Are stock Market Reactions Related to Future Operational Performance?

A study on acquisitions in Europe

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Abstract

We investigate the markets' ability to predict post-acquisition operational performance for 41 acquisitions made in Western Europe between 2002 and 2012. The methodology builds on Healy et al (1992). We find that on average there exists a positive relation between the market reaction during an acquisition window and the operational outcome. The relation is found when observing the changes in operating cash flows. Furthermore results show that changes in cash flows can be allocated to changes in the cost structure. The methodology is extended by observing how the shareholders of the bidding and the targeted firms are affected separately. The results show that shareholders of the targeted firms are more beneficial than the shareholders of the bidding firms. We do not find any significant relation between increased value to the shareholders of the bidding firm and increased cash flows. Moreover we find that bidding firms tend to pay at least the value of future potential synergies. Our results imply that the premium paid for targets can be seen as a good approximation for potential synergies captured through an acquisition.

1. Introduction

This paper examines the existence of a positive relation between the stock market reaction during an acquisition window and the operational outcome of the acquisition. By observing how stock markets react during an acquisition window and comparing it to the realized outcome of the operational performance, we are able to conclude that on average there exists a positive relation between the market reaction and the operational outcome. Furthermore we find that shareholders of the targeted firm are more beneficial than shareholders of the bidding firm. Additionally, we argue that the premium paid can be seen as a good approximation for the value of future realized synergies within five years following the acquisition.

Post-acquisition performance is measured in changes in costs, revenues and cash flows respectively. The study focuses on listed companies in Western Europe with acquisitions made during the time period 2002 to 2012. Three research questions are addressed. The first question addresses the existence of a positive relation between the stock market reaction at the announcement of a merger and acquisition (M&A) and the post-M&A operating performance? The second question aims to answer which shareholders benefit the most from the acquisition, the shareholders of the targeted firm or the bidding firm. The third question addresses whether a positive relation can be explained by changes in cost structure or revenue?

This study contributes to M&A research by extending previous methodology with a new perspective, namely to see whether the value of synergies will benefit the shareholders of the bidding firm or the targeted firm. The study provides findings from a new perspective that arguably are interesting for the debate about the distribution of synergy gains among bidders and targets. We argue that this theses is an interesting contribution to financial research. Moreover it is of great interest to investors and managers to obtain knowledge about the empirical findings when deciding whether to invest or to initiate an M&A. Our study provides a European perspective on a subject that previously has been investigated in the US. Furthermore we observe a more recent time period that cover the entire spectra of an economic cycle.

Our research method builds extensively on Healy et al (1992), who examine post-M&A cash flow performance for the bidding and the targeted firm by observing a sample of 50 M&As in the US. We provide a European perspective by investigating 41 M&As made in Western Europe. Furthermore the research method is extended in two ways. First, by investigating

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whether increased revenues or reduced costs are the driving factor behind increased cash flows due to a successful acquisition. Second, by separating the change in enterprise value into two variables, one for the bidding firm and one for the targeted firm.

The method of Healy et al (1992) tests whether mergers create synergies or not. Although, they do not observe to whom the value is allocated. We extend their methodology by investigate if the realized value for future potential synergies will add value to the shareholders of the bidding firm. Alternatively, if they will be used in order to pay the premium to the shareholders of the targeted firm. According to Moeller et al (2003), the value-weighted average return on the announcement for the bidding firm's shareholders is negative one to three percent. Mitchell et al (2000) finds that the stock price of a bidding firm on average underperforms five percent compared to peers within the first three years following the acquisition. These results suggest that the acquiring firms on average fail to implement synergies large enough to compensate the premium paid for the targeted firm.

The analysis generates three primary findings. First, the market reaction to acquisitions is on average positively related to the operational outcome of acquisitions. We document that cash flows tend to increase when the market reaction is positive. Second, changes in cash flows are on average positively related to the paid premiums for the target, implying that the paid premiums on average are good approximations for the value of future realized synergies. Third, the changes in cash flows are associated with improvements in the cost structure. Synergy gains through decreased costs are in line with the argument of cost-cutting being considered a primary reason to engage in M&A activity (Martynova and Renneboog 2006).

Fama (1970) introduces the hypothesis of efficient markets, implying if capital markets are fully efficient, all available information is already incorporated into current prices. The hypothesis implies that the market reaction to an M&A announcement should on average reflect the markets expectations for future operational performance. First, if the market systematically misjudges the outcome of M&As, it could potentially be exploited by investors as an opportunity to gain abnormal returns. Second, it can be exploited by managers who may capitalize on the announcement reaction, particularly in order to use the firm's overvalued equity to purchase hard assets at a discount (Savour and Lu 2009). Third, a very positive announcement reaction could be seen as an indication to decision makers that the deal may have a negative impact on competition. Decreasing competition has according to micro economic theory a negative effect on both welfare and customers (Duso et al 2010).

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Implications for this study differ due to different perspectives. Investors, managers and decision makers can all draw different conclusions from this study. Regarding investors of the bidding firm, the implication is generally that it is hard to decide whether or not the operational outcome will be successful based on the market reaction during the acquisition window. The premium paid can on average be seen as good approximation for future synergies. A high premium paid to the target would indicate potentially large synergies to be gained in the future. From the managers' perspective, we argue that predictions regarding the value of potential synergies on average are accurate. The estimations about the potential synergies should therefore be trusted and taken into consideration when deciding the premium paid to the target, although we do not find evidence that it creates value for the shareholders of the bidding firms. For decision makers, results imply that it would be effective to observe the premium paid for acquisitions when deciding about future antitrust investigations, mainly since the premium paid can be seen as a good approximation for the value of potential synergies.

The thesis is organized the following way. Section 2 outlies the main motives for M&As and why they may occur. Section 3 describes the previous findings most relevant for this study. Section 4 describes the data and the methodology. Moreover section 5 outlies the results and section 6 is a summary of the main findings.

2. Motives for M&As

The M&A literature is vast. There are three kinds of mergers; horizontal mergers, where the target and the bidder are active within the same industry. Vertical merger is when the target's industry buys or sells to the bidder's industry. Finally, there are conglomerate mergers where the industries of the bidder and the target are unrelated. M&As can be used as a method to create additional value since they are efficient in terms of reallocating resources (Koller et al. 2010). The control of company resources are transferred into the hands of more efficient owners who can create substantial value to both investors and the economy as a whole. Koller et al (2010) argue that acquisitions create value if the combined cash flows are greater than what they would otherwise have been. Furthermore, the main sources of value creation from M&As come from improvements in cost structure or revenues for the combined firm. Examples of cost improvements are savings related to research and development, manufacturing and procurement while improvements in revenue may come from increasing peak sales level, extending the life of a product or introducing new products (Koller et al 2010).

Panzar and Willig (1981) state economies of scope and scale as main motives for acquisitions. If a bidding firm acquires a target firm in a horizontal acquisition it is reasonable to assume that some administrative group functions can be decreased. These functions are doubled up post-acquisition and therefore resulting in a lower cost base for the company relative to revenue. This argument is a typical example of economies of scale, i.e., a situation where increasing quantity will decrease the marginal cost. Regarding economies of scope, a bidding firm that acquires a target in a related industry will likely be able to push the acquired firms' products in their old supply chains and vice versa (Panzar and Willig 1981).

From a different perspective, managerial self-interest is also considered a reason to why mergers occur (Berk and DeMarzo, 2011). This argument can be described in two ways. First, there might be a conflict of interest between managers and shareholders. This can be described out of the agency perspective by Jensen and Meckling (1976) and Jensen (1986) who argue that managers tend to overinvest in order to get private benefits such as "perks" or building empires. This is in opposite to the will of the shareholders who are primarily interested in the firm generating returns, not growing in size. Second, managers might be overconfident and have hubris (Roll, 1986). Overconfidence may cause managers to believe that they will be able to execute an acquisition and run the new company in a more efficient manner. Although reality shows that it will be more challenging than expected. Malmendier and Tate (2005) argue that overconfident managers tend to overestimate future returns for investments and fail to identify any company-specific risk.

Berk and DeMarzo (2011) mention vertical integration as a reason for M&A activity. Vertical integration implies that two merging firm's active within the same industry make products that are required at different stages in the production cycle. Integration may lead to an enhancement of the product since the new firm control one of the input factors. The main point of vertical integration is that the new firm will be better coordinated which can lead to both of the firms working towards the same goal. A second reason mentioned is to gain expertise through M&A activity. This can particularly be seen in the technology and health sector where expertise is highly valued and considered a strong competitive advantage.

Another reason to engage in M&A activity is according to Berk and DeMarzo (2011) to get efficiency gains or even in some case monopoly gains. Monopoly gains are obtained when a firm acquires a large competitor and by that reduces the competition which thereby increases the profits for the own firm. Efficiency gains are obtained through buying a less efficient

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competitor and increase the total efficiency by getting rid of the less efficient management. However, Jensen and Ruback (1983) does not find significant evidence that gains from acquisition are created by increased market power.

According to Berk and Demarzo (2011), M&A activity during periods of economic expansion is greater than for periods of economic contractions. The positive relation implies a correlation between M&A activity and bull market conditions which was investigated by Rosen (2006). Furthermore, Myers and Majluf (1984) models that managers of firms that issue new equity in order to finance new investments are likely to believe that the equity of their firm is overvalued, as managers are assumed to have more information than investors. These conditions are likely to appear in a bull market were equity valuations usually are higher.

Andrade et al (2001) argue that the most reliable evidence whether mergers create value for shareholders or not comes from short-window event studies. However, another common method is to use a longer time span that includes several days prior to the announcement all the way to the completion of the deal. The abnormal return at the announcement is then used as a measurement for value creation or destruction. If capital markets are efficient to incorporate public information, the expected outcome of the merger should be reflected in the abnormal return. Furthermore, the announcement-period stock reaction fully reflects the information about the merger (Andrade et al 2001). Additionally Barber and Lyon (1996) state that it is preferable to adjust for a group of industry peers compared to adjusting for a general index. They argue that it gives a better proxy for a hypothetical non-event firm to control for.

3. Literature review

Fama (1970) reviews empirical findings about the efficient market hypothesis. The review suggests that capital markets in general are efficient to publicly known information, so-called semi-strong form efficiency, for example regarding earnings announcements. Hence, this should also be the case when it comes to acquisitions, i.e. the market's reaction to an acquisition announcement should on average reflect the markets prediction for the outcome of the acquisition. However, Rosen (2006) questions the markets ability to predict operational outcome based on the reaction to M&A announcements. The market reaction to an announcement of an acquisition is dependent on current market conditions. In booming market conditions the reaction to acquisitions is more favourable than in weaker market conditions. There is however no long term effect of this, suggesting that there are no fundamental reasons

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behind it. Additionally, Koller et al (2010) find that mergers occur in wave like patterns and that an acquisition in a specific industry can trigger additional activity within that specific industry. Moreover, M&As often occur in rising stock markets because it makes managers optimistic.

Healy et al (1992) investigate whether or not corporate performance improves after takeovers. The results question if takeovers are able to create real economic gains for the acquiring company. Performance is measured in operating cash flow returns on assets five year prior to and five year post the merger. The results are benchmarked against the median performance of a peer group in order to exclude the effects of economical and other industry events. They use a sample of 50 US mergers completed between the years 1979 to 1984. The acquirer needs to be a company listed on any of the US stock markets. Neither the target nor the acquirer is allowed to be a financial company or a regulated company. To measure the changes of an acquisition they use post-merger accounting data from annual reports to test the effect on the acquisition on profitability. To control for potential differences in pre-acquisition profitability compared to peers, a new hypothetical firm consisting of a portfolio of the firms prior to the merger announcement is created. This becomes the pre-merger firm that is compared to the performance of the post-merger firm. Results show that merged firms tend to experience increased cash flow returns on asset, mainly due to increased asset productivity compared to peers. Furthermore, mergers for firms in overlapping industries tend to experience greater post-merger performance than non-overlapping mergers. Moreover, Duso et al (2010) provides an antitrust perspective by examining the correlation between the excess return during the announcement of an acquisition and the ex-post result measured as the change in profitability compared to industry peers. They find a positive correlation between abnormal return and the actual outcome of the acquisition. They use a sample of large mergers screened by the European commission during 1990-2001 because of antitrust issues. Duso et al (2010) are using book value of assets in contrast to Healy et al (1992) who are using equity value of assets. Except for that there are no major differences between the two methods.

Grossman and Hart (1980) model how shareholders of the bidding firm on average do not benefit from M&A activity. Due to a free rider problem, the shareholders of the targeted firm receive a premium at least the value of the bidders' future potential synergies. Furthermore, Damodaran (2005) argues that the bidder generally overpays the value of synergies to the shareholders of the targeted firm. Additionally, Jensen and Ruback (1983) claims that M&A activity usually leads to efficiency gain and increased shareholder wealth. However, the

majority of the benefits will go to the shareholders of the targeted firm, leaving the shareholders of the bidding firms with almost zero. Moreover, Koller et al (2010) point out that the bidding firms' shareholders will only benefit from increasing value given that the premium paid for the target is less than future potential synergies. Furthermore, Caves (1989) finds weak evidence for significant gains in the bidding firm. He suggests that bidding firms in the best case scenario are able to break even at the announcement day and that returns for the upcoming period tend to be weaker compared to peers. Regarding the post results, bidding firms perform even worse. On average the bidding firm gains no net profit while some firms even tend to experience negative results.

Martynova and Renneboog (2006) investigate M&A activity in Europe between 1990 and 2001. They found that the main motives for takeovers in their observed sample were cost cutting, expanding into new markets or exploiting the mispricing premium. Additionally, Koller et al (2010) state improvements in cost and revenue for the combined company as the most important source within the subject of value creation from M&As. Moreover, Ficery et al (2007) argue that the greatest possibility to capture synergies from an acquisition is within the first year. This makes synergy capture "front loaded", implying that focus should be at capturing the synergies as soon as possible post acquisition. Furthermore Ficery et al (2007) argues that successful acquirers tend to capture 70-75 percent of the synergies within the first year.

Martynova and Renneboog (2006) find that the method of payment affects the bidding firms share price. All-cash financed offers tend to experience greater abnormal returns than all-equity financed offers. Payments involving equity also tend to result in a larger decrease in stock price the following three months post the acquisition. Furthermore, Savour and Lu (2009) find in line with the market-timing theory for M&As that stock financed M&As benefit the acquiring firms' long-term shareholders. Financing a deal with stocks is preferable since overvalued equity can be converted into hard assets. Cash financed acquisitions tend to create value to the bidding firms shareholders only through obtained synergies. In contrast, shareholders of stock financed acquirers benefit from both synergies and the potential difference between market and fundamental value of equity.

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4. Data and Methodology

4.1 Methodology

We follow Healy et al. (1992) unless stated otherwise. The reason for choosing the methodology of Healy et al. (1992) over Duso et al (2010) is that we find market value of assets as a more accurate measurement of the true value of assets. Moreover we believe that the methodology of Healy et al. (1992) is easier to understand and to extend. The Pre-acquisition data stretches from five to one year before the acquisition. For most acquisitions, data are available for all five years, although for some observations data are missing for a few years, typically five and four years prior to the acquisition. The median profitability of the pre-acquisition years is used as the benchmark. It gives a more stable measure of profitability and removes the effect of outliers. The Post-acquisition data stretches from one to five years after the acquisition. For most of the deals we have data for all five years. However, since acquisition completed between 2002 and 2012 are included in the dataset, some deals are missing data for year three, four and five, typically for acquisitions later in time. Profitability is measured as operating cash flow over enterprise value. The operating cash flow is defined as sales, minus cost of goods sold, selling and administrative expenses plus depreciation and amortization. When missing data for operating cash flow, EBITDA is used as an approximation. The reason for dividing the operating cash flow by enterprise value is to control for the possibility of an increase or decrease in firm size over time unrelated to the acquisition.

To control for industry related movements in the variables of interest, the measurements are relative to a group of peers. The group generally consists of ten peers' gathered from the equity relative valuation section in Bloomberg. The median of the peers is used as it provides a benchmarked adjusted for outliers. The group of peers is used as a benchmark both regarding cash flows and revenue.

To capture the market's prediction for the acquisition, we collect the change in enterprise value five days prior to the acquisition announcement until the day that the target is delisted from public exchanges (Acquisition Window). The change during the acquisition window is gathered for both the bidder (ΔB) and the target (ΔT). Furthermore, in order to adjust for industry specific movements; (ΔB)+(ΔT) is deducted by the median change for the peers ($M(\Delta P)$). The calculations create a variable that measures the industry adjusted change in enterprise value (ΔEV). The change in enterprise value is the measure used to determine the market reaction to the acquisition. An alternative measurement based on a comparison to the

equity index where the bidding firm is listed is also included (*ΔEVI*). This measure is used to see if results are consistent and also to check for country specific shocks. For some peers, data for enterprise values are missing. Thus the change in market cap is used as an approximation for the change in enterprise value. Due to the relative short time window, it is likely that the net debt is held relatively constant during the acquisition window.

The combined operating cash flows from the bidder (BCF_{pre}) and the target (TCF_{pre}) for the years before the acquisition are divided by the combined enterprise value ($B_{pre} + T_{pre}$). We do this in order to form a pre-acquisition pro forma profitability for the bidder and the target combined ($\frac{BCF_{pre}+TCF_{pre}}{B_{pre}+T_{pre}}$) for each year, up to five years before the acquisition. The $\frac{BCF_{pre}+TCF_{pre}}{B_{pre}+T_{pre}}$ is then deducted by the median peer profitability. The median value for the five years pre-acquisition industry adjusted profitability (*Pre-Profit*) will be used in the regressions. The *Pre-Profit* will be benchmarked to the actual outcome of the profitability when the acquisition is completed ($\frac{BTCF_{post}}{BT_{post}-(\Delta B+\Delta T)}$). The change in the enterprise values for both the bidder (*ΔB*) and the target (*ΔT*) during the Acquisition Window is deducted from the post-acquisition enterprise value. Excluding *ΔB* and *ΔT* is necessary since the changes in profitability due to the acquisition would be invisible by including *ΔB* and *ΔT*. Including *ΔB* and *ΔT* would change the EV in line with the prediction of future cash flows, leaving profitability unchanged given an accurate prediction in cash flows. The calculations are done for each of the five years post the acquisition, which differ from Healy et al (1992) who use the median of the five years post-acquisition. All five years are separately included to observe differences from year to year, in order to find potential implementation timeframes. Also, to be able to conclude if any pattern can be identified regarding the number of years it takes for synergies to be implemented

4.2 Profitability: Bidder and Target

To investigate the relation between the change in profitability pre/post-acquisition and the change in enterprise value, we run a regression with Pre-*Profit* and *ΔEV* as independent variables respectively and post-acquisition industry adjusted profitability (*Post-Profit*) as the dependent variable.

$$\left(\frac{BTCF_{post}}{BT_{post}-(\Delta B+\Delta T)} - M\left(\frac{PCF_{post}}{P_{post}} \right) \right) = \qquad\qquad Post\text{-}Profit \qquad (1)$$

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$$+\beta_0 \qquad\qquad\qquad\qquad\qquad\qquad\qquad \textit{(Intercept)}$$

$$+\beta_1\left(M\left(\frac{BCF_{pre}+TCF_{pre}}{B_{pre}+T_{pre}}-M\left(\frac{PCF_{pre}}{P_{pre}}\right)\right)_{t:1-5}\right) \qquad \textit{Pre-Profit}$$

$$+\beta_2\left(\frac{\Delta B+\Delta T}{B+T}-M\left(\frac{\Delta P}{P}\right)\right) \qquad\qquad\qquad \textit{ΔEV}$$

$$+\beta_3(Stock)+\beta_4(Boom) \qquad\qquad\qquad\qquad \textit{(Dummies)}$$

$$+\varepsilon \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad \textit{(Error term)}$$

ΔP is the change in enterprise value for peers during the acquisition window, $\frac{PCF}{P}$ is the profitability of the peers for any given year and M(x) means that the median value is used. β_2 is the pre-tax capitalization rate for the firms in the sample, given that the acquisition changes are permanent. As a consequence, β_2 represents the earnings yield or the inverse price to earnings ratio (Healy et al 1992). *Stock* is a dummy variable where all acquisitions including some kind of payment in stocks will take the value of one while all cash deals will take the value of zero. *Boom* is a dummy variable that takes the value of one if the current market condition is considered as booming and zero otherwise. A booming market is defined as a market that has a positive return from one year before the acquisition announcement to three days prior to the announcement (Rosen 2006). We use the Eurostoxx50 as a proxy for the market.

For the five years pre-acquisition, median profitability is used. For the years post-acquisition, there will be a single regression for every year one to five. The reason for this is to capture synergies that may occur early as well as late in the integration process and to see in which year any efficiency gains usually take place.

In addition to regression (1), an alternative regression is made to capture the direct relation between profitability and the change in enterprise value during the acquisition window. There are two reasons for including regression (2) in addition to regression (1). First, according to Healy et al (1992), both (1) and (2) suffer from potential errors-in-variables issues. Therefore we argue that including both specifications make results more robust, given consistent results. Second, regression (2) is necessary in order to draw conclusions across different regressions concerning the factors behind changes in cash flows.

$$\left(\frac{\Delta B + \Delta T}{B + T} - M\left(\frac{\Delta P}{P}\right)\right) = \qquad \Delta EV$$

$$+\gamma_0 \qquad \qquad (Intercept)$$

$$+\gamma_1 \left(\frac{\left(\frac{BTCF_{post}}{BT_{post} - (\Delta B + \Delta T)} - M\left(\frac{PCF_{post}}{P_{post}}\right)\right)}{-M\left(\frac{BCF_{pre} + TCF_{pre}}{B_{pre} + T_{pre}} - M\left(\frac{PCF_{pre}}{P_{pre}}\right)\right)} \right)_{t:1-5} \qquad \Delta Profit \qquad (2)$$

$$+\gamma_2(Stock) + \gamma_3(Boom) \qquad \qquad (Dummies)$$

$$+\varepsilon \qquad \qquad (Error\ term)$$

In regression 2, *Post-Profit* for each year is deducted by the *Pre-Profit*. This variable is defined *ΔProfit* and is used as an independent variable with *ΔEV* as a dependent variable, shown in (2). The interpretation of γ_1 is how much *ΔEV* changes given a one percentage point increase in *ΔProfit*. This regression is identical to the alternative specification in Healy et al (1992).

4.3 Profitability: Bidder and target separately

To extend the methodology of Healy et al (1992), we separate the change in enterprise value (*ΔEV)* into two variables; the change in enterprise value for the bidder (*ΔEVB)* and the change in enterprise value for the target (*ΔEVT)*.

$$\left(\frac{\Delta B + \Delta T}{B + T} - M\left(\frac{\Delta P}{P}\right)\right) = \qquad \Delta EV$$

$$+\left(\frac{\Delta B}{B + T} - M\left(\frac{\Delta P}{P}\right)\right) \qquad \Delta EVB$$

$$+\left(\frac{\Delta T}{B + T}\right) \qquad \Delta EVT$$

The extension is included in order to isolate the effect of the acquisition for the shareholders of the bidding firm. Furthermore, it allows us to analyse whether the premium paid to target shareholders is related to the realized synergies. Regression 3 is identical to regression 1 except for the difference mention above.

$$\left(\frac{BTCF_{post}}{BT_{post} - (\Delta B)} - M\left(\frac{PCF_{post}}{P_{post}}\right)\right) = \qquad Post\text{-}Profit \qquad (3)$$

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$+\alpha_0$ *(Intercept)*

$+\alpha_1\left(M\left(\dfrac{BCF_{pre}+TCF_{pre}}{B_{pre}+T_{pre}}-M\left(\dfrac{PCF_{pre}}{P_{pre}}\right)\right)_{t:1-5}\right)$ *Pre-Profit*

$+\alpha_2\left(\dfrac{\Delta B}{B+T}-M\left(\dfrac{\Delta P}{P}\right)\right)$ *ΔEVB*

$+\alpha_3\left(\dfrac{\Delta T}{B+T}\right)$ *ΔEVT*

$+\alpha_4(Stock)+\alpha_4(Boom)$ *(Dummies)*

$+\varepsilon$ *(Error term)*

4.4 Revenue and Costs

In order to observe if the difference between *Pre-Profit* and *Post-Profit* is a result of changes in industry adjusted revenue (*ΔRevenue)* or changes in operating cash flow margins. Regression (4) shows the relations between *ΔEV* and *ΔRevenue*. If there is a relationship between *ΔEV* and *ΔProfit* (Regression 2) combined with a relationship between *ΔEV* and *ΔRevenue,* the changes in profit can be allocated to changes in revenue. If there is a relationship between *ΔEV* and *ΔProfit* but no relationship between *ΔEV* and *ΔRevenue,* the changes in profit are due to changes in the cost structure.

$\left(\dfrac{\Delta B+\Delta T}{B+T}-M\left(\dfrac{\Delta P}{P}\right)\right)=$ *ΔEV*

$+\theta_0$ *(Intercept)*

$+\theta_1\left(\begin{array}{l}\left(\dfrac{BTREV_{post}}{BT_{post}-(\Delta B+\Delta T)}-M\left(\dfrac{PREV_{post}}{P_{post}}\right)\right)\\[2mm]-M\left(\dfrac{BREV_{pre}+TREV_{pre}}{B_{pre}+T_{pre}}-M\left(\dfrac{PREV_{pre}}{P_{pre}}\right)\right)\end{array}\right)_{t:1-5}$ *ΔRevenue* (4)

$+\theta_2(Stock)+\theta_3(Boom)$ *(Dummies)*

$+\varepsilon$ *(Error term)*

4.5 Sample and correlations

The dataset used throughout this study covers 41 acquisitions in Western Europe between the years 2002 to 2012. For an acquisition to be included in our sample, the bidder

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and the target must be listed firms. The bidder must be geographically located within Western Europe while the target is not geographically constrained. Moreover, the target and the bidder are not allowed to be either regulated firms or financial firms. The bidding firm must after completion of the acquisition fully legally own the targeted firm in order to fully benefit from potential synergies that might come from acquisitions. The deal does also need to include a large part of the targeted firm, so that the acquisition has a significant impact to the bidder. For each deal, the rumoured, announced and completion dates combined with the deal value and the method of payment, as well as the premium paid are gathered from Zephyr. To observe the operational performance of each firm, the balance sheet and the income statement are obtained from Bloomberg. We chose the 50 largest deals listed at Zephyr that fulfilled the requirements stated above. When searching for accounting data on Bloomberg, nine deals had to be excluded because of insufficient data. Leaving us with a sample of 41 M&As within Europe.

Table 1: Summary statistics

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *ΔEV*: Change in industry adjusted enterprise value during the acquisition window (combined). *ΔEVI*: Change in index adjusted enterprise value during the acquisition window (combined). *Pre-Profit*: Industry adjusted pre-acquisition profitability. *Post-Profit*: Industry adjusted post-acquisition profitability. *ΔProfit*: Difference in industry adjusted profitability pre- and post-acquisition. *ΔRevenue*: Difference in industry adjusted revenue pre- and post-acquisition. *ΔEVB*: Change in industry adjusted enterprise value for the bidder during the acquisition window. *ΔEVT*: Change in enterprise value for the target during the acquisition window. *Boom*: One if deal is made during a booming market. *Stock*: One if deal was fully or partly financed with stocks.

Panel A: Bidder and target combined

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
ΔEV	41	0.0418	0.1521	-0.3295	0.5511
ΔEVI	41	0.0193	0.1082	-0.2518	0.2497
Pre-Profit	41	-0.0065	0.0292	-0.0722	0.0937
Post-Profit Y1	41	-0.0050	0.0383	-0.0701	0.0910
Y2	41	-0.0037	0.0446	-0.1439	0.1526
Y3	36	0.0081	0.0405	-0.0719	0.1268
Y4	29	-0.0029	0.0508	-0.0770	0.1980
Y5	27	-0.0005	0.0455	-0.1175	0.1094
ΔProfit Y1	41	0.0015	0.0379	-0.0722	0.0850
Y2	41	0.0028	0.0485	-0.1460	0.1491
Y3	36	0.0156	0.0451	-0.0627	0.1234
Y4	29	0.0064	0.0558	-0.0833	0.1946
Y5	27	0.0074	0.0544	-0.1196	0.1060
ΔRevenue Y1	41	-0.0700	0.2601	-0.7801	0.4367
Y2	41	-0.0302	0.4017	-1.0659	1.3224
Y3	37	0.0551	0.5649	-0.8362	2.4954
Y4	30	0.0259	0.4529	-1.0018	1.6333
Y5	28	0.0347	0.5442	-1.1207	2.1997
ΔEVB	41	0.0242	0.1403	-0.3363	0.4931
ΔEVT	41	0.0180	0.0339	-0.0978	0.1151

Panel B: Dummy Variables

Variable	Frequency	Percent
Boom 0	11	26.83
1	30	73.17
Stock 0	34	82.93
1	7	17.07

As can be observed (table 1), the number of observations tend to decrease with the number of years post acquisition. The reason being that for acquisitions made in 2012, we are only able to use data two years post acquisition. Regarding the different number of

observations between the variables profitability and revenue, data for revenue was obtained later in time and therefore one more firm had reported their numbers for 2014. Notably *ΔProfit* is growing with time, suggesting that the implementation of synergies takes several years. An important point to keep in mind regarding *ΔEVT* is that this variable does not represent the premium paid. *ΔEVT* should be interpreted as the premium paid in percent of the combined enterprise value of the bidding and the targeted firm. The mean of *ΔEVB* is positive, meaning that the bidder outperform peers during the acquisition window.

Regarding the correlations in appendix 2; the correlations between different years for *Post-Profit, ΔProfit,* and *ΔRevenue* are rather high. The correlation between *ΔEV* and *ΔEVB* stands out with a value of 0.98, indicating that the overall combined market reaction is highly correlated to the market reaction for the bidder. As the bidder generally is much larger, measured in enterprise value, than the target, a high correlation was expected although not an almost perfect correlation which is the case here.

5. Results, Analysis and Discussion

The result regarding the first research question; "Is there a positive relation between the market reaction during an acquisition window and post-M&A operating performance?" will be answered using regression 1 and 2. Regression 3 will be used to answer the second research question; "Which shareholders benefits the most from the acquisition, the shareholders of the targeted firm or the bidding firm?" Regression 4 aims to answer the third question; "If there is a positive relation, can it be explained by changes in cost structure or revenue?"

5.1 Profitability: Bidder and Target, results research question 1

In regression 1, (table 2), the most important parameter is the coefficient for *ΔEV*. It can be interpreted as the pre-tax capitalization rate for the potential synergies the acquisition may result in given that they are permanent. As presented in table 2, there is a positive relation between increasing *Post-Profit* and increasing *ΔEV*.

Table 2: OLS regressions with *Post-Profit* as dependent variable (Regression 1)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *Post-Profit* - The post-acquisition industry adjusted profitability. *Pre-Profit* - Median value of the five pre-acquisition years' industry adjusted profitability. *ΔEV* - Industry adjusted change in enterprise value during the acquisition window. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	-0.0119	-0.0114	0.0054	-0.0038	0.0068
	(0.0104)	(0.0133)	(0.0142)	(0.0208)	(0.0192)
Pre-Profit	0.4860**	0.2750	0.2650	0.1910	0.1560
	(0.1850)	(0.2350)	(0.2160)	(0.2540)	(0.2140)
ΔEV	0.0978***	0.1080**	0.1100**	0.1560***	0.1780***
	(0.0354)	(0.0452)	(0.0417)	(0.0478)	(0.0405)
Stock	-0.0103	-0.0184	-0.0004	0.0300	-0.0322*
	(0.0144)	(0.0184)	(0.0166)	(0.0218)	(0.0184)
Boom	0.0105	0.0111	-0.0003	-0.0103	-0.0072
	(0.0119)	(0.0152)	(0.0155)	(0.0216)	(0.0198)
Adj. R2	0.2418	0.0945	0.1293	0.2999	0.3876

Robust Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The relation is statistically significant over all time periods, although the significance level is higher for the later years. The coefficient for *ΔEV* spans from 10% the first two years to 16-18% the last two years. The results mean that on average the earnings yield on the gains for acquisitions is 10-18%, i.e. the market requires a rate of return on 10-18% annually. The results are similar to Healy et al (1992) who finds a median capitalization rate for their sample of 24%. These rates seem reasonable as they are inline or slightly higher than the average earnings yield for the equity market for our time period between years 2002 to 2014[1]. However during the time period used by Healy et al (1992), the equity market earnings yield was around 18%. The rates differ in absolute values, although they are similar relative to the different market discount rates.

Results also show that the capitalization rate (*ΔEV)* increases with time. The coefficients for year four and five are higher than for the first two years, indicating a significant part of the

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[1] Historical P/E ratios for S&P 500, where earnings yield equals one divided by P/E http://www.multpl.com/

synergies need several years in order to affect the operating cash flow. This is somewhat contradictory to the findings of Ficery et al (2007) who argue that 70-75% of the synergies from a successful acquisition tend to be implemented during the first year post acquisition. However, this applies for the combined firm, meaning that it is not clear if the benefits of the acquisition will result in gains for both the shareholders of the bidding and the targeted firms. It may be that only the shareholders of the targeted firm benefits, particularly since premiums generally are high. During 1980-2001, the median premium paid by large firms was 61% (Moeller et al. 2004). In our sample we find that the median premium paid 25%. Our results indicate that the market on average is able to predict the outcome of an acquisition, particularly when observing the combined value creation for the target and the bidder. For example, if ΔEV is positive we would expect the deal to result in synergies within the next five years according to our findings.

From table 2 we also see significant coefficients for the first year *Pre-Profit* and the fifth year *Stock* variable. The significant *Pre-Profit* coefficient parameter can be interpreted as the profitability being persistent over time for the first year after the acquisition. Hence, a firm with high profitability prior to the acquisition will remain profitable for the first year, adjusted for the expected changes in *post-profit* due to the acquisition. The fifth year coefficient for *Stock* is weakly significant, although we argue that we lack the evidence to draw proper conclusions. We would prefer *Stock* to be significant during several years in order to conclude that the method of payment would have a real effect on *Post-Profit*. The *Boom* variable is not significant for any of our observed years, therefore we reject that the condition of the market have any real effect on *Post-Profit.*

In an alternative version of regression 1, we use index adjusted changes in enterprise value (see table 3). Each firm is adjusted by its domestic equity index. Mainly to see if results are consistent and also to check for country specific shocks.

Table 3: OLS regression with *Post-Profit* as dependant variable (Regression 1)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *Post-Profit* - The post-acquisition industry adjusted profitability. *Pre-Profit* - Median value of the five pre-acquisition years' industry adjusted profitability. *ΔEVI* - Index adjusted change in enterprise value during the acquisition window. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	-0.0119	-0.0114	0.0054	-0.0038	0.0068
	(0.0104)	(0.0133)	(0.0142)	(0.0208)	(0.0192)
Pre-Profit	0.4960**	0.2830	0.2560	0.1890	0.1670
	(0.1990)	(0.2470)	(0.2050)	(0.3010)	(0.2780)
ΔEVI	0.0624	0.0911	0.1870***	0.0807	0.1290
	(0.0529)	(0.0655)	(0.0553)	(0.0892)	(0.0843)
Stock	-0.0045	-0.0128	0.0028	0.0427	-0.0168
	(0.0154)	(0.0190)	(0.0155)	(0.0253)	(0.0235)
Boom	0.0116	0.0124	0.0029	-0.0083	-0.0029
	(0.0128)	(0.0159)	(0.0146)	(0.0256)	(0.0257)
Adj. R2	0.1155	0.0045	0.2214	0.0214	-0.0386

Robust Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The coefficient for *ΔEVI* is significant for the third year. For establishing a relationship between these factors we would like to see a persistent relation through all years. If not, at least a trend where the last two or three years are significant. For this reason, this significance should be considered a random coincidence. These results are contradictory to our previous findings where industry adjusted change in enterprise value are used. An obvious difference is that the enterprise value includes debt which is not included in the equity indices. However, we do not believe that the impact of debt can explain the difference in the results. We believe it is reasonable to assume that the debt amount rarely change much during the short timeframe used trough this paper. Barber and Lyon (1996) argue that it is more important to control for the performance of industry peers when investigating long-run operating performance. Controlling for peers makes it possible to adjust for factors not caused by the event. Furthermore it catches the operational performance of the hypothetical firm. It seems reasonable since a group of industry peers is more accurate in catching external events and industry specific shocks. Moreover, benchmarking towards a group of peers has a greater impact for the specific industry than when adjusting for the market index.

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The coefficient parameter for *Pre-Profit* is significant the first year as in the previous table 2, indicating persistency in profitability. The results do not show any significant effect on *Post-Profit* from *Stock* or *Boom,* indicating as discussed previously that the method of payment or the current market condition are unable to help explaining the outcome of the acquisition.

In regression 2, (table 4), the coefficient for *ΔProfit* is interpreted as the change in *ΔEV* caused by a one percentage point change in *ΔProfit*.

Table 4: OLS Regression with *ΔEV* as dependant variable (Regression 2)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *ΔEV* - Industry adjusted change in enterprise value during the acquisition window. *ΔProfit* - *Post-Profit* for each year deducted by the *Pre-Profit*. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	0.0233	0.0182	0.0137	0.0164	-0.0041
	(0.0436)	(0.0445)	(0.0517)	(0.0662)	(0.0716)
ΔProfit	1.4860**	1.0030**	1.1880**	1.4660**	1.7970***
	(0.6030)	(0.4840)	(0.5630)	(0.5490)	(0.5700)
Stock	0.0942	0.0999	0.0763	0.0288	0.1300
	(0.0602)	(0.0620)	(0.0637)	(0.0789)	(0.0782)
Boom	0.0003	0.0050	0.0056	0.0178	0.0102
	(0.0512)	(0.0522)	(0.0582)	(0.0727)	(0.0765)
Adj. R2	0.1124	0.0742	0.1030	0.1829	0.2876

Robust Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

All five years show positive significant coefficients for *ΔProfit*. The results are consistent with previous findings in regression 1. Moreover, results imply that the market on average is able to forecast the outcome of an acquisition. A one percentage point increase in *ΔProfit* increases *ΔEV* with 1.003 to 1.797 percent. Results imply a pre-tax capitalization rate of 55-100 percent which is considerably higher than the rates from the results in regression 1, suggesting the real pre-tax capitalization rate of somewhere between 10-100 percent. Moreover, these rates are similar to those obtained by Healy et al (1992), who find a rate of 24-100 percent. All other variables than *ΔProfit* are insignificant. The positive relation between *ΔProfit* and *ΔEV* supports the result of Duso et al (2010) who also finds a positive relation between *ΔProfit* and *ΔEV*.

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5.2 Profitability: Bidder and target separately, results research question 2

For Regression 3, (table 5), we adjust regression 1 by separating ΔEV into ΔEVB and ΔEVT. Trough separating ΔEV we are able to investigate whether the realized synergies will benefit the shareholders of the bidding or the targeted firm.

Table 5: OLS regression with *Post-Profit* as dependant variable (Regression 3)(Bidder and target separately)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *Post-Profit* - The post-acquisition industry adjusted profitability. *Pre-Profit* - Median value of the five pre-acquisition years' industry adjusted profitability. *ΔEVB* - Industry adjusted change in enterprise value for the bidder during the acquisition window. *ΔEVT* - Change in enterprise value for the target during the acquisition window. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	-0.0215**	-0.0360***	-0.00712	-0.0235*	-0.0122
	(0.0084)	(0.0104)	(0.0106)	(0.0131)	(0.0103)
Pre-Profit	0.5300***	0.3890**	0.2840	0.2320*	0.1990
	(0.1410)	(0.1710)	(0.1780)	(0.1160)	(0.1540)
ΔEVB	0.0584	0.0028	0.0663	0.0499	0.0766***
	(0.0433)	(0.0395)	(0.0435)	(0.0510)	(0.0243)
ΔEVT	0.4320**	0.9830***	0.4390**	0.8820***	0.8560***
	(0.1630)	(0.2080)	(0.2100)	(0.2840)	(0.1440)
Stock	-0.0065	-0.0086	0.00457	0.0428*	-0.0193
	(0.0154)	(0.0148)	(0.0167)	(0.0233)	(0.0135)
Boom	0.0161*	0.0255**	0.0081	-0.0002	0.0022
	(0.0088)	(0.0102)	(0.0112)	(0.0119)	(0.0108)
Adj. R2	0.3147	0.5327	0.1867	0.5478	0.6904

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

ΔEVT is positively significant all five years, implying that the premium paid on average can be seen as a good predictor for the future realized synergies. The coefficient for ΔEVB is positively significant for year five indicating that there could be benefits to the shareholders of the bidding firm due to the M&A in the long run, although there is no evidence for this during the first four years which makes conclusions regarding benefits to bidding firm shareholders speculative. The possible interpretation combining these bidder and target results is that bidding firms on average tend to pay more than the value of future potential synergies. However it does not

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support a clear relation between *ΔEVB* and *Post-Profit*. The inconsistent relationship suggests that *ΔEVB* is not on average a good predictor for the *Post-Profit*. The coefficients for *ΔEVT* spans from 0.432 to 0.983, indicating that the future realized synergies will be approximately 40 to 100 percent of the premium paid. By combining the results of *ΔEVT* and *ΔEVB* we conclude that the shareholders of the targeted firm on average receive a premium at least in line with the future realized synergies. The premium paid by the bidder may therefore work as a good approximation for future potential realized synergies, meaning that the bidding firm on average pays close to what it at maximum could justify. This can be linked to the findings of Caves (1989) and Jensen and Ruback (1983) who argue that the evidence for benefits to bidding firms shareholders is weak. Our results imply that the shareholders of the targeted firm "free-rides" as they do not bare any risks connected to the realization of the synergies. On average they receive a premium in line with or above the value of potential synergies. These findings are similar to Grossman & Harts (1980) model where the shareholders of the targeted firm can "free-ride" on the bidding firm. Furthermore Damodaran (2005) states that bidders generally over pay the shareholders of the targeted firm as synergies turn out to be too small relative to premiums.

The results for *Pre-Profit* are significant for the first two years, as well as the fourth, implying that profitability prior to the acquisition is affecting *Post-Profit* the first two years following the acquisition. Significance for *Pre-Profit* can be interpreted as persistency in profitability before and after the acquisition. Regarding the positively significant coefficients for *Boom*, year one and two, results differ from previous results in table 2. This is surprising since the regressions are identical except for the separation of *ΔEV*. We argue that the inconsistency may be due to some potential co-linearity between some of our independent variables. Although the significance for the first two years of the *Boom* variable may imply that a positive market condition has a positive effect on *Post-Profit* the first two years following the M&A. If the effect of the market condition during the acquisition window would have a significant effect on *Post-Profit* it would imply that M&As occurring in booming markets tend to have a positive effect on post profit. However, the effect is small and not persistent during our timeframe. Hence we argue that no conclusions about the effect of the market condition during the acquisition can be made. The coefficient for *Stock* is positively significant for the fourth year and insignificant for the rest of the period. As earlier discussed, we are unable to draw any proper conclusions since we assume that the significance for the fourth year is more of a random coincidence than a relevant explanatory factor to *Post-Profit*.

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5.3 Revenue and Costs, results research question 3

Regression 4 (table 6) shows the relation between $\Delta Revenue$ and ΔEV. The coefficient for $\Delta Revenue$ can be is interpreted as the change ΔEV caused by a one percent increase in $\Delta Revenue$.

Table 6: OLS regression with ΔEV as dependant variable (Regression 4)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms are listed. ΔEV - Industry adjusted change in enterprise value during the acquisition window. $\Delta Revenue$ - *Post-Revenue* for each year deducted by the *Pre-Revenue*. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	0.0107	0.0102	0.0139	0.00462	0.0033
	(0.0463)	(0.0442)	(0.0523)	(0.0796)	(0.0822)
ΔRevenue	-0.1210	-0.1290**	-0.0494	-0.0437	-0.0375
	(0.0921)	(0.0572)	(0.0462)	(0.0715)	(0.0639)
Stock	0.0747	0.0746	0.0718	0.0796	0.0890
	(0.0634)	(0.0607)	(0.0657)	(0.0855)	(0.0891)
Boom	0.0134	0.0204	0.0275	0.0285	0.0213
	(0.0537)	(0.0516)	(0.0603)	(0.0853)	(0.0885)
Adj. R2	0.0870	0.0923	-0.0070	-0.0640	-0.0685

Robust Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results from regression 4 show that the second year coefficient for $\Delta Revenue$ is negatively significant. As can be observed, all other variables are insignificant. The lack of positive and significant impact for $\Delta Revenue$ implies that increasing cash flows on average is driven by reductions in costs captured through synergies from the acquisition. This can be related to the results of Martnova and Renneboog (2006) who mentions cost cutting as a primary objective for M&As to occur. We argue that the result are reasonable since firms that recently engaged in M&A activity are more likely to focus on implementing cost cutting programs than increasing revenues, resulting in organic growth being a less important matter for the time being.

The same regression is made using ΔEVI instead of ΔEV.

Table 7: OLS regression with *ΔEVI* as dependant variable (Regression 4)

Data from 41 M&A deals during 2002-2012 where the bidding firm is located in Western Europe. Both the bidding and the targeted firms were listed. *ΔEVI* - Index adjusted change in enterprise value during the acquisition window. *ΔRevenue - Post-Revenue* for each year deducted by the *Pre-Revenue*. *Stock* - One if the deal is financed with stocks. *Boom* - One if the deal is done during a booming market.

	Year 1	2	3	4	5
Intercept	0.0051	0.0045	0.0172	-0.0168	-0.0176
	(0.0327)	(0.0296)	(0.0346)	(0.0469)	(0.0476)
ΔRevenue	-0.1230*	-0.1320***	-0.0789**	-0.0887**	-0.0754*
	(0.0650)	(0.0383)	(0.0306)	(0.0421)	(0.0370)
Stock	0.0264	0.0263	0.0205	0.0028	0.0122
	(0.0448)	(0.0407)	(0.0435)	(0.0503)	(0.0516)
Boom	0.0015	0.0087	0.0084	0.0269	0.0221
	(0.0379)	(0.0346)	(0.0399)	(0.0502)	(0.0513)
Adj. R2	0.0275	0.1933	0.1025	0.0554	0.0467

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The coefficients for *ΔRevenue* are significant with negative determinants during our observed time period. The negative determinant implies that increasing *ΔRevenue* relates to a decreasing *ΔEVI*. This looks rather strange; although we argue the reason being that companies who recently engaged in M&A activity tend to focus more on implementation and cost cutting rather than increasing revenues. The relation to changes in *ΔEVI* could arguably be explained due to the premium paid, since it on average tends to increase the value of the combined firm, i.e. a positive *ΔEVI*. However, as previously mentioned, industry adjusting is generally preferable over index adjusting (Barber and Lyon 1996).

5.4 Market condition and method of payment

To test for the characteristics of the deal and the conditions of the market during the acquisitions we introduce two dummy variables. First we investigate the impact based on the method of payment. Through all the regressions we do not find any significant evidence regarding the impact of the method of payment. In line with our findings, Healy et al (1992) are also unable to find any significant impact based on the characteristics of the financing for acquisition. Second, we test for the current condition of the stock market by including a dummy variable for booming market. In all of the regressions we are unable to find significant results explaining that the condition of the market should affect the outcome of the acquisition. This is

contradictory to the results of Rosen (2006) who finds that in the short-run, acquisitions made in a booming market tend to generate a greater increase in enterprise value than acquisitions made in other market conditions. Although Figure 1 shows that M&As appears to occur in hot markets, we are unable to find statistically significant results regarding the relation between the market reactions to M&A announcements and booming markets.

Figure 1: M&A activity plotted on Euro Stoxx 50 performance

Additionally, Rosen (2006) finds that in the long-run, enterprise value tends to decrease and the short-run effect is therefore reversed in the long-run. This implies that our lack of significant positive results may be due to a longer observed time window. Rosen (2006) defines the short-run as five days surrounding the acquisition and the long-run as three years past the acquisition. We observe the time period of three days prior to the acquisition until the deal is completed. This could potentially imply that our results may be in line with the mean reversion effect mentioned by Rosen (2006).

We believe that our result may suffer from our rather small sample. Although our observed sample is similar to Healy et al (1992), the market condition and the method of payment are not primarily of interest. In order to draw a proper conclusion regarding the method of payment and the condition of the market we argue that we would need a sample with more

observations. Some of the dummy groups consist of approximately 10 observations, which imply that results are sensitive to single observations.

In order to validate the results, we add a regression with the acquisition premium as dependant variable and the method of payment (*Stock)* and the market condition *(Boom)* as our independent variables. Our results are not significant, implying that neither the method of payment nor the market condition have any real effect on the premium paid to the target. These results support the findings from our main regressions.

6. Summary

We examine the post-acquisitions operational performance for 41 large acquisitions made by Western Europe companies during the period 2002 to 2012. We follow the methodology of Healy et al (1992). Additionally the methodology is extended by separating *ΔEV* into *ΔEVB* and *ΔEVT*. The separation is done in order to relate both to *Post-Profit*. Moreover, we investigate whether or not changes in cash flow can be allocated to changes in revenue or costs. Furthermore we extend the study by controlling for the condition of the stock market and the method of payment. The extension builds on the methodology used by Rosen (2006). Our study differs from previous ones by providing a European perspective more recent in time.

We conclude that on average, there is a positive relation between the stock market's reaction to M&A announcement and the operational outcome. We find a capitalization rate of 0.0978 to 0.178 for the realized acquisition synergies, meaning that a one euro increase in operating cash flow due to synergy gains results in a 6-10 euros increase in enterprise value. The results regarding the capitalization rate of acquisitions are in line with previous findings of Healy et al (1992), given that the market conditions have changed since their study.

Regarding the results for the extended version where *ΔEV* is separated into *ΔEVB* and *ΔEVT*. We find that *ΔEVT* on average is positively related to *Post-Profit* with a magnitude of 0.432 to 0.983. The conclusion of this is that the premium paid for the target works as a good approximation of future realized synergies, although the premiums tend to be on the higher side rather than the opposite. Therefore the maximum premium paid is rarely exceeded since it would result in the acquisition being unprofitable for the shareholders of the bidding firm. As a consequence, managers of target firms seem to be able to negotiate with the bidding firm to place their bid close to the maximum of what they are willing to pay. For *ΔEVB* we do not find

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any consistent significant results suggesting that there is no relation between *Post-Profit* and *ΔEVB*, although results indicate that there could be a positive relation 5 years after the deal is completed. Altogether this leaves us with the conclusion that on average, there are no gains to be expected for the shareholders of the bidding firm which supports the findings of Jensen and Ruback (1983). Our findings are also supported by Grossman & Hart (1980) who argue that there are no gains to be expected for the shareholders of the bidding firm.

Regarding the sources of cash flow changes we find no significant impact from revenue changes leading us to the conclusion that changes in cash flow mainly is a consequence of cost reductions. This is supported by previous theory and literature, arguing that efficient firms acquire less effective firms and starts cutting the costs of the targeted firm in order to improve profit. Cost cutting is also considered a primary motive to engage in M&A activity. Moreover, we do not find any significant results that the market condition nor the method of payment has any real impact on the operational outcome of acquisitions.

The results should be interpreted with cautions, since accounting data is not perfect in measuring the economic performance of firms and that it can be affected by managerial decisions. The small sample size used in this study could also cause spurious correlations. However, we argue that our sample fills the purpose of investigating the operational performance post acquisitions and connect it to the market reaction during the acquisition window.

For further research, a similar study with a larger global sample could provide better results within this topic and potentially confirm the results of our study. It should also lead to a better prediction of whether or not the method of payment and the condition of the market has any real impact on the operational outcome. Furthermore, a larger sample provides the opportunity to control for other factors that may affect the outcome of acquisitions.

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Appendix 1

List of Deals

Bidding Firm	Targeted Firm	Value MEUR	Payment	Completed	Announcement
ABB	Baldor electric	3066	Cash	2011-01-27	2010-11-30
ABB	Thomas & Betts	2943	Cash	2012-05-16	2012-01-30
Adidas	Reebok	3136	Cash	2006-01-31	2005-08-03
Akzo-Nobel	ICI	10888	Cash	2008-01-02	2007-08-13
Alcatel	Lucent Tech	10160	Shares	2006-11-30	2006-04-02
Arcelor Mittal	Acindar Industria	1110	Cash	2008-08-31	2007-12-27
Assa Abloy	Cardo	1277	Cash	2011-04-22	2010-12-13
Clariant international	Süd Chemie	1381	Cash	2011-04-26	2011-02-16
Essilor International	FGX International	411	Cash	2010-03-15	2009-12-16
Getinge	Huntleigh	618	Cash	2007-02-01	2006-12-08
Getinge	Datascope	672	Cash	2009-01-30	2008-09-16
Hexagon	Leica Geosystems	964	S(23,2%) & C(76,8%)	2005-10-17	2005-08-15
Imperial Tobaccao	Altadis	16200	Cash	2008-02-25	2007-07-18
InBev	Anheuser-Busch	41174	Cash	2008-11-18	2008-07-14
Linde	BOC Group	12216	Cash	2006-09-05	2006-03-06
L'oreal	Body Shop International	943	Cash	2006-07-12	2006-03-17
Luxottica	Oakley	1440	Cash	2007-11-14	2007-06-20
Luxottica	Cole National	394	Cash	2004-10-06	2004-09-24
LVMH	Bulgari	3317	S(56.2%) & C(43.8%)	2011-10-04	2011-03-05
Nestle	Dryers Grand Ice Cream	2181	Cash	2006-01-19	2005-12-01
Nokia	Navteq	4893	Cash	2008-07-10	2007-10-01
Novartis	Eon Labs	2400	Cash	2005-07-21	2005-02-18
Philips Electr	Color Kinetics	579	Cash	2007-08-27	2007-06-18
Reckitt Benckiser	SSL International	2982	Cash	2010-11-30	2010-07-20
Reckitt Benckiser	ART	1557	Cash	2008-01-30	2007-12-07
Roche Holding	Ventana	2319	Cash	2008-02-19	2008-01-22
Roche Holding	Genentech	34462	Cash	2009-03-26	2009-03-11
Roche Holding	Disetronic Holding	1061	S(19%) & C(81%)	2003-05-16	2003-02-10
Sandvik	Sceco Tools	702	Shares	2012-03-02	2011-11-07
Sanofi-Aventis SA	BMP Sunstone Corp	379	Cash	2011-02-24	2010-10-28
Sanofi-Synthelabo	Aventis	55300	S(71%) & C(29%)	2004-08-31	2004-04-26
Sanofi-Synthelabo	Genzyme Corp	14055	Cash	2011-04-08	2011-02-16
Solvay	Rhodia	3322	Cash	2011-09-03	2011-04-04
Stockman	Lindex	845	Cash	2008-01-21	2007-09-30
Tenaris SA	Maverick Tube Corp	2507	Cash	2006-10-05	2006-06-12
Tenaris SA	Hydril	1595	Cash	2007-05-07	2007-02-12
Travis Perkins	BSS group	657	S(46%) & C(54%)	2010-12-15	2010-07-05
UCB BB	Schwarz Pharma AG	3806	S(45%) & C(55%)	2006-12-28	2006-09-25
Unilever	Alberto Culver	2574	Cash	2011-05-10	2010-09-27
Wartsila	Hamworthy	449	Cash	2012-01-31	2011-11-22
Vesuvius	Foseco	632	Cash	2008-04-04	2007-10-11

Appendix 2

Correlation Table

	ΔEV	ΔEVI	Pre-Profit	Post-Profit Y1	Y2	Y3	Y4	Y5	ΔProfit Y1	Y2	Y3	Y4	Y5	ΔEVB	ΔEVT	ΔRevenue Y1	Y2	Y3	Y4	Y5	Boom	Stocks
ΔEV	1.0000																					
ΔEVI	0.5304	1.0000																				
Pre-Profit	0.0465	-0.0217	1.0000																			
Post-Profit Y1	0.4282	0.1250	0.3549	1.0000																		
Post-Profit Y2	0.3873	0.2124	0.1860	0.7426	1.0000																	
Post-Profit Y3	0.4818	0.5962	0.2194	0.3802	0.6005	1.0000																
Post-Profit Y4	0.5642	0.1494	0.1813	0.6886	0.7031	0.5852	1.0000															
Post-Profit Y5	0.6374	0.3037	0.0861	0.6103	0.7504	0.5068	0.6939	1.0000														
ΔProfit Y1	0.3647	0.1351	-0.4775	0.6520	0.5470	0.1793	0.5001	0.5038	1.0000													
ΔProfit Y2	0.3310	0.2093	-0.4166	0.4782	0.8158	0.4265	0.5439	0.6436	0.7872	1.0000												
ΔProfit Y3	0.4047	0.5538	-0.4703	0.1065	0.4188	0.7578	0.4081	0.4009	0.4816	0.6644	1.0000											
ΔProfit Y4	0.4916	0.1503	-0.4257	0.4234	0.5368	0.4085	0.8127	0.5874	0.7431	0.7472	0.6542	1.0000										
ΔProfit Y5	0.5046	0.2678	-0.5516	0.2896	0.5122	0.2875	0.4678	0.7835	0.7196	0.7986	0.6289	0.7573	1.0000									
ΔEVB	0.9812	0.5020	0.0677	0.3396	0.2439	0.4331	0.4744	0.5260	0.2642	0.1858	0.3464	0.3964	0.3981	1.0000								
ΔEVT	0.5707	0.3635	-0.0729	0.5972	0.7969	0.4289	0.6637	0.8134	0.6203	0.7802	0.4367	0.6539	0.7265	0.4038	1.0000							
ΔRevenue Y1	-0.1611	-0.3514	-0.1960	-0.0548	-0.1065	-0.0586	-0.0897	-0.0695	0.1075	0.0169	0.0781	0.0336	0.0641	-0.1197	-0.2227	1.0000						
ΔRevenue Y2	-0.2719	-0.5124	0.0496	-0.0611	-0.1493	-0.2438	-0.1270	-0.2017	-0.0977	-0.1673	-0.2537	-0.1463	-0.1999	-0.2169	-0.3504	0.8468	1.0000					
ΔRevenue Y3	-0.1941	-0.3796	0.2986	-0.0576	-0.1104	-0.0222	-0.1434	-0.1525	-0.2963	-0.2779	-0.2198	-0.3089	-0.3139	-0.1200	-0.4029	0.7474	0.8786	1.0000				
ΔRevenue Y4	-0.1076	-0.3823	-0.0870	-0.2963	-0.3462	-0.0717	-0.1194	-0.1841	-0.2079	-0.2691	-0.0067	-0.0583	-0.0999	-0.0132	-0.4335	0.8123	0.8349	0.7737	1.0000			
ΔRevenue Y5	-0.0955	-0.3795	-0.2661	-0.4362	-0.4951	-0.1942	-0.1786	-0.2598	-0.1941	-0.3015	0.0022	-0.0066	-0.0516	0.0062	-0.4545	0.5993	0.6427	0.5000	0.8995	1.0000		
Boom	0.0696	0.0725	0.1718	0.1524	0.1871	0.1751	-0.0241	0.0306	0.0039	0.0720	0.0434	-0.1240	-0.0815	0.0766	-0.0624	-0.0899	0.0591	0.1107	0.0211	0.0196	1.0000	
Stocks	0.1912	-0.0035	0.1876	-0.0328	-0.0490	0.2107	0.3564	-0.1221	-0.1830	-0.1557	0.0651	0.2168	-0.2192	0.2201	-0.0554	-0.0756	0.0146	-0.0140	0.0665	0.1160	-0.0696	1.0000