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Master Degree Project in Finance

# The stock market reaction towards acquisition announcements in different business cycles

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Master Degree Project No. 2016:127
Graduate School

## Abstract

We investigate whether the stock market reaction towards acquisition announcements is dependent on different business cycles. In addition, we examine if the stock market reaction is consistent with predictions in the free cash flow theory (Jensen, 1986) and the overvaluation theory (Myers & Majluf, 1984). Our paper builds mostly on the previous work by Bouwman et al. (2009) which investigates acquisition quality related to different stock market valuations. Thus, we estimate the cumulative abnormal returns for 233 acquisition announcements of publicly listed firms on the Swedish stock exchange between 1997 and 2014. We conclude that there is evidence of a relationship between the stock market reaction and business cycles. We also find that the stock market reaction is consistent with the free cash flow theory and the overvaluation theory regarding that cash acquisitions outperform stock acquisitions. Additionally, our findings indicate that the market perceives acquisitions in high (low) business cycles differently from high (low) stock market states.

**Key words:** Cumulative abnormal return, business cycle, free cash flow theory, overvaluation theory, method of payment

## Acknowledgement

We like to thank our tutor Martin Holmén for insightful advice and great guidance throughout the entirety of this thesis. We also like to thank the discussants for their feedback and general insights. Finally, a big thanks goes out to our fellow classmates for an educational journey!

Gothenburg 2016-05-30

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# 1. Introduction

Previous research present inconclusive results on how the shareholder value for the bidding firm is affected when an acquisition is announced. Some empirical works suggest that acquisitions are value adding for the acquiring firms while others argue the opposite (Campa & Hernando, 2004; Bruner, 2002). It is also suggested that the stock market reacts differently dependent on whether the acquisitions are announced in over- or undervalued market states (Bouwman et al., 2009; Petmezas, 2009). Further, the stock market seems to react to changes in the economy, such as economic booms and busts. For instance, Akron (2011) provides evidence that the investors' perception of business cycles is affecting their interpretation of financial policies such as dividend announcements. Thus, it becomes interesting to investigate if the stock market reaction towards acquisition announcements is also dependent on different business cycles. Furthermore, the free cash flow theory argues that managers in firms with excessive cash flow will be incentivised to indulge in internal projects such as acquisitions, rather than initiating stock buybacks or pay-outs to shareholders (Jensen, 1986). In addition, managers possess information about the value of its firm, which is not available to the public. The information asymmetry creates a bet between the old and new stockholders. The overvaluation theory therefore suggests that managers will only decide on issuing stocks to finance acquisitions with positive net present value (NPV) when the inside information indicates that the company is overvalued. Hence, the investors will take the news of an issuance as "bad" news, leading to a decrease in the firm value (Myers & Majluf, 1984). In regards to acquisition announcements it is then relevant to examine the stock market reaction on announcements involving different payment methods in order to determine if the reaction is consistent with the theories above.

The objective of this paper is to increase the understanding of how the stock market reacts towards acquisition announcements and to analyse how this reaction is dependent on economic booms and busts. Focus will be on the stock market reaction in different business cycles. We address two questions: 1) Is the stock market reaction towards announcements of acquisitions dependent on different business cycles? 2) Is the stock market reaction consistent with predictions in the free cash flow theory and overvaluation theory?

Given rationality in the market, an acquisition announcement would immediately be reflected in the security price. Thus, the empirical research is done by conducting an event study using a sample of 233 acquisition announced by Swedish listed firms between 1 January 1997 to 31

December 2014. Focus is put on the stock market reaction around the announcement date since examining returns for a longer horizon is complicated due to impact from other events (Campa & Hernando, 2004). The methodology is mainly built on Bouwman et al. (2009) who examine if there is any difference in abnormal returns to shareholders between acquisitions announced during high-valuation markets and those announced when market valuations are lower. Their findings suggest negative returns to shareholders of the acquiring firms in all market states. However, announcement returns are significantly higher in high-valuation markets than during lower valued markets. Similarly, Petmezas (2009) find the highest abnormal returns in high-valuation markets. Moreover, Bruner (2002) summarizes the evidence concerning announcement returns of 44 previous studies from 1971 to 2001. It is suggested that acquirers experience on average zero adjusted returns.

Our findings, however, suggest an average positive return of 2.86% to shareholders of the bidding firms, indicating that acquisitions on the Swedish market are value adding on average. We also conclude that the market reaction seems to be dependent on different business cycles. We present significant results that the highest returns are experienced during a neutral business cycle and the lowest returns are seen during economic booms. Hence, the stock market reacts more negatively to acquisitions announced in economic booms than acquisitions announced in economic busts.

Another interesting observation is that the market seems to react differently towards announcements in high (low) business cycles versus in high (low) stock market states. It is indicated that low stock market states earn lower abnormal returns than high stock market states, which is in line with previous research (Bouwman et al., 2009; Petmezas, 2009). Conversely, we observe an indication of higher abnormal returns in low business cycles than during high business cycles. Thus, the market seems to react more positively (negatively) towards acquisition announcements when the stock market is overvalued (undervalued), but less so if the economy is in a boom (bust). The results are mostly insignificant, yet interesting.

Inspired by Jensen (1986), Myers and Majluf (1984) and Bouwman et al. (2009), we construct variables for the different payment methods, i.e. cash, stock, and mixed, in order to examine whether the stock market reaction is in line with predictions in the free cash flow theory and the overvaluation theory. We find that cash offers tend to outperform stock offers, which coincides with Jensen (1986) as well as Myers and Majluf (1984). On the other hand, acquisitions announced with a mixed method of payment (a combination of cash and stock) experience significantly higher returns to shareholders compared to both pure cash and pure stock bids. A possible explanation is that a combination of cash and stock may be perceived as confident but at the same time risk reducing. Thereby, the acquisitions announced with a mixed payment method are probably perceived as more trustworthy and thoroughly analysed. The results also indicate that cash offers in high (low) business cycles and high (low) market states outperform stock offers in the same state. Thus, the predictions from Jensen (1986) as well as Myers and Majluf (1984) seem to be independent of when the acquisition is announced.

The remaining of this thesis is structured as follows: Section 2 presents relevant results and findings of previous research. In section 3, we present a description of the theoretical framework. In section 4, we will explain the utilized methodology and also define and defend the control variables used. In section 5, the data is summarized and presented. The empirical results is presented and analysed in section 6. Finally, the thesis will be concluded and summarized in section 7.

## 2. Previous empirical research

### 2.1 Cumulative abnormal returns to bidder firms

Campa and Hernando (2004) summarize 17 previous studies investigating cumulative abnormal returns to the acquiring firms. They find that seven of the studies report zero or marginally positive returns to shareholders on average. The highest reported average return is 7%. However, average returns are in most cases close to zero. On the other hand, ten studies report negative cumulative abnormal returns, varying from less than one percent to five percent. In most cases, these average returns are significantly different from zero. Thus, they argue that the evidence for value creation or value destruction among acquiring firms is inconclusive. In a similar way, Bruner (2002) summarizes the findings of 44 previous works from 1971 to 2001. Of those, 20 studies present negative abnormal returns between one and three percent whereas 24 studies present positive returns to shareholders. Hence, the conclusion is that the aggregate abnormal returns for bidding firms is essentially zero (Bruner, 2002).

Further, Mulherin and Boone (2000), Bouwman et al. (2009), and Petmezas (2009) also investigate cumulative abnormal returns for bidding firms. Mulherin and Boone (2000) study acquisition and divestiture activity of 1,305 firms between 1990 and 1999 and find a small negative return for the acquirers. The result is however insignificant. Bouwman et al. (2009) examine 2,944 acquisitions announced between 1979 and 2002 on the U.S. market, while

Petmezas (2009) use a sample of 2,973 U.K. acquisitions between 1984 and 2003. The studies use an event-window of three days and five days respectively to calculate the cumulative abnormal returns. Bouwman et al. (2009) find statistically significant negative returns of -0.48%, whereas Petmezas (2009) report statistically significant returns of 1.17%.

## 2.2 Market state

Previous literature on cumulative abnormal returns in different market states seems to show rather inconclusive results. Bouwman et al. (2009) find only insignificant evidence that acquirers in high valued markets experience abnormal returns of -0.04%. Yet, the findings related to a neutral market show significant abnormal returns to shareholders of -0.06% and in a low market -1.31%. Moreover, it appears to be a significant difference between the CARs for bidding firms in a high and low market (1.27%). Therefore, it is suggested that the market perceives acquisitions during high-valuation markets to be more favourable than during low-valuation markets (Bouwman et al., 2009). Similarly, Petmezas (2009) shows that acquisitions announced in high-valuation markets earn significantly higher returns than in low-valuation markets (1.25%). It is also presented that announcements in high market states experience significant abnormal returns of 1.66%, while the abnormal returns in low market states is insignificant 0.41%.

Furthermore, Bouwman et al. (2009) examine the impact of payment method in different market states. They find that stock offers experience significantly negative returns, regardless of how the market is valued when the deal is announced. On the contrary, cash offers are indicated to earn positive CARs across all states of the market. However, these results are only significant during a high-valued market. A mixed method of payment earns significantly positive returns in a high valued market, while in low-valuation markets the returns are significantly negative. For a neutral market state, the CARs are insignificantly positive. Using a rather similar method, Petmezas (2009) suggest that cash offers experience significant positive abnormal returns in high-valuation markets (1.29%) and insignificant abnormal returns in low-valuation markets (0.39%). In the same way, a mixed method of payment is reported to earn significant positive average returns of 2.32% in a hot market, and insignificant abnormal returns of 0.69% in a bearish market. For stock payments, the results are insignificant (Petmezas, 2009).

## 2.3 Method of payment

According to Eckbo et al. (1990), the abnormal return to bidding firms is dependent on two components, namely synergy revaluation and signalling. Synergy revaluation is the market's revaluation of the expected synergies which is independent of the payment method. Signalling is the exposure of the acquirer's private information regarding the true bidder/synergy value that is conveyed through the method of payment choice. Fishman (1989), Berkovitch and Narayanan (1990), and Eckbo et al. (1990) suggest that higher-valued bidders will use cash or a higher proportion of cash instead of stock to signal their value to the market. Hence, they argue that targets will only accept cash offers greater than its true value. This means that if the acquirer is uncertain about the target's value, it may not want to make a cash offer. In such cases it is suggested that bidders make stock offers also because the risk of overpayment is shared between the bidder and the target (Eckbo et al., 1990). Consequently, Fuller et al. (2002) argue that bidders should make stock offers when there is high uncertainty on the target's value and cash offers when the value of their own firm is unclear. Moreover, Eckbo et al. (1990) argue that both the synergy revaluation component and the signalling component are present when firms announce mixed payment acquisitions.

Both Bouwman et al. (2009) and Petmezas (2009) find that cash acquisitions experience a significantly positive abnormal performance for the bidding firm of 0.38% and 0.93% respectively. Stock offers, on the other hand, is reported to have a significant abnormal performance of -1.47% in Bouwman et al. (2009) and an insignificant performance of 0.22% in Petmezas (2009). Moreover, Bouwman et al. (2009) point to insignificantly positive 0.02% average returns for a mixed method of payment, whereas Petmezas (2009) show significant abnormal returns of 1.67%. Also Eckbo et al. (1990) provide evidence of large and significant CARs when using a mixed method of payment. In addition, it is shown that cumulative abnormal returns are significantly higher if the acquisition was paid for in cash or a mix of cash and stock. Further, Travlos (1987), Brown and Ryngaert (1991), Martin (1996), as well as Rhodes-Kropf and Viswanathan (2004) all provide evidence of greater abnormal returns for acquiring firms making cash offers than those making stock offers.

# 3. Theoretical framework

## 3.1 Free cash flow theory

The free cash flow theory focuses on the excess in cash flow of what is required to fund all projects that have a positive net present value after being discounted with the relevant cost of capital. Firms with substantial free cash flow are more likely to be confronted with the agency cost generated from the conflict between shareholders and managers regarding pay-out policies (Jensen, 1986). Pay-outs to shareholders reduce the total amount of capital under the managers' control. Less cash would lead to a reduction in the managers' power and increase the probability of harsher monitoring from the capital market (Rozeff, 1982; Easterbrook 1984). Hence, managers are incentivised to find ways to allocate the finances towards internal projects, operational efficiencies, or acquisitions. Allocating the money internally would help the managers solidify their own position as the money remains in the managers' control and also decrease the probability of monitoring from the capital market (Jensen, 1986).

The free cash flow theory predicts which acquisitions are more likely to be value adding rather than destroying. Acquisitions are one way managers can spend cash without having to pay excess capital to shareholders. The theory implies that managers with high borrowing power and substantial free cash flow will be more likely to undertake acquisitions with subpar beneficial possibilities or even opportunities that could end up being value destroying (Jensen, 1986). The theory also predicts that value increasing acquisitions will occur in organisations where there is a breakdown of internal control processes with substantial free cash. Moreover, the theory is backed by data which predicts that most of the acquirers have exceptional performance prior to the acquisition. The good result prior to the acquisition has in turn helped generate the free cash flow needed for the acquisition to take place. Further, Jensen (1986) argues that acquisitions that are financed with cash might in turn end up generating net benefits, even though the acquisition has created operational inefficiencies. Acquisitions that are financed through debt and cash will outperform those acquisitions that are being financed by stocks (Jensen, 1986).

## 3.2 Overvaluation theory

Myers and Majluf (1984) consider a setup where the managers of a firm have information about the value of its assets that the investors do not have access to. As long as nothing fundamental is changed, the managers will continue to invest in every project they know will generate a positive net present value. This means that the stocks should on average be correctly priced. However, if over- and undervaluation is possible, the inside information the managers have will create a bet between the old and the new stockholders. For instance, if the firm was to issue stocks at a discount, it could end up generating a higher cost to the old shareholders than the eventual gain from the investment project. Therefore, if the firm acts in the interest of the old shareholders, it would refuse to issue stocks and thus forgoing an investment opportunity with a positive NPV. This would mean real capital investment will be misallocated and the firm value will be reduced. Additionally, the managers will only opt to issue stocks in order to finance an acquisition with positive NPV if the inside information indicates that the company is overvalued. Considering that the investors are aware of their relative ignorance and they know that managers are only incentivised to issue stocks if the company is overvalued, the investors will take the news of an issuance as “bad” news. Hence, Myers and Majluf (1984) conclude that acquisition financed through stocks should generate a lower firm value.

# 4. Methodology

## 4.1 Event studies

In accordance with Bouwman et al. (2009) we perform an event study with the use of financial market data. Fama (1998) argues that there is validity in event studies and that the efficient market hypothesis should not be disregarded. The usefulness of an event study can be derived from the fact, given rationality in the marketplace, that an event would immediately be reflected in the security price. Thus, a measure of the event’s economic impact can be constructed using security prices observed over a relatively short time period (MacKinlay, 1997).

## 4.2 Cumulative abnormal returns

In order to analyse the impact of the chosen event, the cumulative abnormal return is calculated. The abnormal return is the actual ex post return of the security over the event window minus the expected return of the firm over the event window, as can be seen below:

$$AR_{it} = R_{it} - E(R_{it}|X_t)$$

$AR_{it}$ is the abnormal return of firm $i$ at time $t$. $R_{it}$ is the actual ex post return of the security over the event window, and $E(R_{it}|X_t)$ is the expected return conditioned on the event not taking place.

Next step is to aggregate the abnormal returns of the period of interest. The aggregation will be done over time for each individual security, and will conclude in the cumulative abnormal returns (CAR) for each event:

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

Where $t_1$ to $t_2$ is the sum of the included daily abnormal returns. A positive CAR will indicate that the event is value creating for the shareholders, whereas a negative value indicates that the event is value destroying. If instead the CAR value is equal or close to zero it means that the event does not impact the value to the shareholders (MacKinlay, 1997).

## 4.3 The market model

We use the market model to be able to estimate the normal return. However, there are several different approaches to estimate the normal return, where the majority of the approaches could be grouped into two categories – statistical and economical. A statistical approach is only dependent on the statistical assumptions regarding the behaviour of the security. The economical approach, on the other hand, is derived from economic intuition regarding investor behaviour and is not based solely on statistical assumptions. In order to use an economical approach in practice, it is important to understand that it becomes necessary to add statistical assumptions. Hence, the potential benefit of using an economical approach is not the absence of statistical models, but instead in being able to calculate a more precise measure of the normal return with the help of economically based restrictions (MacKinlay, 1997).

Statistical models follow the assumptions of asset returns being jointly multivariate normal and independently and identically distributed through time. These distributional assumptions are enough to defend the use of the market model in order to measure the normal return (MacKinlay, 1997). The market model estimates the return of any given security against the market portfolio. The linear specifications of the model follow the assumed joint normality of asset returns. Thus, for any security *i,* the market model is:

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

$$E(\varepsilon_{it}) = 0 \qquad\qquad var(\varepsilon_{it}) = \sigma^2_{\varepsilon_i}$$

Where $R_{mt}$ is the return on the market portfolio at time *t*, $\varepsilon_{it}$ is the zero mean error term, and $\alpha_i, \beta_i$ and $\sigma^2_{\varepsilon_{it}}$ are parameters of the market model. By removing the portion of the return that is related to the variation in the market's return, the model is able to reduce some of the variance in the abnormal return, which in turn can lead to increased ability to detect event effects (MacKinlay, 1997).

## 4.4 Business cycle and market definitions

In figure 1, we compare an index which is used to determine Swedish business cycles (Konjukturinstitutet, 2016) with an index of the monthly returns for OMX 30. The low correlation between the two indexes (approximately 4%) implies that if the market reaction is dependent on different business cycles, it most likely will have a different effect than the relationship found in Bouwman et al. (2009). In order to test if the stock market reaction towards acquisition announcements is dependent on Swedish business cycles, we define a high-, neutral-, and low state. To not be dependent on a sole definition, we have constructed three definitions for the business cycles. Three definitions for the stock market are also used in order to be able to compare to previous empirical research.

**Figure 1.** Comparison of the Swedish business cycles (red) and the OMX30 (blue)

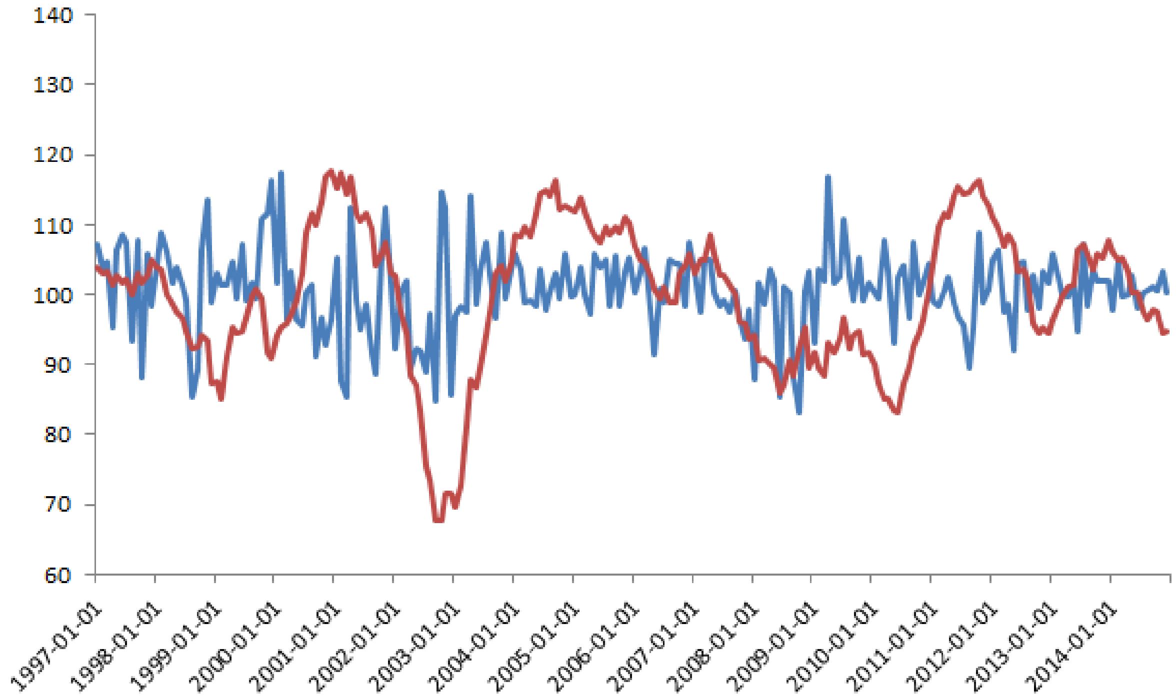


**Figure 1.** This graph compares the collected data from Konjukturinstitutet and their Barometerindikator (Konjukturinstitutet, 2016), symbolised by the red line. The stock market data is collected from Bloomberg and denotes the monthly changes in returns for OMX30, symbolised by the blue line. Both are indexed by 100. The graph represents the period 1997 until 2014.

The three business cycle definitions are all based on data from the Konjukturinstitutet and their Barometerindikator (Figure 2), which is the Swedish equivalent to the EU commissions Economic Sentiment Indicator (ESI). Similarly as the ESI, the Barometerindikator has a mean of 100 and a standard deviation of 10 (Konjukturinstitutet, 2016). We use monthly data between the years 1997-2014. We define which months should be considered high-, neutral- and low states by using three different intervals. The first definition (Definition 1) is based on a ±2.5% interval where all months that have a value of 97.5 or lower is considered to be low states and all definitions which have values higher than 102.5 are considered to be high states. The months in between are neutral states. The same procedure is done for ±5% (Definition 2) and ±10% (Definition 3). In Figure 2, we present the difference in the definitions. The coloured areas represent which periods are considered neutral states. The darkest colour symbolises neutral state for Definition 1, the second darkest symbolises Definition 2, and finally, the brightest symbolises Definition 3.

**Figure 2.** Monthly data for the Swedish business cycles between 1997-2014

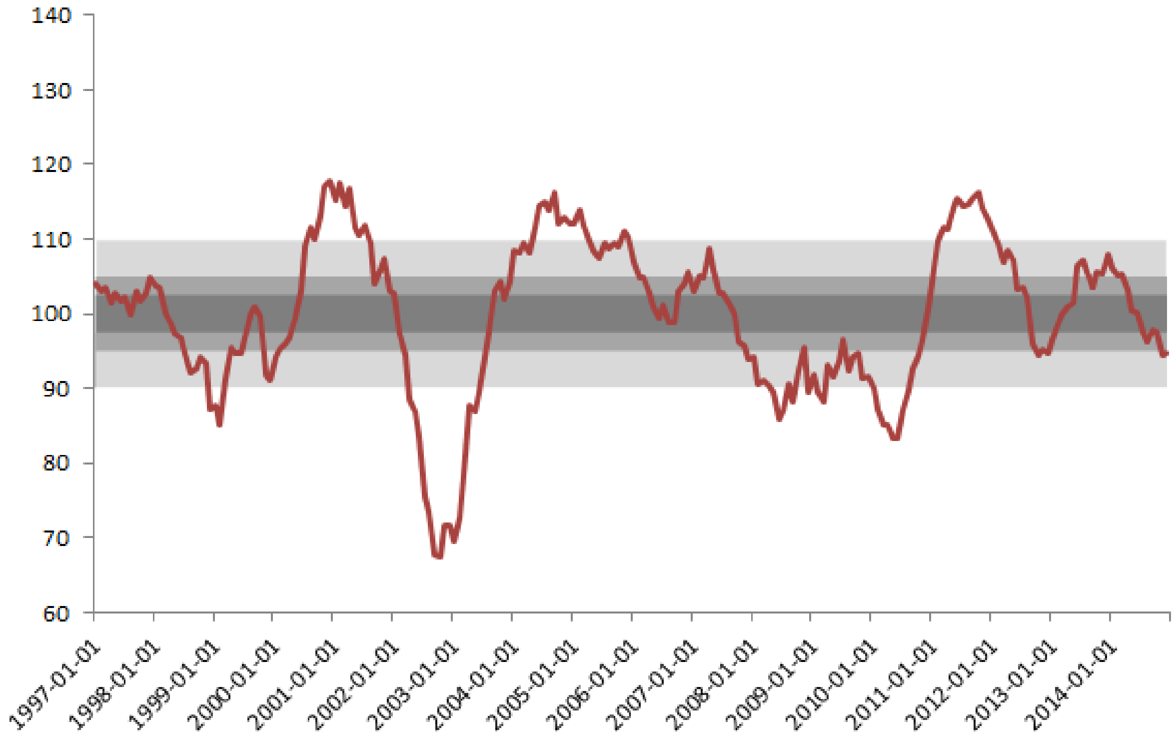


**Figure 2.** This graph contains the data collected from Konjukturinstitutet and their Barometerindikator (Konjukturinstitutet, 2016). The shaded areas represent which periods that are considered to be neutral states for our three business cycle definitions. The darkest colour symbolises neutral for Definition 1, the second darkest is for Definition 2 and, finally, the brightest is for Definition 3.

Further, the three definitions representing the market states are based on the methodology of Bouwman et al. (2009). The first, referred to as Definition 4, has been calculated from the monthly market returns for the OMX All Shares index between the years 1997 to 2014. First, we de-trended the data by removing the best straight-line fit from the month in question and the three preceding years. The best straight-line fit is removed in order to see how the monthly market returns differ from the estimated return. Second, we took the difference between the de-trended value of the specific month and the average of the previous three years. Third, we sorted the values by market returns and took the top (bottom) half of the all values over (under) the average and defined them as high (low) stock market states. All months in between are defined as neutral months. For Definition 5, we took the average market-to-book value (M/B) of the OMX 30 for every month between the years 1997-2014. To define the market states, we first found the median number. Then, the top (bottom) half of the values over (under) the median were given the definition high (low) and all values in between became neutral months. Lastly, to get the final definition (Definition 6), the same procedure as for Definition 4 was executed, but instead we use the monthly P/E-ratio for the OMX 30 between the years 1997-2014.

## 4.5 Regression framework

We are using an Ordinary Least Squared (OLS) regression to control for different factors that may also impact abnormal performance of acquirers. The dependent variable we use is the 11-day CAR, i.e. five days before the announcement and five days after the announcement (Bradley et al., 1988).

In the regression, HIGH and LOW are used as the two variables that represent our three definitions of business cycles as well as the three market definitions. These are discrete variables that either take the value one or zero and is referred to as dummy variables. If HIGH is equal to one, its coefficient will then give HIGH's relative impact on CAR compared with the impact that NEUTRAL has, which in this case has been omitted in order to avoid a dummy trap. Further, CASH, STOCK and N.A. are dummy variables and represent the payment method used for the deals. If CASH is one, its coefficient will show the effect of deals that are fully financed through cash compared to our omitted variable MIXED, which is acquisitions financed by both cash and stocks. The same can be said about the variable STOCK. N.A. is only used as a control variable as it represents deals where no information regarding the method of payment could be found. Having N.A. in the regression makes sure that the coefficient for CASH and STOCK is only compared with the omitted variable MIXED. Thus, the result from this variable will not be analysed. Moreover, in order to capture the relationship between different stock market states and business cycles and the different methods of payment, we have constructed interaction terms between the two as suggested in Bouwman et al. (2009). For instance, CASH*HIGH will capture the relationship of announcing cash financed acquisitions in a high market state or business cycle. Additionally, previous research has demonstrated that the size of the acquisition relative to the acquirer has an impact on the abnormal returns of the acquiring firm (Asquith et al., 1983; Eckbo et al., 1990; Moeller et al., 2004). Hence, LOG RELATIVE SIZE aims to identify the importance of the announcement and is defined as the logarithm of the deal size divided by the market value of the acquirer 30 days prior to the announcement day (Bouwman et al., 2009). We have also created a dummy variable called FOREIGN that symbolises if the target firm is not a Swedish based firm since we expect that there is a difference between foreign and domestic acquisitions. Furthermore, we have included different interaction terms that capture the relationship between the LOG RELATIVE SIZE and different stock market states and business cycles (Bouwman et al., 2009).

**Model 1** (without interaction terms):

$$CAR = \alpha_0 + \alpha_1 High + \alpha_2 Low + \alpha_3 Cash + \alpha_4 Stock + \alpha_5 N.A. + \alpha_6 LogRelativeSize + \alpha_7 Foreign + \varepsilon$$

**Model 2** (with interaction terms):

$$CAR = \alpha_0 + \alpha_1 High + \alpha_2 Low + \alpha_3 Cash + \alpha_4 Stock + \alpha_5 N.A. + \alpha_6 LogRelativeSize + \alpha_7 Foreign + \alpha_8 LogRelativeSize * Low + \alpha_9 LogRelativeSize * High + \alpha_{10} Low * Cash + \alpha_{11} Low * Stock + \alpha_{12} High * Cash + \alpha_{13} High * Stock + \varepsilon$$

## 5. Data with summary statistics

The Zephyr database is used to obtain information about the deals occurred on the Swedish market. The data is filtered for listed Swedish companies that before the deal held less than 50% of the acquired company and after the deal owned more than 50%. The timeframe analysed is 1997 to 2014 and the sample consists of 233 different deals. Table 1 breaks down the Definition 1 in; number of deals, the size of the deals, how the deals are distributed in each state, and the distribution of payment methods. Second, data has been collected on the acquiring firm's stock price for 211 days, of which the first 200 days construct the estimation window and the remaining eleven days (±5 days from the announcement date) create the event window (Bradley et al., 1988). Only the acquiring company's stock returns have been investigated and the stock prices have been collected from the NASDAQ – OMX website and the Bloomberg database.

**Table 1.** Summary statistics

| | Number of acquisitions | Mean deal value (SEK million) | Median deal value (SEK million) | Total deal value (SEK million) | Max deal value (SEK million) | Min deal value (SEK million) | % of total deal value | % of total number of acquisitions |
|---|---|---|---|---|---|---|---|---|
| All acquisitions | 233 | 3 299 | 1 308 | 768 629 | 68 997 | 435 | 100% | 100% |
| | | | | | | | | |
| Cash acquisitions | 94 | 3 546 | 1 708 | 333 339 | 28 398 | 463 | 43% | 40% |
| Stock acquisitions | 15 | 8 456 | 1 918 | 126 837 | 68 997 | 464 | 17% | 6% |
| Mixed payment acquisitions | 47 | 3 721 | 1 295 | 174 910 | 20 545 | 467 | 23% | 20% |
| N.A. acquisitions | 77 | 1 734 | 938 | 133 544 | 12 209 | 435 | 17% | 33% |
| | | | | | | | | |
| High acquisitions | 134 | 3 206 | 1 302 | 429 627 | 28 398 | 436 | 56% | 58% |
| Neutral acquisitions | 27 | 3 022 | 1 356 | 81 585 | 20 545 | 435 | 11% | 12% |
| Low acquisitions | 72 | 3 575 | 1 481 | 257 418 | 68 997 | 463 | 33% | 31% |
| | | | | | | | | |
| High Cash acquisitions | 62 | 4 037 | 1 595 | 250 312 | 28 398 | 482 | 33% | 27% |
| High Stock acquisitions | 6 | 7 182 | 3 089 | 43 095 | 27 883 | 778 | 6% | 3% |
| High Mixed acquisitions | 25 | 2 762 | 977 | 69 050 | 15 627 | 488 | 9% | 11% |
| High N.A. acquisitions | 41 | 1 638 | 1 073 | 67 170 | 7 034 | 436 | 9% | 18% |
| | | | | | | | | |
| Neutral Cash acquisitions | 10 | 1 841 | 1 964 | 18 415 | 3 410 | 614 | 2% | 4% |
| Neutral Stock acquisitions | 1 | 464 | 464 | 464 | 464 | 464 | 0% | 0% |
| Neutral Mixed acquisitions | 8 | 5 990 | 4 060 | 47 921 | 20 545 | 712 | 6% | 3% |
| Neutral N.A. acquisitions | 8 | 1 848 | 845 | 14 785 | 7 725 | 435 | 2% | 3% |
| | | | | | | | | |
| Low Cash acquisitions | 22 | 2 937 | 2 150 | 14 785 | 7 725 | 435 | 2% | 9% |
| Low Stock acquisitions | 8 | 10 410 | 2 274 | 83 278 | 68 997 | 549 | 11% | 3% |
| Low Mixed acquisitions | 14 | 4 138 | 2 922 | 57 938 | 11 752 | 467 | 8% | 6% |
| Low N.A. acquisitions | 28 | 1 842 | 813 | 51 589 | 12 209 | 469 | 7% | 12% |

**Table 1.** This table breakdown the Defintion 1 in; number of deals, the size of the deals, how the deals are distributed in each state, and the distribution of payment methods. The table is based on 233 deals performed on the Swedish market between the years 1997-2014 and is filtered for companies listed on the Swedish market that held less than 50% prior to the acquisition and more than 50% after the acquisition. The minimum deal size is 50 million EUR. Cash and stock acquisitions are defined as such if the deal is 100% financed by either cash or stock. Mixed acquisitions are acquisitions that are financed by a combination of both cash and stock, while N.A. are acquisitions where the payment method either is not public knowledge or there is no record of how the deal has been financed. Using monthly data from 1997 to 2014 from the Konjunkturinstitutet (2016), which is an index for business cycle trends in Sweden, high- (low-) market valuation is defined by all months that have a value at least 2.5% above (below) the average of 100. All other months are defined as neutral.

# 6. Empirical results and analysis

In this section, the results are presented and analysed. First, the results are analysed in order to understand if the stock market reaction towards announcement of acquisition is dependent on different business cycles. Second, we will analyse the results in regards to predictions in the free cash flow theory and the overvaluation theory. Third, we will comment on the control variables. Last, in the fourth section, variables used for testing the robustness of our models are disclosed.

## 6.1 Business cycles and market states

From the results for the univariate t-tests, presented in Table 2, it can be seen that the average cumulative abnormal returns for the whole sample of 233 announcements is 2.86% and significant. The result indicates that acquisitions on the Swedish market are value creating. Our CAR is higher than the average CAR for the bidding firms in Bouwman et al. (2009) as well as in Mulherin and Boone (2000), which both present small negative returns. It is also higher than in Petmezas (2009), which present CARs of 1.17%. In addition, other previous empirical findings show inconclusive results. For instance, Campa and Hernando (2004) and Bruner (2002) summarise work where about half of the studies present positive CARs for the acquiring firms, while the other half show negative returns. Thus, Campa and Hernando (2004) argue that the evidence for value creation or value destruction among acquiring firms are ambiguous and Bruner (2002) suggest that the aggregate abnormal returns for bidding firms is essentially zero.

When dividing the sample into different business cycles and market states (high, low, and neutral), the results differ. First, by looking at the variable HIGH, we see that in a high business cycle (Definition 1), the abnormal returns are insignificant 2.51%, which is below the average of all deals during the period. In addition, the differences in mean cumulative abnormal returns from the univariate tests indicate that high business cycles experience lower returns than both neutral- and low business cycles. However, this result is not significant. Similarly, both the multiple regression analyses for Definition 1 point to lower returns in a high business cycle. The coefficient for HIGH in Model 1 is insignificant -0.89% (Table 3) and for Model 2 significant -8.43% (Table 4). The LOW variable in Table 2 reports that acquisitions announced during low business cycles experience insignificant positive abnormal returns of 3.29% for Definition 1, which is above the average for all announcements during the time period. Additionally, the mean differences in CARs indicate that acquisitions announced during low business cycles earn higher returns than during high business cycles but lower returns than during neutral business cycles. However, this is not significant. Neither is the result for LOW in Model 1 (Table 3). On the other hand, Model 2 (Table 4) presents significant lower CARs (-6.8%), which is in line with the results for the univariate t-test. Further, given that Definition 2 to 6 shows insignificant and ambiguous results for the LOW and HIGH coefficients (Table 3 and 4) we will not present these in detail.

Yet, there is an indication that the market perceives acquisition announcements in high market states (Definition 4 to 6) to possess higher quality, thus yielding higher CARs. In the both multiple regression models it is indicated that LOW experience lower returns than HIGH for all market state variables. This indication is consistent to the findings in Bouwman et al. (2009) and Petmezas (2009) that both present the highest CARs in high-valued markets. They also suggest that the market perceives acquisitions during high-valuation markets to be more favourable than during low-valuation markets. However, contradictory to Bouwman et al. (2009) and Petmezas (2009), the business cycle definitions (Definition 1-3) seem to indicate that LOW yield higher CAR-value and thus being of the better quality than HIGH. Hence, the market seems to interpret acquisitions announced in low business cycles as more favourable than those announced in high business cycles. The results might suggest that there is a difference between how the market reacts to announcements in business cycles versus stock market states. The market seem to react more positively (negatively) to acquisitions announced when the stock market is overvalued (undervalued) but less so if the economy is in a boom (bust).

The highest CARs for bidding firms seem to be experienced during neutral business cycles (Definition 1). In Table 2, we report insignificant abnormal returns of 3.47% and the mean differences indicate higher returns for announcements in neutral business cycles. This is consistent with the multiple regression analysis with interaction terms (Table 4) which present coefficients for HIGH and LOW that are significantly -8.43% and -6.8% respectively. Thus, related to our first research question, the results indicate that the market reaction is dependent on different business cycles regarding the announcement of an acquisition. For the multiple regression analysis without interaction terms (Table 3), the results for NEUTRAL are inconclusive and insignificant. The same can be seen for Definition 2 to 6 for both Model 1 and Model 2.

## 6.2 Method of payment

In Table 2, the cumulative abnormal returns related to Definition 1 for the different methods of payment are presented. The abnormal returns related to cash payments are insignificantly positive of 2.3%. In Table 2, it is also presented that cash announcements experience significantly higher CARs than stock announcements and significantly lower CARs than mixed announcements. Further, Model 1 (Table 3) also indicates that cash payments earn lower returns than a mixed method of payment for all definitions (1 to 6). The coefficients are between -0.73% and -0.99%, though without significance. Model 2 (Table 4), on the other hand, present significant results for Definition 1 (-6.72%), Definition 2 (-4.2%), and Definition 5 (-3.09%). For Definition 3, 4, and 6, the results are insignificant but indicate similar results (-1.87%, -1.79% and -2.02% respectively).

Compared to earlier empirical research, the results are consistent but not as clear. It is argued that higher-valued acquirers use cash or a higher proportion of cash in order to signal their value to the market (Fishman, 1989; Berkovitch & Narayanan, 1990; Eckbo et al., 1990). Thus, previous empirical findings show that cash acquisitions experience significantly positive abnormal returns (Bouwman et al., 2009) as well as significantly higher returns compared to stock bids (Travlos, 1987; Brown & Ryngaert, 1991; Martin, 1996; Rhodes-Kropf & Viswanathan, 2004, Bouwman et al., 2009). Our results show that cash acquisitions only experience insignificant positive CARs of 2.3%, which is below the average CARs for our sample. However, our results strongly correspond to earlier literature in terms of that cash payment earns significantly higher abnormal returns than stock payments. Hence, our results are also consistent with predictions in Jensen (1986) who argues that cash deals should outperform deals fully financed by stocks. However, Jensen (1986) also expects that cash allocated towards internal projects such as acquisitions will only lead to subpar beneficial possibilities or even to be value destroying for the shareholders. However, the result seems to contradict Jensen's (1986) predictions, as the acquisitions paid with cash are indicated to be value creating.

Acquirers using stock payment suffer from significant negative CARs of -1.64% (Table 2). In addition, stock bids experience significantly lower abnormal returns than both cash bids (-3.94%) and mixed bids (-6.91%). Similarly, Model 1 (Table 3) shows that acquisitions paid with stocks earn significantly lower returns for all business cycle definitions (-6.61%, -7.03%, and -6.61%) as well as all market state definitions (-6.51%, -6.35%, and -6.57%). The results for Model 2 (Table 4) also show significantly lower CARs for stock payments for all definitions except Definition 2. The coefficients for the business cycle definitions range from -1.55% to -5.96%, while the coefficients for the market state definitions range from -6.09% to -8.87%.

The results for the STOCK variable are in line with previous research. For instance, Bouwman et al. (2009) present evidence that stock offers earn significantly negative returns and that stock offers should yield lower returns than cash offers. The results also correspond with the predictions in Myers and Majluf (1984) that suggest that managers of acquiring firms are incentivised to use stock as payment if they believe that their own stock is overvalued. Thus, according to the theory, the market should perceive it as a negative signal if a deal fully financed with stocks is announced (Myers & Majluf, 1984). Additionally, the literature argues that stock bids are made in order to share the risk if overpayment would occur due to uncertainty about the target's value (Eckbo et al., 1990). In such cases, the bidding firm's stock price also normally decline.

Acquirers that are using a mixed payment of stock and cash earn significant positive abnormal returns of 5.27%. From table 2, it is also presented that mixed payments generate significantly higher CARs than both cash and stock payments. Further, the multiple regressions seem to indicate the same results since the CARs for cash and stock payments are lower than the CARs for mixed payments. This is not in line with Bouwman et al. (2009) which only show insignificant returns of 0.02% for MIXED. Nevertheless, our results are consistent with Petmezas (2009) that show that deals paid with a mixed method of payment experience the highest abnormal returns. Further, Eckbo et al. (1990) present evidence of large and significant CARs for a combination of stocks and cash deals. They also argue that a mixed method of payment captures both a synergy revaluation component and a signalling component, which might be the reason for the higher CARs. However, it is difficult to analyse to what extent the different components affect the abnormal returns (Eckbo et al., 1990). Moreover, Eckbo et al. (1990) suggest that bidders make stock offers also because the risk of overpayment is shared between the bidder and the target. Normally in such cases, the shareholder value decline since the target value is uncertain, even though the reason is that the bidder acts risk averse. Conversely, cash payments are often used to signal the value of the bidder and that the bidder is rather sure of the value of the target (Fishman, 1989; Berkovitch & Narayanan, 1990; Eckbo et al., 1990). Thus, a combination of cash and stock may be perceived as confident but at the same time risk reducing, leading to higher CARs for a mixed payment method.

Moreover, in Table 2, we also present the univariate test between the dependent CAR-value and the interaction terms including method of payment. We see significant results for all methods of payment in neutral business cycles, where MIXED (10.21%) generates the highest effect on the CARs followed by CASH (-2.31%) and lastly STOCK (-5.65%). However, in our sample there is only one deal paid with stock in a neutral business cycle. Similarly, a mixed payment method has the highest impact during low business cycles (significant 8.28%). The results for CASH and STOCK are insignificant, yet indicating higher returns for cash payments. In a high business cycle, only stock payments show significance (-2.99%). Furthermore, Table 4 reveals significant results for the LOW_CASH variable in Definition 1, 2, and 5 where the coefficients for these variables are 6.91%, 5.09%, and 4.95% respectively. Also, there is significance in Definition 1 for cash offers made in high business cycles (7.22%). Even though LOW_CASH and HIGH_CASH show insignificant results in some of the definitions, the results indicate that these interaction terms affect the CARs positively. The variables LOW_STOCK and HIGH_STOCK show insignificant and ambiguous results across all the definitions.

Considering that there are rather few significant results for the interaction terms, it becomes difficult to analyse the true effect of cash offers' and stock offers' relationship with different business cycles and market states. However, by adding the effect from the HIGH (LOW) variable, the method of payment variable (CASH or STOCK), and the coefficient for the interaction term, we get an indication of the relationship. For instance, we see that in the high states, for all definitions, cash offers seem to generate higher CAR values than stock offers. The same is observed for low states. The relationship is in line with predictions from both Jensen (1986) and Myers and Majluf (1984), which suggest that cash offers should generate a higher value for the bidder than pure stock offers. The results indicate that this relationship is independent of booms and busts in the economy as well as changes in the stock market. Furthermore, cash bids announced in low business cycles seem to yield higher abnormal returns than cash bids announced in high business cycles. The opposite can be seen for the stock market states. The relationship is consistent with the observation that the market seems to react differently towards announcements in high (low) business cycles versus in high (low) stock market states.

## 6.3 Control variables

In the multiple regressions (Model 1 and Model 2), FOREIGN is included as a control variable. The results consistently show that acquiring foreign firms experience significantly higher abnormal returns for all definitions. The coefficients in Model 1 are rather similar ranging from 2.67% to 2.83%. Equally, the coefficients in Model 2 range from 2.52% to 2.98%. Furthermore, the variable LOG RELATIVE SIZE is included as a control variable. Just as FOREIGN, the LOG RELATIVE SIZE variable has a significant impact on the shareholder value related to an acquisition announcement. The coefficients for the LOG RELATIVE SIZE are positive and significant for all definitions in both the regression models.

**Table 2.** Univariate analysis of 11-days cumulative abnormal returns

| | **All** | | **Cash** | | **Stock** | | **Mixed** | |
|---|---|---|---|---|---|---|---|---|
| | Observations | CAR | Observations | CAR | Observations | CAR | Observations | CAR |
| All | 233 | 0.0286*** | 94 | 0.023 | 15 | -0.0164** | 47 | 0.0527** |
| | | (0.0052) | | (0.0067) | | (0.0197) | | (0.0158) |
| High | 134 | 0.0251 | 62 | 0.0273 | 6 | -0.0299* | 25 | 0.02 |
| | | (0.0063) | | (0.0079) | | (0.0358) | | (0.0169) |
| Neutral | 27 | 0.0347 | 10 | -0.0231** | 1 | -0.0565[1] | 8 | 0.1021*** |
| | | (0.0215) | | (0.0163) | | (-) | | (0.0562) |
| Low | 72 | 0.0329 | 22 | 0.0318 | 8 | -0.0012 | 14 | 0.0828*** |
| | | (0.0089) | | (0.0154) | | (0.0261) | | (0.0267) |
| | | | | Differences in mean CAR | | | | |
| High-Neutral | 161 | -0.0097 | | | | | | |
| | | (-0.5669) | | | | | | |
| Low-Neutral | 99 | -0.0018 | | | | | | |
| | | (-0.09) | | | | | | |
| High-Low | 206 | -0.0079 | | | | | | |
| | | -0.7311 | | | | | | |
| Cash-Mixed | 141 | -0.0297** | | | | | | |
| | | (-2.0286) | | | | | | |
| Stock-Mixed | 62 | -0.0691** | | | | | | |
| | | (-2.2952) | | | | | | |
| Cash-Stock | 109 | 0.0394** | | | | | | |
| | | (2.1216) | | | | | | |

**Table 2.** This table provides the results of t-tests for the 11-day CARs for all acquistions undertaken during high, neutral, and low business cycles (Definition 1). High (low) business cycles are defined as months 2.5% above (below) the average of 100 on Konjunkturbarometern, which is the Swedish economic tendency report. All other months are defined as neutral. In addition, CARs for cash, stock, and a mixed payment are presented. The table is based on 233 announcements by Swedish listed firms between the years 1997 to 2014. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1. Standard errors are shown in parenthesis for the top panel, and t-statistics are shown in parenthesis for the bottom panel. [1] This variable only represents one observation.

**Table 3.** Regression analysis of 11-days cumulative abnormal returns for the different definitions

| | **Business Cycle Definitions** | | | **Stock Market Definitions** | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0089 | 0.0061 | -0.0072 | 0.0054 | 0.0001 | 0.0054 |
| | (0.0165) | (0.0113) | (0.0118) | (0.0135) | (0.0121) | (0.0127) |
| Low | 0.0008 | 0.0178 | 0.0041 | -0.0009 | -0.0039 | -0.0058 |
| | (0.0177) | (0.0141) | (0.0168) | (0.0114) | (0.0127) | (0.0118) |
| Cash | -0.0073 | -0.0099 | -0.0083 | -0.0091 | -0.0083 | -0.0083 |
| | (0.0146) | (0.0146) | (0.0147) | (0.0147) | (0.0146) | (0.0146) |
| Stock | -0.0661*** | -0.0703*** | -0.0661*** | -0.0651*** | -0.0635*** | -0.0657*** |
| | (0.0227) | (0.0229) | (0.0229) | (0.0226) | (0.0230) | (0.0226) |
| Log Relative size | 0.0161*** | 0.0163*** | 0.0162*** | 0.0160*** | 0.0160*** | 0.0161*** |
| | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) |
| Foreign | 0.0273** | 0.0283** | 0.0278** | 0.0272** | 0.0267** | 0.0283** |
| | (0.0134) | (0.0133) | (0.0133) | (0.0133) | (0.0135) | (0.0134) |
| Constant | 0.0607*** | 0.0508*** | 0.0573*** | 0.0558*** | 0.0571*** | 0.0561*** |
| | (0.0206) | (0.0158) | (0.0147) | (0.0153) | (0.0157) | (0.0152) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.139 | 0.142 | 0.138 | 0.137 | 0.136 | 0.139 |

**Table 3.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

**Table 4.** Regression analysis of 11-days CAR for the different definitions including interaction terms

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0843** | 0.0095 | -0.0126 | 0.0090 | -0.0144 | 0.0167 |
| | (0.0356) | (0.0237) | (0.0264) | (0.0293) | (0.0254) | (0.0272) |
| Low | -0.0680* | 0.0208 | -0.0106 | -0.0176 | -0.0397 | 0.0008 |
| | (0.0367) | (0.0299) | (0.0476) | (0.0235) | (0.0295) | (0.0248) |
| Cash | -0.0672* | -0.0420* | -0.0187 | -0.0179 | -0.0309* | -0.0202 |
| | (0.0360) | (0.0219) | (0.0167) | (0.0181) | (0.0184) | (0.0181) |
| Stock | -0.155* | -0.0477 | -0.0596** | -0.0609* | -0.0887** | -0.0692** |
| | (0.0794) | (0.0558) | (0.0280) | (0.0340) | (0.0361) | (0.0321) |
| Log Relative size | 0.0294*** | 0.0105* | 0.0150*** | 0.0171*** | 0.0154*** | 0.0124** |
| | (0.0112) | (0.0056) | (0.0042) | (0.0047) | (0.0044) | (0.0049) |
| Foreign | 0.0252* | 0.0285** | 0.0298** | 0.0264* | 0.0267** | 0.0274** |
| | (0.0135) | (0.0136) | (0.0136) | (0.0137) | (0.0136) | (0.0136) |
| Log Relative size_Low | -0.0138 | 0.0082 | 0.0037 | -0.0033 | -0.0030 | 0.0068 |
| | (0.0120) | (0.0081) | (0.0108) | (0.0069) | (0.0078) | (0.0072) |
| Log Relative size_High | -0.0161 | 0.0063 | 0.0006 | 0.0027 | 0.0008 | 0.0066 |
| | (0.0118) | (0.0072) | (0.0077) | (0.0085) | (0.0075) | (0.0077) |
| Low_Cash | 0.0691* | 0.0509* | 0.0454 | 0.0182 | 0.0495* | 0.0235 |
| | (0.0399) | (0.0303) | (0.0383) | (0.0244) | (0.0267) | (0.0246) |
| Low_Stock | 0.107 | -0.0152 | 0.0259 | 0.0098 | 0.0658 | 0.0274 |
| | (0.0841) | (0.0652) | (0.0597) | (0.0473) | (0.0484) | (0.0555) |
| High_Cash | 0.0722* | 0.0395 | 0.0222 | 0.0150 | 0.0415 | 0.0193 |
| | (0.0372) | (0.0244) | (0.0245) | (0.0288) | (0.0253) | (0.0279) |
| High_Stock | 0.0888 | -0.0324 | -0.0626 | -0.0416 | -0.0061 | -0.0082 |
| | (0.0855) | (0.0648) | (0.0622) | (0.0595) | (0.0657) | (0.0493) |
| Constant | 0.124*** | 0.0467** | 0.0559*** | 0.0622*** | 0.0665*** | 0.0524*** |
| | (0.0344) | (0.0184) | (0.0155) | (0.0186) | (0.0177) | (0.0182) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.177 | 0.160 | 0.153 | 0.144 | 0.161 | 0.148 |

**Table 4.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. The interaction terms are conducted by the variables described above. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## 6.4 Robustness tests

Except the variables included in the regression frameworks above, we have also tested for three other variables. However, if these are included, the results are either rather similar but with lower significance level or they become very hard to interpret. We opted not to present or to analyse the results from these test in much detail but we instead refer to the appendix where the results from these tests are presented.

First, since Bouwman et al. (2009) argue that different industries should be controlled for, four different industry variables were included to see if any industry had a significant impact on the CARs. Second, in order to avoid that our findings do not capture short-term stock price persistence (Jegadeesh & Titman, 1993), we have controlled for preannouncement stock returns. This variable is calculated as the average preannouncement stock return from 200 days until 31 days prior the announcement date. Third, we found it relevant to test for if the repo rate affected our results. Additionally, Jensen (1986) suggests that the returns may be dependent on whether the target operates in the same industry as the acquirer. However, almost all targets in our sample operate in the same industry as the bidding firm. Therefore, we have decided to not investigate this potential affect.

# 7. Conclusion

This paper investigates whether the stock market reaction towards announcements of acquisitions is dependent on different business cycles. We also examine if the stock market reaction is consistent with predictions in the free cash flow theory and the overvaluation theory. The subject is inspired by earlier research on CARs for bidding firms around acquisition announcements (Bouwman et al., 2009; Petmezas, 2009; Campa & Hernando, 2004; Bruner, 2002). Further, Akron (2011) presents evidence that the investors' perception of the business cycle impacts their interpretation of dividend announcements. Therefore, it is interesting to examine if the stock market reaction related to acquisition announcements is dependent on different business cycles in a similar way. The methodology is mainly based on Bouwman et al. (2009). However, our study uses business cycles as a proxy for the different market states while Bouwman et al. (2009) use over- and undervaluation in the stock market. Also, we only focus on acquisitions announced by Swedish listed firms. Moreover, inspired by Jensen (1986), Myers and Majluf (1984), and Bouwman et al. (2009), we use the method of payment as a measure to analyse if the market reaction is consistent with predictions in the free cash flow theory and the overvaluation theory.

We conclude that there seems to be a correlation between business cycles and the stock market reaction towards acquisition announcements. Deals announced in neutral business cycles experience significantly higher returns to shareholders of the acquiring firms, followed by announcements in low business cycles and then high business cycles. In addition, we observe an indication that there seems to be a difference between how the market reacts towards announcements in high (low) business cycles versus in high (low) stock market states. In both the multiple regression models it is indicated that low stock market states experience lower returns than high stock market states, which is in line with previous research (Bouwman et al., 2009; Petmezas, 2009). On the contrary, the business cycle definitions indicate higher abnormal returns in low business cycles than during high business cycles. Hence, the market seems to react more positively (negatively) towards acquisition announcements when the stock market is overvalued (undervalued), but less so if the economy is in a boom (bust). The results are mostly insignificant, yet interesting.

Furthermore, we conclude that acquirers that are using a mixed payment of stock and cash experience significantly higher abnormal returns than those using an all-stock or all-cash method of payment. This is contradictory to Bouwman et al. (2009) but in line with both Eckbo et al. (1990) and Petmezas (2009). It is difficult to analyse the reason for the high CAR-values related to mixed payments since stock bids often are related to lower abnormal returns and cash bids are related to higher abnormal returns (Myers & Majluf, 1984; Jensen, 1986; Travlos, 1987; Brown & Ryngaert, 1991; Martin, 1996; Rhodes-Kropf & Viswanathan, 2004, Bouwman et al., 2009). Eckbo et al. (1990) argue that mixed method of payment both captures a synergy revaluation component and a signalling component as the reason for high CARs. Thus, a possible explanation is that a combination of cash and stock may be perceived as confident but at the same time risk reducing. Thereby, the acquisitions announced with a mixed method of payment are probably perceived as more trustworthy and thoroughly analysed.

Moreover, we conclude that the market is more positive to cash offers than to stock offers, which coincide with the predictions of the free cash flow theory (Jensen, 1986) as well as the overvaluation theory (Myers & Majluf, 1984). Jensen (1986) argues that acquisitions that are financed through cash will outperform those acquisitions that are being fully financed by stocks. In addition, Jensen (1986) also expects that cash allocated towards internal projects such as acquisitions will only lead to subpar beneficial possibilities or even to be value destroying for the shareholders. However, the result seems to contradict Jensen's (1986) predictions, as acquisitions with cash as the payment method experience insignificant abnormal returns of

2.3%. Further, Myers and Majluf (1984) argue that stocks are used by managers in overvalued firms since they expect that the value of the stock will decline in the future. Thus, it is reasonable to assume that the market would react more negatively to acquisitions financed by stocks.

Looking at both market states and the method of payment, we observe that cash offers seem to generate higher CAR values than stock offers in both high and low states (all definitions). The relationship is in line with predictions from both Jensen (1986) and Myers and Majluf (1984), which suggest that cash bids should outperform stock bids. The results also indicate that this relationship is independent of booms and busts in the economy as well as changes in the stock market. Further, acquisitions paid with cash in low business cycles seem to yield higher abnormal returns than in high business cycles. The opposite can be seen for the stock market states. Hence, the relationship is consistent with the observation that the market seems to react differently towards announcements in high (low) business cycles versus in high (low) stock market states.

Our results should highlight the need for future research regarding how the market reacts towards acquisition announcements. More specifically, if the market reaction is more influenced by the valuation of the stock market or if business cycles are the better proxy. This reasoning is highlighted by the fact that our results differ somewhat from Bouwman et al. (2009) and Petmezas (2009). They present the highest abnormal returns in high market states, followed by neutral and then low market states. Our empirical results, on the other hand, show the highest abnormal returns during neutral business cycles followed by low and lastly high business cycles. Additionally, we get different results for the market states definitions (Definitions 4-6) and for the business cycle definitions (Definition 1-3). It should be noted that Bouwman et al. (2009) as well as Petmezas (2009) have a bigger data set and cover another time period. Therefore, and given that we use a sample in a different market, there could be some unidentified disturbance that causes the results to differ.

Further, we find significant results that the market reacts most positively towards acquisition announcements in neutral business cycles. This is an interesting discovery, however, the reason is unclear. We suggest that more research on this topic needs to be conducted. Similarly, we present the highest abnormal returns for a mixed method of payment. Also previous research show equal findings (Eckbo et al., 1990; Petmezas, 2009). We discuss that the reason might be that the market perceives mixed offers to be trustworthy and thoroughly analysed. Nevertheless, earlier literature fails to find explanations for this result. Hence, we suggest that future research should be conducted.

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# Appendix

## Univariate setting

**Appendix 1.** Univariate analysis of 11-days cumulative abnormal returns for Definitions 2-6

| | All | | Cash | | Stock | | Mixed | |
|---|---|---|---|---|---|---|---|---|
| **Definition 2** | Observations | CAR | Observations | CAR | Observations | CAR | Observations | CAR |
| High | 104 | 0.0296 | 46 | 0.0332 | 6 | -0.0299* | 18 | 0.0273 |
| | | (0.0076) | | (0.0099) | | (0.0358) | | 0.0204 |
| Neutral | 82 | 0.0258 | 30 | -0.0047** | 2 | -0.0048 | 22 | 0.0589* |
| | | (0.0088) | | (0.0085) | | (0.0517) | | (0.026) |
| Low | 47 | 0.0312 | 18 | 0.0432 | 7 | -0.0081 | 7 | 0.0986** |
| | | (0.0118) | | (0.0178) | | (0.0291) | | (0.0409) |
| **Definition 3** | | | | | | | | |
| High | 58 | 0.0257 | 25 | 0.0277 | 2 | -0.074* | 9 | 0.0149 |
| | | (0.0094) | | (0.0132) | | (0.0011) | | (0.0201) |
| Neutral | 151 | 0.0303 | 58 | 0.0159 | 9 | -0.0109 | 37 | 0.0582** |
| | | (0.0065) | | (0.0076) | | (0.0294) | | (0.0189) |
| Low | 24 | 0.025 | 11 | 0.0497 | 4 | 0.0000 | 1 | 0.1889*** |
| | | (0.0182) | | (0.0283) | | (0.0302) | | (-) |
| **Definition 3** | | | | | | | | |
| HighMarket | 44 | 0.0337 | 21 | 0.0308 | 3 | -0.0363 | 6 | 0.1104*** |
| | | (0.0113) | | (0.0135) | | (0.0463) | | (0.0463) |
| NeutralMarket | 115 | 0.0269 | 42 | 0.0181 | 6 | -0.0183 | 27 | 0.0377 |
| | | (0.0073) | | (0.0093) | | (0.0263) | | (0.0203) |
| LowMarket | 74 | 0.0283 | 31 | 0.0243 | 6 | -0.0046 | 14 | 0.0568 |
| | | (0.0096) | | (0.0134) | | (0.0389) | | (0.0295) |
| **Definition 5** | | | | | | | | |
| HighMB | 61 | 0.0298 | 22 | 0.039 | 2 | -0.0467 | 15 | 0.0246 |
| | | (0.0101) | | (0.0136) | | (0.0901) | | (0.0235) |
| NeutralMB | 117 | 0.0334 | 50 | 0.0115* | 5 | -0.0223 | 24 | 0.079*** |
| | | (0.0334) | | (0.0086) | | (0.0413) | | (0.0237) |
| LowMB | 55 | 0.0171 | 22 | 0.0331 | 8 | -0.0052 | 8 | 0.0265 |
| | | (0.0096) | | (0.0157) | | (0.0223) | | (0.0372) |
| **Definition 6** | | | | | | | | |
| HighPE | 57 | 0.0321 | 17 | 0.0378 | 5 | -0.017 | 9 | 0.0841** |
| | | (0.0096) | | (0.01) | | (0.0396) | | (0.0340) |
| NeutralPE | 110 | 0.0279 | 47 | 0.0158 | 7 | -0.0214* | 25 | 0.0451 |
| | | (0.0076) | | (0.0081) | | (0.0274) | | (0.0235) |
| LowPE | 66 | 0.0267 | 30 | 0.0259 | 3 | -0.0038 | 13 | 0.0455 |
| | | (0.0102) | | (0.0159) | | (0.0541) | | (0.0267) |

**Appendix 1.** This table provides t-tests for the 11-day CARs for all acquistions undertaken during high, neutral, and low business cycles for Definitions 2-6 (see Business cycle and market definitions). In addition, CARs for cash, stock, and a mixed payment are presented. The table is based on 233 announcements by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with industry variables

A: Finance, insurance, law, economics, science

B: Manufacturing, mining and quarrying

C: Culture, entertainment, information, communication

D: Construction activity, commerce

E: Real estate, rental

**Appendix 2.** Regression analysis (industry variables included) of 11-days cumulative abnormal returns for the different definitions

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0091 | 0.0005 | -0.0115 | 0.0045 | -0.0065 | 0.0074 |
| | (0.0162) | (0.0113) | (0.0117) | (0.0133) | (0.0121) | (0.0125) |
| Low | 0.00348 | 0.0164 | 0.0034 | -0.0032 | -0.0043 | -0.0023 |
| | (0.0174) | (0.0140) | (0.0167) | (0.0112) | (0.0125) | (0.0117) |
| Cash | -0.0064 | -0.0081 | -0.0070 | -0.008 | -0.0079 | -0.0076 |
| | (0.0144) | (0.0144) | (0.0145) | (0.0145) | (0.0144) | (0.0144) |
| Stock | -0.0605*** | -0.0635*** | -0.0599*** | -0.0588*** | -0.0585** | -0.0598*** |
| | (0.0224) | (0.0227) | (0.0226) | (0.0224) | (0.0227) | (0.0224) |
| Log Relative size | 0.0137*** | 0.0141*** | 0.0138*** | 0.0137*** | 0.0134*** | 0.0137*** |
| | (0.0036) | (0.0036) | (0.0036) | (0.0036) | (0.0036) | (0.0035) |
| Foreign | 0.0219 | 0.0222 | 0.0224 | 0.0217 | 0.0203 | 0.0224 |
| | (0.0137) | (0.0137) | (0.0137) | (0.0137) | (0.0139) | (0.0138) |
| A | -0.0120 | -0.0123 | -0.0118 | -0.0115 | -0.0123 | -0.0110 |
| | (0.0216) | (0.0216) | (0.0216) | (0.0216) | (0.0217) | (0.0217) |
| B | 0.0074 | 0.009 | 0.0076 | 0.0073 | 0.0076 | 0.0078 |
| | (0.0208) | (0.0208) | (0.0209) | (0.0208) | (0.0208) | (0.0209) |
| C | 0.00910 | 0.0098 | 0.0092 | 0.0085 | 0.0083 | 0.0085 |
| | (0.0234) | (0.0235) | (0.0235) | (0.0235) | (0.0235) | (0.0235) |
| D | 0.0444** | 0.0438** | 0.0450** | 0.0438** | 0.0442** | 0.0439** |
| | (0.0218) | (0.0219) | (0.0218) | (0.0218) | (0.0218) | (0.0219) |
| Constant | 0.0488* | 0.0422* | 0.0468** | 0.0457** | 0.0487** | 0.0438** |
| | (0.0249) | (0.0215) | (0.0210) | (0.0212) | (0.0217) | (0.0217) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.186 | 0.187 | 0.185 | 0.182 | 0.182 | 0.183 |

**Appendix 2.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. A, B, C, and D are dummy variables for the different groups of industries (see above). N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with industry variables and interaction terms

**Appendix 3.** Regression analysis (industry variables included) of 11-days CAR for the different definitions including interaction terms

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0773** | -0.0035 | -0.0213 | -0.0002 | -0.0326 | 0.0228 |
| | (0.0351) | (0.0240) | (0.0263) | (0.0294) | (0.0257) | (0.0270) |
| Low | -0.0550 | 0.0170 | -0.0217 | -0.0161 | -0.0460 | 0.0126 |
| | (0.0366) | (0.0296) | (0.0470) | (0.0233) | (0.0292) | (0.0245) |
| Cash | -0.0653* | -0.0412* | -0.0161 | -0.0175 | -0.0306* | -0.0224 |
| | (0.0357) | (0.0218) | (0.0165) | (0.0178) | (0.0181) | (0.0178) |
| Stock | -0.128 | -0.0390 | -0.0565** | -0.0506 | -0.0899** | -0.0555* |
| | (0.0788) | (0.0553) | (0.0278) | (0.0338) | (0.0356) | (0.0319) |
| Log Relative size | 0.0249** | 0.0092 | 0.0136*** | 0.0149*** | 0.0142*** | 0.0083* |
| | (0.0113) | (0.0057) | (0.0042) | (0.0049) | (0.0045) | (0.005) |
| Foreign | 0.0206 | 0.0236* | 0.0244* | 0.0215 | 0.0200 | 0.0209 |
| | (0.0139) | (0.0139) | (0.0141) | (0.0140) | (0.0140) | (0.0140) |
| A | -0.0142 | -0.0181 | -0.0102 | -0.0112 | -0.0068 | -0.0124 |
| | (0.0216) | (0.0220) | (0.0219) | (0.0222) | (0.0219) | (0.0220) |
| B | 0.0045 | 0.0018 | 0.0071 | 0.0084 | 0.0093 | 0.0098 |
| | (0.0208) | (0.0214) | (0.0212) | (0.0213) | (0.0211) | (0.0214) |
| C | 0.0079 | 0.0051 | 0.0102 | 0.0099 | 0.0134 | 0.0112 |
| | (0.0233) | (0.0238) | (0.0238) | (0.0241) | (0.0238) | (0.0241) |
| D | 0.0398* | 0.0387* | 0.0443** | 0.0439* | 0.0500** | 0.0473** |
| | (0.0217) | (0.0224) | (0.0221) | (0.0225) | (0.0220) | (0.0224) |
| Log Relative size_Low | -0.0113 | 0.0062 | -0.001 | -0.0018 | -0.0057 | 0.0105 |
| | (0.0120) | (0.0082) | (0.0109) | (0.0068) | (0.0077) | (0.0071) |
| Log Relative size_High | -0.0137 | 0.00463 | -0.0005 | 0.0001 | -0.0024 | 0.0081 |
| | (0.0117) | (0.0073) | (0.0076) | (0.0085) | (0.0075) | (0.0076) |
| Low_Cash | 0.0629 | 0.0444 | 0.0372 | 0.0206 | 0.0454* | 0.0314 |
| | (0.0394) | (0.0300) | (0.0378) | (0.0242) | (0.0264) | (0.0244) |
| Low_Stock | 0.0810 | -0.0200 | 0.0317 | -0.0024 | 0.0702 | -0.0001 |
| | (0.0833) | (0.0645) | (0.0592) | (0.0468) | (0.0477) | (0.0552) |
| High_Cash | 0.0726* | 0.0455* | 0.0245 | 0.0166 | 0.0479* | 0.0190 |
| | (0.0369) | (0.0243) | (0.0241) | (0.0286) | (0.0252) | (0.0275) |
| High_Stock | 0.0665 | -0.0302 | -0.0468 | -0.0318 | 0.0186 | -0.0122 |
| | (0.0846) | (0.0638) | (0.0616) | (0.0593) | (0.0650) | (0.0489) |
| Constant | 0.107*** | 0.0457** | 0.0472** | 0.0510** | 0.0586** | 0.0354 |
| | (0.0373) | (0.0228) | (0.0216) | (0.0231) | (0.0229) | (0.0244) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.218 | 0.204 | 0.196 | 0.187 | 0.207 | 0.197 |

**Appendix 3.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. The interaction terms are conducted by the variables described above. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. A, B, C, and D are dummy variables for the different groups of industries (see above). N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with preannouncement stock return

**Appendix 4.** Regression analysis (preannouncement stock return included) of 11-days cumulative abnormal returns for the different definitions

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.009 | 0.0077 | -0.0056 | 0.0059 | 0.0032 | 0.0061 |
| | (0.0165) | (0.0115) | (0.0119) | (0.0135) | (0.0123) | (0.0127) |
| Low | -0.0031 | 0.0148 | -0.0006 | -0.0019 | -0.0069 | -0.006 |
| | (0.0181) | (0.0144) | (0.0174) | (0.0114) | (0.0129) | (0.0118) |
| Cash | -0.0081 | -0.0107 | -0.0086 | -0.0099 | -0.0088 | -0.009 |
| | (0.0147) | (0.0147) | (0.0147) | (0.0147) | (0.0146) | (0.0146) |
| Stock | -0.0668*** | -0.0709*** | -0.0665*** | -0.0668*** | -0.0638*** | -0.0675*** |
| | (0.0227) | (0.0229) | (0.0229) | (0.0227) | (0.0229) | (0.0226) |
| Log Relative size | 0.0161*** | 0.0161*** | 0.0161*** | 0.0160*** | 0.0159*** | 0.0161*** |
| | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) |
| Foreign | 0.0288** | 0.0299** | 0.0296** | 0.0295** | 0.0294** | 0.0306** |
| | (0.0135) | (0.0134) | (0.0134) | (0.0134) | (0.0136) | (0.0135) |
| PreAnnRet | -3.103 | -3.025 | -3.289 | -3.677 | -4.217 | -3.687 |
| | (3.292) | (3.290) | (3.264) | (3.106) | (3.258) | (3.093) |
| Constant | 0.0627*** | 0.0511*** | 0.0577*** | 0.0566*** | 0.0571*** | 0.0566*** |
| | (0.0207) | (0.0158) | (0.0147) | (0.0153) | (0.0157) | (0.0152) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.143 | 0.146 | 0.142 | 0.142 | 0.143 | 0.144 |

**Appendix 4.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. PREANNRET is the preannouncement stock return calculated from 200 days until 31 days prior the announcement date. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with preannouncement stock return and interaction terms

**Appendix 5.** Regression analysis (preannouncement stock return included) of 11-days CAR for the different definitions including interaction terms

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0885** | 0.0104 | -0.0124 | 0.0072 | -0.0092 | 0.0164 |
| | (0.0357) | (0.0237) | (0.0264) | (0.0294) | (0.0258) | (0.0271) |
| Low | -0.0764** | 0.0176 | -0.0144 | -0.0208 | -0.0445 | -0.0032 |
| | (0.0373) | (0.0303) | (0.0480) | (0.0237) | (0.0298) | (0.0249) |
| Cash | -0.0683* | -0.0415* | -0.0187 | -0.0181 | -0.0305* | -0.0211 |
| | (0.0360) | (0.0220) | (0.0167) | (0.0180) | (0.0184) | (0.0181) |
| Stock | -0.157** | -0.0455 | -0.0601** | -0.0670* | -0.0809** | -0.0775** |
| | (0.0794) | (0.0560) | (0.0281) | (0.0343) | (0.0367) | (0.0327) |
| Log Relative size | 0.0306*** | 0.0107* | 0.0151*** | 0.0175*** | 0.0155*** | 0.0127*** |
| | (0.0112) | (0.0056) | (0.0042) | (0.0047) | (0.0044) | (0.0049) |
| Foreign | 0.0269** | 0.0299** | 0.0308** | 0.0285** | 0.0290** | 0.0297** |
| | (0.0136) | (0.0137) | (0.0137) | (0.0138) | (0.0137) | (0.0137) |
| PreAnnRet | -3.896 | -2.409 | -2.187 | -3.700 | -3.912 | -4.170 |
| | (3.295) | (3.356) | (3.396) | (3.219) | (3.402) | (3.238) |
| Log Relative size_Low | -0.0150 | 0.00763 | 0.0031 | -0.0044 | -0.004 | 0.0057 |
| | (0.0121) | (0.0082) | (0.0109) | (0.0069) | (0.0078) | (0.0072) |
| Log Relative size_High | -0.0174 | 0.00596 | 0.0004 | 0.0021 | 0.0011 | 0.0065 |
| | (0.0119) | (0.0073) | (0.00766) | (0.0085) | (0.0075) | (0.0077) |
| Low_Cash | 0.0701* | 0.0499 | 0.044 | 0.0150 | 0.0494* | 0.0235 |
| | (0.0398) | (0.0304) | (0.0384) | (0.0246) | (0.0267) | (0.0246) |
| Low_Stock | 0.106 | -0.0194 | 0.0229 | 0.0167 | 0.0551 | 0.0458 |
| | (0.0840) | (0.0655) | (0.0600) | (0.0477) | (0.0493) | (0.0572) |
| High_Cash | 0.0726* | 0.0378 | 0.0224 | 0.0158 | 0.0391 | 0.0209 |
| | (0.0371) | (0.0245) | (0.0245) | (0.0288) | (0.0253) | (0.0278) |
| High_Stock | 0.0929 | -0.0341 | -0.0557 | -0.0339 | -0.0198 | -0.0014 |
| | (0.0855) | (0.0649) | (0.0632) | (0.0598) | (0.0667) | (0.0495) |
| Constant | 0.130*** | 0.0473** | 0.0566*** | 0.0644*** | 0.0664*** | 0.0545*** |
| | (0.0348) | (0.0184) | (0.0156) | (0.0187) | (0.0176) | (0.0183) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.183 | 0.162 | 0.155 | 0.149 | 0.166 | 0.154 |

**Appendix 5.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. PREANNRET is the preannouncement stock return calculated from 200 days until 31 days prior the announcement date. The interaction terms are conducted by the variables described above. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with repo rate

**Appendix 6.** Regression analysis (repo rate included) of 11-days cumulative abnormal returns for the different definitions

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0091 | 0.00664 | -0.0073 | 0.0066 | 0.0001 | 0.00515 |
| | (0.0166) | (0.0118) | (0.0119) | (0.0138) | (0.0121) | (0.0127) |
| Low | 0.0003 | 0.0187 | 0.0037 | -0.0023 | -0.0047 | -0.0064 |
| | (0.0180) | (0.0149) | (0.0170) | (0.0118) | (0.0130) | (0.0120) |
| Cash | -0.0077 | -0.0095 | -0.0088 | -0.0103 | -0.0091 | -0.009 |
| | (0.0149) | (0.0148) | (0.0149) | (0.0150) | (0.0148) | (0.0148) |
| Stock | -0.0664*** | -0.0700*** | -0.0665*** | -0.0661*** | -0.0640*** | -0.0664*** |
| | (0.0228) | (0.0230) | (0.0230) | (0.0228) | (0.0231) | (0.0228) |
| Log Relative size | 0.0161*** | 0.0163*** | 0.0162*** | 0.0160*** | 0.0159*** | 0.0161*** |
| | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) | (0.0034) |
| Foreign | 0.0271** | 0.0286** | 0.0276** | 0.0267** | 0.0263* | 0.0280** |
| | (0.0135) | (0.0134) | (0.0134) | (0.0134) | (0.0135) | (0.0134) |
| Repo | 0.0588 | -0.0809 | 0.0866 | 0.186 | 0.128 | 0.122 |
| | (0.416) | (0.434) | (0.412) | (0.448) | (0.421) | (0.415) |
| Constant | 0.0600*** | 0.0517*** | 0.0559*** | 0.0530*** | 0.0551*** | 0.0543*** |
| | (0.0212) | (0.0166) | (0.0162) | (0.0168) | (0.0171) | (0.0165) |
| N.A. | yes | yes | yes | yes | yes | yes |
| | | | | | | |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.139 | 0.142 | 0.138 | 0.138 | 0.137 | 0.139 |

**Appendix 6.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. REPO is the repo rate for when the acquisition is announced. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.

## Multiple regression with repo rate and interaction terms

**Appendix 7.** Regression analysis (repo rate included) of 11-days CAR for the different definitions including interaction terms

| | Business Cycle Definitions | | | Stock Market Definitions | | |
|---|---|---|---|---|---|---|
| | **Definition 1** | **Definition 2** | **Definition 3** | **Definition 4** | **Definition 5** | **Definition 6** |
| Dependent variable | CAR | CAR | CAR | CAR | CAR | CAR |
| High | -0.0844** | 0.0106 | -0.0124 | 0.0087 | -0.0140 | 0.0169 |
| | (0.0357) | (0.0239) | (0.0265) | (0.0294) | (0.0255) | (0.0272) |
| Low | -0.0681* | 0.0222 | -0.0110 | -0.0184 | -0.0401 | 0.0004 |
| | (0.0368) | (0.0302) | (0.0478) | (0.0238) | (0.0296) | (0.0248) |
| Cash | -0.0675* | -0.0420* | -0.0191 | -0.0186 | -0.0323* | -0.0213 |
| | (0.0362) | (0.0220) | (0.0168) | (0.0183) | (0.0187) | (0.0184) |
| Stock | -0.155* | -0.0493 | -0.0600** | -0.0621* | -0.0899** | -0.0696** |
| | (0.0796) | (0.0561) | (0.0282) | (0.0344) | (0.0363) | (0.0322) |
| Log Relative size | 0.0294*** | 0.0104* | 0.0150*** | 0.0171*** | 0.0152*** | 0.0123** |
| | (0.0112) | (0.0056) | (0.0042) | (0.0047) | (0.0044) | (0.0049) |
| Foreign | 0.0251* | 0.0290** | 0.0297** | 0.0262* | 0.0263* | 0.0271** |
| | (0.0136) | (0.0136) | (0.0137) | (0.0138) | (0.0136) | (0.0137) |
| Log Relative size_Low | -0.0138 | 0.0083 | 0.0037 | -0.0034 | -0.0027 | 0.0068 |
| | (0.0121) | (0.0082) | (0.0109) | (0.0069) | (0.0078) | (0.0072) |
| Log Relative size_High | -0.0161 | 0.0064 | 0.0006 | 0.0025 | 0.00103 | 0.0068 |
| | (0.0118) | (0.0072) | (0.0077) | (0.0086) | (0.0076) | (0.0077) |
| Low_Cash | 0.0687* | 0.0533* | 0.0447 | 0.0173 | 0.0489* | 0.0235 |
| | (0.0401) | (0.0309) | (0.0386) | (0.0248) | (0.0268) | (0.0247) |
| Low_Stock | 0.106 | -0.0135 | 0.0268 | 0.0098 | 0.0666 | 0.0261 |
| | (0.0844) | (0.0654) | (0.0600) | (0.0474) | (0.0486) | (0.0558) |
| High_Cash | 0.0723* | 0.0405 | 0.0220 | 0.0159 | 0.0427* | 0.0199 |
| | (0.0372) | (0.0245) | (0.0246) | (0.0291) | (0.0254) | (0.0280) |
| High_Stock | 0.0878 | -0.0287 | -0.0637 | -0.0390 | -0.0072 | -0.009 |
| | (0.0862) | (0.0655) | (0.0626) | (0.0607) | (0.0659) | (0.0494) |
| Repo | 0.0515 | -0.190 | 0.0817 | 0.111 | 0.190 | 0.152 |
| | (0.425) | (0.449) | (0.423) | (0.473) | (0.428) | (0.421) |
| Constant | 0.123*** | 0.0492** | 0.0545*** | 0.0606*** | 0.0633*** | 0.0499** |
| | (0.0351) | (0.0193) | (0.0171) | (0.0198) | (0.0191) | (0.0196) |
| N.A. | yes | yes | yes | yes | yes | yes |
| Observations | 227 | 227 | 227 | 227 | 227 | 227 |
| R-squared | 0.177 | 0.161 | 0.154 | 0.144 | 0.161 | 0.148 |

**Appendix 7.** This table contains OLS regressions of acquiring firm's 11-day CARs for three different business cycle definitions and three different market state definitions (see Regression framework for more details about the definitions). HIGH (LOW) is a dummy variable that takes one if the month in which the deal was announced is defined as a high (low) business cycle and zero otherwise. Similarly, CASH (STOCK) is a dummy variable that takes one if the deal was paid with cash (stock) and zero otherwise. LOG RELATIVE SIZE is the logarithm of the deal size divided by the market value of of the acquirer 30 days prior to the announcement. FOREIGN is a dummy variable that takes one if the target is not Swedish and zero otherwise. REPO is the repo rate for when the acquisition is announced. The interaction terms are conducted by the variables described above. For all business cycle definitions (market definitions), the constant represents announcements of Swedish targets during a neutral business cycle (market) and that are paid with a combination of cash and stock. N.A is a dummy variable that takes one if the method of payment is unknown and zero otherwise. The table is based on 227 announcements (six dropped due to lack of data) by Swedish listed firms between the years 1997 to 2014. Standard errors are shown in parenthesis. The significance level is indicated by the superscripts; *** p<0.01, ** p<0.05, * p<0.1.