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Mergers and Acquisitions in Up- and Down-Markets

-An event study analysis of the impact of the market valuation on mergers and acquisitions and their future operating performance.

Michael Bose*

Abstract

In this paper I conduct an event study to examine a sample of 394 US mergers and acquisitions during the period 1997-2013. The aim of this research is to add to the empirical literature that studies acquisition strategies. I come to the conclusion that there is no significant difference in bidder CAR depending on if the announcement happened in an up- or down-market. However, the operating performance, as measured by various key accounting ratios is significantly different. Furthermore, my data suggests that there are other factors that also differ depending on the market valuation at the time of the M&A announcement.

*22566@student.hhs.se

Tutor: Bige Kahraman

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1. Introduction

For many companies, mergers and acquisitions (henceforth M&A:s) are a fairly frequent business operation. Large companies often have a large amount of subsidiaries. Nonetheless, the deals are often of high value and of great importance for both the target and the bidder.

There has been a lot of research on who benefits from an acquisition. According to Jensen and Ruback (1983) the target experiences statistically significant stock price increases by 20%-30% depending on if it is a merger or tender offer, measured by the cumulative abnormal returns of the target's stock prices around the announcement date. Yet, the effect on the bidding company's stock price is only 4% in tender offers and not statistically different from zero in mergers. Dodd (1980) even finds that bidders lose a small significant amount from the announcement. The consensus seems to be that bidders pay large premiums for target firms. Consequently, target firms consistently gain large statistically significant amounts and the bidding firms gains' are at best dubious and at worst even negative. The natural question then is why would a rational bidder decide to acquire a target? Generally M&A:s are not considered to be a zero-sum game. Due to synergies a group can be higher valued than each separate company within it. Through synergies the bidder aims to gain on the deal. Damodoran (2005) states that synergies can appear in two main forms: financial synergies and operating synergies, see Figure 1. He also states that it is not certain when they will appear, they could materialize anytime between instantly and several years after the completion of the deal. It is reasonable to assume that financial synergies, e.g. utilizing tax benefits or the debt capacity, generally appear rather quickly as they are relatively easy to use.

Chatterjee (1986) writes, “While acquisitions in general have been demonstrated to create economic value, very few studies have sought to identify the value related to specific acquisition strategies”. As highlighted by Rhodes-Kropf and Viswanathan (2004), significantly more M&A:s take place in up-markets compared to down-markets.
One acquisition strategy could thus be for more resilient companies to take advantage of the generally difficult times during down-markets to potentially acquire targets at a discount. Do deals that are announced in up-markets generally take as long to complete as in down-markets? Most companies would likely want to merge as soon as possible in order to start realizing these benefits. It might also be costly to draw out the merger too long, both in terms of process costs but also opportunity costs.

The objective of this study is to examine if it is possible for the bidding firm to gain by utilizing the valuation of the market. Do M&A:s that are announced in an up-market affect the stock price and the future operating performance of the bidder differently compared to M&A:s that are announced in a down-market? As a means to test these questions, an event study is conducted along with T-tests on four chosen key accounting ratios. My results show that the announcement returns do not significantly differ between up- and down-markets. However, the effect on the future operating performance is significantly different for two of the accounting ratios. Additionally, other factors for example the time to complete a merger is also significantly different depending on the market valuation.

Data

The data is primarily from Zephyr, which is a database of deal information, and Compustat. The index data on the NASDAQ100 was taken from the Federal Reserve Economic Data. The daily Fama-French factors were taken from Kenneth French's website. The M&A data is between 01/01/1997 and 31/12/2013. The former is due to Zephyrs limitations while the latter was chosen in order to allow for tests with future data.

Deal information

Only completed deals that had both US bidders and US targets were chosen. Moreover, the companies that had more than one event, i.e. merger or acquisition, during the time-period were excluded. The reason behind this is to reduce confounding factors. For example if a company made two deals within a short time-span, it would be difficult to separate the individual effects. Consequently the calculation of the CAR would not be accurate. Furthermore, the change in the financial key ratios after the deal has been completed would be difficult to interpret.

Initially, I intended to use Zephyr's industry classification but then I realized that the companies frequently did not fit the classification. I then opted for the more established US SIC codes for distinguishing between different industries. However, U.S. SIC codes are today considered obsolete with regard to the technological advancements that have taken place during the recent decades (Census.gov).

A new classification system, North American Industry Classification System (NAICS), has been introduced and is replacing the old US SIC classification. As a result of new technological advancements in the market place, new industries have been created which are included in the new NAICS classification system.

Hence, the NAICS classification system is applied for distinguishing between different industries.

Stock and Accounting Data

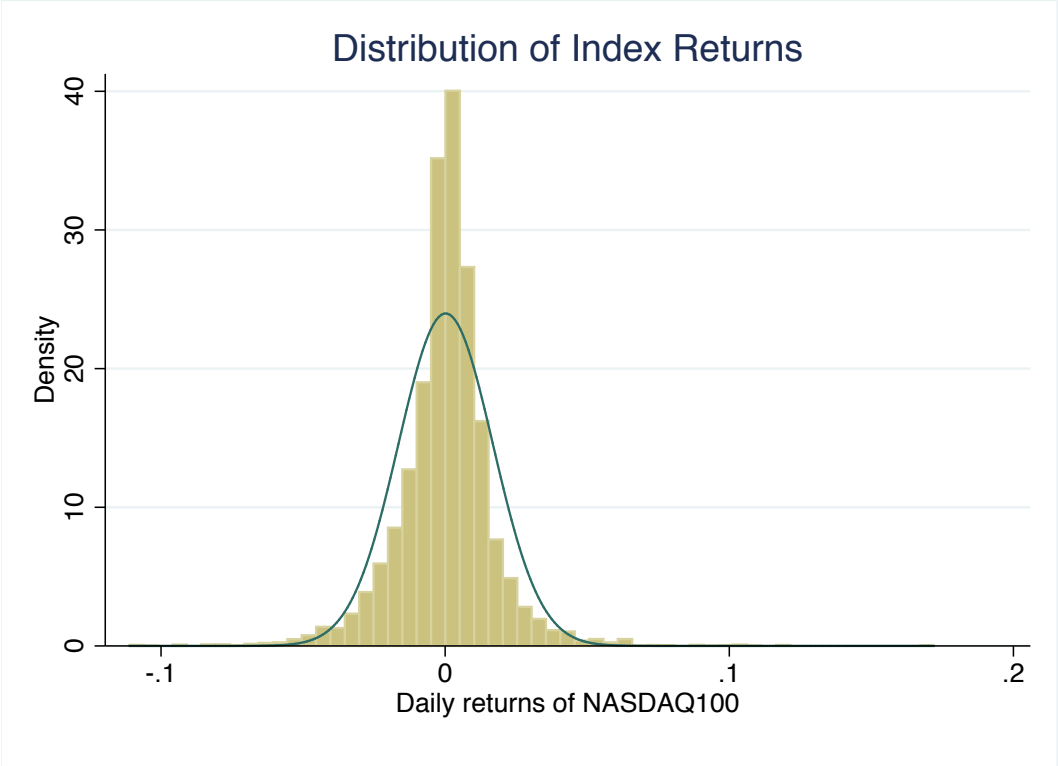
As a proxy for the stock market, the NASDAQ100 Index was used. It is a value-weighted index based on 100 of the largest non-financial companies listed on the NASDAQ. The reason this index was chosen is twofold:

- It excludes financial companies. These types of companies typically have very high leverage. This could be a problem since it would skew some of my financial key ratios and make the aggregate picture more difficult to interpret. This accords with methods used by Fama and French (1992).
- It is a value-weighted index. According to Ahern (2009), the chosen index is most commonly either value- or equal-weighted in the market model prediction method.

The deal info was merged with quarterly accounting data and stock data, both obtained from Compustat. When accounting data were missing, the observation was dropped. For days with missing stock prices, the previous day's price was used. The estimation period was 120 trading days before the event and the post-event period is 30 trading days, my stock prices are accordingly. I have quarterly accounting data on the Income Statement and the Balance Sheet up until 500 days after the completion of the deal (usually not the announcement date). This results in data on 404 deals, 263 in up-markets and 141 in down-markets.

Sample Characteristics

Figure 1



The figure above illustrates the distribution of returns of my chosen market index (NASDAQ100). Also included is the normal distribution curve depicted upon the index returns. As can be seen, the index returns are not normally distributed.

Previous research on other market indices has come to the same conclusion that the returns of market indices, tend not to be Gaussian. The tails are generally thick and wide, the shoulders thin and the peaks are high, i.e. leptokurtic (Dillén & Stoltz & 1999, p. 41-42). My market index returns share the same characteristics, thus I do not have a normally distributed data set. Nevertheless,

it is still very common in financial analysis to assume a normal distribution. This can be done if the central limit theorem is satisfied. The theorem states that a sum of N independent random variables, with identical distributions and finite variance, will be approximately normal (Lindeberg, 1922).
And as N increases, the distribution will gradually converge to a normal distribution. The random walk hypothesis, states that daily stock prices are independent. Whether this hypothesis is true or not is a debatable topic in finance
I assume that the central limit theorem holds due to difficulties with non-parametric tests and multiple days of abnormal returns.

Methodology

Main Hypotheses and One-sided versus Two-sided Parametric Test

Hypothesis A
H_0: There is no difference in bidder's stock price returns depending on if the deal was announced in an up- or down-market.
H_1: There is a difference in bidder's stock price returns depending on if the deal was announced in an up- or down-market.

Hypothesis B
H_0: There is no difference in bidder's future key accounting ratios depending on if the deal was announced in an up- or down-market.

H_1: There is a difference in bidder's future key accounting ratios depending on if the deal was announced in an up- or down-market.

The decision of applying a one-sided or a two-sided parametric test has implications for the results obtained. I have chosen to always apply a two-sided parametric test and the reasons behind this are:

- There is no evidence in past research for e.g. the announcement returns to be higher or lower in an up-market market compared to a down-

market. If I had strong evidence for the existence of such a relationship between the returns and the market state, then it would have been more appropriate to apply a one-sided parametric test.

- A two-sided parametric test is a more conservative approach for rejecting or for failing to reject the null-hypothesis. The p-value is twice as big in a two-sided test than in a one-sided test.
- A disadvantage with one-sided tests is the fact that if a large difference in the opposite direction of my hypothesis is observed then I have to reject my hypothesis, although I have a large difference, but in the opposite direction of my hypothesis. It would then be tempting to change the direction of the hypothesis in order to get a significant difference. Applying a two-sided test mitigates the risk of missing a significant difference in the opposite direction.
  (Based on the statistics guides from graphpad.com)

Definition of Up- and Down-market

Although there are many different ways of defining an up- or down-market, there is not any generally accepted definition either.

Wiggins (1990), define months with an excess market return greater than zero as up months, while months with an excess market return less than zero as down months. While Bhardwaj and Brooks (1993) distinguish between up- and down-markets by using the median return on the market portfoilio as the critical threshold value.

Fabozzi and Francis (1977, 1979) separate the market into three categories: substantially up, substantially down or neither.

Substantially up months are months in which the return on the market portfolio is greater than 1.5 times its standard deviation (of the market returns over the sample period), while substantially down months are months in which the return on the market portfolio is less than 1.5 times its standard deviation.

Kim and Zumwalt (1979) introduce another solution to the designation of up- and down-markets. In their proposal, an up-market is when the rate of return on the market portfolio exceeds the average market return, the risk free rate or zero. Otherwise the period is classified as down.

I chose to use the method by Fabozzi and Francis but on a quarterly basis. Substantially up quarters are defined as quarters in which the return on my chosen index, the NASDAQ100 exceeds 1.5 times its standard deviation. For my data, this means that substantially up-markets are quarters where the quarterly return is greater than around 7% and substantially down-markets are quarters where the quarterly return is lower than around -7%.

Operating performance of the bidder

To determine if the merger or acquisition influences the operating performance of the bidder differently, depending on if it happened in an up-market or down-market, I will look at changes in certain items in their quarterly reports. From these I construct four financial key ratios that are frequently used to measure performance. These are: return on equity, return on assets, return on capital employed and return on net assets. T-tests will determine if the is any statistically significant difference.

It is then crucial to take into account when the deal was completed. It is only when the target is incorporated into the group that potential synergies may appear. The completed date usually differs from when it was announced, as can be seen from Table 1 below. It appears that during down-markets, both the mean days to complete the deal and the standard deviation is higher. Tests will be made to determine if this is true.

Table 1

This table shows summary statistics for the amount of days required to complete a merger split on up- and down-markets.

Market	Obs.	Mean (Days)	SD	Min	Max
Down-market	149	112.31	179.37	0	1166
Up-market	245	64.55	101.99	0	731

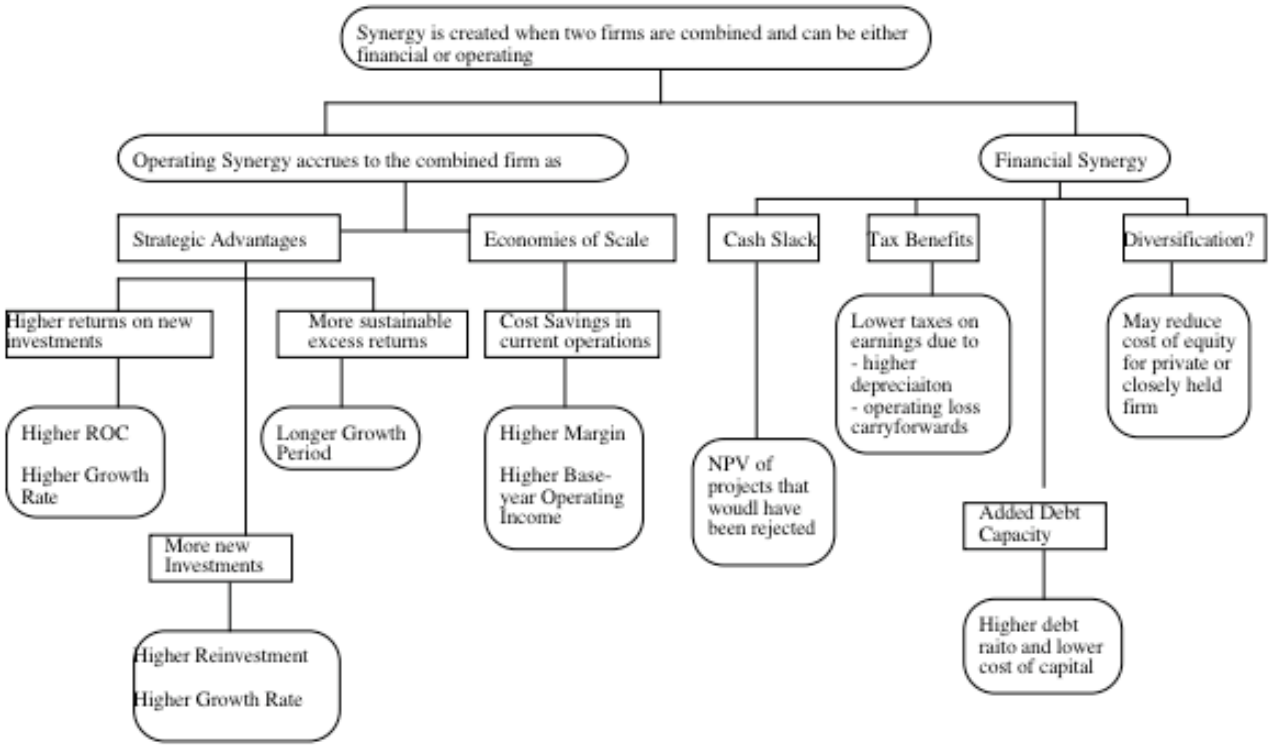
After the completed date is known, one has to make assumptions about when the synergies will appear. Damodoran (2005) argues that synergies can appear in many forms but are primarily related either to the financial or the operating side (see Figure 1). Furthermore, he states that it is difficult to determine when the synergies will emerge (if at all). It could take many years or instantly. I would argue that financial synergy happens much sooner than operating synergy since it is relatively easy to utilize for example tax benefits and the debt capacity. According to Chatterjee (1986) "…there is usually more than one type of synergy associated with the different types of mergers". It is then possible that some appear early in the merger while others appear later. Naturally synergies that happen earlier are more valuable since the net present value of the cash flows it generates will be higher.

I decided to assume that the synergies would have happened 150 days after each mergers completion. The data is based on the next quarterly report 150 days after each mergers completion. This would mean that on average the Down-market data is based on 308[1] days after the announcement while the up-market data is based on 260 days after the announcement.

[1] 112.31+150+365/(4*2)=308

[2] This would be deceptive since there is no change in economic performance only

Figure 2 (taken from Damodoran 2005)



Market Model

According to the market model, there is a linear relationship between the market return and the return from any underlying security:

$$\mathbf{R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}}$$

Where:

$\mathbf{R_{it}}$: return of the underlying security during the time period t

R_{mt}: return of the market during the time period t

e_{it}: error term for the security

My estimation window is from -120 to -2 and my event window is from -1 to +1 (although other windows will be analyzed as well). The most typical way is for the estimation window and the event window not to overlap. By avoiding overlapping, the estimation of the normal return is not affected by the event. Having the event window included in the estimation of the normal model parameters, would lead to the event having a potentially large impact on the

normal return measure. This would in turn lead to the capturing of event impact in both the normal returns and the abnormal returns, which is a problem because the assumption of the market model is that the event impact is captured only by the abnormal returns.

Fama-French Three factor model

An expanded version of the CAPM model, the Fama-French three factor model was used to calculate the expected returns. This model takes into account that value stocks generally outperform growth stocks and that small cap stocks tend to outperform large cap stocks.

Testing has been done with the standard CAPM model and the regression results are largely unchanged. Though naturally the adjusted r-squared will be higher by including additional variables.

Variance testing

An F-test is conducted in order to determine if the variances are assumed to be equal or not in the t-test. This appears to have been the standard procedure for a long time. However, more recent research has showed that this preliminary testing can increase the risk for type 1 errors, i.e. rejecting the null hypothesis even though it is true (Moser and Stevens, 1992; Hayes and Cai, 2007).

Markowski and Markowski (1990) highlight that the Student's original t-test is highly robust to the presence of unequal variance in the two samples, but only if the sample sizes are equal. Consequently, I aim to use the Student's original t-test if the two sample sizes are roughly the same, regardless of whether or not the standard deviations differ. If both the sample sizes and the standard deviations differ greatly, I will use the Welch t-test. This test is less powerful if the standard deviations are equal but the benefit is that it is not sensitive to unequal variance if the sample sizes are unequal.

Results

Descriptive sample statistics

The number and distribution of deals are showed in Table 2. The time periods 2000-2002 and 2009-2011 stand out a bit. During these periods, my sample has quite many deals happening in an up- or down-market compared to a neutral market. This is likely due to the market being rather turbulent during these times, resulting in large swings up and down. Also of note is the period 2012-2013 when there are zero deals happening in a down-market. This is because the chosen market index did not experience many quarters that were sufficiently negative.

Table 2.

This table shows how the deals are distributed over the years and in different market states. Neutral deals are only displayed for reference and are not involved in further analysis.

Time period	Number of deals in an up-market	Number of deals in a down-market	Number of deals in a neutral market
1997-1999	1	3	6
2000-2002	48	57	18
2003-2005	27	17	102
2006-2008	28	37	144
2009-2011	75	35	47
2012-2013	66	0	112
Total	245	149	429

Consistent with previous research by Rhodes-Kropf and Viswanathan (2004), there are more deals happening in up-markets compared to down-markets.

Table 3.

This table shows the method of payment used. If the method of payment is mixed, for example 30% cash and 70% shares, then only the payment method with the largest share is considered.

Down-market		Up-market
Percent	**Method of Payment**	**Percent**
56.74	**Cash**	**56.27**
1.42	**Cash Assumed**	**1.14**
5.67	**Debt Assumed**	**7.60**
1.42	**Deferred Payment**	**1.14**
2.84	**Earn-out**	**2.28**
0.71	**Loan notes**	**0.76**
1.42	**Other**	**0.38**
29.79	**Shares**	**30.42**
100.00	**Total**	**100.00**

From Table 3 above we see that the two main payment methods are cash and shares. It is surprising that bidders do not change their preference between either cash or shares, depending on the valuation of the market. Shleifer and Vishny (2003) found that bidders are more likely to pay with shares instead of cash in up-markets. My results do not seem to support this theory. This could be because of inaccuracies in defining up- and down-markets in my study or perhaps this is the actual case. One would assume that during times of high valuation, leading the stock to be highly valued, financing the deal using shares would be the preferred choice for the bidder. One the other hand, this would signal to both outsiders and the target that the shares of the company are overvalued. Consequently, this might reduce the willingness of the target to accept share payments.

Nevertheless, the fact that the means of payment is weighted almost the same in up- and down-markets has benefits for my method of analyzing the post-merger

operating performance. As shown by Healy et al. (1992), accounting performance measures can be affected by the means of payment. For example, issuing debt would raise the interest expenses and increase the cost of debt. This would lower Net Income and directly affect e.g. the return on equity[2]. Since my aim is not to compare pre- and post-deal operating performance, but rather to compare changes in future operating performance depending on if the deal happened in a down- or up-market, I do not see this as an issue.

Table 4.

This table shows summary statistics for days until completion of the merger from the day it was announced.

	Obs.	Mean	SD	Min	Max
Down-market	149	112.31	179.37	0	1166
Up-market	245	64.55	102.00	0	731

From Table 4 it appears that deals announced during down-markets take, on average, considerably longer to complete than deals announced during up-markets. Additionally, the values also appear to be more scattered, indicated by the higher standard deviation. Further testing is needed to determine if the difference is significant.

[2] This would be deceptive since there is no change in economic performance only in the financing choice.

Market reaction to the deals

The abnormal returns in Figure 3 and 4 show that the absolute value of the abnormal return is the largest around the announcement date (day zero). This is consistent with existing literature and intuition; the event impacts the stock price mostly around the event date. For the down-market sample, this is truer compared to the up-market sample. The up-market abnormal returns are more scattered. Consequently, my t-tests for any significant difference in the cumulative abnormal return are based on several different windows; some are smaller while others are larger.

Figure 3.

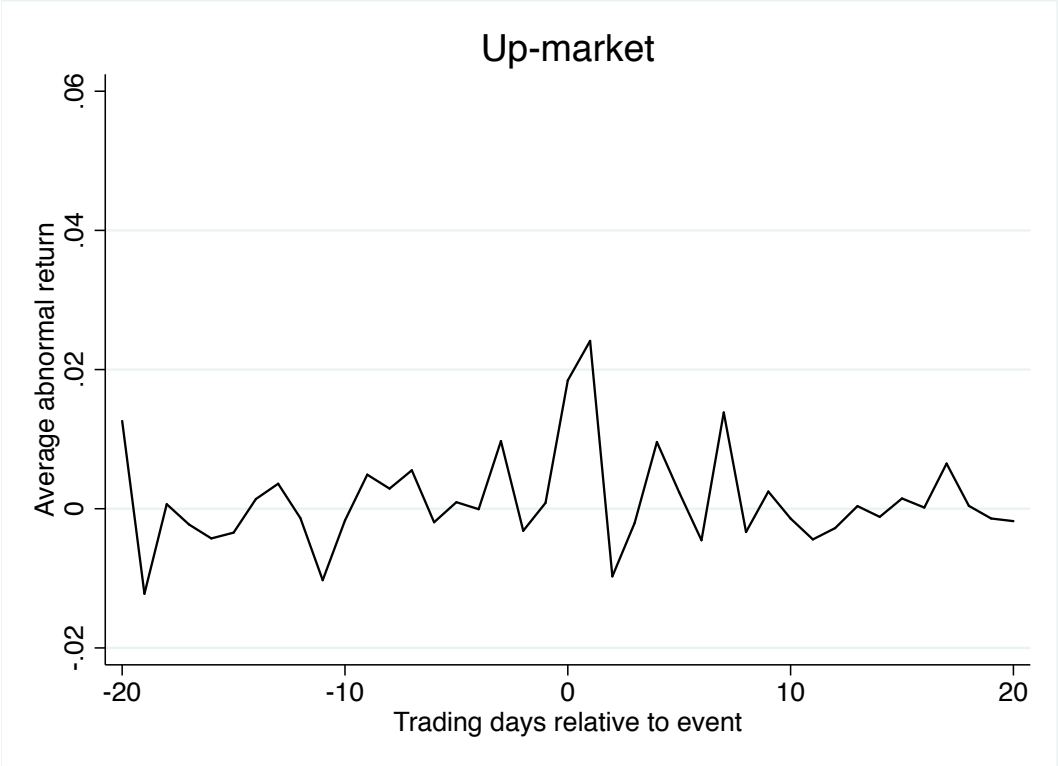
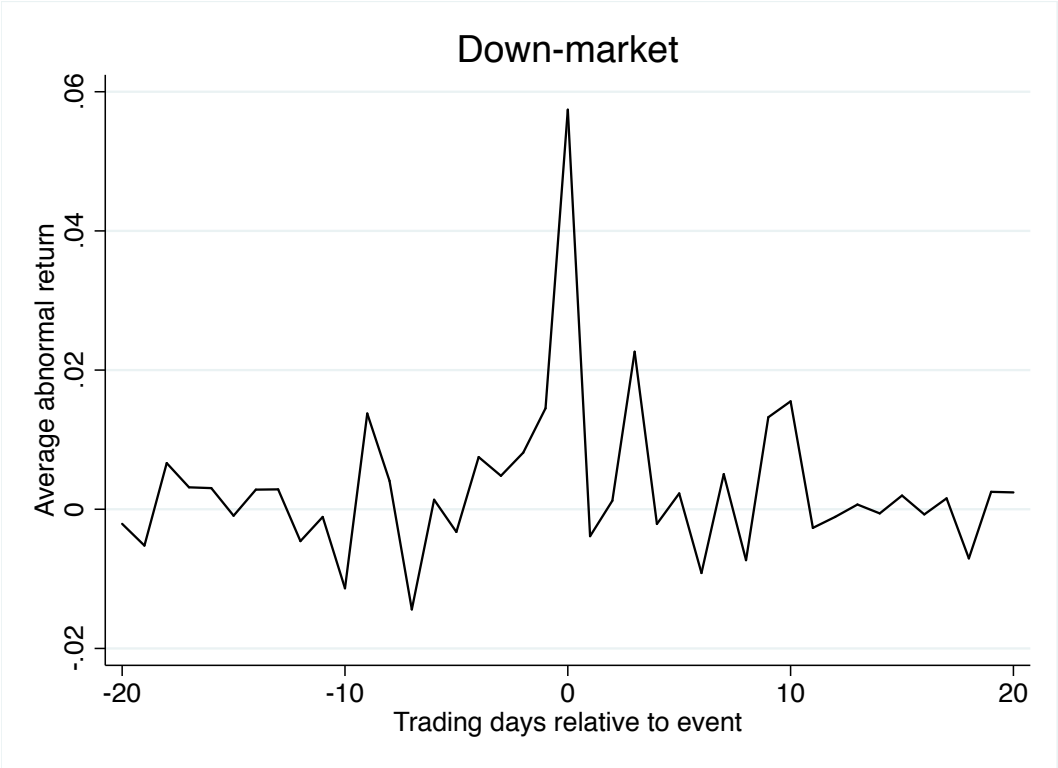


Figure 4.



Difference Testing

By using an F-test it is possible to test whether it is likely that the two population variances are equal, based on sample variances. The chosen hypothesis is one-tailed.

H_0: $\sigma_1^2 = \sigma_2^2$

H_1: $\sigma_1^2 > \sigma_2^2$

The F-statistic is given by: $$F = \frac{179.37^2}{102^2} \approx 3.09$$

Numerator degrees of freedom=152-1=151

Denominator degrees of freedom=249-1=248

One-sided critical value ($\alpha = 0.01$)=$F_{0.01;151;248}$=1.40

Rejection region: Reject if F> 1.40

The null hypothesis is rejected as F>1.40. It is highly unlikely that the two population variances are equal. For the purpose of testing the means with a t-test, one has to take into account if the variance is assumed to be equal or not as this changes the formula. However, according to Markowski and Markowski (1990) the Student's original t-test is highly robust to the presence of unequal variance in the two samples, but only if the sample sizes are equal. Considering that both my sample sizes and standard deviations differ considerably, I decide to use the Welch's t-test.

H_0: $\mu_1 = \mu_2$

H_1: $\mu_1 \neq \mu_2$

The t-statistic is given by: $$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{(\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2})}}$$

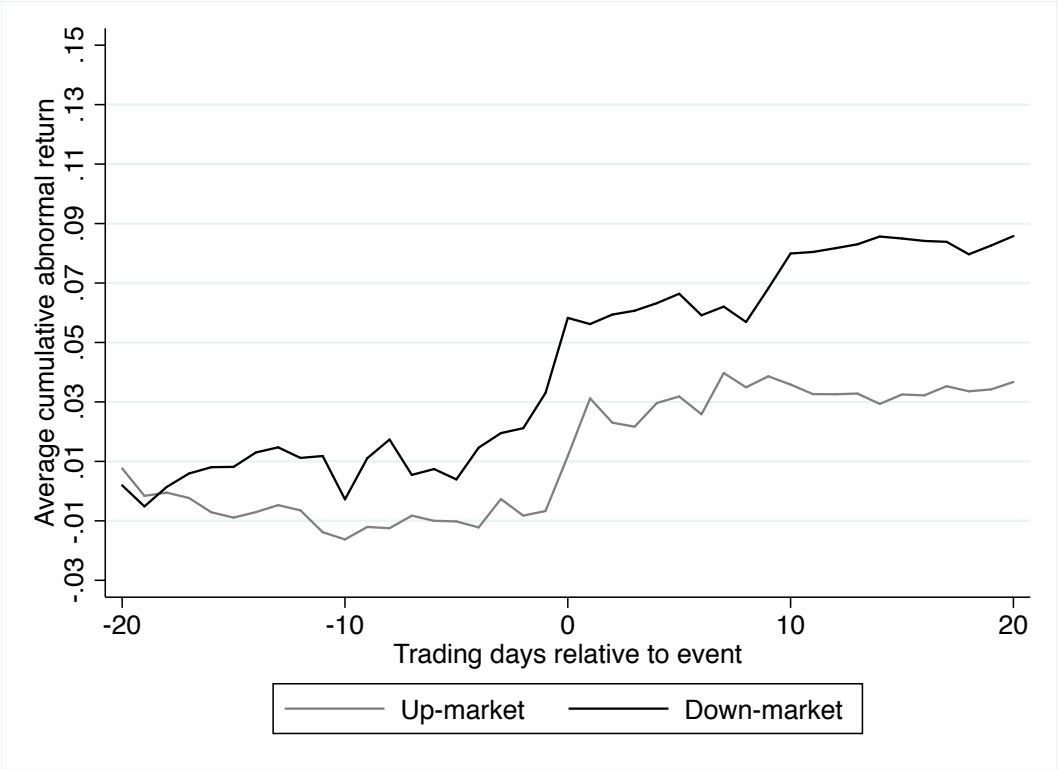
t=3.01***[3]

The null hypothesis is rejected and it is highly unlikely that deals that were announced in an up-market, on average, take the same amount of days to complete as deals that were announced in a down market. One could argue that this result makes intuitive sense as during difficult times priorities might lie elsewhere and initial plans may need to be changed. This is important for the bidding firm since it has an impact on when the synergies become relevant. Most companies would likely want to merge as soon as possible in order to start realizing these benefits. It might also be costly to draw out the merger too long, both in terms of process costs but also opportunity costs.

[3] ***=Significant at the 1% significance level

Figure 5. Winsorized ACAR(20,20)

This figure shows the average cumulative abnormal return between -20 to +20 around the announcement date for the two samples. It is winsorized at 1% and 99%, before averaging each day, in order to reduce the effects of outliers.



Just by visual analysis it is difficult to determine if the difference in Figure 5 is significant due to the rather large swings throughout the period. These are an indicator of high standard deviations. Both ACARs continue to increase after the announcement.

From Table 5 it appears that neither the various cumulative abnormal returns nor the abnormal returns at the event day are statistically different in up- and down-markets at conventional significance levels. It is therefore not possible to draw any conclusion that deals that happened in a down-market meaningfully affect the stock price differently than deals that happened in an up-market. Neither the T-test nor the Wilcoxon rank sum test gives any evidence to the contrary. Thus, one cannot argue that during bad times, some companies might take advantage of the down-market to acquire targets at a discount, at least not

by looking at the share price. This assumes that the market is efficient and that new information is relatively quickly reflected in the share price, an assumption that is likely to hold in my sample given that the companies are all large cap stocks and not some niche market with low liquidity where this assumption not necessarily holds true.

Table 6 displays that there is a significant difference in two of the financial key ratios in the next quarterly report 150 days after an acquisition has been completed. The direction is the same, i.e. for deals that happened in a down-market, the bidders generally have a lower return on capital employed and lower return on net assets. This means that in the semi-long run, around 300 days after the announcement, it benefits bidders to make acquisitions in up-markets. The results are thus not in support of Goel and Thakor's (2008) ideas about CEO overconfidence in up-markets, resulting in inefficient value-destroying deals.

By analyzing the returns around the announcement date, it is not possible to draw any conclusion that deals that happened in a down-market meaningfully affect the stock price differently than deals that happened in an up-market. Neither the T-test nor the Wilcoxon rank sum test gives any evidence to the contrary. Thus, one cannot argue that during bad times, some companies might take advantage of the down-market to acquire targets at a discount, at least not by looking at the share price. This assumes that the market is efficient, an assumption that is likely to hold in my sample given that the companies are all large cap stocks and not some niche market with low liquidity where this assumption not necessarily holds true.

5. Conclusion

I have examined mergers and acquisitions in the US during the period 1997-2013 to try and find out if there is a difference in announcement returns, depending on if the deal was announced in an up- or down-market. Furthermore I have also analyzed several accounting performance measures in order to determine how the deal affects the future operating performance of the firm.

First, I do not find any statistically significant difference in stock market reactions around the event date between up- and down-markets. Therefore my sample does not support the theory that more resilient companies can take advantage of a down-market in order to acquire a target at a discount. I thus fail to reject my first hypothesis, that there is no difference in the CAR(-1,1).

Second, I find a significant difference in two of the four accounting performance measures. The future return on both the capital employed and the net assets are significantly different depending on if the deal was announced in an up- or down-market. The average amount of days required to complete a deal also significantly differs depending on if it was announced in an up- or down-market. Although, the fact that deals that were announced in a down-market take longer to complete, is not entirely surprising given the more chaotic state of down-markets. What is slightly surprising is that companies in my sample do not alter their method of payment in up- and down-markets. Up-markets, when stock prices are high, are not characterized by a higher amount of share deals compared to down-markets. Though this would signal to both outsiders and the target that the shares of the bidder are overvalued. Perhaps this also reduces the targets willingness to accept share payments.

Overall, it seems that the valuation of the market does have a significant impact on some of the factors that were investigated but not the returns around the announcement date.

Critical reflections

By questioning and viewing the results with a critical eye, I hope to provide a more nuanced view of my paper.

I would say that the reliability is high since I very carefully state my method, my sampling process and from where the data is gathered. It should thus be possible to repeat the process under the same conditions, yielding similar results.

The validity, if my tests actually measure what I intend, is a more difficult topic. The definitions used for the up-and down-markets are from Fabozzi and Francis (1977, 1979). However, they also added two additional definitions to try and control for inaccuracies in their definitions. I could have done this too but it would be fairly cumbersome and there are disadvantages with having too many different definitions. The chosen measures for the operating performance are established and very common accounting measures.

Even though two tests are highly significant, the results should still be interpreted carefully as the results perhaps only hold true in my sample and not the population. Furthermore, the sample size for this particular T-test is quite low due to missing values in the accounting data. This leads to specific observations having a relatively large impact on the test.

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Table 6.

This table tests if there is any statistical difference in the chosen four financial key ratios after an acquisition has been completed between up- and down-markets. The data is from the next quarterly report 150 days after the deal has been completed. The null hypothesis is that the financial key ratios are equal. The variances are assumed to be equal for Test A and Test B and non-equal for Test C and Test D. The hypothesis is rejected for return on capital employed and return on net assets.

Test A	ROA			Test B	ROCE		
	Obs.	Mean	SD		Obs.	Mean	SD
Down-market	101	-0.03%	16.86%	Down-market	74	-4.48%	21.41%
Up-market	214	-0.03%	19.29%	Up-market	164	0.60%	15.09%
T-statistic	-0.0369			T-statistic	-2.0985**		
P-value (two-sided)	97.06%			P-value (two-sided)	3.69%		

Test C	RONA			Test D	ROE		
	Obs.	Mean	SD		Obs.	Mean	SD
Down-market	70	-8.62%	32.34%	Down-market	38	-3.93%	42.28%
Up-market	161	-0.26%	18.49%	Up-market	134	-1.54%	24.44%
T-statistic	-2.0364**			T-statistic	-0.3330		
P-value (two-sided)	4.47%			P-value (two-sided)	74.07%		

Stars indicates significance levels: *p<10%; **p<5%; ***p<1%

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Department of Finance
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Appendix Table 5
Table 5.

This table displays shows if the announcement returns around the event date differ significantly in up- and down-markets. Two tests are conducted, one parametric and one non-parametric. The parametric test is the Student's T-test where the standard deviations in the two samples are assumed to be equal (an assumption that holds reasonably well). The non-parametric test is the Wilcoxon rank-sum test.

								Student's T-test		Wilcoxon Rank Sum Test	
CAR	**Obs. Up**	**Obs. Down**	**SD Up**	**SD Down**	**Mean Up**	**Mean Down**	**P-value (two tail)**	**Combined std. error**	**T-statistic**	**Z-statistic**	**P-value**
CAR(-20,20)	245	149	30.98%	39.56%	3.67%	8.58%	17.14%	1.74%	1.37	0.27	78.96%
CAR(-10,10)	245	149	24.10%	29.71%	5.04%	2.43%	41.56%	1.33%	0.82	0.23	81.50%
CAR(-5,5)	245	149	19.65%	23.98%	4.31%	5.60%	56.03%	1.07%	0.58	0.02	98.16%
CAR(-3,3)	245	149	16.67%	21.89%	3.59%	5.37%	36.10%	0.94%	0.91	0.38	70.18%
CAR(-2,2)	245	149	14.90%	18.06%	3.02%	4.20%	47.90%	0.81%	0.71	0.47	63.77%
CAR(-1,1)	245	149	15.97%	16.57%	3.30%	3.94%	70.28%	0.81%	0.38	0.45	65.42%
AR(0)	245	149	11.78%	43.46%	1.68%	5.55%	18.58%	1.41%	1.33	0.98	32.90%
CAR(-1,-1)	245	149	4.20%	11.27%	0.00%	1.44%	9.14%	0.60%	1.69*	0.67	50.33%
CAR(-2,-1)	245	149	7.89%	13.58%	0.30%	1.55%	24.84%	0.52%	1.16	0.50	62.07%
CAR(-3,-1)	245	149	8.61%	16.81%	0.80%	2.11%	30.79%	0.62%	1.02	0.65	51.86%
CAR(-4,-1)	245	149	9.18%	19.20%	0.59%	2.77%	12.95%	0.70%	1.52	1.00	31.73%
CAR(-5,-1)	245	149	10.20%	19.39%	0.67%	2.54%	20.98%	0.72%	1.26	0.59	55.75%
CAR(-6,-1)	245	149	10.74%	18.58%	0.42%	2.87%	9.85%	0.72%	1.66*	0.68	49.79%
CAR(-7,-1)	245	149	13.37%	19.47%	0.56%	2.25%	30.83%	0.80%	1.02	0.17	86.18%
CAR(-14,-1)	245	149	15.24%	23.26%	0.34%	3.09%	15.74%	1.38%	1.42	0.38	70.74%
CAR(-20,-1)	245	149	18.46%	26.81%	-0.67%	3.30%	8.29%	1.11%	1.74*	-0.11	91.10%

Stars indicates significance levels: *p<10%; **p<5%; ***p<1%