, which is a proxy for the cost of external capital, was significant with a positive

coefficient (0.9325). This means that the larger the difference in interest rates between target and acquirer country, the larger the positive wealth effects for the shareholders. This is supported by Uddin & Boateng (2010).

To summarize, it is evident from the results that different variables affect the wealth effects for shareholders of UK acquiring firms depending on whether the target firm was from a developed or developing country.

#### 4.4. Differences in Sub Samples

Since the previous comparisons between developed and developing sub samples showed differences in which variables explained abnormal returns, another regression was constructed in order to further investigate these differences, as shown in table 15.

**Table 15** – Differences between developing and developed samples

Dependent Variable: CAR\_5

Method: Least Squares

Included observations: 151

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CULT	-0.021355	0.031437	-0.679291	0.4983
EM_DV	-87.33313	93.77637	-0.931291	0.3536
EXC_RATE	0.413314	5.193793	0.079578	0.9367
EXP01	1.051011	1.775760	0.591865	0.5551
GDP_G	0.246980	0.324970	0.760008	0.4488
GEO	2.676147	2.612566	1.024337	0.3078
IND	-2.498069	1.367241	-1.827088	0.0702
INFL	0.470105	0.703701	0.668046	0.5054
INT	0.932464	0.395328	2.358709	0.0200
LANG	0.553260	2.392279	0.231269	0.8175
LN_GDP	1.108443	1.942536	0.570617	0.5693
LN_GDP_CAP	-18.52381	8.776194	-2.110689	0.0369
MOP	-0.192056	1.630120	-0.117817	0.9064
MTB	-4.824811	1.619625	-2.978968	0.0035
POL_STAB	0.423621	1.702302	0.248852	0.8039
SIZE	0.708626	1.639932	0.432107	0.6664
CULT*EM_DV	0.028596	0.116210	0.246068	0.8061
EXC_RATE*EM_DV	-1.521339	7.485442	-0.203240	0.8393
EXP01*EM_DV	-1.229484	3.025729	-0.406343	0.6852
GDP_G*EM_DV	-0.055471	0.385961	-0.143721	0.8860
GEO*EM_DV	-6.720179	5.049840	-1.330771	0.1858
IND*EM_DV	3.473947	2.425935	1.432004	0.1548
INFL*EM_DV	-0.256563	0.717080	-0.357789	0.7211
INT*EM_DV	-1.059000	0.476588	-2.222044	0.0282
LANG*EM_DV	-0.040098	4.826569	-0.008308	0.9934
LN_GDP*EM_DV	0.291833	6.097576	0.047860	0.9619
LN_GDP_CAP*EM_DV	20.38560	10.23986	1.990809	0.0488
MOP*EM_DV	0.230540	2.820497	0.081737	0.9350
MTB*EM_DV	1.601341	2.504944	0.639272	0.5239
POL_STAB*EM_DV	-3.088438	2.901595	-1.064393	0.2893
SIZE*EM_DV	-6.747181	3.293459	-2.048661	0.0427
C	69.67152	40.04669	1.739757	0.0845
R-squared	0.256049	Mean dependent var		-1.066715
Adjusted R-squared	0.062246	S.D. dependent var		6.918964
S.E. of regression	6.700166	Akaike info criterion		6.827826
Sum squared resid	5342.175	Schwarz criterion		7.467250
Log likelihood	-483.5009	Hannan-Quinn criter.		7.087593
F-statistic	1.321183	Durbin-Watson stat		1.726585
Prob(F-statistic)	0.145789	Wald F-statistic		1.198242
Prob(Wald F-statistic)	0.242412			

The test shows the differences in coefficient values between the two sub samples and whether or not they were statistically significant.

As mentioned in our initial analysis of the entire sample, none of the explanatory variables were significant. However, when comparing each sample depending on target country, it was proven that interest rate and GDP per capita affected value creation only when acquiring in developed countries. The test in table 15 showed that these differences were both significant at 5 percent level. Further, the control variable size was also significantly different between the samples at a 5 percent level.

#### 4.5 Hypotheses findings

The hypotheses from theoretical background indicate whether the explanatory variables have an impact on value creation for acquiring firms, i.e. a two-tailed hypothesis. The empirical research showed that these variables could impact value in one particular direction. Therefore, as described in chapter 3.8, the authors also created expected results for each variable based on these studies as displayed in table 16.

**Table 16** – *Summary of expected results versus findings*

Variable	Expected results	Findings		
		Entire sample	Developed	Developing
CAAR 5	+/-	-	-	-
LN_GDP	+	-	+	+
LN_GDP_CAP	+	-	-	+
GDP_G	+	+	+	+
INT	+	+	+	-
INFL	-	+	+	+
EXC_RATE	-	-	+	-
POL_STAB	+	-	+	-
CULT	-	-	-	+

#### **4.5.1 Dependent variable**

##### *Cumulative Average Abnormal Return (CAAR)*

Literature is divided on whether Cumulative abnormal returns are generated in association with CBM&A deals for the acquiring firms. The results therefore are not in conflict with what is expected, that CAAR is negative over the event periods [-2,2 and -5,5]. CAAR is negative for all samples and event windows. However the results are not significant at any level.

#### **4.5.2 Independent variables**

##### *Gross Domestic Product (LN\_GDP)*

It was expected that the variable LN\_GDP would have a positive impact on shareholder wealth. The reasoning is that large investments imply high risks, which can only be justified in a larger market. However, for the entire sample the findings for this variable showed a negative coefficient, meaning that the larger the economic size had a negative impact on wealth creation. According to the authors, one possible reason is the adoption of the wrong functional form, i.e. that there is no linear relationship between the abnormal returns and LN\_GDP. This can potentially cause the coefficients to be biased enough to change the sign. This argument was supported from the RESET test as seen in appendix 2.1. For the sub samples the results were in accordance to what was expected. None of the coefficients were significant in any of the samples for this variable.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between GDP and wealth effects in CBM&A transactions.*

##### *Gross Domestic Product per Capita (LN\_GDP\_CAP)*

GDP per capital represents the purchasing power of the population. It was expected that the variable LN\_GDP\_CAP would have a positive impact on shareholder wealth. As with LN\_GDP, the findings showed that the relationship was negative. One reasonable reason for this outcome could be multicollinearity, which causes inflated standard errors. This in in turn increases the likelihood to observe an incorrect sign. The variable LN\_GDP\_CAP is highly correlated with the dummy variable EM\_DV with a value of (0.9). In the developing sample the sign was in accordance with what was expected, however this was not the case for the developed sample. Neither the entire sample nor the developing sample showed any

significance at any level for the variable. However, in the developed sample the variable was significant at a 5 percent level, which means that there seems to be a negative relationship between higher purchasing power and wealth effects. According to the authors there could be several explanations for the result. Firstly, there is a possibility that the variable is not a good proxy for purchasing power. The variable in question may be highly correlated with another variable which has been excluded from the regression. Since LN\_GDP\_CAP only measures the total GDP per Capita for each country there are limitations because the variable does not include information regarding the general price levels of that country. Secondly, the market could react negatively in connection with transactions in countries with high GDP per capita since it is likely that these countries will also have higher cost of labour, thus any acquisition might increase the costs for the acquirer beyond what is initially expected.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between GDP per capita and wealth effects in CBM&A transactions.*

#### *Gross Domestic Product Annual Growth (GDP\_G)*

GDP\_G is a proxy for the future economic prosperity of a country. It was therefore expected have a positive relationship with wealth effects since economies with higher growth are considered to be in the ascendancy, which is often followed, by an increased purchasing power and ultimately a higher demand for products. The results show that the findings are in accordance with expected results for all three different samples. However, none of the results were significant at any level.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between GDP growth and wealth effects in CBM&A transactions.*

#### *Interest Rate (INT)*

Interest rates were used as a proxy for the target country's cost of external capital. It is expected that the larger the difference in interest rate between target and acquirer country, the larger the positive wealth effects for shareholders. The findings are in agreement with the expected outcome for all of the samples. There is no significance for the entire or the developing sample at any significance level. Nevertheless, the findings are significant at 2.5 percent level for the developed sample. This means that there is a significant positive relation

between interest rates and wealth creation. The possibility to gain financial synergy through access to external funds at a lower cost of capital in the acquirer country and the fact that competitors in the target country have to use more expensive ways of raising capital seems to increase wealth creation for the acquirer.

*The null hypothesis can however not be rejected for the entire sample, meaning that there is no significant relationship between interest rate and wealth effects in CBM&A transactions.*

#### *Inflation (INFL)*

The variable inflation is proxy for the economic condition of a country. It is expected that inflation in the target country is negatively correlated with shareholder wealth. However, the findings are different from the expected results in all three samples. After excluding reasons such as multicollinearity, the most likely explanation to the difference in signs is either due to the non-linear relationship or an insufficient number of observations in the sample. None of the coefficients for the three samples however are significant.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between inflation and wealth effects in CBM&A transactions.*

#### *Exchange Rate (EXC\_RATE)*

The variable exchange rate signifies the relative strength or weakness of the acquiring versus the target currency. It is expected that the acquirers would benefit from a strong home currency at the time of the transaction and thus be positively related to shareholder wealth. The hypothesis was created in such a way that a negative coefficient value indicated a positive shareholder wealth creation. The expected results are in accordance to the findings for the entire sample as well as for the developing countries. However, for the developed sample the opposite is true. This could be due to an insufficient number of observations or, as according to the theory, that the overall impact the exchange rate has on the acquirer is still relatively unknown since expected future cash flows is a function of future exchange rates. None of the coefficients for the samples are significant.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between exchange rate and wealth effects in CBM&A transactions.*

### *Political Stability (POL\_STAB)*

The variable Political Stability is a proxy for numerous risks, such as internal and external conflicts, regime discontinuity and changes in the legal. It is expected that there is a positive correlation between political stability and wealth effects for shareholders. When comparing the expected results to the findings it is evident that this is only true for the developed sample. The authors believe that there are not enough observations for the developing sample which has caused the coefficients to be biased. This in turn has influenced the entire sample's coefficients and the coefficients for the developed sample are in accordance with what was expected. However, none of the samples are significant at any level.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between political stability and wealth effects in CBM&A transactions.*

### *Culture (CULT)*

The variable culture signifies cultural differences between the acquiring and target country. It was expected that there was a negative relationship between cultural difference and wealth effects for shareholders. The coefficients in the findings show the same outcome as was expected in all samples apart from the developing sample. This is more likely than not to again be due to the small number of observations. None of the samples were significant at any level.

*The null hypothesis can therefore not be rejected for the entire sample, meaning that there is no significant relationship between Culture and wealth effects in CBM&A transactions.*

## 5. CONCLUSION

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*This final chapter begins by linking the purpose, result and analysis of the thesis together to draw relevant conclusions. Thereafter, the authors present their research contributions, the practical applications of the conclusions and the limitations of the results. Finally, further areas of research are suggested.*

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### 5.1 Conclusion

The purpose of this thesis has been to examine the short-term effects on stock price for UK acquiring firms in conjunction with the announcement of a CBM&A transaction. Moreover, the thesis intended to investigate whether these effects can be explained by the macroeconomic conditions in the target countries and whether there were any differences between these factors depending on stage of the development in target country.

Based on the results it can be concluded that the average UK CBM&A transaction for the period 1997-2012 does not yield any abnormal returns for neither of the event windows (CAR5, CAR11). Since the observed abnormal returns generally fall within an interval close to zero, the authors can conclude that the results can be applicable to the entire UK CBM&A market. The answer to the overall issue, identified in the problem definition, is that CBM&A transactions are not expected to generate abnormal returns in the short-term for UK acquiring companies. On the contrary, if anything, the stock price reaction indicates such transactions to be value destroying.

In accordance with previous studies mentioned in the theoretical background, the circumstances regarding market responses to CBM&A is similar to the results of this study. The authors reasoning for the outcome is that investors might act rationally or irrationally. The latter means that the individual actions of each investor cancel each other out in the form of a zero-sum game. The lack of abnormal returns can also depend on the availability of information or the markets confidence in the management of the acquiring firm. Modern analytical tools and technology, enhances the opportunity for individual investors to determine the future expected value of the transaction, thus to create more accurate expected returns. The future synergy effects can, in accordance with, the efficient-market hypothesis, be included in the stock price and only the unforeseen component of a transaction reflects the

abnormal returns. Subsequently, the results of the study can be explained by the fact that on the whole investors have correctly assessed their expectations regarding the CBM&A deal.

According to the signalling theory mentioned in chapter 2.2.2, it is essential for the management to accurately communicate the information regarding the transaction, in order for the market to correctly value the potential future returns and generate adequate expectations. The authors argue that short-term abnormal returns arise as a direct consequence of alterations in expectations, which in this case stems from the publication of announcements. With the results in this thesis in mind, it seems like corporate managers in UK based firms communicate both sufficient and trustworthy information. This in turn supports investors when creating forecasting for expected returns. As a consequence, this would explain the fact that on average there are no abnormal returns in connection with CBM&A transactions.

The conclusion from the regression analysis for the entire sample surprisingly showed that none of the macroeconomic and cultural variables explained at a significant level the variation in abnormal returns. There is a great deal of theoretical evidence that these factors have an impact on wealth creation, however, for this study these hypotheses could not be accepted. As mentioned in the analysis, there are many possible explanations for the contradictory results and the authors believe the main underlying reason for this to be due to the relatively small sample size.

Of the control variables included in the regression, relative size of the deal in comparison to the market capitalization of the acquiring firm, showed to have a negative impact on wealth creation. However, this result is not in accordance previous empirical studies, which state that the larger size deal is to generate higher abnormal returns. The authors believe that there should not be a theoretical explanation for this discrepancy. It is most likely due to the fact that the acquiring firms included in the sample were too large and the targets too small. The market to book dummy variable, however, showed that firms with high previous market to book values achieved less abnormal returns, which is in accordance with previous theory.

However, the fact that developing/developed (EM\_DV) dummy variable was highly significant showed that choice of target country played a noteworthy role in CBM&A transactions. When comparing the developed to the developing samples, it was apparent that interest rates and GDP per capita are statistically significantly different. These two variables have an impact when engaging in CBM&A in developed countries. For GDP per capita, there

seems to be a negative relationship between higher purchasing power and wealth effects, which contradicts previous empirical theory. The discrepancy has previously been mentioned by the authors in the analysis. In regards to interest rate the results points towards a positive relation between interest rates and abnormal returns and this is in line with past research.

The authors realize that stock price changes are dependent on a set of very complex circumstances. The results should therefore be interpreted as part of a wider perspective; however, based on the outcome of the study, the authors can conclude that interest rate and GPD per capital play a significant when engaging in CBM&A transactions in developed countries.

## **5.2 Research contribution and practical application**

The authors have contributed to existing research in several ways. Firstly, by demonstrating that regardless of whether the target company domiciles in a developed or developing country, the abnormal returns for the acquiring firm in the short-term are on average close to zero. Secondly, the macroeconomic and cultural factors in the target countries do not seem to explain much variation in abnormal returns. In simple terms, this means that there are no significant relationships between shareholder wealth and macroeconomic & cultural factors. Finally, in spite of aforementioned results, it is evident that, different variables affect the wealth effects for shareholders of the acquiring firms differently, depending on whether the target firm was from a developed or developing country.

Since the results of the thesis indicate that on average there are no abnormal returns, the practical application is that corporate managers must always carefully consider the valuation of the target. There are many potential value-creating components associated with CBM&A deals, such as synergy effects, but these must not be exceeded by the transaction premium so that shareholder value is not destroyed in the short-term. For each and every cross-border transaction, the corporate managers should be aware of the development stage of target country since the macroeconomic factors have shown to affect wealth creation differently in developing and developed countries.

However, there are limitations in the study which must be emphasized. The wealth effects of CBM&A are usually accumulated over a longer time period, which is why it can be misleading to only measure in the short-term. This study investigated the effects during a 5-day and 11-day event window, however, the market may not respond within these time frames

resulting in omitted outcomes. Furthermore, the possibility to draw definite conclusions based on the results is limited since most of the explanatory coefficients are not significant. Another obvious limitation is that the study was restricted to only investigating UK acquiring firms, hence the findings might not be generalizable for acquirers in other nations.

### **5.3 Suggestions for further research**

The conclusions drawn from the results of the study have opened up for range of new potential questions and different approaches that can be carried out.

- One suggestion is to replicate the study for more than one acquiring country and then comparing the results. Thereafter comparisons can be made to investigate whether the various markets react differently to CBM&A announcements and what the underlying causes of this would be.
- It would be interesting to examine and test more explanatory variables. These could possibly not only be limited to macroeconomic factors. Suggestive examples could include: cost of labour, bargaining power of acquirer, previous performance of target, difference between tax systems, human capital, and level of domestic technology. Political stability could also be divided into further sub categories such government effectiveness, regulatory quality, rule of law or control of corruption.
- It can be justifiable to include results from various statistical and economical models in order to examine whether the market model used in this study, is the most appropriate for investigating abnormal returns. Furthermore, it can be interesting to examine the long-term shareholder effects for CBM&A transactions.
- Finally, a qualitative approach can be included as a compliment to investigate the extent to which for example, corporate managers take macroeconomic factors into account when pursuing CBM&A deals and compare managers' stance to numerical evidence.

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**APPENDIX 1a – Deal information for entire data sample: Deals 1-31**

Deal number	Acquirer name	Index	Date of deal	Target name	Target country code
1	3I GROUP PLC	FTSE 250	03-02-2000	TH TECHNOLOGIEHOLDING GMBH	DE
2	ACM SHIPPING GROUP PLC	FTSE All-Share	24-06-2010	ENDEAVOUR SHIPBROKERS PTY LTD'S BUSINESS	AU
3	AGGREKO PLC	FTSE 100	26-03-2012	COMPANHIA BRASILEIRA DE LOCAÇÕES	BR
4	AMEC PLC	FTSE 250	07-02-2011	ZEKTINGROUP	AU
5	AMLIN PLC	FTSE 250	03-06-2009	FORTIS CORPORATE INSURANCE NV	NL
6	ANGLO AMERICAN PLC	FTSE 100	21-07-2000	NORTH LTD	AU
7	ANGLO AMERICAN PLC	FTSE 100	31-03-2008	IRONX MINERAS SA	BR
8	ANGLO-EASTERN PLANTATIONS PLC	FTSE Small Cap	18-03-2004	BINA PITRI JAYA PT	ID
9	ANITE GROUP PLC	FTSE Small Cap	08-07-1998	HOUDSTERMAATSCHAPPIJ BV	NL
10	ARM HOLDINGS PLC	FTSE 100	23-06-2006	FALANX MICROSYSTEMS AS	NO
11	ASSOCIATED BRITISH FOODS PLC	FTSE 100	09-03-2004	UNILEVER GROUP'S MEXICO	MX
12	ASTRAZENECA PLC	FTSE 100	09-12-1998	ASTRA AB	SE
13	ASTRAZENECA PLC	FTSE 100	23-04-2007	MEDIMMUNE INC.	US
14	AVEVA GROUP PLC	FTSE 250	21-04-2004	TRIBON SOLUTIONS AB	SE
15	AVIVA PLC	FTSE 100	04-01-2008	LIG INSURANCE CO., LTD	KR
16	AVOCET MINING PLC	FTSE All-Share	19-05-2009	WEGA MINING ASA	NO
17	BALFOUR BEATTY PLC	FTSE 250	20-06-2008	SCHRECK-MIEVES GMBH	DE
18	BARCLAYS PLC	FTSE 100	25-04-2005	ABSA GROUP LTD	ZA
19	BG GROUP PLC	FTSE 100	14-04-1999	COMPANHIA DE GÁS DE SÃO PAULO	BR
20	BG GROUP PLC	FTSE 100	03-10-2001	ENRON OIL & GAS INDIA LTD	IN
21	BILLITON PLC	FTSE 100	29-08-2000	WORSLEY ALUMINA PTY LTD	AU
22	BODYCOTE PLC	FTSE 250	14-12-2000	LINDBERG CORPORATION	US
23	BODYCOTE PLC	FTSE 250	03-11-2006	BRASIMET COMERCIO E INDUSTRIA S.A.	BR
24	BP PLC	FTSE 100	11-03-2011	DEVON ENERGY DO BRASIL LTDA	BR
25	BRADY PLC	FTSE All-Share	29-11-2010	VIZ RISK MANAGEMENT SERVICES AS	NO
26	BRADY PLC	FTSE All-Share	07-02-2012	NAVITA SYSTEMS AS	NO
27	BRITISH AMERICAN TOBACCO PLC	FTSE 100	11-01-1999	ROTHMANS INTERNATIONAL SA	CH
28	BRITISH AMERICAN TOBACCO PLC	FTSE 100	22-02-2008	TEKEL AS GENEL CIGARETTE BUSINESS	TR
29	BRITISH AMERICAN TOBACCO PLC	FTSE 100	17-06-2009	BENTOEL INTERNASIONAL INVESTAMA TBK	ID
30	BRITVIC PLC	FTSE 250	14-05-2007	C&C GROUP PLC'S SOFT DRINKS DIVISION	IE
31	BUNZL PLC	FTSE 100	09-02-2004	SKIFFY GROUP	NL

**APPENDIX 1a** – Deal information for entire data sample: Deals 32-61

Deal number	Acquirer name	Index	Date of deal	Target name	Target country code
32	CAIRN ENERGY PLC	FTSE 250	03-04-2012	AGORA OIL & GAS AS	NO
33	CALEDONIA INVESTMENTS PLC	FTSE 250	01-12-2010	DEUTSCHE POSTBANK HOME FINANCE LTD	IN
34	CENTRICA PLC	FTSE 100	06-06-2005	OXXIO NEDERLAND BV	NL
35	CENTRICA PLC	FTSE 100	21-11-2011	STATOIL PETROLEUM AS	NO
36	CEB RESOURCES PLC	FTSE All-Share	09-04-2008	TEMPLE CAPITAL PARTNERS LTDA	BR
37	COBHAM PLC	FTSE 250	07-02-2001	OMNIPLESS (PROPRIETARY) LTD	ZA
38	COBHAM PLC	FTSE 250	28-05-2003	NORTHROP GRUMMAN	US
39	COMPUTACENTER PLC	FTSE 250	21-07-2011	DAMAX AG	CH
40	DECHRA PHARMACEUTICALS PLC	FTSE 250	05-04-2012	EUROVET ANIMAL HEALTH BV	NL
41	DIAGEO PLC	FTSE 100	06-06-2005	MONTANA WINES LTD	NZ
42	DIAGEO PLC	FTSE 100	21-02-2011	MEY I&KI SAN VE TIC AS	TR
43	DIXONS GROUP PLC	FTSE 250	29-11-1999	ELKJÿP NORGE AS	NO
44	DOMINO PRINTING SCIENCES PLC	FTSE 250	11-07-2005	CITRONIX LP	US
45	DOMINO PRINTING SCIENCES PLC	FTSE 250	06-06-2012	GRAPH-TECH AG	CH
46	EASYJET PLC	FTSE 100	08-05-2002	DEUTSCHE BA LUFTFAHRT GMBH	DE
47	ELEMENTIS PLC	FTSE 250	22-04-2004	SASOL SERVO BV	NL
48	ERINACEOUS GROUP PLC	FTSE All-Share	13-02-2006	TOM MCNAMARA & PARTNERS LTD	IE
49	FIRSTGROUP PLC	FTSE 250	08-11-2003	AIRCOACH LTD	IE
50	FORTUNE OIL PLC	FTSE All-Share	31-03-2008	XINYANG CITY GAS COMPANY	CN
51	GALLEON HOLDINGS PLC	FTSE All-Share	20-02-2008	MENGBO INFORMATION TECHNOLOGY CO. LTD	CN
52	GENEL ENERGY PLC	FTSE All-Share	14-05-2012	A & T PETROLEUM CO LTD	TR
53	GKN PLC	FTSE 100	06-08-2000	NISSAN MOTOR CO., LTD	JP
54	GKN PLC	FTSE 100	31-03-2004	TOCHIGI FUJI INDUSTRIAL CO., LTD	JP
55	GKN PLC	FTSE 100	04-08-2004	VELCON SA DE CV	MX
56	GKN PLC	FTSE 100	28-07-2011	GETRAG ALL WHEEL DRIVE AB	SE
57	GKN PLC	FTSE 100	05-07-2012	VOLVO AERO AB	SE
58	GREENKO GROUP PLC	FTSE All-Share	09-11-2010	HEMAVATHI POWER & LIGHT PVT LTD	IN
59	HALMA PLC	FTSE 250	08-03-2011	MEDICEL AG	CH
60	HAYS PLC	FTSE 250	04-01-1997	DAUFENBACH GMBH	DE
61	HIGHLAND GOLD MINING LTD	FTSE All-Share	01-06-2012	KLEN OOO	RU

**APPENDIX 1a** – Deal information for entire data sample: Deals 62-91

Deal number	Acquirer name	Index	Date of deal	Target name	Target country code
62	HIRCO PLC	FTSE Small Cap	18-12-2008	HIRCO DEVELOPMENTS PVT LTD	IN
63	HORIZONTE MINERALS PLC	FTSE All-Share	27-07-2010	TECK COMINCO BRASIL SA	BR
64	HUNTING PLC	FTSE 250	08-06-2009	SMB INDUSTRI, PT	ID
65	HYDER CONSULTING PLC	FTSE Small Cap	26-11-2007	VOIGT INGENIEURE GMBH BERLIN	DE
66	IG GROUP HOLDINGS PLC	FTSE 250	24-09-2008	FXONLINE JAPAN CO., LTD	JP
67	IMI PLC	FTSE 100	04-04-1997	TA HYDRONICS	SE
68	IMI PLC	FTSE 100	11-01-2001	BTG'S SEVERE SERVICE VALVES BUSINESS	SE
69	IMI PLC	FTSE 100	03-10-2005	ABB KK'S CONTROL VALVES BUSINESS	JP
70	IMI PLC	FTSE 100	09-08-2007	PNEUMATEX AG	CH
71	IMI PLC	FTSE 100	25-10-2010	ZIMMERMANN & JANSEN MBH	DE
72	IMI PLC	FTSE 100	17-02-2012	GRUPO INTERATIVA EMPRESARIAL LTDA	BR
73	INCHCAPE PLC	FTSE 250	30-08-2006	AXEL CAR OOO	RU
74	INCHCAPE PLC	FTSE 250	04-10-2007	ORGTEKHSTROI OOO	RU
75	INCHCAPE PLC	FTSE 250	24-04-2008	MUSA MOTORS	RU
76	INFORMA PLC	FTSE 250	07-06-2011	BRAZIL TRADE SHOWS PARTNERS	BR
77	INNOVATION GROUP PLC, THE	FTSE Small Cap	25-10-2006	SUREPLAN INTERNATIONAL PTY LTD	AU
78	ITE GROUP PLC	FTSE 250	28-04-2008	SIBIRSKAYA YARMARKA VTS OOO	RU
79	ITE GROUP PLC	FTSE 250	17-12-2010	MEZHDUNARODNAYA VYSTAVOCHNAYA ZAO	RU
80	ITE GROUP PLC	FTSE 250	03-03-2011	VYSTAVOCHNYI TSENTR KRASNODAREKSPO	RU
81	JAMES FISHER AND SONS PLC	FTSE 250	16-12-2002	SCAN TECH HOLDING A/S	NO
82	JKX OIL & GAS PLC	FTSE Small Cap	24-07-2007	YUZHGAZENERDZHI OOO	RU
83	JOHN MENZIES PLC	FTSE Small Cap	31-03-2008	NOVIA SVERIGE AB	SE
84	JOHNSTON PRESS PLC	FTSE Small Cap	18-09-2005	LEINSTER LEADER LTD, THE	IE
85	KENTZ CORPORATION LTD	FTSE 250	08-02-2011	RNE ENGINEERING AND PROJECTS (PTY) LTD	ZA
86	KINGFISHER PLC	FTSE 100	27-04-2005	OBI ASIA HOLDING LTD	CN
87	LONMIN PLC	FTSE 250	31-05-2001	PLATINUM AUSTRALIA LTD	AU
88	LOW & BONAR PLC	FTSE Small Cap	07-07-2006	COLBOND INVESTMENTS BV	NL
89	MANAGEMENT CONSULTING GROUP PLC	FTSE Small Cap	29-05-2001	CZIPIN & PARTNER GMBH	DE
90	MANAGEMENT CONSULTING GROUP PLC	FTSE Small Cap	19-09-2007	KURT SALMON ASSOCIATES INC.	US
91	MECOM GROUP PLC	FTSE Small Cap	05-04-2006	MEDIA GROEP LIMBURG BV	NL

**APPENDIX 1a** – Deal information for entire data sample: Deals 92-121

Deal number	Acquirer name	Index	Date of deal	Target name	Target country code
92	MECOM GROUP PLC	FTSE Small Cap	25-07-2006	ORKLA MEDIA AS	NO
93	MEGGITT PLC	FTSE 100	20-08-1998	VIBRO-METER SA	CH
94	MILLENNIUM & COPTHORNE HOTELS PLC	FTSE 250	22-04-1999	CDL ASIAN AND AUSTRALIAN HOTEL OPERATIONS	AU
95	MILLENNIUM & COPTHORNE HOTELS PLC	FTSE 250	02-09-1999	REGAL HOTELS INTERNATIONAL HOLDINGS LTD	US
96	NORTHBRIDGE INDUSTRIAL SERVICES PLC	FTSE All-Share	30-06-2010	TASMAN OIL TOOLS PTY LTD	AU
97	OLD MUTUAL PLC	FTSE 100	02-09-2005	FÖRSÅKRINGSAKTIEBOLAGET SKANDIA AB	SE
98	PAN AFRICAN RESOURCES PLC	FTSE All-Share	20-12-2006	BARBERTON MINES (PTY) LTD	ZA
99	PAN AFRICAN RESOURCES PLC	FTSE All-Share	21-05-2009	PHOENIX PLATINUM (PTY) LTD	ZA
100	PAN AFRICAN RESOURCES PLC	FTSE All-Share	30-01-2012	EVANDER GOLD MINES LTD	ZA
101	PEARSON PLC	FTSE 100	15-04-2009	WALL STREET ENGLISH	CN
102	PEARSON PLC	FTSE 100	22-07-2010	SEB - SISTEMA EDUCACIONAL BRASILEIRO	BR
103	PERFORM GROUP PLC	FTSE 250	16-05-2012	RUNNINGBALL HOLDING AG	CH
104	PERFORM GROUP PLC	FTSE 250	29-06-2012	MACKOLIK INTERNET HIZMETLERI TIC AS	TR
105	POWERHOUSE ENERGY GROUP PLC	FTSE All-Share	30-12-2011	PYROMEX HOLDING AG	CH
106	PROSPECT JAPAN FUND LTD, THE	FTSE All-Share	15-07-2011	INVINCIBLE INVESTMENT CORPORATION	JP
107	PROTEOME SCIENCES PLC	FTSE All-Share	31-05-2002	XZILLION PROTEOMICS GMBH & CO. KG	DE
108	PZ CUSSENS PLC	FTSE 250	05-01-2012	SABRE GROUP LTD'S FUDGE HAIR CARE	AU
109	RECKITT BENCKISER GROUP PLC	FTSE 100	13-12-2010	PARAS PHARMACEUTICALS LTD	IN
110	RENOLD PLC	FTSE Small Cap	09-06-2008	LG BALAKRISHNAN & BROS LTD	IN
111	RENTOKIL INITIAL PLC	FTSE 250	25-09-2012	WESTERN EXTERMINATOR COMPANY	US
112	REXAM PLC	FTSE 100	30-11-1998	PLM AB	SE
113	REXAM PLC	FTSE 100	31-10-2003	LATAS DE ALUMINIO SA	BR
114	REXAM PLC	FTSE 100	25-01-2006	FANGXIN LTD'S BEAUTY BUSINESS	CN
115	REXAM PLC	FTSE 100	04-07-2007	ROSTAR OOO	RU
116	ROTORK PLC	FTSE 250	30-01-2008	REMOTE CONTROLS SWEDEN AB	SE
117	RSA INSURANCE GROUP PLC	FTSE 100	07-03-1998	NORWICH UNION'S NEW ZEALAND	NZ
118	ROYAL BANK of SCOTLAND PLC	FTSE 100	06-10-2003	FIRST ACTIVE PLC	IE
119	RPS GROUP PLC	FTSE 250	08-02-2000	EEL GROUP	IE
120	RPS GROUP PLC	FTSE 250	01-07-2009	CONICS PTY LTD	AU
121	SAGE GROUP PLC, THE	FTSE 100	28-02-1997	KHK SOFTWARE AG	DE

**APPENDIX 1a – Deal information for entire data sample: Deals 122-151**

Deal number	Acquirer name	Index	Date of deal	Target name	Target country code
122	SAGE GROUP PLC, THE	FTSE 100	01-08-2003	SOFTLINE LTD	ZA
123	SAGE GROUP PLC, THE	FTSE 100	04-04-2006	VISMA ASA	NO
124	SSE PLC	FTSE 100	04-01-2008	AIRTRICITY HOLDINGS LTD	IE
125	SENIOR PLC	FTSE 250	11-05-1998	DELTATERM INDUSTRIA E COMERCIO LTDA	BR
126	SERCO PLC	FTSE 250	31-05-2011	INTELENET GLOBAL SERVICES PVT LTD	IN
127	SHANKS GROUP PLC	FTSE Small Cap	26-01-2000	WASTE MANAGEMENT NEDERLAND BV	NL
128	SMITH & NEPHEW PLC	FTSE 100	12-03-2007	PLUS ORTHOPEDICS HOLDING AG	CH
129	SOUND OIL PLC	FTSE All-Share	26-06-2006	MITRA ENERGIA LTD	ID
130	SPIRAX-SARCO ENGINEERING PLC	FTSE 250	25-05-2010	SPIRAX-SARCO MEXICANA SA	MX
131	SPIRENT COMMUNICATIONS PLC	FTSE 250	20-04-2012	MU DYNAMICS INC.	US
132	STANDARD CHARTERED PLC	FTSE 100	22-04-1999	BANK BALI TBK, PT	ID
133	STANDARD CHARTERED PLC	FTSE 100	10-01-2005	KOREA FIRST BANK	KR
134	STATPRO GROUP PLC	FTSE All-Share	09-05-2006	KIZEN (PTY) LTD	ZA
135	STERLING ENERGY PLC	FTSE All-Share	19-01-2007	WHITTIER ENERGY COMPANY	US
136	SYNERGY HEALTH PLC	FTSE 250	19-03-2012	LEONI STUDER HARD AG	CH
137	TARSUS GROUP PLC	FTSE Small Cap	19-05-2011	IFO ISTANBUL FUAR HIZMETLERI AS	TR
138	TARSUS GROUP PLC	FTSE Small Cap	20-03-2012	LIFE MEDIA FUARCILIK AS	TR
139	TELECITY GROUP PLC	FTSE 250	05-08-2011	DATA ELECTRONICS GROUP LTD	IE
140	TESCO PLC	FTSE 100	27-02-2003	KIPA KITLE PAZARLAMA TICARET VE GIDA SANAYI AS	TR
141	THOMAS COOK GROUP PLC	FTSE 250	07-03-2008	THOMAS COOK (INDIA) LTD	IN
142	TULLETT PREBON PLC	FTSE 250	13-10-2009	CONVENÇÃO SA CORRETORA DE VALORES E C-MBIO	BR
143	TULLOW OIL PLC	FTSE 100	04-05-2004	ENERGY AFRICA LTD	ZA
144	TULLOW OIL PLC	FTSE 100	23-05-2011	NUON EXPLORATION AND PRODUCTION BV	NL
145	UTV MEDIA PLC	FTSE Small Cap	18-12-2007	CAPITAL RADIO PRODUCTIONS LTD	IE
146	WEIR GROUP PLC, THE	FTSE 100	04-12-2007	CH WARMAN PUMP GROUP	ZA
147	VITEC GROUP PLC, THE	FTSE Small Cap	14-02-1997	ANTON/BAUER INC.	US
148	VODAFONE GROUP PLC	FTSE 100	13-11-1999	MANNESMANN AG	DE
149	VODAFONE GROUP PLC	FTSE 100	21-12-2000	EIRCELL LTD	IE
150	VODAFONE GROUP PLC	FTSE 100	13-12-2005	TELSIM MOBIL TELEKOMUNIKASYON HIZMETLERI AS	TR
151	VODAFONE GROUP PLC	FTSE 100	11-02-2007	HUTCHISON ESSAR TELECOM LTD	IN

**APPENDIX 1b** – Variable information for entire data sample: Deals 1-31

Deal number	CAR 11	CAR 5	GDP	GDP/ CAP	GDP g	INT	INFL	EXC RATE	POL STAB	CULT	IND	MoP	MTB	EXP	GEO	LANG	SIZE	EM/DV
1	-0,1828	0,0002	12,4159	4,5016	1,87	-0,74	0,57	-0,156	3,67	52	1	1	0	1	1	0	0	0
2	-0,0281	-0,0367	11,8935	4,5554	1,65	4,25	1,82	0,21	3,33	23	0	1	1	0	0	1	1	0
3	0,0168	0,0072	12,0518	3,7575	2,73	6,75	6,64	0,142	2,37	143	1	0	1	1	0	0	0	1
4	0,0262	0,0274	11,9025	4,5587	2,09	3,8	2,85	0,332	3,37	23	1	0	1	1	0	1	0	0
5	0,1101	0,0627	11,8279	4,6281	1,80	3,19	2,49	0,252	3,36	82	1	1	1	1	1	0	1	0
6	-0,0248	0,0641	11,7552	4,4781	4,95	0,25	1,47	-0,083	3,51	23	1	1	1	1	0	1	0	0
7	0,0488	0,0666	11,9881	3,7094	6,10	11,75	3,64	-0,049	2,12	143	1	1	0	1	0	0	0	1
8	-0,1227	-0,0681	11,4108	3,0719	4,78	2,68	6,59	-0,058	0,38	151	1	0	0	0	0	0	0	1
9	-0,1664	-0,1465	11,7233	4,5299	4,28	-1,62	2,18	-0,091	3,94	82	1	0	0	0	1	0	0	0
10	0,0418	-0,0158	11,4830	4,8180	2,59	0,5	1,52	-0,035	3,78	97	1	1	0	1	1	0	0	0
11	-0,0561	-0,0567	11,9084	3,8747	1,42	4,79	4,55	-0,105	2,36	155	1	1	0	1	0	0	0	1
12	-0,0742	-0,0790	11,4546	4,5079	2,71	-2,06	0,52	-0,031	3,88	89	1	0	1	1	1	0	1	0
13	0,0226	0,0410	13,1285	4,6538	2,67	-1,17	3,23	-0,174	2,99	22	0	0	1	1	0	1	1	0
14	-0,0203	0,0138	11,5374	4,5851	2,34	-2,64	1,93	-0,017	3,82	89	1	1	0	0	1	0	1	0
15	-0,0053	0,0387	11,9703	4,2837	5,11	1	2,53	0,018	3,03	173	1	1	0	1	0	0	0	1
16	-0,0433	-0,0026	11,5045	4,8261	0,07	1,25	3,77	0,104	3,75	97	1	1	0	1	1	0	1	0
17	-0,0091	0,0030	12,4716	4,5564	3,27	1,98	2,3	0,016	3,49	52	1	1	1	1	1	0	0	0
18	0,0205	0,0161	11,3705	3,7015	4,55	2,5	1,39	0,09	2,38	55	1	1	1	1	0	1	0	1
19	-0,0150	0,0220	11,8665	3,6374	0,04	13,5	3,2	0,405	2,13	143	0	1	0	0	0	0	0	1
20	-0,0865	-0,0284	11,8005	2,7619	3,84	8,08	4,01	0,072	1,51	98	0	1	0	0	0	1	0	1
21	-0,0073	0,1414	11,7552	4,4781	4,95	0,25	1,47	-0,083	3,51	23	0	1	0	1	0	1	1	0
22	-0,0307	0,0000	13,0455	4,5998	4,85	8,25	2,19	0,026	2,27	22	1	1	0	1	0	1	1	0
23	-0,2425	-0,0513	11,9456	3,6757	3,16	0,5	6,87	-0,187	3,32	143	0	1	0	1	0	0	0	1
24	0,0079	0,0443	12,0401	3,7496	7,53	10,5	5,04	0,243	2,51	143	1	1	0	1	0	0	0	1
25	-0,0105	-0,0456	11,4973	4,8135	-1,63	1,5	2,17	0,169	3,74	97	1	1	0	0	1	0	1	0
26	-0,0150	0,0038	11,5052	4,8098	1,34	1	1,3	0,174	3,83	97	1	0	0	1	1	0	1	0
27	-0,2054	-0,2553	11,5353	4,6834	2,73	-5	0,02	-0,094	3,86	49	1	0	1	1	1	0	1	0
28	-0,0415	-0,0368	11,7327	3,8908	4,67	6	8,76	-0,198	1,41	154	1	1	0	1	1	0	0	1
29	-0,0224	-0,0298	11,5315	3,1620	6,01	13,63	9,78	-0,1	1,68	151	1	1	1	1	0	0	0	1
30	-0,0427	-0,0770	11,3299	4,7007	5,51	-1,19	3,94	-0,073	3,64	28	1	1	1	0	1	1	1	0
31	-0,0271	-0,0197	11,7867	4,5765	0,34	-0,66	2,11	-0,026	3,64	82	1	1	1	1	1	0	0	0

**APPENDIX 1b** – Variable information for entire data sample: Deal 32-61

Deal number	CAR 11	CAR 5	GDP	GDP/ CAP	GDP g	INT	INFL	EXC RATE	POL STAB	CULT	IND	MoP	MTB	EXP	GEO	LANG	SIZE	EM/DV
32	-0,0332	-0,0418	11,5052	4,8098	1,34	1	1,3	0,174	3,83	97	0	1	0	1	1	0	1	0
33	-0,0121	0,0025	12,0523	2,9768	8,48	7,83	10,88	0	1,17	98	1	1	0	1	0	1	1	1
34	0,0489	0,0384	11,7963	4,5846	2,24	-1,13	1,24	-0,022	3,50	82	0	1	1	1	1	1	0	0
35	0,0034	-0,0267	11,4994	4,8102	0,48	1,49	2,4	0,197	3,81	97	0	1	1	1	1	0	0	0
36	0,1194	0,0222	11,9881	3,7094	6,10	11,75	3,64	-0,049	2,12	143	1	0	0	1	0	0	0	1
37	0,0778	0,0661	11,3111	3,6676	4,15	-2,75	5,34	0,044	2,71	55	0	0	0	1	0	1	0	1
38	0,0498	-0,0041	13,0747	4,6158	1,78	5,5	1,59	0,034	2,25	22	0	1	1	1	0	1	0	0
39	-0,0279	0,0203	11,6310	4,7375	2,95	-0,25	0,7	0,308	3,73	49	0	1	0	1	1	0	0	0
40	-0,0338	-0,0405	11,8385	4,6160	0,94	1,43	2,35	0,134	3,60	82	0	1	1	1	1	0	1	0
41	-0,0023	-0,0055	11,0563	4,4311	3,66	2,75	2,29	0,001	3,97	45	1	1	1	1	0	1	0	0
42	-0,0139	-0,0192	11,7521	3,8940	9,16	4,5	8,57	-0,239	1,58	154	1	1	1	1	1	0	0	1
43	-0,2608	-0,1574	11,4131	4,7666	2,68	2	2,26	-0,129	3,86	97	1	1	1	1	1	0	0	0
44	-0,0157	-0,0101	13,1028	4,6362	3,80	-0,25	2,68	-0,142	3,79	22	1	1	0	1	0	1	0	0
45	0,0203	-0,0360	11,6387	4,7404	1,79	-0,35	0,23	0,304	2,30	49	1	1	0	1	1	0	0	0
46	0,0547	0,1040	12,4355	4,5198	1,51	0,07	1,98	-0,182	3,82	52	1	1	0	0	1	0	0	0
47	0,1200	0,1233	11,7867	4,5765	0,34	-0,66	2,11	-0,026	3,64	82	1	1	0	0	1	0	1	0
48	0,0282	0,0205	11,3066	4,6875	6,08	-1,23	2,43	-0,052	3,79	28	0	1	1	1	1	1	1	0
49	0,0535	0,0403	11,2472	4,6521	5,42	0,38	4,65	-0,109	3,92	28	1	1	0	1	1	1	0	0
50	-0,1233	-0,1487	12,4631	3,3432	14,20	3,31	5,57	-0,134	2,01	119	0	0	1	0	0	0	1	1
51	0,1124	0,0495	12,4631	3,3432	14,20	3,31	5,57	-0,134	2,01	119	0	1	1	0	0	0	1	1
52	0,0834	0,0230	11,7886	3,9250	8,77	4,5	6,47	-0,507	1,55	154	0	1	0	0	1	0	0	1
53	-0,1594	-0,1513	12,6443	4,5220	-0,20	-3,933	-0,33	0,075	3,69	148	0	1	1	1	0	0	0	0
54	0,0249	0,0173	12,6246	4,5381	1,69	-2,983	-0,25	-0,061	3,50	148	0	1	0	1	0	0	0	0
55	0,0442	0,0392	11,9084	3,8747	1,42	4,79	4,55	-0,105	2,36	155	0	1	0	1	0	0	0	1
56	-0,0216	-0,0017	11,6038	4,6317	6,65	1,15	1,16	0,183	3,59	89	0	1	0	1	1	0	0	0
57	-0,0546	-0,0477	11,6164	4,6410	2,93	0,75	2,96	0,159	3,73	89	1	1	1	1	1	0	1	0
58	-0,0469	0,0004	12,0523	2,9768	8,48	7,83	10,88	0	1,17	98	1	0	1	0	0	1	1	1
59	-0,0306	-0,0405	11,6310	4,7375	2,95	-0,25	0,7	0,308	3,73	49	0	0	1	1	1	0	0	0
60	0,0325	0,0492	12,3924	4,4790	0,79	-1,61	1,45	0,027	3,71	52	0	0	1	1	1	0	0	0
61	0,0643	0,0297	11,9769	3,8217	4,29	8,6	8,44	-0,158	2,37	198	0	1	0	1	1	0	1	1

**APPENDIX 1b** – Variable information for entire data sample: Deal 62-91

Deal number	CAR 11	CAR 5	GDP	GDP/CAP	GDP g	INT	INFL	EXC RATE	POL STAB	CULT	IND	MoP	MTB	EXP	GEO	LANG	SIZE	EM/DV
62	0,1247	0,0894	12,0004	2,9360	9,80	11,31	6,37	-0,045	1,35	98	0	0	0	0	0	1	1	1
63	-0,0749	-0,1728	12,0086	3,7219	-0,33	10,25	4,89	0,167	2,66	143	0	0	0	0	0	0	1	1
64	-0,0581	-0,0102	11,5315	3,1620	6,01	6	9,78	-0,1	1,41	151	0	1	0	1	0	0	0	1
65	0,0259	0,0103	12,4577	4,5419	3,70	-1,28	1,58	-0,073	3,50	52	1	0	1	1	1	0	0	0
66	-0,0234	-0,0586	12,6768	4,5704	2,19	-0,09	0,06	-0,272	3,46	148	0	1	1	0	0	0	0	0
67	-0,0520	-0,0383	11,5112	4,4965	1,61	2,24	0,47	0,077	3,33	89	0	1	1	1	1	0	0	0
68	0,0179	-0,0130	11,4430	4,5632	4,45	6,75	1,04	-0,113	2,37	89	1	1	0	1	1	0	0	0
69	0,0627	0,0123	12,6545	4,5481	2,36	-2,25	-0,01	-0,115	3,77	148	0	1	1	1	0	0	0	0
70	-0,1068	0,0657	11,6176	4,7270	3,75	0	1,06	-0,144	3,82	49	0	0	0	1	1	0	0	0
71	0,0732	-0,0097	12,4534	4,5401	-5,15	-2,823	0,31	0,186	3,49	52	0	0	0	1	1	0	0	0
72	0,0216	-0,0160	12,0518	3,7575	2,73	-3,14	6,64	0,142	3,88	143	0	1	0	1	0	0	0	1
73	-0,0795	-0,0497	11,8831	3,7273	6,38	5,43	12,68	-0,144	1,25	198	1	1	1	1	1	0	0	1
74	0,0247	0,0138	11,9527	3,7634	8,18	4,53	9,68	-0,195	1,59	198	1	1	1	1	1	0	0	1
75	-0,0681	-0,0773	11,9171	3,8001	8,54	10,23	9,01	-0,133	1,64	198	1	1	1	1	1	0	1	1
76	-0,0244	-0,0166	12,0401	3,7496	7,53	10,5	5,04	0,243	2,51	143	0	1	0	1	0	0	0	1
77	0,0573	0,0080	11,8411	4,5316	3,19	1,25	2,67	-0,03	3,38	23	0	1	1	1	0	1	0	0
78	-0,0692	-0,1087	11,9527	3,8001	8,54	10,23	9,01	-0,133	1,64	198	1	1	1	1	1	0	0	1
79	0,0140	-0,0314	11,9396	3,7875	-7,82	10,32	11,65	-0,135	1,55	198	1	1	1	1	1	0	0	1
80	0,0374	0,0028	11,9587	3,8052	4,50	7,96	6,68	-0,097	1,59	198	1	1	1	1	1	0	0	1
81	0,0594	0,0010	11,4443	4,7897	1,99	4,5	3,02	-0,162	3,95	97	0	1	0	1	1	0	1	0
82	-0,0874	-0,0343	11,9171	3,7634	8,15	4,53	9,68	-0,195	1,59	198	0	1	1	0	1	0	0	1
83	-0,0407	-0,0898	11,6013	4,6400	3,31	1,91	2,21	-0,016	3,75	89	0	1	1	1	1	0	0	0
84	0,0073	0,0051	11,2810	4,6722	4,20	-1,17	2,19	-0,022	3,67	28	0	1	0	1	1	1	0	0
85	-0,0054	0,0483	11,4619	3,7630	3,09	5	4,26	0,134	2,48	55	1	1	1	0	0	1	0	1
86	0,0838	0,0989	12,3070	3,1944	10,10	1,08	0,98	-0,229	2,14	119	1	1	0	1	0	0	0	1
87	0,0538	0,0293	11,7552	4,4893	3,85	0,28	4,48	-0,183	3,76	23	0	1	1	0	0	1	0	0
88	0,0111	0,0413	11,8051	4,5924	2,05	-1,22	1,67	-0,052	3,71	82	1	0	0	1	1	0	1	0
89	0,1229	0,1645	12,4290	4,5140	3,06	0,8	1,47	-0,15	3,82	52	1	0	0	0	1	0	1	0
90	-0,0348	-0,0162	13,1285	4,6538	2,67	-1,17	3,23	-0,174	2,99	22	1	1	0	1	0	1	1	0
91	0,0005	0,0004	11,8051	4,5924	2,05	-1,22	1,67	-0,052	3,71	82	1	1	0	0	1	0	1	0

**APPENDIX 1b** – Variable information for entire data sample: Deal 92-121

Deal number	CAR 11	CAR 5	GDP	GDP/CAP	GDP g	INT	INFL	EXC RATE	POL STAB	CULT	IND	MoP	MTB	EXP	GEO	LANG	SIZE	EM/DV
92	-0,0017	0,0002	11,4830	4,8180	2,59	0,5	1,52	-0,035	3,78	97	1	0	0	0	1	0	1	0
93	0,0544	-0,0455	11,5236	4,6730	2,04	-5,25	0,52	-0,149	3,88	49	0	1	0	1	1	0	1	0
94	-0,0573	-0,0275	11,7342	4,4621	4,52	-0,5	0,85	-0,194	3,51	23	1	1	0	1	0	1	1	0
95	0,0040	0,0158	13,0249	4,5843	4,45	0	1,55	0,002	3,32	22	1	0	0	1	0	1	1	0
96	0,0067	0,0010	11,8935	4,5554	1,65	4,25	1,82	0,21	3,33	23	1	1	0	0	0	1	1	0
97	-0,0111	-0,0050	11,5554	4,6014	4,23	-2,78	0,37	-0,004	3,83	89	0	0	0	1	1	0	1	0
98	-0,0813	-0,1409	11,4767	3,7188	5,28	4	3,40	0,079	2,35	55	1	0	0	0	0	1	1	1
99	-0,1321	-0,0231	11,4554	3,7670	3,62	6,5	11,54	-0,124	2,54	55	1	1	0	1	0	1	0	1
100	-0,1927	-0,1415	11,3928	3,7726	3,46	4,5	5,28	-0,061	2,53	55	1	0	1	0	0	1	1	1
101	-0,0458	-0,0777	12,5029	3,3808	9,60	10,25	8,62	0,235	2,66	119	1	1	0	1	0	0	0	1
102	0,0532	0,0234	12,0086	3,7219	-0,33	4,81	4,89	0,167	2,02	143	1	1	0	1	0	0	0	1
103	-0,1116	-0,1145	11,6387	4,7404	1,79	-0,25	0,23	0,304	3,79	49	1	0	1	1	1	0	1	0
104	-0,0488	0,0078	11,7886	3,9250	8,77	4,5	6,47	-0,507	1,55	154	1	1	1	1	1	0	0	1
105	-0,1185	-0,0356	11,6310	4,7375	2,95	-0,25	0,7	0,308	3,73	49	0	0	1	0	1	0	1	0
106	0,0476	-0,0097	12,6673	4,5620	4,65	1,001	-0,28	0,294	3,35	148	1	1	1	0	0	0	1	0
107	-0,1372	-0,2085	12,4355	4,5198	1,51	0,07	1,98	-0,182	3,82	52	1	0	1	0	1	0	1	0
108	0,0806	0,0653	11,9129	4,5641	2,43	2,53	3,39	0,333	3,43	23	0	1	0	0	0	1	0	0
109	-0,0227	-0,0291	12,0523	2,9768	8,48	7,83	10,88	0	1,17	98	0	1	1	1	0	1	0	1
110	-0,1955	-0,1227	12,0004	2,9360	9,80	11,31	6,37	-0,045	1,35	98	0	1	0	1	0	1	1	1
111	-0,0280	-0,0046	13,1413	4,6478	1,85	-0,37	3,16	0,068	3,10	22	1	1	1	1	0	1	0	0
112	0,1292	0,1399	11,4546	4,5079	2,71	4,53	0,52	-0,031	1,59	89	0	1	0	1	1	0	1	0
113	-0,0993	-0,1356	11,9030	3,6491	2,66	-2,06	8,45	-0,687	3,88	143	0	1	0	1	0	0	1	1
114	0,0266	-0,0102	12,3535	3,2383	11,30	12,75	4,4	-0,081	2,79	119	1	1	1	1	0	0	0	1
115	-0,0461	-0,0173	11,9171	3,7634	8,15	1,12	9,68	-0,195	2,02	198	0	0	0	1	1	0	0	1
116	-0,0093	0,0447	11,6013	4,6400	3,31	1,91	2,21	-0,016	3,75	89	1	1	1	1	1	0	0	0
117	0,0080	-0,0450	10,9335	4,3603	2,94	-1,25	1,19	-0,062	3,75	45	1	1	0	0	0	1	0	0
118	0,0382	0,0237	11,2472	4,6521	5,42	0,38	4,65	-0,109	3,92	28	1	1	0	1	1	1	0	0
119	-0,0984	-0,0127	11,1592	4,6201	10,97	3,24	1,64	-0,156	3,45	28	0	0	1	1	1	1	0	0
120	-0,0541	-0,0457	11,8864	4,5563	3,77	-0,49	4,35	0,092	3,94	23	0	1	0	1	0	1	0	0
121	-0,1174	-0,0916	12,3924	4,4790	0,79	-1,61	1,45	0,027	3,71	52	0	1	1	1	1	0	0	0

**APPENDIX 1b** – Variable information for entire data sample: Deal 122-151

Deal number	CAR 11	CAR 5	GDP	GDP/CAP	GDP g	INT	INFL	EXC RATE	POL STAB	CULT	IND	MoP	MTB	EXP	GEO	LANG	SIZE	EM/DV
122	0,0450	0,0185	11,3385	3,6802	3,67	0,5	9,16	-0,168	3,78	55	1	1	0	1	0	1	0	1
123	0,0359	-0,0275	11,4830	4,8180	2,59	4,25	1,52	-0,035	2,18	97	1	1	0	1	1	0	1	0
124	-0,0087	-0,0297	11,3509	4,7133	4,97	2,53	4,88	0,016	3,66	28	1	0	1	0	1	1	0	0
125	0,0091	0,0179	11,8664	3,6438	3,37	12,75	6,93	0,457	2,25	143	0	1	0	1	0	0	0	1
126	-0,0600	-0,0777	12,0947	3,0145	10,26	9,67	11,99	0,079	1,27	98	0	1	1	1	0	1	1	1
127	0,1454	0,0946	11,7599	4,5609	4,68	-0,6	2,19	-0,156	4,01	82	1	0	1	1	1	0	1	0
128	-0,0784	-0,0584	11,6012	4,7270	3,75	-2,25	1,06	-0,144	3,77	49	1	0	1	1	1	0	0	0
129	0,2078	0,1540	11,4562	3,1048	5,69	4,75	10,45	-0,186	1,02	151	0	0	0	0	0	0	1	1
130	0,0320	0,0007	11,9594	3,8934	-4,70	6,61	5,3	-0,165	1,80	155	0	0	1	1	0	0	0	1
131	0,0266	-0,0192	13,1413	4,6478	1,85	-0,37	3,16	0,068	3,10	22	1	1	0	1	0	1	0	0
132	0,0197	0,0301	11,3316	3,0241	-13,13	7,01	58,39	0,072	3,94	151	1	1	1	1	0	0	0	1
133	-0,1714	0,0388	11,9099	4,2283	4,62	-0,75	3,59	-0,041	2,90	173	1	1	0	1	0	0	1	1
134	-0,0219	-0,0498	11,3928	3,7188	5,28	4	3,40	0,079	2,35	55	0	1	1	0	0	1	1	1
135	-0,0545	-0,0313	13,1285	4,6538	2,67	-1,17	3,23	-0,174	2,99	22	1	0	0	0	0	1	1	0
136	-0,0293	-0,0363	11,6387	4,7404	1,79	-0,25	0,23	0,304	3,79	49	0	1	0	0	1	0	0	0
137	0,0925	0,0288	11,7886	3,8940	9,16	4,5	8,57	-0,239	1,58	154	1	0	0	1	1	0	0	1
138	-0,0069	-0,0532	11,7521	3,9250	8,77	4,5	6,47	-0,507	1,55	154	1	0	0	1	1	0	0	1
139	-0,0215	0,0625	11,3082	4,6648	-1,06	9,1	-0,95	0,163	3,48	28	0	1	1	0	1	1	0	0
140	-0,0091	0,0053	11,5877	3,7747	6,16	22,25	44,96	-0,372	1,63	154	1	1	0	0	1	0	1	1
141	0,0433	0,0020	12,0004	2,9360	9,80	11,31	6,37	-0,045	1,35	98	1	1	1	1	0	1	0	1
142	-0,0026	-0,0039	12,0100	3,7272	5,17	8,25	5,66	0,008	2,21	143	1	0	1	1	0	0	0	1
143	-0,1309	-0,1857	11,3511	3,6873	2,95	2,49	5,86	-0,01	3,41	55	0	1	1	1	0	1	1	1
144	0,0103	0,0256	11,8345	4,6139	1,53	2,75	1,28	0,163	2,17	82	0	1	1	1	1	0	0	0
145	-0,0049	-0,1213	11,3299	4,7007	5,51	-1,19	3,94	-0,073	3,64	28	1	1	1	1	1	1	1	0
146	-0,0208	-0,0164	11,4165	3,7377	5,60	5,5	4,64	-0,167	2,55	55	1	1	1	1	0	1	0	1
147	0,0111	-0,0150	12,9870	4,5566	3,80	-1,75	2,93	-0,027	3,37	22	0	1	0	0	0	1	0	0
148	0,0121	0,0225	12,4078	4,4938	1,86	-1,01	0,94	-0,024	3,67	52	1	0	0	1	1	0	1	0
149	0,0102	0,0133	11,1592	4,6201	10,97	-0,49	1,64	-0,156	3,94	28	1	0	1	1	1	1	0	0
150	0,0839	0,0551	11,6489	3,8238	9,36	7,52	10,58	-0,315	1,66	154	1	1	1	1	1	0	0	1
151	0,1237	0,2010	11,9598	2,9015	9,26	9	6,15	-0,153	1,44	98	1	0	0	1	0	1	0	1

## **APPENDIX 2 – Diagnostic testing of assumptions in regression model**

**Test 1** – *y* can be written as a linear function of several explanatory variables, an intercept ( $\alpha$ ) and an error term ( $\epsilon$ )

This assumption is put forward in Westerlund (2005) and implies that the dependent variable, *y*, can be written as a linear function of several explanatory variables, an intercept ( $\alpha$ ) and an error term ( $\epsilon$ ). The assumption means that there are not any omitted explanatory variables, which would be significant in the model. If there are omitted variables it would result in an OLS estimation which is not unbiased. Some variables were not possible to examine with consideration to the data collection, which explains the presence of omitted explanatory variables. Nevertheless, the authors deemed that the model was still the most appropriate explanatory model. Special consideration was therefore taken into account for the analysis of the results. A Ramsey RESET-test is displayed in figure 2.1.

**Test 2** – *Inclusion of a constant in the regression*

The second assumption implies that the error term ( $\epsilon$ ) on average should be zero. By including a constant in the regression the authors considered the assumption to be satisfied in accordance to Brooks (2008).

**Test 3 - Heteroscedasticity**

The third assumption implies that the error term ( $\epsilon$ ) is homoscedastic, which means that the variance of all the error terms is constant (Brooks, 2008). The assumption that the error term has the same variance for all the observations in the sample is tested by examining for heteroscedasticity. If the assumption is true then  $\epsilon$  is homoscedastic, whereas if it is false then  $\epsilon$  is heteroscedastic there is a problem in the sample. Heteroscedasticity will cause the OLS estimation for the regression will be unbiased (Westerlund, 2005). The test is therefore important since heteroscedasticity means that the hypotheses no longer can be tested with the parameters of the model. It is not uncommon to in use a graph to illustrate the OLS residual, (figure 2.2) and perform a White-test (figure 2.3) (Westerlund, 2005).

The White-test is used to find a range of different types of heteroscedasticity. Null hypotheses were used to test and since it involves numerous parameters simultaneously the authors applied the F-test (Westerlund, 2005). When the test was performed on the sample, three types of heteroscedasticity were displayed. *F-statistic*, *Obs\*R-squared* and *Scaled explained SS*. As seen in figure 2.3, the null hypothesis was rejected at 1 percent significance level, for all three tests. Therefore the authors can conclude that there was heteroscedasticity in the sample. (Brooks 2008). Thus, the authors corrected for this problem by correcting the regression in Eviews by using a "White" adjustment.

#### **Test 4 – Autocorrelation**

The fourth assumption states that the covariance for the errors terms should be zero over time, which means there they the errors terms should be uncorrelated. The assumption is verified by testing for autocorrelation. There are is a range of tests that can be performed, such as the Durbin-Watson test (Brooks, 2008). The data sample was not examined over time and there was no relationship between two observations since they were randomly selected from the sample. As a result, the authors concluded that there was no reason to believe that there would be any autocorrelation in the sample.

#### **Test 5 - Multicollinearity**

The fifth assumption implies that the independent variables are not random, non-stochastic (Brooks, 2008). For this reason the independent variables cannot be expressed as exact linear functions of each other (Westerlund, 2005). This can be examined by making sure that the explanatory and dummy variables are not correlated with one and another. The authors therefore chose to investigate whether there was any multicollinearity between the all variables. According to Brooks (2008), any levels of correlation under 0.8 are unproblematic. The Correlations tables can be observed in figure 2.4. None of the variables exceed the recommended correlation limit, apart from one. The correlation between GDP per capita and the dummy variable EM\_DV was 0.903, which the authors considered close enough to the recommended value of 0.8 and the variable is still included in the regression. The reason for high correlations can be explained since some of the variables are overlapping.

### **Test 6 – Normally distributed error terms**

The sixth and final assumption presumes that the error term  $\varepsilon$  is normally distributed (Brooks, 2008). If the assumption holds it means that the authors can make inferences from the parameters of the regression model with the help of confidence levels and hypothesis testing based on the t-distribution (Westerlund, 2005). The test is called Jarque-Bera and measures the normality among the error terms. The test also examines the skewness and kurtosis in the residuals' distribution to see if it resembles a normally distributed sample. If the sample size is large enough, typically larger than 100 observations, then non-normality is usually not a problem. Since the sample for this study included 151 observations and the study exceeds this lower limit, therefore criteria is considered to be satisfied in accordance with the central limit theorem.

The normality test can be seen in figure 2.5. Skewness refers to the extent to which the distributions of residuals are not symmetrical. Kurtosis measures how thickness of the tails. According to Brooks (2008), a normally distributed sample should have a skewness value of 0 and a kurtosis value of 3. The sample in the study has a skewness of -0.18 and a kurtosis of 3.69 and although these values are not perfectly optimal the size of the overall sample automatically solves the non-normality problem.

As evident from figure 2.5 a very few of the observations lie in the far corners of the distribution. These can sometimes be referred *outliers*, which indicate extreme values. In such an event, it is not possible to assume a normally distributed sample (Brooks, 2008). Since the authors did not consider the values to be extreme, or detected any measurement errors, there was no reason to exclude them from the sample.

**Figure 2.1 – Ramsey RESET-test**

Ramsey RESET Test

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	2.558070	133	0.0116
F-statistic	6.543723	(1, 133)	0.0116
Likelihood ratio	7.252356	1	0.0071

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	288.6097	1	288.6097
Restricted SSR	6154.551	134	45.92948
Unrestricted SSR	5865.941	133	44.10482
Unrestricted SSR	5865.941	133	44.10482

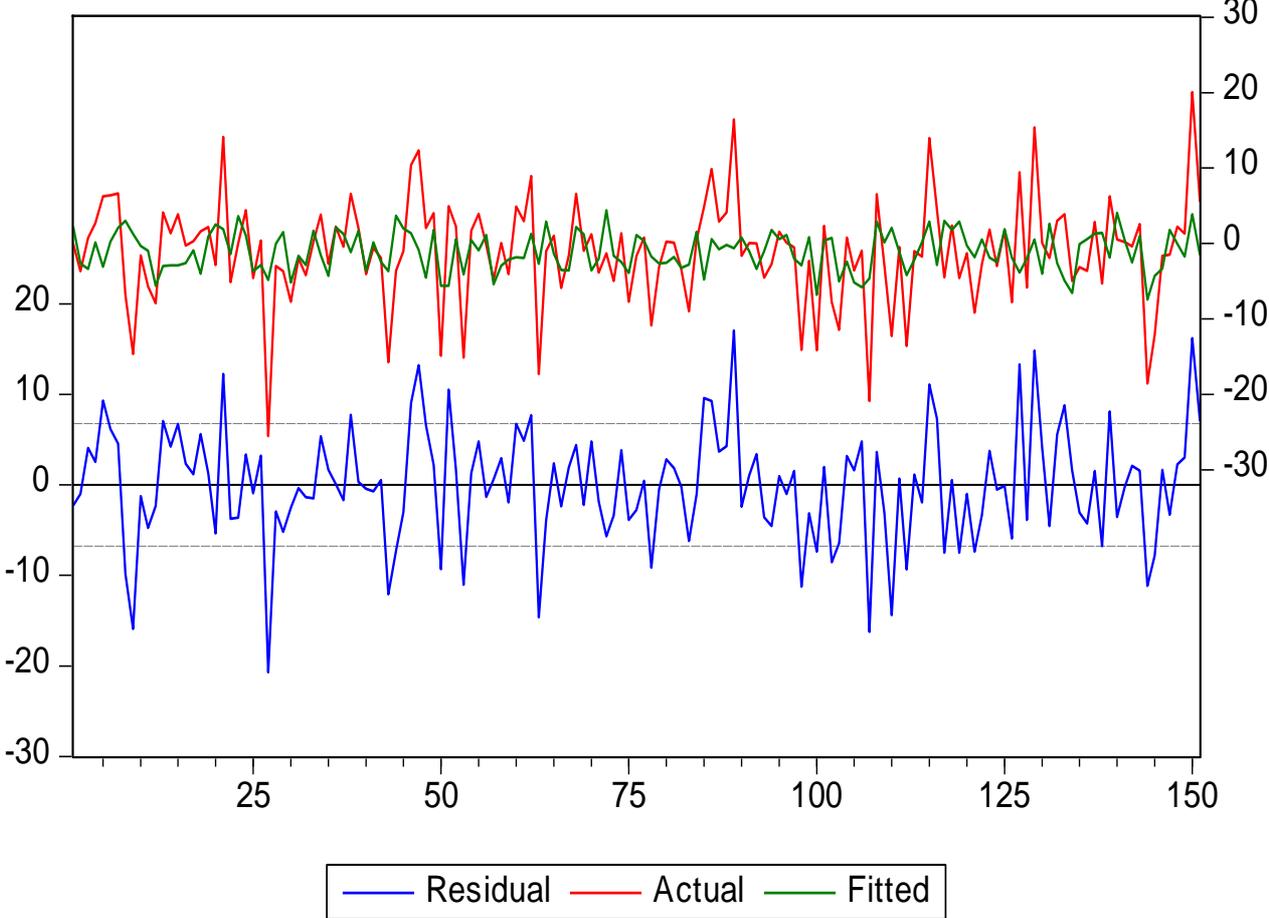
LR test summary:

	Value	df
Restricted LogL	-494.1886	134
Unrestricted LogL	-490.5624	133

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CULT	-0.019058	0.026976	-0.706472	0.4811
EM_DV	-4.836542	3.614909	-1.337943	0.1832
EXC_RATE	0.148811	3.700254	0.040216	0.9680
EXP01	0.112298	1.349725	0.083200	0.9338
GDP_G	0.096730	0.199307	0.485329	0.6282
GEO	-1.256380	1.923863	-0.653051	0.5149
IND	0.056099	1.145479	0.048974	0.9610
INFL	0.059401	0.121651	0.488286	0.6262
INT	0.069151	0.199987	0.345777	0.7301
LANG	-0.193079	1.610021	-0.119923	0.9047
LN_GDP	-1.182607	1.567946	-0.754240	0.4520
LN_GDP_CAP	-0.849646	2.863284	-0.296738	0.7671
MOP	0.171888	1.285915	0.133670	0.8939
MTB	-2.063158	1.306884	-1.578685	0.1168
POL_STAB	-1.255162	1.154514	-1.087178	0.2789
SIZE	-0.484643	1.394446	-0.347553	0.7287
C	25.25942	25.13852	1.004809	0.3168
FITTED^2	-0.201088	0.078609	-2.558070	0.0116

R-squared	0.183109	Mean dependent var	-1.066715
Adjusted R-squared	0.078694	S.D. dependent var	6.918964
S.E. of regression	6.641146	Akaike info criterion	6.735926
Sum squared resid	5865.941	Schwarz criterion	7.095602
Log likelihood	-490.5624	Hannan-Quinn criter.	6.882045
F-statistic	1.753669	Durbin-Watson stat	1.839089
Prob(F-statistic)	0.040760		

**Figure 2.2** – *Illustration of the residuals for the regression of the entire sample*



**Figure 2.3- Heteroskedasticity Test: White**

Heteroskedasticity Test: White

F-statistic	2.416928	Prob. F(16,134)	0.0032
Obs*R-squared	33.81751	Prob. Chi-Square(16)	0.0057
Scaled explained SS	35.86417	Prob. Chi-Square(16)	0.0030

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Included observations: 151

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	349.9456	124.3948	2.813185	0.0056
CULT^2	-0.004285	0.002458	-1.743548	0.0835
EM_DV^2	-67.15612	33.08360	-2.029892	0.0443
EXC_RATE^2	-56.92629	96.48966	-0.589973	0.5562
EXP01^2	-15.14517	12.48073	-1.213484	0.2271
GDP_G^2	-0.042349	0.187029	-0.226432	0.8212
GEO^2	0.313165	17.28018	0.018123	0.9856
IND^2	8.751454	10.77748	0.812013	0.4182
INFL^2	-0.019589	0.019365	-1.011593	0.3136
INT^2	-0.053120	0.118293	-0.449056	0.6541
LANG^2	-27.84418	14.94815	-1.862717	0.0647
LN_GDP^2	-0.513144	0.597141	-0.859335	0.3917
LN_GDP_CAP^2	-10.91380	3.671961	-2.972199	0.0035
MOP^2	-22.72197	12.01624	-1.890938	0.0608
MTB^2	-2.347704	10.73166	-0.218764	0.8272
POL_STAB^2	2.255311	1.904701	1.184076	0.2385
SIZE^2	32.00352	11.51056	2.780361	0.0062

R-squared	0.223957	Mean dependent var	40.75862
Adjusted R-squared	0.131295	S.D. dependent var	67.11336
S.E. of regression	62.55257	Akaike info criterion	11.21562
Sum squared resid	524318.3	Schwarz criterion	11.55531
Log likelihood	-829.7791	Hannan-Quinn criter.	11.35362
F-statistic	2.416928	Durbin-Watson stat	2.055612
Prob(F-statistic)	0.003190		

**Figure 2.4 – Correlation tables**

Covariance Analysis: Ordinary

Sample: 1 151

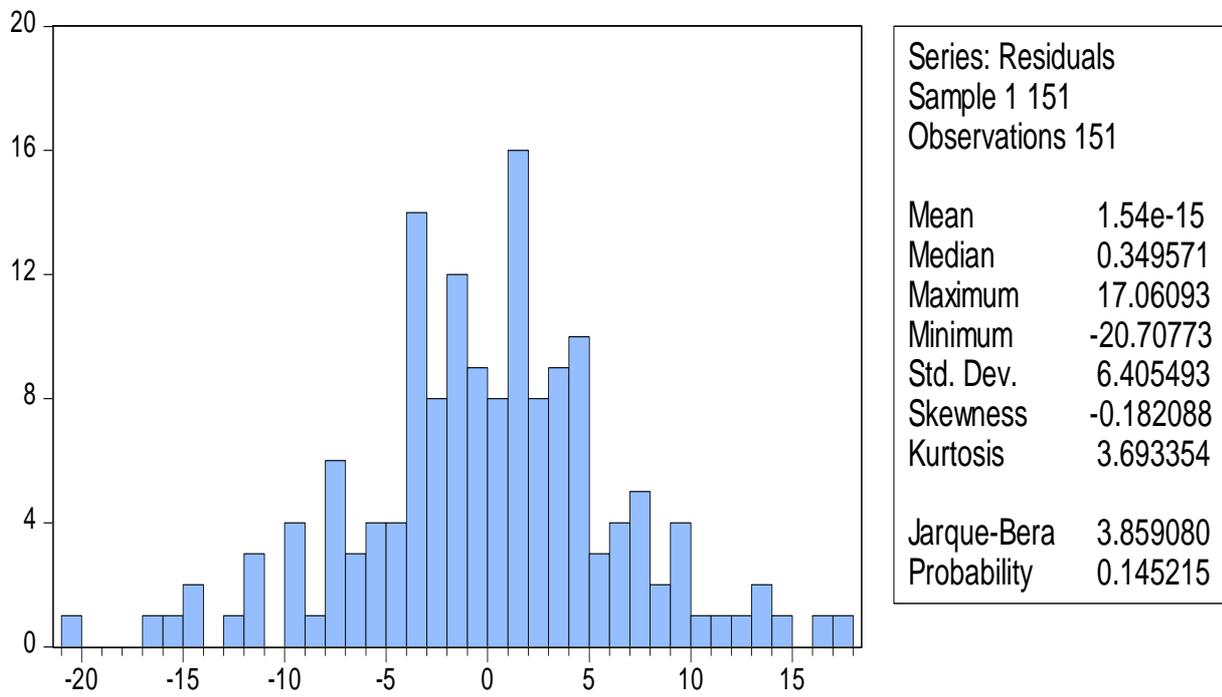
Included observations: 151

		Correlation	Probability			Correlation	Probability
CAR_5	CAR_5	1.000000	-----	IND	CAR_5	0.005403	0.9475
CULT	CAR_5	-0.067149	0.4127	IND	CULT	-0.053414	0.5148
CULT	CULT	1.000000	-----	IND	EM_DV	0.034819	0.6712
EM_DV	CAR_5	-0.018268	0.8238	IND	EXC_RATE	-0.146568	0.0725
EM_DV	CULT	-0.278463	0.0005	IND	EXP01	0.061107	0.4561
EM_DV	EM_DV	1.000000	-----	IND	GDP_G	0.051146	0.5328
EXC_RATE	CAR_5	-0.008412	0.9184	IND	GEO	0.097373	0.2343
EXC_RATE	CULT	0.085006	0.2994	IND	IND	1.000000	-----
EXC_RATE	EM_DV	-0.228729	0.0047	INFL	CAR_5	0.022720	0.7819
EXC_RATE	EXC_RATE	1.000000	-----	INFL	CULT	-0.078904	0.3355
EXP01	CAR_5	0.041201	0.6155	INFL	EM_DV	0.500127	0.0000
EXP01	CULT	0.014670	0.8581	INFL	EXC_RATE	-0.208531	0.0102
EXP01	EM_DV	0.016222	0.8433	INFL	EXP01	-0.006307	0.9387
EXP01	EXC_RATE	-0.057278	0.4848	INFL	GDP_G	-0.045427	0.5797
EXP01	EXP01	1.000000	-----	INFL	GEO	-0.124240	0.1285
GDP_G	CAR_5	0.036585	0.6556	INFL	IND	0.116608	0.1539
GDP_G	CULT	-0.063662	0.4374	INFL	INFL	1.000000	-----
GDP_G	EM_DV	0.373682	0.0000	INT	CAR_5	0.085899	0.2943
GDP_G	EXC_RATE	-0.321470	0.0001	INT	CULT	-0.093450	0.2538
GDP_G	EXP01	-0.004291	0.9583	INT	EM_DV	0.651912	0.0000
GDP_G	GDP_G	1.000000	-----	INT	EXC_RATE	0.023710	0.7726
GEO	CAR_5	-0.041616	0.6119	INT	EXP01	-0.039291	0.6319
GEO	CULT	0.260767	0.0012	INT	GDP_G	0.280286	0.0005
GEO	EM_DV	-0.419165	0.0000	INT	GEO	-0.256583	0.0015
GEO	EXC_RATE	-0.105570	0.1970	INT	IND	0.080771	0.3242
GEO	EXP01	0.087394	0.2860	INT	INFL	0.494155	0.0000
GEO	GDP_G	-0.102037	0.2125	INT	INT	1.000000	-----
GEO	GEO	1.000000	-----	LANG	CAR_5	0.056419	0.4914
IND	CAR_5	0.005403	0.9475	LANG	CULT	-0.151085	0.0641
IND	CULT	-0.053414	0.5148	LANG	EM_DV	-0.085732	0.2953
IND	EM_DV	0.034819	0.6712	LANG	EXC_RATE	0.037874	0.6443
IND	EXC_RATE	-0.146568	0.0725	LANG	EXP01	-0.113665	0.1646
IND	EXP01	0.061107	0.4561	LANG	GDP_G	0.162838	0.0457
IND	GDP_G	0.051146	0.5328	LANG	GEO	-0.432605	0.0000
IND	GEO	0.097373	0.2343	LANG	IND	-0.018387	0.8227
IND	IND	1.000000	-----	LANG	INFL	-0.047476	0.5627
INFL	CAR_5	0.022720	0.7819	LANG	INT	-0.015276	0.8523
INFL	CULT	-0.078904	0.3355	LANG	LANG	1.000000	-----
INFL	EM_DV	0.500127	0.0000				
INFL	EXC_RATE	-0.208531	0.0102				
INFL	EXP01	-0.006307	0.9387				
INFL	GDP_G	-0.045427	0.5797				
INFL	GEO	-0.124240	0.1285				
INFL	IND	0.116608	0.1539				
INFL	INFL	1.000000	-----				

**Figure 2.4 – Correlation tables**

		Correlation	Probability			Correlation	Probability
LN_GDP	CAR_5	0.046937	0.5671	LN_GDP_CAP	CAR_5	-0.030455	0.7105
LN_GDP	CULT	-0.375022	0.0000	LN_GDP_CAP	CULT	0.184346	0.0235
LN_GDP	EM_DV	-0.062717	0.4443	LN_GDP_CAP	EM_DV	-0.902776	0.0000
LN_GDP	EXC_RATE	-0.028112	0.7319	LN_GDP_CAP	EXC_RATE	0.179290	0.0276
LN_GDP	EXP01	0.015997	0.8454	LN_GDP_CAP	EXP01	0.046148	0.5737
LN_GDP	GDP_G	0.004215	0.9590	LN_GDP_CAP	GDP_G	-0.408702	0.0000
LN_GDP	GEO	-0.334596	0.0000	LN_GDP_CAP	GEO	0.516501	0.0000
LN_GDP	IND	-0.027943	0.7334	LN_GDP_CAP	IND	0.018019	0.8262
LN_GDP	INFL	-0.112059	0.1707	LN_GDP_CAP	INFL	-0.508745	0.0000
LN_GDP	INT	-0.041043	0.6168	LN_GDP_CAP	INT	-0.650822	0.0000
LN_GDP	LANG	-9.00E-06	0.9999	LN_GDP_CAP	LANG	-0.051769	0.5279
LN_GDP	LN_GDP	1.000000	-----	LN_GDP_CAP	LN_GDP	0.001030	0.9900
MOP	CAR_5	0.041497	0.6129	LN_GDP_CAP	MOP	-0.012257	0.8813
MOP	CULT	0.083837	0.3061	LN_GDP_CAP	MTB	0.031378	0.7021
MOP	EM_DV	0.036381	0.6574	LN_GDP_CAP	SIZE	0.116475	0.1544
MOP	EXC_RATE	0.039669	0.6287	LN_GDP_CAP	LN_GDP_CAP	1.000000	-----
MOP	EXP01	0.130554	0.1101	POL_STAB	CAR_5	-0.088667	0.2790
MOP	GDP_G	-0.051195	0.5324	POL_STAB	CULT	0.169163	0.0379
MOP	GEO	-0.090201	0.2707	POL_STAB	EM_DV	-0.764645	0.0000
MOP	IND	-0.079215	0.3336	POL_STAB	EXC_RATE	0.210087	0.0096
MOP	INFL	0.100852	0.2179	POL_STAB	EXP01	0.026034	0.7510
MOP	INT	0.141028	0.0841	POL_STAB	GDP_G	-0.447427	0.0000
MOP	LANG	0.055834	0.4959	POL_STAB	GEO	0.274414	0.0007
MOP	LN_GDP	-0.017156	0.8344	POL_STAB	IND	-0.039677	0.6286
MOP	MOP	1.000000	-----	POL_STAB	INFL	-0.340234	0.0000
MTB	CAR_5	-0.236678	0.0034	POL_STAB	INT	-0.697855	0.0000
MTB	CULT	0.016877	0.8370	POL_STAB	LANG	0.016195	0.8435
MTB	EM_DV	-0.056191	0.4932	POL_STAB	LN_GDP	-0.080645	0.3249
MTB	EXC_RATE	0.019115	0.8158	POL_STAB	MOP	-0.024620	0.7641
MTB	EXP01	0.070869	0.3872	POL_STAB	MTB	0.021273	0.7954
MTB	GDP_G	0.029700	0.7173	POL_STAB	SIZE	0.107160	0.1903
MTB	GEO	0.100721	0.2185	POL_STAB	LN_GDP_CAP	0.766304	0.0000
MTB	IND	0.004108	0.9601	POL_STAB	POL_STAB	1.000000	-----
MTB	INFL	0.031518	0.7009				
MTB	INT	0.012786	0.8762				
MTB	LANG	0.071198	0.3850				
MTB	LN_GDP	-0.030262	0.7122				
MTB	MOP	-0.022975	0.7795				
MTB	MTB	1.000000	-----				
SIZE	CAR_5	-0.132577	0.1046				
SIZE	CULT	0.154558	0.0581				
SIZE	EM_DV	-0.159115	0.0510				
SIZE	EXC_RATE	0.006849	0.9335				
SIZE	EXP01	-0.267397	0.0009				
SIZE	GDP_G	0.010606	0.8972				
SIZE	GEO	0.067021	0.4136				
SIZE	IND	0.027685	0.7358				
SIZE	INFL	-0.042668	0.6029				
SIZE	INT	-0.096889	0.2366				
SIZE	LANG	0.049491	0.5462				
SIZE	LN_GDP	0.002697	0.9738				
SIZE	MOP	-0.183884	0.0238				
SIZE	MTB	-0.091504	0.2638				
SIZE	SIZE	1.000000	-----				

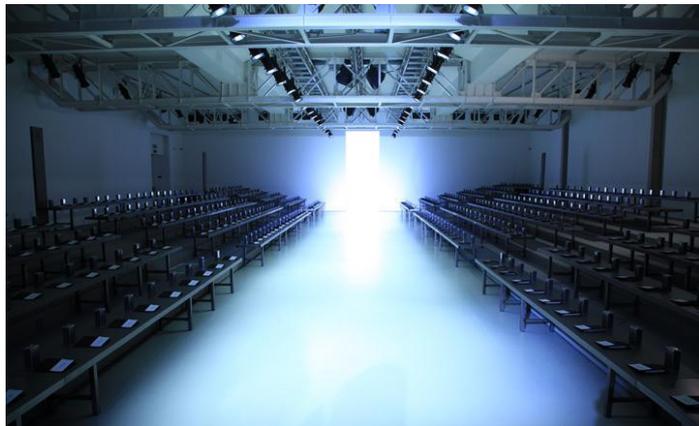
**Figure 2.5 – Distribution of error terms**



## APPENDIX 3

### Developing markets - Fading Fashion of Finance

*Developing countries, also referred to as emerging markets, have quickly become a key driver in international growth. Investors have benefit from investing in markets with high current growth and prospects of a bright future. Even though it is a relatively new phenomenon, public investors have overweighed their portfolios with developing market funds. Large corporations have already discovered the benefits and most US firms do well due to growth in their foreign markets. However, during the past few years, it seems like developing markets have gone out of fashion.*



JIM O'Neill, formerly at Goldman Sachs, coined the BRIC acronym in November 2001 as a means of debating the growing economic importance of emerging markets. The four countries he chose were Brazil, Russia, India and China and later on South Africa was added to form BRICS. After the success of BRICS, MIKT (Mexico,

Indonesia, South Korea, Turkey) was introduced a few years later. They were considered to be an investment triumph but recently, the success has faded causing shareholder wealth destruction.

Managers' ambitions to realize synergies and growth have caused some of the largest failures in corporate history. The perhaps most infamous cross-border merger and acquisition deals, referred to as

“Transatlantic car crash”, took place in May 1998. Daimler-Benz agreed to acquire one of Detroit's big three automakers,

Chrysler, at a

deal originally valued at a staggering \$40 billion. Nine years and billions of dollars of losses later, Chrysler was sold off for a mere \$6 billion. The case begs the question; why value can be destroyed for acquiring shareholders in CBM&A transactions?

One focus for research was for long the motives behind CBM&A deals. After discovering that the main underlying factor was realizing synergy effects, factors affecting the value destruction instead became the centre of attention. An explanation to why some CBM&A deals are successful and some are not, might be the difference in economic and cultural conditions of the target company. This shed light to the fact that firms, who are faced with the impending decision whether or not to expand internationally, and engage in CBM&A, need to consider the conditions of the target country.

New research evaluating how the market responds to the announcement of a CBM&A transaction for acquiring shareholders and thereby examining the extent to which macroeconomic & cultural factors influence shareholder value creation, show that the target country indeed plays a noteworthy role and that on average, investments in developing countries does not create any significant value for the acquiring shareholders. However, after analysing 151 CBM&A transactions performed by UK acquirers on 19 foreign targets over 16 years taken into account 16 firm, deal, economic, political and cultural factors it can be stated that the condition of the target company has no significant influence on shareholder value

when investing in developing markets. Subsequently, since neither the motive nor macroeconomic factors seem to be value destroying, investments in developing markets appear to simply not be worthwhile. It can be concluded that the future of developing markets investments indeed looks dark and seem to live up to being the new black in finance fashion.

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