Takeover Hostility and Methods of Exchange

The interaction effect of managerial resistance and the method of payment
on the abnormal returns for targets

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Abstract

In this paper the effects of the method of payment and the management's response to an acquisition offer on the abnormal returns caused by the announcement effect including their interaction effect have been empirically tested. A sample of 178 merger offers announced between 2000 and 2020 has been used to carry out an event study by collecting and estimating expected returns for the targets of the offer announcements. Subsequently their cumulative abnormal returns were calculated and regressed upon the variables of interest. The results of the event study indicate the persistence of the announcement effect generating positive abnormal returns of 20% on average for the targets of acquisitions. The effect of the management's response and the type of payment used for the offers has also been proven to remain present. The use of cash or mixed payments result in 24% and 22% higher abnormal returns respectively as opposed to offers made with shares and a resisted offer yields lower returns of 17% on average in contrast to a recommended bid. The interaction effect did not appear to be significant in the sample used in this research. Additional theoretical studies are required to comprehend the justification of the deal characteristics' impact on the abnormal returns for the target shareholders as previous hypotheses regarding the advantages of cash have been proven difficult to acknowledge as a result of this study.

Contents

1 Introduction

Recent developments in the markets caused by the outbreak of COVID-19 have led to numerous companies among which the oil and gas exploration and production company Occidental Petroleum executing the poison pill, the 'corporate vaccine' against the virus. This procedure is meant to fend off hostile takeovers by investors looking to acquire the firms against a hefty discount due to the poor market conditions driving down the share prices and is performed by offering the current shareholders the option to invest by purchasing additional shares at lower costs. An interesting observation is that measures such as these have proven to impact the returns for these companies when they are in the process of being acquired signalling a relation between hostility of the target companies management towards acquirers and the returns on it's shares.

Malatesta and Walkling (1988) have previously found evidence supporting this relationship in their research in abnormal returns for acquisition targets. They concluded resistance to acquisition by the management of a firm leads to significant negative abnormal returns confirming the managerial entrenchment hypothesis. This hypothesis predicts negative returns as a consequence of resistance against the takeover caused by the increased cost of displacing the inefficient incumbent management. However, opposing results have been obtained from other research. Huang and Walkling (1987) among others, have attained a positive relationship between management's resistance and abnormal returns. This falls in line with the shareholder-welfare hypothesis which states managerial opposition to acquisition could result in higher premiums from the bidding firm due to management's bargaining for a better deal than the initial offer. Finally, Dodd (1980) detects a significant difference in abnormal returns for negotiations that are cancelled by the bidding firm and those which are blocked by management of the target. The former obtaining lower abnormal returns, supporting the shareholder-welfare hypothesis.

Huang and Walking also document a relationship between the method of payment used in the acquisition and the average abnormal return for the targets where cash payments induce higher returns than stock offers. Mayer and Walker (1996) later find statistically significant evidence for the use of cash over stock in payments concerning hostile takeovers as opposed to friendly mergers.

To summarize, the results from these studies imply an effect of target's incumbent management's behavior towards the acquirer on the returns on the target's stock price, a positive relationship between the use of cash over stock as a payment method and the target's returns and finally a strong preference for the use of cash over stock in takeovers that are conceived as hostile. However, the potential interaction effect between the management resistance and the method of payment on the target's returns has not been tested by any of them. In this research, this potential effect will be studied in order to find out if abnormal returns are different for hostile and passive adoption by the management depending on the method of payment used in the transaction. Another manner in which this thesis will provide relevance is by using more recent

data, considering the bulk of the research performed in this subject uses data of merger offers that have been announced before 1980. It will be interesting to observe if the effect management can induce has increased or diminished.

In order to conduct the research an event study will be performed to measure the returns for target firms for all acquisition offers announced between 2000 and 2020 that can be categorized into one of the four different groups (CashFriendly, CashHostile, StockFriendly, StockHostile). These firms will be selected from the Zephyr database which makes a distinction between hostile bids and recommended bids and records the method of exchange offered in the transaction. Datastream will be used to extract the stock prices used to calculate the abnormal returns from the Thomson Reuters database. The cumulative abnormal returns will then be regressed on the method of payment, the management's attitude and their interaction term in order to obtain the estimated effects.

Considering most of the research in the subject of managerial resistance has led to weak evidence for the shareholder-welfare hypothesis in the form of (insignificant) positive abnormal returns, a similar effect is expected to occur in this study. However, the publication of these results may have led to management of target firms opposing acquisition propositions for the sole purpose of increasing return on the company's shares. This would render the rejection of bids questionable and might make them ineffective in achieving a higher premium from the bidder. The interaction effect between cash as the method of payment and a hostile management is expected to be negative, because cash transactions are usually quicker and therefore leave less room for the management to resist the transaction and negotiate a better offer than would be the case if the acquirer was offering stock to the target's shareholders.

2 Theoretical Framework

The effect of an acquisition announcement and the factors that impact it have been covered extensively in previous research. In the following paragraphs the results from previous empirical analyses and theories covered in academic papers will be discussed in order to derive possible hypotheses that provide a potential answer for the research question whether there exists an interaction effect between managerial resistance and the method of payment on the returns for acquisition targets.

2.1 Announcement effect, empirical studies

Analysis of the factors that impact the returns for targets of mergers and acquisitions find their roots in the identification of a relationship between high abnormal returns and acquisition announcements. In research carried out by Halpern (1973), Mandelker (1974) and Langetieg (1978) among others a substantial premium averaging between ten to twenty percent was found for targets of acquisition. Halpern set out to measure the returns resulting from mergers for

the bidders as well as the targets. He states the sum of these gains (or losses) is equal to the market's expectation of the synergies due to benefits of scale or the benefits obtained from a resulting monopoly position. Unlike previous research Halpern takes into account the fluctuations in the share prices that can be explained by general market movements. Analysis in previous research did not manage to accurately measure the premiums as these conditions were ignored by the authors. Halpern divided his sample into small and large parties of the merger as the scope of his research was calculation of the market's expectation of the added value of merging and found an astounding 30% premium for the smaller companies in mergers, while the premium for the larger firms was 6%. A few years later, Mandelker (1974) performed a similar study into the effects of mergers on the returns. However, he does distinguish between acquirers and targets and finds normal returns for the acquiring parties and abnormal returns of 14% on average for the target companies. Research carried out by Langetieg (1978) compares to Mandelker's studies very well. In order to increase the accuracy of his results, Langetieg adds an industry factor to the performance index used to estimate the expected normal returns on the securities of the merged companies. His results indicate a positive effect of merger announcements for the targets of around 13% and a small, but insignificant negative effect on the stock prices of the acquiring firms. Langetieg and Mandelker each hypothesise that the positive effects on the target's returns are likely to be due to the replacement of inefficient incumbent management by the acquiring firms.

2.2 Announcement effect and offer type, empirical studies

Later research was conducted to provide more insight in the specific factors that impacted the returns generated by the announcement effect. An aspect considered to be of relevance was the type of acquisition where a distinction is made between mergers and tender offers. As the former type requires the management of the target to agree to the offer and the latter is directed to the shareholders, the difference in authority of the incumbent management is likely to be impactful. Ruback & Jensen (1983) summarise previous empirical research and find the abnormal returns for the targets of successful merger offers are substantially lower on average than the abnormal returns for the targets of tender offers. Another distinction was made by Elgers & Clark (1980). They separated conglomerate mergers from non conglomerate mergers in their analysis and found superior returns for targets as well as bidders in conglomerate mergers. They argue this difference may be subject to the nature of conglomerate mergers which lead to actual product or market diversification instead of risk diversification which can be attained by shareholders through the purchase of a portfolio of firms in an industry as well. However, these elements were later identified to be insignificant when the results were adjusted for other factors.

2.3 Announcement effect and payment method, empirical studies

Wansley, Lane and Yang (1983) decided to test merger returns for differences after controlling for the merger type defined as conglomerate or non conglomerate and the payment method categorised by cash, securities and combined payments as previous research indicated both factors to impact the returns, but lacked in testing them alongside each other. Therefore, if differences are present in the method of payment used in the two merger types, previous results may be victim to omitted variable bias. Indeed, they found conglomerate and non conglomerate mergers did not differ significantly in returns when the method of payment was introduced in the equation. Similarly, Huang and Walkling (1987) determined the influence of the offer type classified as a merger or a tender offer was no longer valid when tested alongside the method of payment and the target's incumbent management's response to the offer. Their results indicated a significant positive effect of the use of cash over the use of securities as the type of payment. The positive effect of cash as the type of payment may be due to a variation of explanations. According to Huang and Walkling, a tender offer made with securities requires approval of the Securities and Exchange Commission which can take several months, while a cash offer can be made within weeks. The clear advantage of the use of cash over stocks in the sense of timing could increase the likelihood of the offer to succeed and therefore impact the abnormal returns caused by its announcement. Another explanation proposed by Carleton, Guilkey & Stewart (1983) in their research into the role of the medium of exchange in mergers is the tax deferrability of stock offers. As the shareholders of the selling firm are obliged to pay taxes over a cash offer, while they are able to defer this payment when offered securities, they are assumed to require an additional premium.

2.4 Announcement effect and managerial resistance, empirical studies

Among other reasons, Huang and Walkling (1987) found purpose for their research into the effects of managerial resistance on the acquisition premium in the existing concern surrounding management decisions that were able to affect shareholder wealth without shareholder's permission. In 1970 for example, William Cary pleaded for new laws to reduce management's abilities to protect their positions when dealing with a merger in order to shield shareholders from inefficient use of the company's funds. According to him, the current methods of managerial entrenchment which ranged from share repurchases with company funds to bylaw changes and political interference, were often not in the best interest of the shareholders and should therefore be replaced with different approaches. Dodd (1980) tested this theory before Huang and Walkling did by comparing the returns for targets of which management initially recommended the merger offer and for those of which the management declined. His results indicated the cumulative abnormal returns from the initial acquisition

announcement to the date of official cancellation for the companies of which the incumbent management declined the initial offer were over 10% higher than those of which the management recommended the offer in case the merger did not go through. In other words, opposing a merger offer was in the best interest of shareholders if there was a serious chance the deal would collapse. For offers that were recommended and eventually completed however, returns were still higher.

These results contribute to the shareholder welfare hypothesis which describes the situation in which management acts to increase shareholder wealth instead of pursuing their personal interest. Bradley (1980) also finds evidence supporting this theory in his research in premiums paid for tender offers. He states opposing management uses its hostility against offers to communicate information to the target stockholders as well as other market participants in an effort to obtain an even larger premium.

2.5 Relation between managerial resistance and payment method

Connections between the abnormal returns of targets caused by acquisition announcements and the method of payment used to finance the merger as well as the target's management's response to the offer have thus been extensively covered in previous research. Somewhat more recently however, Mayer and Walker (1996) have found confirmation of a correlation between these two factors which, according to them, was not previously proven: 'The distinction between friendly and hostile bids, which has not been considered by previous payment method studies, appears to be important for the choice of payment method.' Consistent with their and others previous hypotheses, hostile bidders convey the impression they prefer cash to stock, because they are faster to implement. Wansley, Lane and Yang (1983) hypothesized earlier that cash was used in hostile takeovers more often to reduce the time target's management would have to 'find an avenue to avoid the acquisition'.

Considering the influence the two variables have proven to have on the target returns and the connection between them that was later established, the question arises whether there exists an interaction effect as well. For intuition, presence of an interaction effect would indicate the target's abnormal returns are different for hostile and passive adoption by the management depending on the method of payment used in the transaction. According to the hypothesis conducted by Wansley, Lane and Yang, stock offers should offer opposing management more time to negotiate for a higher premium. The interaction effect between stock as the method of payment and a hostile management is therefore expected to be positive.

3 Data

In this section the data used for the study and the method in which it was obtained will be described. Two types of data were collected for this research. First of all, the data regarding the event of the merger or acquisition such as the firms involved in the transaction and the announcement date need to be obtained. The second type of data required are the stock prices of the target firms. In total, data of 201 merger offers was collected. However, 23 of the events had to be excluded from the study due to insufficient availability of the historical stock prices.

3.1 Event data

The event data was collected using the Zephyr database. A report of all merger and acquisition announcements regarding listed target companies in the United States between the 1st of January 2000 and the 31st of december 2020 was requested. The prerequisite of the target being listed is set to avoid selecting events for which stock data can not be retrieved in the following step. Furthermore, a restriction is imposed to only include offers where the bidding firm aims to acquire at least 30% of the target's shares or increases its current ownership from less than 30% to over 30%. This restriction excludes announcements of smaller bids that might not impact stock prices in a similar way from the search. (reference).

3.1.1 Managerial resistance

Additionally, the registered bids are required to include information regarding the target's management's response to the offer in order to use this data for the analysis of their effects on the target's returns. The variable was split into two categories; offers which were initially opposed by the target's management are categorized as hostile and offers recommended by the target's management are categorized as friendly. The information regarding the management's response is collected from the Zephyr database where offers are classified either a hostile bid or a recommended offer. A bid is qualified as hostile if the incumbent management of the target announced a recommendation to their shareholders not to accept the initial bid. Two more descriptions used in Zephyr are also included in the report; hostile turned recommended and recommended turned hostile. These classes are allocated to the deals by Zephyr if the bidding firm increases its bid resulting in a recommendation to sell by the target's management after the second bid for example. Considering the initial response is the only measured effect in this research the data from these offers is equally relevant. This information was then assorted as friendly versus hostile for the management's response variable.

3.1.2 Payment method

The information regarding the payment method is also retrieved from the Zephyr database where the types of payment are listed under deal information. This variable is split into three categories, shares, mixed and cash payments. In many deals, debt, loan notes, earn outs and other types of compensation are also included. As the main hypotheses regarding the effect of cash used as the payment method are its advantages in facilitating a quick acquisition as opposed to share offers which require the approval of the SEC and the tax deferrability of shares resulting in higher premiums demanded by shareholders when paid in cash, these other components are of little relevance to the classification. Therefore, the payment type will only be classified as cash if no shares were offered as part of the deal and vice versa. If shares and cash were both part of the deal, the bidding firm would still be required to get an approval and only a component of the tax would be deferrable. The method of payment is then classified as mixed.

3.1.3 General information

Finally, general deal information is exported to ensure the deals can later be identified separately. This includes data such as the firm names and ISIN codes which are required to find the stock prices. Most importantly, the announcement date of the acquisition offer is collected. The date of announcement is important as it is the basis for the event window used to calculate abnormal returns in a later stage. Alternative dates like the actual merger date are not relevant as the scope of this study is to capture only the effect of the announcement. Firms that announced to make a bid and have failed to complete the acquisition can therefore be included in this research as well.

3.1.4 Summary of event data

In the table below a summary of the event data collected is shown. This table does not include the events for which stock data occurred to be lacking. As can be seen a set of 178 events remain the majority of which achieved a recommendation from the target's incumbent management as a response to the acquirer's offer. The data is divided more evenly across the different types of payment used in the offers although cash does dominate the other categories.

3.2 Return data

The second type of data required was the return data for the target companies. This information is obtained by retrieving the historical stock prices of these companies. In order to calculate abnormal returns stock prices are necessary for two periods; the event window which is the time surrounding the date the offer was announced and the estimation period. The estimation period is a stretch of time before the acquisition offer was announced which is used to calculate the expected returns during the event window. For both of these durations the

price of the relevant index to which the stock returns will be compared is also needed. As the search is limited to listed companies located in the United States the S&P 500 will be used for this purpose. As the time frame for which the stock and index prices differ across the events the event study tool was used to obtain the data. By submitting the ISIN codes belonging to the targets, retrieved through Zephyr, alongside the announcement dates and setting the estimation period and event window, the tool delivers the relevant price data for each firm and the index through Datastream.

3.2.1 Estimation period

As mentioned by Peterson (1989) estimation periods for event studies using daily stock returns are typically in between 100 and 300 days in length. In his paper regarding the performance of event studies MacKinlay (1997) suggests an estimation window that starts 120 days before the event and ends 5 days prior to it. The estimation period in this study was set to 200 days before the announcement to 50 days before the announcement. Setting the estimation window further in the past results in a trade-off between more specific estimations of the expected returns and coefficients that are not congruent with the current state of the company according to Armitage (1995). The window is set to end 50 days before the announcement to exclude influence of potential rumors or leaks regarding the acquisition.

3.2.2 Event window

The event window includes the five days prior to the announcement, the day of the announcement (t = 0) and the nine days following it. The reason the window contains more days than just the day of the announcement is to ensure delayed or prior effects are captured as well.

4 Methodology

The methods used to obtain the announcement effect data discussed in the previous section will be described in the following paragraphs. In order to find to what extent the variables that have been described in the previous chapter affect the returns for the targets of merger and acquisition announcements the abnormal returns are calculated for each day in the event window. These abnormal returns are then compiled to acquire the cumulative abnormal returns (CAR's). Once the cumulative abnormal returns have been calculated for each event the influence of the method of payment and the management's response to the offer can be measured through regression analysis.

4.1 Abnormal returns

Abnormal returns for each target are measured by subtracting the expected returns from the realized returns. As previously described, the realized returns

for the event period are obtained through Datastream. Returns are calculated by dividing the difference between the stock prices over a day by the stock price of the previous day as can be seen in the formula below where R_i equals the return for firm i and $P_{i,t}$ & $P_{i,t-1}$ represent it's stock prices at time t and the previous trading day respectively.

$$R_i = \frac{(P_i,_t - P_i,_{t-1})}{P_{i,t-1}} \tag{1}$$

The event study tool used to retrieve these data calculates the expected returns for each day of the event window in two ways. First of all, the expected returns are calculated by taking the mean of the target's returns during the estimation period. When using this method to calculate expected returns, the abnormal returns during the event window can simply be described as the difference in return during that specific timeframe compared to the returns the firm achieved on average during the estimation period. The index price data is not used for this method and expected returns can be described as follows.

$$E(R_{i,t}) = \frac{\sum R_{i,t}}{T} \tag{2}$$

In this formula $E(R_{i,t})$ is the expected return for firm i and T denotes the total amount of observations of the stock price in the estimation period. The second method used to calculate the expected returns makes use of the market model and includes the index price data. This approach is more appropriate as it accounts for potential business cycles affecting the entire market or industry including the firm for which the abnormal returns are measured (reference) and will therefore be used in this research. As can be seen in the formula below, the market model represents a relation between the returns for a certain stock and the market return. The return on the S&P 500 index is used as a proxy for the market return in this case. The stock's beta is calculated by dividing the product of the covariance of the stock returns and the S&P's returns by the variance of the S&P's returns over the estimation period and represents the slope of the linear relationship between the returns of the firm and the market. Alpha is the intercept of this linear relationship and the error term eit can be interpreted as the unsystematic component of firm i's returns.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t} \tag{3}$$

Next, the expected returns can be calculated using the estimated alpha and beta coefficients. The market returns observed during the event window are used. The computation is illustrated below.

$$E(R_{i,t}) = \alpha_i + \beta_i R_{m,t} \tag{4}$$

Finally, the abnormal returns are calculated for each day of the event period by subtracting the expected returns from the realized returns of the firms. The remainder, which was represented by eit in formula (3) will depict the part of

the returns that can not be explained by the conditions that impact the general market and will therefore be considered as the result of the announcement effect.

$$AR_{i,t} = Ri, t, -(\alpha_i + \beta_i R_{m,t}) \tag{5}$$

The abnormal returns for each day of the event window are then accumulated to acquire the cumulative abnormal return (CAR) for each stock as seen in formula (6). These CARs are used for the regression analysis on the variables of interest previously selected, the management response and method of payment, to measure their effect.

$$CAR_i = \sum AR_{i,t} \tag{6}$$

4.2 Regression Analysis

The final step of the research is the regression analysis of the independent variables management response and payment type on the independent variable, the cumulative abnormal return. To measure the effects of these variables four regressions have been estimated. In the first two regressions both variables are used separately as follows.

$$CAR = \beta_0 + \beta_1 Hostile + \epsilon \tag{7}$$

In this formula β_0 can be interpreted as the constant and β_1 is the beta coefficient of the independent variable which is a dummy variable indicating the management response in the first regression and the method of payment in the second regression. The variable will take the value of one if the management of the target recommended its shareholders not to accept the offer. As the method of payment is a categorical variable depicting more than 2 options; shares, mixed and cash payments, the second regression will effectively look as follows.

$$Y = \beta_0 + \beta_1 Mixed + \beta_2 Cash + \epsilon \tag{8}$$

β_1 and β_2 can then be interpreted as the coefficient estimators of the effect of mixed and cash payments on the CAR as opposed to offers made with shares. In the third regression each variable will be included to observe if the effects diminish when they are both accounted for. In the final regression the interaction variables will be introduced resulting in the following regression.

$$\begin{aligned} Y = \beta_0 + \beta_1 Hostile + \beta_2 Mixed + \beta_2 Cash \\ +\beta_3 Hostile * Mixed + \beta_3 Hostile * Cash + \epsilon \end{aligned} \tag{9}$$

Here, β_3 and β_4 are the beta coefficients of the interaction effect between the type of payment and the management's response.

5 Results

In this section the results from the event study and the subsequent regression analysis will be presented and discussed. The results are provided in the same order as the regressions were introduced in the previous section.

5.1 Event study

The table below represents a summary of the CAR's calculated for all stocks in the event study. The mean value of approximately .20 indicates an average cumulative abnormal return of around 20%. This value corresponds with previous research in the field of announcement effects as it lays between the 14% Mandelker (1974) found and the 30% that was observed by Halpern (1973). As the minimum and maximum value illustrate the CAR ranges from below negative 60% to over 200%.

Table 1: *Summary of CAR: In this table the observations of all CAR's are summarized by providing the mean value, the minimum, the maximum and standard deviation. In total 178 CAR's were calculated.*

	mean	sd	min	max
CAR	0.20	0.42	-0.63	2.1
Observations	178			

The t-test is used to test if these results can be assumed to differ from zero significantly. The computation of the t-test can be seen below where t represents the test statistic, x is the mean of the CAR's, µ equals the theoretical value of the mean which is zero and s & n are the standard deviation of the sample and its size respectively. The resulting value of approximately 6.5 indicates the abnormal returns are highly significant at alpha < 0.001.

$$t = \frac{(\bar{x} - \mu)}{(s/\sqrt{n})} \tag{10}$$

5.2 Management response

When the cumulative abnormal returns are regressed on the management's response a clear negative effect can be observed of hostility of the target's management. On average abnormal returns caused by the acquisition announcement effect are around 17% lower for targets that opposed the offer than they are for targets of which the management recommended the offer. Both the coefficient estimate and the constant are significant. The constant can be interpreted in this regression as the average cumulative abnormal return of approximately 23% for targets of which the management recommends the offer to its shareholders. These findings are not in line with research carried out by Bradley (1980) who argued the rejection of bids led to competition in the market for corporate takeovers which would affect the premium in a positive manner.

Table 2: *Regression results of CAR on management response: This table contains the estimated coefficients of the dummy variable management response. The negative sign of the hostile dummy variable can be interpreted as lower cumulative abnormal returns on average for offer announcements that were not recommended to the target's shareholders*

	CAR
Friendly	0.00
	(.)
Hostile	-0.17**
	(0.08)
Constant	0.23***
	(0.03)
Observations	178
R2	0.02
Adjusted R2	0.02

Standard errors in parentheses
* p $<$ 0.10, ** p $<$ 0.05, *** p $<$ 0.01

5.3 Payment type

The second regression measures the effect of the type of payment on the CAR. The results indicate higher abnormal returns due to the announcement effect for targets when the acquisition offer is made using a mixed payment or cash of around 22% and 24% respectively. These coefficients reveal a positive effect of the use of cash over shares in merger offers at significant t-statistics of 2.45 and 3.48. The constant which would be interpreted as the average CAR for targets when offers are made with shares as the type of payment is not relevant as it's not significant at conventional levels. The adjusted R-squared for this regression of approximately 0.06 is higher than it was for the previous regression which indicates a higher explanatory power for the type of payment as to explain the acquisition announcement effect on target returns. The higher abnormal returns for offers made with cash are in line with the findings of Wansley, Lane and Yang (1983) who report a difference of around 16% in abnormal returns resulting from cash bids and offers made with shares and Huang & Walkling (1987) who observe a difference of 12%. However, the results do not support their hypothesis these differences are due to advantages of cash in the facilitation of a quick takeover as opposed to shares which require the Securities and Exchange Commission to approve the bid as the mixed offers for which the SEC's approval is necessary as well resulted in similar abnormal returns. Their alternative hypothesis, emphasizing the tax benefits of the bidding firm when using cash due to revenue deductibility and the larger premium required by shareholders of the target firm due to the undeferrable nature of cash payments with regards to taxes is therefore more likely to impact the announcement effect returns.

Table 3: *Regression results of CAR on Payment type: This table contains the estimated coefficients of the categorical variable Payment type. The positive values of the dummy variables mixed and cash can be interpreted as higher cumulative abnormal returns on average for offers that were made with cash or cash and shares as opposed to only shares*

	CAR
Shares	0.00
	(.)
Mixed	0.22**
	(0.09)
Cash	0.24***
	(0.07)
Constant	0.04
	(0.05)
Observations	178
R2	0.07
Adjusted R2	0.06

Standard errors in parentheses
* p $<$ 0.10, ** p $<$ 0.05, *** p $<$ 0.01

5.4 Management Response and Type of Payment

When both variables are included in the regression the explanatory power measured by (the adjusted) R-squared goes up even further to almost .1 as expected. All coefficient estimators remain significant and may therefore still be interpreted. The absolute value of the estimators has even increased for all variables demonstrating a more substantial effect on the cumulative abnormal returns. The impact of the method of payment and the management's response on the abnormal returns is therefore unlikely to be caused by correlation between the variables as this would have diminished their effects when tested alongside each other. The results can be interpreted economically as acquisition announcements of a cash offer that are recommended by the incumbent target's management resulting in higher abnormal returns of approximately 52% as opposed to offers made with the acquirers shares which are resisted.

Table 4: *Regression results of CAR on Payment type and Management's Response: This table contains the estimated coefficients of the categorical variable Payment type alongside with Management's Response. The positive values of the dummy variables mixed and cash can be interpreted as higher cumulative abnormal returns on average for offers that were made with cash or cash and shares as opposed to only shares and the negative value of the coefficient for the hostile dummy variable can be interpreted as lower cumulative abnormal returns on average for offer announcements that were not recommended to the target's shareholders.*

	CAR
Friendly	0.00
	(.)
Hostile	-0.24***
	(0.08)
Shares	0.00
	(.)
Mixed	0.24***
	(0.09)
Cash	0.29***
	(0.07)
Constant	0.06
	(0.05)
Observations	178
R2	0.11
Adjusted R2	0.10

Standard errors in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

5.5 Interaction effect

As mentioned in the previous section, the final regression includes the interaction effects between the two variables as well. Both interaction effects are not significant at conventional levels and may therefore not be interpreted. Interestingly, the management variable loses its significance too in this regression at a t-statistic value of -0.38. A possible explanation might be that the interaction variables are responsible for a part of the effect that was imposed on the management's response variable in the previous regressions. The Payment variable remains significant across all three regressions. The coefficient of the interaction effect between a hostile response to the bid and the use of cash is about -.15 which would indicate recommending its shareholders to reject the bid would decrease the abnormal return earned by the target firm by 15% more if the offer was made with cash instead of shares if it was significant. The same holds for the interaction effect between mixed offers and a hostile response, except for the fact that this would decrease the returns even more.

Table 5: Regression results including the interaction term between the management's response and the payment type: In this table the interaction term between the two independent variables tested in the previous regressions is included. It can not be interpreted however, as the coefficient is not significant at conventional levels.

	CAR
Friendly	0.00
	(.)
Hostile	-0.08
	(0.21)
Shares	0.00
	(.)
Mixed	0.27***
	(0.09)
Cash	0.30***
	(0.07)
Hostile # Mixed	-0.28
	(0.28)
Hostile # Cash	-0.15
	(0.23)
Constant	0.05
	(0.06)
Observations	178
R2	0.12
Adjusted R2	0.09
Standard errors in parentheses	
* p $<$ 0.10, ** p $<$ 0.05, *** p $<$ 0.01	

6 Conclusion

In this paper, the effects of the method of payment and the management's response to an acquisition offer on the abnormal returns caused by the announcement effect including their potential interaction effect have been tested. Its relevance originates from the lack of empirical analysis of the interaction effect which has implications for incumbent management of target firms' decisions to recommend its shareholders to accept or reject offers based upon the type of payment the acquiring firm is willing to offer. Moreover, previous research had yielded conflicting results with regards to the effect of hostility towards the offer and empirical analysis of the more recent market for mergers and acquisitions is hardly available causing uncertainty regarding the persistence of its impact on the announcement effect.

In order to address the issues a sample of all acquisition announcements registered in the Zephyr database of firms offering to purchase listed companies located in the United States from 2000 to 2020 was collected and its characteristics categorized. Subsequently, an event study was carried out by collecting and estimating expected returns for the targets of the offer announcements and their cumulative abnormal returns were regressed upon the variables of interest. The results of the event study indicate the persistence of the announcement effect generating positive abnormal returns of around 20% on average for the targets of acquisitions. These observations are in line with previous research by Halpern (1973) and Mandelker (1974) among others. The effect of the management's response and the type of payment used for the offers on the acquisition announcement effect on target's returns has also been proven to remain present. The use of cash or mixed payments result in approximately 20% higher abnormal returns as opposed to offers made with shares and a hostile response yields lower returns of over 20% on average.

This is valuable information as it may impact the decisions made by management of the target's firm in their response to acquisition offers as well as the decision made by the acquirer of what type of offer to make. Bidding firms might for example, decide to offer shares instead of cash in order to reduce the premium they pay for the target shareholders. Unfortunately, the interaction effect did not appear to be significant in the sample used in this research. This may very well be due to the fact that the combination of a hostile takeover and an offer made using shares is extremely rare and only 4 of the 178 cases in this research represented this combination.

Extending the scope of the research to increase the sample size might lead to more promising results in successive research in this field. Furthermore, theoretical studies are required to comprehend the justification of the deal characteristics' impact on the abnormal returns for the target shareholders as previous hypotheses regarding the advantages of cash have been proven difficult to consider as a result of this study.

7 References

Armitage, S. (1995). Event study methods and evidence on their performance. Journal of economic surveys, 9(1), 25-52.

Bradley, M. (1980). Interfirm tender offers and the market for corporate control. Journal of business, 345-376.

Carleton, W. T., Guilkey, D. K., Harris, R. S., & Stewart, J. F. (1983). An empirical analysis of the role of the medium of exchange in mergers. The Journal of Finance, 38(3), 813-826.

Cary, W. (1970). Corporate devices used to insulate management from attack. The Business Lawyer, 25(2), 839-844.

Dodd, P. (1980). Merger proposals, management discretion and stockholder wealth. Journal of financial economics, 8(2), 105-137.

Elgers, P. T., & Clark, J. J. (1980). Merger types and shareholder returns: Additional evidence. Financial management, 66-72.

Halpern, P. J. (1973). Empirical estimates of the amount and distribution of gains to companies in mergers. The Journal of Business, 46(4), 554-575.

Herbst-Bayliss, S. (2020, March 25) Coronavirus-stricken U.S. companies pop poison pills. Retrieved from https://www.reuters.com/article/us-health-coronavirus-poisonpills-analys/coronavirus-stricken-u-s-companies-pop-poison-pills-idUSKBN21C344

Huang, Y. S., & Walkling, R. A. (1987). Target abnormal returns associated with acquisition announcements: Payment, acquisition form, and managerial resistance. Journal of financial economics, 19(2), 329-349.

Langetieg, T. C. (1978). An application of a three-factor performance index to measure stockholder gains from merger. Journal of Financial Economics, 6(4), 365-383.

MacKinlay, A. C. (1997). Event studies in economics and finance. Journal of economic literature, 35(1), 13-39.

Mandelker, G. (1974). Risk and return: The case of merging firms. Journal of financial economics, 1(4), 303-335.

Malatesta, P. H., & Walkling, R. A. (1988). Poison pill securities: Stockholder wealth, profitability, and ownership structure. Journal of Financial Economics, 20, 347-376.

Mayer, W. J., & Walker, M. M. (1996). An empirical analysis of the choice of payment method in corporate acquisitions during 1980 to 1990. Quarterly Journal of Business and Economics, 48-65.

Nicolet, V. (2020, May 15) Considering poison pills as corporate vaccines amid Covid-19. (2019, November 11). Retrieved from https://www.irmagazine.com /esg/considering-poison-pills-corporate-vaccines-amid-covid-19

Peterson, P. P. (1989). Event studies: A review of issues and methodology. Quarterly journal of business and economics, 36-66.

Ruback, R. S., & Jensen, M. C. (1983). The market for corporate control: The scientific evidence. Journal of Financial economics, 11, 5-50.

Wansley, J. W., Lane, W. R., & Yang, H. C. (1983). Abnormal returns to acquired firms by type of acquisition and method of payment. Financial management, 16-22.