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MASTER THESIS

Stock or Cash?

Explaining the Payment Method Choice of M&As and the Effect on Performance on the European Developed Markets

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Abstract

We investigate what factors determine the choice of the payment method when choosing between payment of stocks or cash during an acquisition or merger. Furthermore, we examine how that choice of payment method affects the bidder's performance in the short term by examining the changes in the cumulative abnormal return. The sample consists of 2,647 transactions in the European Developed Markets covering the years 1998 - 2021. Our results show that factors related to *Capital Structure*, *Deal Characteristics*, *Profitability of the Bidder* and *Non-Financial Characteristics* drive the choice of the payment method, similar to earlier findings. The results are further explained by the theories of *Opportunistic Behaviour* and *Rational Payment Design*. Additionally, stock payments create a significant negative cumulative abnormal return and a significantly lower return than cash payments, based on an event window of three days.

JEL Classification: *G3, G32, G34, C10.*

Keywords: *Payment Method, Stock Bid, Cash Bid, Determinants of the Payment Method, Cumulative Abnormal Return, Opportunistic Behaviour, Rational Payment Design, M&A, Information Asymmetry, Adverse Selection.*

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Contents

1 Introduction

When companies make an acquisition or a merger, they acquire a particular stake in the target company. Making such a deal could be due to several reasons, such as gaining more market shares, increasing profitability, acquiring expertise and knowledge, or sustaining other synergies. The acquiring firm uses either stocks or cash as a *payment method*. Paying with stocks means that the target company receives equity in the bidder company and thus becomes an owner. This is not the case when paying with cash, and depending on what the bidder chooses to pay with could impact the bidder differently. This paper, therefore, aims to answer the following research questions to examine the implications of payment methods in M&As:

- *What factors determine the choice of payment method when choosing between payment of stocks or cash during an acquisition or merger?*
- *How does the choice of payment method affect the bidder's performance in the short term?*

We aim to answer the first question using a logit regression, examining the marginal effects and comparing the results with Eckbo et al. (2018) and Faccio and Masulis (2005). To investigate the second research question, we use the *Cumulative Abnormal Return (CAR)* as a performance measure, with an event window of both three and five days. We examine the changes in *CAR* by the implementation of the *Market Model* (MacKinlay, 1997) and the *Fama-French-Three-Factor-Model (FF3M)* (Fama and French, 1993) to calculate the *CAR* for the bidder of each transaction. After that, we test for a significant mean difference in the *CAR* between transactions based upon stock and cash payments.

The motivation for this study is that previous studies have not examined the period that we have chosen (i.e., 1998 to 2021), and this study will thus break new grounds in that sense. It is interesting to investigate whether earlier findings remain present in an updated sample and if previous findings still hold when measured on a longer time horizon. Additionally, our results contribute in three ways. First, previous research has not yet examined the determinants of the payment method and the effect on the *CAR* based upon the same sample. Second, previous research has examined how the choice of payment method affects the buyer's performance, but not on a so updated sample based on the European Developed Market. Third, previous research has found different results on how the choice of payment method affects the *CAR*, and our results bring new empirical findings to the debate. Moreover, our results are interesting for investors, institutions, companies and other participants in the financial markets as we show how markets interpret different corporate actions.

According to Faccio and Masulis (2005) and Eckbo et al. (2018), the choice of the payment method depends on a company's capital structure, deal characteristics, profitability and non-financial characteristic. Even though payment methods of stock or cash are a mere tool for transferring a company's value to one another, it appears to have different outcomes on the bidder's performance. It is, therefore,

interesting to know what kind of payment will be more likely, dependent on the company's characteristics and how this choice could create different outcomes in the performance of the bidding firm. Myers and Majluf (1984) and Shleifer and Vishny (2003) argue that firms prefer to issue stock when overvalued and when firm managers know more than the market. However, this action could be seen as a pessimistic signal for the company and could thus impact the share price negatively. Andrade et al. (2001); Savor and Lu (2009); Akbulut (2013); Vermaelen and Xu (2014) show that stock financed M&As tend to generate a negative effect on the share price of the bidder, while vice versa for cash financed deals according to Vermaelen and Xu (2014). Thus, we expect that stock financing should create a negative *CAR* on average, even though a different result appears in the paper by Yang et al. (2019).

We obtain the results based on a sample of 2,647 transactions (1,311 cash bids and 1,336 stock bids) that occurred between the period 1998 to 2021 in the European Developed Markets. The main findings of this study, based upon the results of the significant variables, are that a higher level of *Capital Structure* increases the probability of a stock bid while a higher level of *Profitability* decreases the probability of a stock bid. We also find that factors concerning *Deal Characteristics* and *Non-Financial Characteristics* drive the choice of the payment method, similar to the previous research of Eckbo et al. (2018) and Faccio and Masulis (2005). When we examine the *Capital Structure*, we find that an increase in the explanatory factors of bidder-companies cash holdings, market capitalization and R&D expenses increases the probability of a stock bid. Concerning *Deal Characteristics*, if the target is publicly listed or a subsidiary increases the probability of a stock bid. Thirdly, when examining the *Profitability of the Bidder*, a higher level of the bidders operating efficiency tends to decrease the probability of a stock bid. Lastly, when we investigate *Non-Financial Characteristics*, we find that M&As within the same industry increase the probability of a stock bid, whereas if the transaction is a cross border deal, the probability decreases.

Turning to the *CAR* of the bidder and our other main findings, concerning the payment method used on the announcement date, the *Market Model* shows that stock bids generate a significant negative *CAR* when using an event window of three days. Also, our findings show a significant difference between stock and cash bids as stock bids generate a significant lower *CAR* than cash bids of -6.78% on an event window of three days. The negative return from stock bids is explained due to dilution of the share price or by *Opportunistic Behaviour* as the bidder often may be forced to overpay. Also, even though stock bids generate negative returns we argue that bidders chose to pay with stocks as it offers strategic tools otherwise not offered by cash.

We examine the above-mentioned research questions according to the following structure. In Section 2, we go through previous literature about the choice of payment method and how this affects performance. Section 3 presents the foundation of the theory, why a payment is preferred over another and hypotheses to answer our research questions. Section 4 displays the data and its treatment of it. Section

5 presents our chosen methodology, and Section 6 presents the results. Lastly, the thesis is concluded in Section 7.

2 Literature Review

2.1 Choice of Payment Method

The M&A literature has extensive work on payment design and what determines the payment method. The choice of payment is dependent on region, target characteristics, bidder characteristics and market factors. Faccio and Masulis (2005) investigate the relationship between stock and cash financing in transactions within the European market. When analysing the European market compared to the US market, one difference is that it is more common that there is one major shareholder in the company, which could be one factor that may cause differences in the results between regions.

Faccio and Masulis' (2005) methodology investigates which factors increase the probability of using one payment method over another. Their investigation consists of a sample of 3,667 transactions within 13 European countries between January 1997 and December 2000. Some main findings are that a low level of liquidity, tangible assets, and low debt capacity reduce the probability of cash bids. However, cash bids become more common than stock bids if there is a high level of collateral assets or the bidder is large in terms of total assets. More cash bids also occur, from the bidder, if the target is unlisted or a subsidiary. In the latter case, when the parent company sells a subsidiary, it may be due to the parent company experiencing financial distress and needing more liquidity. Another important finding is that companies with a high Market-to-Book-value or a low level of liquidity lower the probability of cash offers. Also, if the company has an owner with voting rights of 20% to 60%, cash bids from bidders are more common because the owner's voting rights are in jeopardy of being diluted if the payment would have been made in stock instead. Stock financing is less likely for the European market when the target is unlisted (Faccio and Masulis, 2005). Similarly, Swieringa and Schauten (2007) present the same findings in their research on the Dutch market.

Nevertheless, Savor and Lu (2009) show different motivations for M&As via stock or cash payments, based on that the bidder is public and data between 1978 and 2003. Paying with cash offers value-creation only through the synergies coming from the target or the undervaluation of the target. Stock payment proved beneficial in creating value from synergies and the difference between the market value and fundamental value of equity. Also, overvalued companies preferred to pay with stocks as their acquisition currency.

Previous research assumes that a cash bid only includes cash, but according to Martynova and Renneboog (2009), it sometimes includes external funds. These external funds are either debt financing or equity financing; therefore, their paper investigates the motives for the bidder's decision. Their

investigation consists of 1,361 transactions between 1993 and 2001 in the European Market. The main finding of their paper is that in cash offers, there are external sources used, such as debt and equity. Like previous research, the authors show that bidders with high debt capacity lean towards stock offers, but corporate governance also plays an important role. The probability of a stock bid increases when there is strong shareholder protection coming from regulation enabling shareholders to monitor their investments by corporate decision-making or when there are higher transparency standards. Thus lowering the cost of equity and increasing the attractiveness of using external funds. On the other hand, stock bids are less used when the target owner can get a prominent position in the bidding company.

In addition, Akbulut (2013) measures the probability of choice of payment by examining insider trading of firm managers, with a sample of data between the period 1993 to 2000. Based on their argument that when a firm manager sells more and buys less, this is a sign of overvaluation due to the opportunistic behaviour of managers. In this situation, the firm is more likely to use stock as their payment method than cash. He further shows that overvalued bidders are more prone to acquire overvalued targets.

Similar to Faccio and Masulis (2005), Eckbo et al. (2018) examine whether there are similar relationships, in the US market between 1980-2014, for the different payment methods. The authors divide the result into four categories: capital structure, external pressure, deal characteristics and time characteristics. In the first category, Size and Asset Tangibility increase the probability of cash financing, whereas M/B-ratio and R&D-to-total assets increase the possibility of a stock offer. The second category first presents competition from private buyers, negatively affecting stock mergers similar to the cash-only seller variable. The third and fourth categories discuss how characteristics, such as how relatively large the deal is and whether the target is public, positively affect the likelihood of stock offers (Eckbo et al., 2018).

Obtaining insights from Yang et al. (2019), who study the choice of payment method in China between the years 1998-2015, they present two hypotheses regarding the payment method. Firstly, companies with a high level of excess liquidity are more likely to pursue M&A. Secondly, cash as a payment method relates to less growth. The authors support the first hypothesis that companies with a higher level of cash make more acquisitions than companies with a low level of cash. Regarding the second hypothesis, Yang et al. (2019) find that firms acting in a high growth phase attempt less M&A activity using cash.

2.2 Effect on Performance

Assessing how firm performance is affected by M&A activities can be broken down in many ways. Our thesis will investigate the effect on performance by observing the changes in the CAR obtained by conducting an event study. The gains from cash or stock bids should generate equal profits for the bidder in a perfect market, independent of the payment method.

However, research has shown that both the takeover premia and the *Abnormal Returns (AR)* relate to the payment method. Eckbo et al. (1990) first provide a theoretical framework for the payment method and identify an equilibrium where the bidder's size relates to a higher cash bid value. Secondly, the authors try to examine the empirical implication of the payment method. The authors present three prepositions to prove the first hypothesis, where they first show the existence of an optimal bid. Secondly, when the bidder's value is known, the use of cash becomes excluded because the bidder seeks to minimise an overpayment in this case. Out of 182 Canadian transactions between 1964-1982, the empirical findings show that the average monthly abnormal stock return is positively significant for transactions with a mixed payment method compared to the stock or cash offers (Eckbo et al., 1990). Andrade et al. (2001) investigate the area of M&A in a sample between 1973-1998 out of 4,000 transactions in the US. The authors find that M&As generate a significant positive return between 1.4% and 2.6% for the shareholders of the combined value of the bidder and the target by examining a combined CAR of the two. More importantly, they show that the CAR is negative at -1.5% for the bidder when only paying with stock. They further state that the *post*-merger AR is significantly negative at -9% when firms make their transaction payment with stocks.

Similarly, Savor and Lu (2009) show that mergers by stock bids tend to benefit long-term shareholders when comparing their performance to not making a deal at all. However, they show that long-term shareholders appear to get a negative AR difference, meaning that unsuccessful stock bids generate a more negative AR compared to successful bids, on the announcement date and in the long run. Akbulut (2013) finds that overvalued acquirers get negative and lower returns in the short run between 1993 and 2009 in the US, while the long run results show that the stock acquirers could expect to see negative ARs as the market would correct for the overvaluation. In other words, stock acquisitions driven by overvaluation tend to destroy shareholder value in both time horizons, according to Akbulut (2013).

Uysal (2011) investigates how a firm's *leverage deficit* affects the choice of payment method. The authors construct the *leverage deficit* for the sample consisting of US firms between 1990-2007 using a two-step approach, first by estimating the leverage ratio for the target and then how the predicted target capital structure significantly affects the choice of payment method and the CAR. *Leverage deficit* shows a significant positive effect on all acquisitions and the subsamples all paid by either cash or stock. These results indicate that an overleveraged bidder, i.e., a high *leverage deficit*, increases the announcement AR effect. These results are then controlled for bidder, deal and industry characteristics and show that cash bids, on average, generate a significantly higher CAR than stock bids.

Moreover, Vermaelen and Xu (2014) find that payment by cash generates higher announcement returns than stock payments in the US market between 1980-2005 for 2,978 completed deals. Cash payments also produce positive ARs, while payment with stock produces negative ARs. Based on the prediction model of Vermaelen and Xu (2014), they suggest that the explanation for stock-financed

payments is due to firms either motivating their choice because of economic fundamentals (such as an optimal level of capital structure) or because they try to time the market and thus exploit their overvalued shares for an acquisition purpose. Similarly, Cheng et al. (2016) examine how the price premium is affected by information asymmetry and how this affects the announcement AR of the acquirer. They find that information asymmetry positively correlates with the acquirer's price premium and the AR. The same is shown for the CAR as well. Cheng et al. (2016) suggest that the market responds more positively to acquisitions where the acquirer pays a higher premium as the market does not consider the payment to be an overpayment but rather a bargain. Moreover, Cheng et al. (2016) claim that the mentioned positive relationship is independent of the payment method through their research on the US market (between 1986-2006).

Lastly, Eckbo et al. (2018) find that the average takeover return for public bidders making a stock bid is positive at a CAR of 1% when examining a three days event window. Yang et al. (2019) examine the bidder's performance using ARs with a short window of three and five days. Their paper discusses that the results come from the fact that an acquisition is more profitable than establishing its own projects. More precisely, the authors use the CAR and show significantly positive results of 1.85% for three days and 2.16% for five days CAR for the bidders. Moreover, when dividing the CAR based on the payment method, stock payment generates the highest CAR of 11.67% (three days) and 15.13% (five days) for the bidder.

3 Theory

3.1 Theoretical Model

The theory of the choice of payment method has its foundation in the theories of *Asymmetric Information*, *Adverse Selection* and *Signaling Theory*. Akerlof (1970) proposed the *Market of Lemons Principle*, meaning that there is an information asymmetry in which the seller has superior information about the quality of the products. Therefore, it is difficult to separate which goods are of good or bad quality. In connection with M&A and our study, bidders of less quality (lemons) could be trading at a similar price to those of good quality simply by being overvalued, causing the target firm to be unable to separate between the two potentially. Therefore, accepting payment by stock from the bidder becomes tricky as the bidder has more information about its company that the acquirer may not know about, thus creating information asymmetries. There will also be a problem of adverse selection because the bidder seeks to utilize the superior information of the firm to maximize its benefits from the transaction value.

Similarly, we further explain the choice of the payment method via the *Pecking-Order Theory* by Myers and Majluf (1984). They examine how the decision to invest via issuance is affected by the assumptions of managers holding superior information and investors behaving rationally. Even though

the authors are not explicitly discussing the choice of payment method in an M&A, they do provide a key insight into when firms do not prefer to issue stock. The bidder's shareholders may pass up on a good investment opportunity if the cost of issuing new shares outweighs the gains of the bidder's *post*-M&A value. Moreover, the decision to make the investment via stock issuance is thus deemed as a less good signal to the market than if bidders used internal funds. Myers and Majlufs (1984) model, therefore, shows that issuing stock to finance investments will make the stock price decline, *ceteris paribus*. However, the model by Myers and Majluf (1984) shows that the combined merger value of two firms will increase in the case where one of them is rich in cash and the other one is not.

To further explain the theory about the determinants of the choice of payment method, the paper by Shleifer and Vishny (2003) is helpful. The authors present a theoretical model of stock-market acquisitions that seemingly explains why firms choose to pay with cash or stock. Payment with stock is more common when the firm's managers are better informed than the market or when the stock's intrinsic value is high and vice versa for cash. In other words, payment with stock is preferable when stocks are overvalued since fewer shares could be issued if the target's price is constant. Also, a stock bid is more common when the acquirers expect a long-run negative return on their shares and the acquisition enables the firm to make these returns less negative by utilizing the overvalued shares.

Continuing on the theories by Akerlof (1970), Myers and Majluf (1984) and Shleifer and Vishny (2003), the theory of *Opportunistic Behaviour* by Eckbo et al. (2018) will lay the foundation of the hypothesis development in this thesis later on. The motivation is that the theory constitutes a framework for understanding the decision-making of the payment method in M&A activities. The theory is according to the following Equations (1) and (2), where $t^* = c + z(\hat{b} + t^* - c)$:

$$E[v|a] = (1-z)(b + E[t|a] - c) = \frac{\hat{b}}{b + t^* - c}(b + E[t|a] - c) \tag{1}$$

$$\frac{\partial E[v|a]}{\partial c} = \frac{\hat{b}}{(b + t^* - c)^2}[(b - \hat{b}) - (t^* - E[v|a])] \tag{2}$$

Eckbo et al. (2018) assume two rational and risk-neutral firms engaged in an M&A activity deciding on the payment method. As in all M&As, the theory thus assumes that synergies are often the motivation for this type of firm action. Table 1 further shows the description of each parameter used in Equations (1) and (2). The interpretation of Equation (1) is that all targets with a reservation price of $t \leq t^*$ will be accepted, causing adverse selection on the target side, and the bidder will thus be expecting an overpayment of the same amount equal to $t^* - E[t|a]$. The bidder is willing to make an overpayment because of the generated synergies from the deal. Therefore, the residual claim of the bidder is the conditional expected value of Equation (1). Moreover, taking the partial derivative of (1) with respect to c leads to Equation (2). Eckbo et al. (2018) state that if $t^* - E[t|a] > (b - \hat{b})$, then $\frac{\partial E[v|a]}{\partial c} < 0$, which means that when the expected overpayment costs exceed the target's undervaluation of the bidder, cash

Table 1: Parameter Description

Parameter	Description
b	The synergy value of the bidder
$\hat{b}$	Targets estimated value of the bidder
t	Reservation value of the target
t^*	The acceptable reservation price for the target
c	Cash amount offered
z	Fraction of equity
a	A condition that targets accept the offer

Source: Eckbo et al. (2018)

bid is a relatively costly payment method, and stock financing should be preferred instead.

In contrast to the theory of *Opportunistic Behaviour*, Eckbo et al. (2018) further propose the theory of the *Rational Payment Design* to include more fundamental values to understand the problems with asymmetric information in a transaction deal. The theory says that the bidding choice (i.e., stock or cash) depends on the targets and the bidder's information asymmetry. Firstly, making a stock bid is derived from asymmetric information of the target's value for the bidder. On the other hand, making a cash bid means that the bidder commits to a specific price compared to paying with stocks. On the target's side, there is uncertainty about the bidder's value in this case. A well-informed target understands the bidder's valuation and the difficulty of selling overvalued stocks, indicating a cash bid. Therefore, the theory base consists of the differences and similarities in the industry, labour market, and characteristics between the parties. Overall, their paper shows information asymmetry problems in a transaction deal situation and in our thesis, it remains to see which theory of the theory about *Opportunistic Behaviour* and the *Rational Payment Design* best explains the relationships and behaviour in our sample.

3.2 Hypothesis Development

3.2.1 Choice of Payment Method

This Section provides our proposed hypotheses that explain the probability of a stock bid. First, the *Capital Structure* of the bidder is essential for the choice of the bid. Faccio and Masulis (2005) and Hansen (1987) say that a bidder of a larger size, i.e., the level of Total Assets, is more likely to make a cash bid. Faccio and Masulis (2005) also find that firms with a high Leverage ratio are more likely to use stock as a payment, and we anticipate the same in this case. The reasoning behind the first is that large companies have more tools to issue debt and therefore do not necessarily issue shares as that would involve more costs, making a cash bid preferred instead. Also, there is a contingent-pricing effect gain of stock financed payments decreasing the larger the bidder becomes. The opposite happens in the second case, as companies with a high leverage ratio do not have the same opportunity of issuing new debt and paying with cash.

On the other hand, the effect of Cash Holdings is not entirely clear as Eckbo et al. (2018) find no effect on the choice of payment method, while Akbulut (2013) instead finds that the probability of a bid occurring increases. However, Akbulut (2013) find no significant effect on the probability of the bid being stock-financed, but Faccio and Masulis (2005) find that cash holdings increase the probability of stock bids. Moreover, a bidder with more cash would intuitively imply that these firms should pay with cash. However, Faccio and Masulis's (2005) findings could be derived with support from the theory by Eckbo et al. (2018), about *Opportunistic Behavior*, as a highly valued bidder will increase the probability of a stock bid. A high level of cash holdings, streaming from high level earnings, will indicate that the bidder is profitable, thus implying a higher bidder's value. Based on Myers and Majluf (1984), firms are motivated to issue stocks when being overvalued.

Hansen (1987) and Eckbo et al. (2018) show that companies with a high M/B-ratio and R&D expenses increase the possibility of a stock bid. Like the M/B-ratio, Martynova and Renneboog (2009) use Tobins Q to measure whether the company has a high or low valuation. They show that the probability of a stock bid increases with a higher value of Tobins Q. Overvalued bidders are more likely to propose a stock bid due to being opportunistic. However, the *Rational Payment Design* states that a cash bid may be more likely, depending on the information asymmetry between the target and the bidder (Eckbo et al., 2018; Faccio and Masulis, 2005). Here it will be interesting to see which theory is more present regarding the overvaluation of the bidder. Also, the authors discuss that companies with high R&D expenses do not need to utilize the tax shield that comes with a cash bid and therefore uses stock bids instead. Continually, Faccio and Masulis (2005) find that a high level of Asset Tangibility increases the probability of paying with cash since there are more assets to use as collateral. Concerning the *Capital Structure*, we propose and test the following hypothesises:

H_1: A high level of Leverage, Market-to-Book-ratio, R&D Expenses-to-Assets, Tobins Q and Cash-Holdings increase the probability of a Stock bid

H_2: A high level of Total Assets and Asset Tangibility decrease the probability of a Stock bid

Previous research discusses the importance of *Deal Characteristics* to explain payment methods. Faccio and Masulis (2005) find that if the target is public, the probability of a stock bid increases. First, they discuss that the owners of an unlisted target strive towards financial goals and getting a cash payment for the company may fulfil the achievement of that goal instead of a stock bid. Secondly, in the European market, it is more common with one single owner, meaning it would entail a considerable risk for the owner to accept a stock bid. It would be a too significant proportion of their savings in a company which would be difficult to diversify away, and therefore cash would make the owner better off. Therefore, one can expect a higher probability of a stock bid if the target is public. Faccio and Masulis (2005) show that if the target is a subsidiary, the probability of stock bids decreases and is further explained due to the

reasoning of the parent company wanting to sell the target for liquidity reasons and therefore demands a cash payment. Thirdly, the Relative Deal Size decreases the probability of a stock bid. A higher ratio decreases the probability of a stock bid since it threatens the bidder's current owners voting rights by giving out ownership to the target owners if they are relatively large (Faccio and Masulis, 2005; Eckbo et al., 2018). Based on the above, the third and fourth hypotheses are as follows:

H_3: If the target is Public the probability of Stock bid increases

H_4: If the target is a Subsidiary or the Relative Deal Size is high, the probability of a Stock bid decreases

The third area to explore is the *Profitability* of the bidder and how this affects the choice of payment method. What is interesting is to examine whether a more profitable company prefer one way of payment over another one. Faccio and Masulis (2005) and Yang et al. (2019) find that different levels of liquidity generated from cash flow affect cash bids and motivations for making acquisitions. For instance, if the bidder has low profits, they may seek to acquire a firm with a successful business to improve their profits. If the cash flow related to the transaction value is high, the bidder can finance more of the deal by its cash flow (Martynova and Renneboog, 2009). On another note, Andrade et al. (2001) find that the operative performance is enhanced by M&A's when examining abnormal returns, but not whether this is affected by the choice of payment method. Eckbo et al. (2018) measure the operative efficiency by a ratio analysis and find no significant effect on the choice of payment method.

Moreover, our thesis will measure the operative performance by examining the operating efficiency. The operating efficiency explains how good the firm is at utilizing its assets, and a high ratio means that it is more efficient in managing its capital. A higher ratio implies a higher level of profitability which should make the bidder's value higher and thus make the probability of a stock bid higher, similar to the discussion about Cash holdings and *Opportunistic Behavior* mentioned above. Furthermore, Faccio and Masulis (2005) state that if the bidder pays a low amount of cash dividends, then paying with cash in an M&A is less attractive due to the low level of cash. The descriptive statistics of Eckbo et al. (2018) show that a more significant portion of cash-financed bidders paid dividends than stock-financed bidders, and thus we expect the same. The fifth hypothesis is thus:

H_5: A high level of Operational Cash-Flow, a low level of Operating Efficiency or if the bidder pays dividends, decreases the probability of a Stock bid

Lastly, previous research also discusses the importance of *Non-financial characteristics* and the impact on the choice of payment method. Important determinants are if both parties act in the same industry or if there are cross-border-effects (Faccio and Masulis, 2005), related vs unrelated M&A deals (Eckbo et al., 2018) and the age of the bidder and the target (Martynova and Renneboog, 2009). First, when the target gets paid with stocks in the bidder firm, the target must have good knowledge of the business

environment to bear the risk of owning the bidder's shares, which the target should have if both companies are active in the same industry. Secondly, in the cross-border situation of stock bids, one can think of many uncertainties such as taxes, exchange rate risk, and interest rate risk. Therefore, stock bids may be less common from the bidder to the target (Faccio and Masulis, 2005; Eckbo et al., 2018). Lastly, a bidder of higher age is more likely to be able to lend money due to their seniority and mature characteristic, and cash bids should be more common in this case. The sixth and seventh hypothesises are, therefore, formulated as:

H_6: *If the Bidder and Target act in the same industry the probability of Stock bid increases*

H_7: *If the deal is a Cross-Border transaction or the Bidder is relatively old the probability of a Stock bid decreases*

3.2.2 Effect on Performance

As mentioned above, there are various ways of measuring performance, but in this thesis, the objective is to analyse the effect on a firm's performance by examining how the choice of payment method affects the *CARs* of the bidder. First off, the overall return coming from M&As appears to be positive (Andrade et al., 2001; Cheng et al., 2016; Savor and Lu, 2009). Then, Andrade et al. (2001); Savor and Lu (2009); Akbulut (2013); Vermaelen and Xu (2014) show that stock financed payments in M&As generate a significant negative *AR* or *CAR*, while the opposite appears in the papers by Eckbo et al. (2018), and Yang et al. (2019). A possible explanation is that targets force bidders to pay a higher price than the target's value which explains the negative return corrected for by the market (Akerlof, 1970; Eckbo et al., 2018). Secondly, issuing equity for the sake of investing is seen as a less preferred corporate action when compared to payments with cash and thus impacts the share price negatively (Myers and Majluf, 1984). Additionally, Vermaelen and Xu (2014) find that cash payments generate positive *ARs*. Lastly, Uysal (2011) and Vermaelen and Xu (2014) show that the difference in *ARs* between cash and stock payments is significantly higher for cash payments, i.e., the difference is positive. Thus, we expect a positive *CAR* between the payment options as stock payments generate a negative return in relation to the announcement, and cash payments imply the opposite. Therefore, we propose the following hypothesises:

H_8: *The announcement effect on the performance of a Stock bid is negative*

H_9: *The announcement effect on the performance of a Cash bid is positive*

4 Data

4.1 Data Source and Collecting Process

S&P Capital IQ provides financial, market, and transaction data for companies worldwide. We use S&P Capital IQ's database by screening M&A transactions concerning specific criteria. The data displayed in Figure A.1 shows the recent M&A peaks with a majority of cash bids. There appear to have been more M&As during the last ten years (2012 - 2022) than the ten years before that (2001 - 2011). Although the number of M&As has increased a lot since 1998, the trend has declined from 2016 until today.

Our sample contains *stock bids*, *cash bids* and a mix of both named *mixed*, based on data from the European Developed Markets, and contains transactions with a deal size of at least $10 million (similar size used in Eckbo et al. (2018) & Akbulut (2013)). Firstly, we collect data for stock bids since previous research has encountered problems with the lack of stock bids (Eckbo et al., 2018; Faccio and Masulis, 2005; Swieringa and Schauten, 2007). The screen generated 1 609 stock bids between 1980 - 2021, but only between one and seven bids occurred for the years 1980 - 1997, respectively, which led us to only use the years 1998 - 2021 in the end. Secondly, based on the stock bids, data for cash bids were downloaded with the same characteristics and amounted to approximately 40,000 transactions. Then the data were further divided into mixed payments. We randomly collected as many cash bids as stock bids per year to balance the data distribution between stock bids, cash bids, and mixed bids. However, some transactions were dropped due to missing values, leading to the final sample in Table A.2, visible in the Appendix. Important to highlight is the under-representation of mixed bids, and the decision is to exclude these resulting in a final sample consisting of cash and stock bids only. The choice of this execution is motivated due to the small likelihood of observing any effect from that low amount of mixed bids observations. Continually, the data may have a bias as a low number of cash bids observations are analyzed (1,311) compared to the number of cash bids that occurred (40,000) in the given period and may thus not reflect the true image of the actual relationship in the population (Stock and Watson, 2015).

Moreover, we are downloading relevant financial and transaction data for both the bidders and the targets. The factors are; time of bid, the bidder (if there are several bidders, we pick the first bidder), country of the bidder and the target, industry sector for the bidder (see Table A.3), balance sheet items, income statement items, cash flow items, market data, the deal status, transaction value and other non-financial factors (more about this in Section 5). Also, data for the *daily close price* for each transaction consists of data for the 252 trading days before the announcement date of the bidder and then ten days after the announcement date. From the Kenneth French data library (French, 2022), we are obtaining data for the control variables for the *FF3M* based on the European market (Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, Great Britain, Greece, Ireland, Italy, Netherlands, Norway, Portugal and Sweden). We use the *FF3M* due to the proven explanation of returns

in other studies and its ease of use (Fama and French, 1993).

4.2 Treatment of Missing Values and Outliers

The data appeared to have some problems with missing values during the screening process. In the screening process, we found that 143 companies lacked *Bidder ID* and based on this, we exclude these observations. Since some variables are more important than others, we decided that the most critical variables needed are the balance sheet items. Therefore, we use all transactions with data for the balance sheet items resulting in 1,454 stock bids and 1,004 cash bids. Due to the availability of cash bids (i.e., the 40,000 mentioned earlier), we randomly selected 450 more cash bids, depending on the missing data per year, with the same procedure for these transactions. In these 450 transactions, we got missing data for 143 of them, and concerning missing values, we decided that 1,311 cash and 1,336 stock were sufficient as a balanced data set had been constructed (see Table A.2).

There are outliers in the data when observing the distributions for all balance sheet-, income statement-, and cash flow-items. Therefore all variables are winsorized to best deal with the outliers in the data. Winsorizing is made at a 5% limit, resulting in a smoother data distribution. Almost all variables described in the later Sections are ratios, making it easier to compare bidders and targets to understand better what determines the payment method.

4.3 Descriptive Statistics

The descriptive statistics of the final sample of 1,311 cash bids and 1,336 stock bids are in Table A.4. Interestingly, Table A.4 show that the stock bids have higher means and standard deviations than most of the cash bids observations. In terms of total assets, the final sample has larger companies for the stock bids on average, which is in line with previous research (Eckbo et al., 2018; Faccio and Masulis, 2005). The mean age of the bidder is higher for cash bids than for stock bids, and the mean age of the target is lower for cash bids. Moreover, there is a higher percentage of public targets (9.7%), targets being subsidiaries (83.9%) and transactions within the same industry (47%) amongst the stock bids compared to cash bids (3.4%, 75.7% and 33.9%). Also, the ratio of completed bids, indicated by the dummy variable *Deal Status* being equal to one, shows that the proportion of completed bids is high at 85.3% in the data. Having complete bids ensures that the valuation of the firms is determined. This sign in the data makes the transaction characteristic more reliable, leaving less room for fluctuations or anomalies in the data, leading to enhanced quality and robustness. Non-complete bids mean that the target did not accept the bids, and thus no deal was made. However, a final remark from Table A.4 is that the mean transaction value is much higher for stock bids than for cash bids. This sign gives a hint that firms tend to use stock when being valued more (i.e., when they have a higher Enterprise Value and value of Total Assets), but what remains to see is to which extent they are overvalued or not.

5 Methodology

5.1 Variable Selection

5.1.1 Capital Structure

To examine how *Capital Structure* affects the choice of payment method, we start by creating the variable $Size_i$ in Appendix B.1. With i being the bidder in the i^{th} transaction for all Equations expressed from here and on. We take the natural logarithm of $Total\ Assets_i$ as Faccio and Masulis (2005), and Eckbo et al. (2018) use a similar approach. This choice handles outliers making the distribution less uneven (see Figure B.2). Moreover, other variables to capture determinants of *Capital Structure* are $Leverage_i$, $Cash\ Holding_i$, $Tobins\ Q_i$, $R\&D_i$ and $Asset\ Tangibility_i$. All variables contain book values reported by the companies in each transaction except for $Tobins\ Q_i$ which also has the market value in the numerator. Furthermore, creating ratios enables us to standardize the data, making measurements easier to interpret. Although Hansen (1987) and Eckbo et al. (2018) show that companies with a high *M/B-ratio* increase the possibility of a stock bid, the variable named $Tobins\ Q_i$ will be used instead of the *M/B-ratio* due for two reasons. First, $Tobins\ Q_i$ accounts for the differences in the capital structure in a way that the *M/B-ratio* is not capable of and second is that the monotonic correlation between these variables (displayed in Figure B.3) is too high to include both, at a value of 0.88, and thus we exclude the *M/B-ratio*.

Furthermore, Table B.4 display some descriptive data of the variables where $Leverage_i$ has a mean value of 0.231. $Cash\ Holding_i$ has a mean value of 0.121, with 75% of the bidder's ratios below 0.15. $Tobins\ Q_i$ has 811 observations with a value above one and 1,979 below one, meaning that about 29% of the bidders are overvalued. Thus, indicating payment with stock and the remaining 61% pay with cash when only considering $Tobins\ Q_i$. The variable $R\&D_i$ shows that 2,390 bidders do not have any R&D expenses, and the mean value is 0.019. Lastly, the variable named $Asset\ Tangibility_i$ has a mean value of 0.279 and shows that most bidders have a ratio below 0.5. We correct the variables $Leverage_i$ and $Asset\ Tangibility_i$ because some ratios are larger than one, which does not make sense as there cannot be more PP&E or Debt than Total Assets. 12 (179) observations in $Leverage_i$ ($Asset\ Tangibility_i$) were given one instead. See a more detailed description of all variables in Appendix B.1.

5.1.2 Deal Characteristics

As discussed above, the relative size between the bidder and target is of importance, and we, therefore, include the variable $Relative\ Deal\ Size_i$. A higher ratio implies that the target will constitute a major fraction of the bidder. Half of the transactions are below a ratio of 0.35, and the mean value is higher at 0.49. That said, most M&A transactions make up less than half of the *pre*-deal value of the bidder. Furthermore, the dummy-variables $Public_i$ and $Subsidiary_i$ capture the effect of the target's deal characteristics. $Public_i$ takes the value of one (7.1% of the sample) if the target is public on any stock exchange,

and $Subsidiary_i$ takes the value of one (80.5% of the total sample) if the target is a subsidiary.

5.1.3 Profitability of bidder

Assessing the profitability of the bidder is first done by the variable $CF\text{-}Transaction_i$, which shows the ratio between the operational cash flow of the bidder and the transaction value in transaction i. It goes forth that about 72% of the bidders have a ratio lower than one, and about 50% have a value lower than 0.12. A ratio lower than one means that the firm is incapable of financing the entire transaction with internal funding (cash), which should affect the choice of the payment method. Also, we include the variable named $Operating\ Efficiency_i$, based on the book value of the bidder, to assess the profitability as it impacts the payment method. The variable's mean value is 0.643, and 639 of the observations have a ratio higher than one.

Furthermore, the variable $Dividend_i$ shows if the bidder pays dividends or not, and we expect the choice of payment method to be with stock if the dummy equals one. However, Eckbo et al. (2018) find a non-significant result when using this dummy, and it would not be too surprising if the same goes forth for us. The dummy descriptives further show that about 50% of the bidders pay dividends.

5.1.4 Non-Financial Characteristics

Non-Financial characteristics used in earlier research are variables such as $Industry_i$ and $Cross\text{-}border_i$. First off, if both parties are in the same industry, then it is more likely with stock deals (Faccio and Masulis, 2005; Eckbo et al., 2018), and in our sample, about 22.5% of the transactions are made by stock payments when occurring in the same industry. $Industry_i$ is equal to one if they are acting in the same industry and obtained by matching the S&P Capital IQ command named "*Primary Industry Classification*", based upon the SIC codes of the companies.

Also, another variable in this aspect is the age of the bidder, named $BidderAge_i$, due to the findings in Martynova and Renneboog (2009), as they find that mature firms tend to use debt while younger firms use equity financing. $BidderAge_i$ is the difference between the announcement date and the starting date of the bidder. We considered all values above the mean of 44.2 years, which amounts to 861 observations. This variable had 468 bidders with no data on the year founded. Therefore we implement a proxy to assign the age of the bidder from when the first financial report was available to the public, meaning that the shares were traded publicly and thus encounter some effects on the market value.

5.2 Models

5.2.1 Model used for examination of Payment Method

We use a logit model to investigate what characteristics determine the choice of payment method, between cash and stocks, in an M&A based upon our sample of 2,647 transactions. The dependent variable

expressed as y_i is binary with the two options of stock bids and cash bids, shown in Equation (3). We express the determinants of y_i in Equation (4), where all variables estimated effects are shown in the form of β_i and ε_i is the error term. Then we show the logit regression in Equations (4), (5) and (6).

$$y_i = \begin{cases} y_i = 0 \text{ if cash bid} \\ y_i = 1 \text{ if stock bid} \end{cases} \tag{3}$$

$$\begin{aligned} y_i = \alpha &+ \beta_1 * \text{Size}_i + \beta_2 * \text{Leverage}_i + \beta_3 * \text{Cash Holding}_i + \beta_4 * \text{Tobins Q}_i + \beta_5 * \text{R\&D}_i \\ &+ \beta_6 * \text{Asset Tangibility}_i + \beta_7 * \text{Relative Deal Size}_i + \beta_8 * \text{Public}_i + \beta_9 * \text{Subsidiary}_i \\ &+ \beta_{10} * \text{CF Transaction}_i + \beta_{11} * \text{Operating Efficiency}_i + \beta_{12} * \text{Dividend}_i \\ &+ \beta_{13} * \text{Industry}_i + \beta_{14} * \text{Cross-Border}_i + \beta_{15} * \text{BidderAge}_i + \varepsilon_i \end{aligned} \tag{4}$$

Some variables of Eckbo et al. (2018) and Faccio and Masulis (2005) are not included and the reason for this is due to lack of data availability. When regressing Equation (4), we get the coefficients in log-odds according to Equation (5) and therefore, they are tricky to interpret. A more straightforward way to interpret the coefficients is by calculating the *Average Marginal Effect (AME)* according to Equation (6), where the X's represents the variables we have chosen. According to the above formula, we take the partial derivative of one variable at the time, holding everything else constant, and thereby find the *AME* of each coefficient. The *AME*, in comparison to the log-odds estimates, presents the coefficients in the average percentage change in the dependent variable by a small change in X_i.

$$P(x) = \frac{1}{1 + e^{-y_i}} \tag{5}$$

$$\frac{\partial p}{\partial X_1} = \frac{\beta_1 e^{(\beta_0 + \beta_1 X_1 + ... + \beta_p X_p)}}{(1 + e^{-(\beta_0 + \beta_1 X_1 + ... + \beta_p X_p)})^2} \tag{6}$$

Moreover, to control the result in regression (4), three robustness control variables are included (*Completed Deals, Industry Sector* and *Year*) according to previous research (Eckbo et al., 2018). Firstly, we perform the same regression as (4) but only with the completed deals, i.e., 2,280 observations out of 2,647. Secondly, according to Table A.3, we control for differences between industry sectors and we include a dummy for the year to adjust our results seasonally. Lastly, in the estimation of the logit regression, we use robust standard errors to correct for possible heteroscedasticity problems.

5.2.2 Model used for examination of Performance linked to Payment Method

MacKinlay (1997) discuss the use of the *Market Model* to assess the performance of companies. The model uses the AR in Equation (7), described as the actual event return subtracted by the average

normal return before the event, to capture the performance effect. The performance effect can either appear as positive, negative or as having zero effect. Moreover, the methodology choice is first to test the *Market Model* and then extend this version to the *FF3M* as in Equations (8) and (9). We index the variables by transaction i and the date of t, $r_{i,t}$ shows the return for the bidder in the i^{th} transaction in time t, $\alpha_{i,t}$ is the intercept, $R_{m_{i,t}}$ shows the return of the market based upon the European Developed Market mentioned in Section 4.1 and $\varepsilon_{i,t}$ captures everything else not being caught by the model. The three factors of Equation (9) are the market risk premium expressed as the return on the market (i.e., the region's value-weight market portfolio) minus the risk-free rate ($R_{m_{i,t}}$-$R_{f_{i,t}}$), the size-factor of the difference in performance between small minus big companies ($SMB_{i,t}$) and the difference in performance between the high minus low values of the book-to-market ratio ($HML_{i,t}$).

$$AR_{i,t} = r_{i,t} - E[r_{i,t}] \tag{7}$$

$$E[r_{i,t}] = \alpha_{i,t} + \beta_i * R_{m_{i,t}} + \varepsilon_{i,t} \tag{8}$$

$$E[r_{i,t}] = \alpha_{i,t} + \beta_1 * (R_{m_{i,t}} - R_{f_{i,t}}) + \beta_2 * SMB_{i,t} + \beta_3 * HML_{i,t} + \varepsilon_{i,t} \tag{9}$$

We implement the Event Study Methodology by MacKinlay (1997) to test if there is a difference in AR between stock and cash bids. In the procedure, we first assess an appropriate period for the *Event*, in this case, the announcement date (i.e., bid date), for the *Estimation Window* and lastly for the *Event Window*. We apply an event window of (+/-) one and two days as is done in previous studies (Yang et al., 2019; Eckbo et al., 2018). Moreover, the estimation window can take various forms; Eckbo et al. (2018) use 249 days, and Yang et al. (2019) use 200 days, whereas Ullah et al. (2021) apply 60 days. However, as our sample is based on a long time horizon and has transactions in different eras, 125 days is the choice of the estimation window to ensure a good chance of getting reasonable estimates for the α and β coefficients. We also choose a gap between the estimation window and the event window of 20 days to examine how this affects the AR as previous studies apply similar distances (Yang et al., 2019). Moreover, we winsorize the CAR-variables at a 5%-level to reduce the effect of outliers to some extent.

Furthermore, we examine the CAR to see how the performance of firms is affected close to the event date. The CAR is the sum of the AR with respect to the interval of the event window. The CAR is measured based upon an interval of both three days [+1,-1] and five days [+2,-2] (10).

$$CAR(3)_{i,t} = \sum_{i,t=-1}^{1} AR_{i,t} \qquad CAR(5)_{i,t} = \sum_{i,t=-2}^{2} AR_{i,t} \tag{10}$$

We also examine whether the calculated *CAR(3)* and *CAR(5)* differ significantly between stock and cash bids by running a bivariate regression. In Equation (11), we use the dummy-variable $STOCK_{i,t}$ to assess if the payment methods differ in their effect on the performance measurement CAR, where $\alpha_{i,t}$ is the

intercept, and the β_1 is the estimated effect of the difference. The variable $\varepsilon_{i,t}$ is an error term.

$$CAR_{i,t} = \alpha_{i,t} + \beta_1 * STOCK_{i,t} + \varepsilon_{i,t} \tag{11}$$

6 Results

6.1 Choice of Payment Method

This Section presents the results for the first research question about the choice of payment method, based upon the outcome from the logit-regression of Equations (4), (5) and (6), displayed in Table 2. Firstly, we assess if there is an effect of each category separately (i.e. models (1)-(4)) and then include all variables in the model *All* (5).

TABLE 2: THE DETERMINANTS OF THE CHOICE OF PAYMENT METHOD

	(1) **Capital Structure**	(2) **Deal Characteristics**	(3) **Profitability**	(4) **Non-Financial Characteristics**	(5) **All**
Capital Structure					
Size	-0.0046				-0.0103*
	(0.0040)				(0.0048)
Leverage	-0.0122				-0.0751
	(0.0496)				(0.0491)
Cash Holding	0.1510*				0.2241***
	(0.0680)				(0.0633)
Tobins Q	0.0106				0.0070
	(0.0119)				(0.0107)
R&D	1.6540***				1.5421***
	(0.2907)				(0.2901)
Asset Tangibility	0.0583				0.0628
	(0.0308)				(0.0323)
Deal Characteristics					
Relative Deal Size		-0.0481*			-0.0670*
		(0.0228)			(0.0336)
Public		0.3462***			0.3022***
		(0.0477)			(0.0434)
Subsidiary		0.1384***			0.1325***
		(0.0229)			(0.0224)
Profitability of the Bidder					
CF-Transaction			-0.0032*		-0.0021
			(0.0015)		(0.0011)
Operating Efficiency			-0.0989***		-0.1139***
			(0.0133)		(0.0139)
Dividend			-0.0665***		-0.0064
			(0.0192)		(0.0224)
Non-Financial Characteristics					
Industry				0.1408***	0.1218***
				(0.0188)	(0.0185)
Cross-Border				-0.1347***	-0.1703***
				(0.0186)	(0.0171)
BidderAge				-0.0005**	-0.0002
				(0.0002)	(0.0002)
N	2,647	2,647	2,647	2,647	2,647
pseudo R^2	0.0367	0.0292	0.0244	0.0284	0.1205

Table description: Table 2 displays the logit regression results based upon Equation (4). The dependent variable is y_i, and the independent variables are described in the variable description Table B.1. In total, five models are tested, named *Capital Structure (1), Deal Characteristics (2), Profitability (3), Non-financial Characteristics (4) and All (5).* All models contain the full sample of 2,647 deals, and the marginal effects are reported as coefficients. Robust standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

In Table 2, the first category tested is the *Capital Structure* in model (1), we see a significant effect on two variables and H_1 is thus partly supported. The variable *R&D* is significant at a 1%-level and *Cash*

Holding at a 5%-level. Surprisingly, we find no significant effect on the variable *Leverage*, which has been essential in other research about the determinants of the choice of the payment method (Uysal, 2011; Faccio and Masulis, 2005). However, this insignificant result is still consistent with the findings of Eckbo et al. (2018). A possible explanation for this result is that other factors soak up this variation and that the loan market is more complex than is understood by our measurement of the leverage ratio. Moreover, we do not find support for H_2 as either *Asset Tangibility* or *Size* show significant results but the coefficient sign points in the right direction.

In the case of the *Deal Characteristics*, in model (2), all three variables are significant at a 5%-level. However, only the variables *Relative Deal Size* and *Public* supports our hypothesis H_3 and H_4. *Relative Deal Size* shows that if the transaction value is relatively high compared to the Enterprise Value of the bidder, the probability of a stock bid will decrease. A possible explanation is that if the target is large (in terms of value), the target's owners will get a high share of voting rights in the bidder and thus threaten the current owner's voting power. We find similar results in previous research by Eckbo et al. (2018) and Faccio and Masulis (2005). Our sample further shows that if the target is public, then the probability of a stock bid increases by almost 35%, which aligns with the hypothesis. The variable *Subsidiary* is not aligned with H_4 even though appearing significant and showing that the probability of stock payments increases by 13.8% when the target is a subsidiary. Thirdly, for the effect of *Profitability* examined in model (3), H_5 is partly supported as both *CF-Transaction* and *Dividend* show a negative effect with a significant level of 0.1%. *CF-Transaction* explains whether a company can finance the deal by the cash flow from its operations, which increases the probability of a cash bid, and we see this effect in our sample. This measure of profitability aligns with previous research since when the ratio is equal to one, the probability of a stock bid decreases as the bidder can finance the deal with internally generated funds (Martynova and Renneboog, 2009). Similarly, paying dividends is an indicator of a company generating profits for its owner and should also lower the probability of stock bids since they could afford to pay with cash or have the ability to lend money. The results show that the probability of a stock bid decreases by -6.65% if the bidder pays dividends. However, when controlling for more variables in model (5), these results become insignificant and our proposed explanations do not seem to hold.

Further, the *Non-Financial Characteristics* in model (4) results are significant at a 1%- and 0.1%-level. The dummy variable *Industry* shows that if the bidder and the target act in the same industry, the likelihood of a stock bid increases by 14.1%. The variable *Cross-Border* presents results similar to previous research (Eckbo et al., 2018; Faccio and Masulis, 2005) as a cross border transaction reduces the probability of stock bid by -13.5%. Lastly, in the last column (5) of Table 2 one can see that the variable *Size* becomes significant whereas *BidderAge* and *CF-Transaction* become insignificant instead. Another important factor that does not show significant results is the variable *Tobins Q* which have been important in earlier work by Eckbo et al. (2018) in connection with the theory of *Opportunistic*

Behaviour. Since the last model (5) includes most of the explanatory power (pseudo R^2 of 0.1205) and reduces omitted bias (compared to models (1) to (4)) we choose to continue our analysis with this model.

Continuously, in Table 3 we control the last model (5) from Table 2 and if the results still hold when implementing the three control variables, *Completed Deals*, *Industry Sector* and *Year*. First, in model (1), we estimate the logit regression using only the completed deal transactions (i.e., 85.3% of the observations). Then we implement a dummy variable to control for each industry sector (see A.3) in model (2) and a dummy for each year in model (3).

TABLE 3: ROBUSTNESS TEST OF THE CHOICE OF PAYMENT METHOD

	All		
	(1)	(2)	(3)
Capital Structure			
Size	-0.0083	-0.0084	-0.0092
	(0.0049)	(0.0049)	(0.0049)
Leverage	-0.0442	-0.0436	-0.0366
	(0.0523)	(0.0524)	(0.0522)
Cash Holding	0.2157***	0.2152***	0.2222***
	(0.0651)	(0.0651)	(0.0650)
Tobins Q	0.0232**	0.0231**	0.0217**
	(0.0072)	(0.0072)	(0.0070)
R&D	1.3832***	1.3932***	1.3138***
	(0.2716)	(0.2730)	(0.2680)
Asset Tangibility	0.0625	0.0629	0.0615
	(0.0341)	(0.0342)	(0.0343)
Deal Characteristics			
Relative Deal Size	-0.0278	-0.0289	-0.0295
	(0.0287)	(0.0289)	(0.0289)
Public	0.2639***	0.2638***	0.2765***
	(0.0456)	(0.0456)	(0.0468)
Subsidiary	0.2049***	0.2035***	0.1991***
	(0.0252)	(0.0255)	(0.0256)
Profitability of the Bidder			
CF-Transaction	-0.0020	-0.0020	-0.0020
	(0.0011)	(0.0011)	(0.0011)
Operating Efficiency	-0.1241***	-0.1245***	-0.1288***
	(0.0152)	(0.0153)	(0.0156)
Dividend	0.0157	0.0161	0.0145
	(0.0240)	(0.0240)	(0.0239)
Non-Financial Characteristics			
Industry	0.0948***	0.0943***	0.0971***
	(0.0199)	(0.0199)	(0.0198)
Cross-Border	-0.1853***	-0.1851***	-0.1874***
	(0.0189)	(0.0189)	(0.0189)
BidderAge	-0.0002	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)
Completed Deals	*Yes*	*Yes*	*Yes*
Industry Sector	*No*	*Yes*	*Yes*
Year	*No*	*No*	*Yes*
N	2272	2272	2272
pseudo R^2	0.1418	0.1418	0.1435

Table description: Table 3 displays the Logit regression results (4). The dependent variable is y_i, and the independent variables are described in the variable description Table B.1. Robust standard errors are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001.

The results of Table 3 confirm our hypotheses to a large extent and explanations are as follows. Similarly, hypothesis H_1 is confirmed to some extent as the variables *Cash Holding* and *R&D* remain significant at a 0.1%-level while *Tobins Q* becomes significant at a 1%-level. Again, the variable *Leverage*

is still insignificant. Nevertheless, if the bidder invests more in R&D projects, the bidder is in less need of utilizing benefits from a tax shield, otherwise obtained from a cash bid, thus making a stock bid more probable instead (Faccio and Masulis, 2005). A ratio greater than one, for *Tobins Q*, is a sign of overvaluation, and the variable shows that the probability of payment with stock will increase as the ratio becomes higher, under the theory of *Opportunistic Behavior*. If the ratio increases by a small unit, the probability of a stock bid will increase by at least 2.17%. Eckbo et al. (2018) offer two possible explanations for this relationship; first, bidders with a high valuation (i.e., a high ratio of Tobins Q) are cash-constrained and paying with stock thus becomes the option instead. Secondly, bidders are well aware of their overvaluation, thereby taking advantage of the miss-pricing and exploiting this according to the theory of *Opportunistic Behavior* and the findings by Myers and Majluf (1984).

In the case of *Cash Holding*, the sign of the variable is positive, and a higher level of cash will increase the probability of a stock bid. This result is aligned with Faccio and Masulis (2005) and strengthens Eckbo et al. (2018) theory of *Opportunistic Behavior*. Important to highlight, previous research (Eckbo et al., 2018; Faccio and Masulis, 2005; Akbulut, 2013) finds differences in the result regarding this matter, and therefore our findings on the variable *Cash Holding* contributes to the debate even further.

Turning to H_2, neither *Asset Tangibility* nor *Size* shows significant results in Table 3. In previous research, the variable *Size* significantly affects the probability of a stock bid negatively, as the ability to obtain more debt is possible when companies are larger, henceforth making cash bids preferred instead (Faccio and Masulis, 2005; Eckbo et al., 2018). An explanation for the insignificant result could be that other variables such as *Tobins Q* captures the effect of the size of the bidder, and therefore *Size* shows no significant effect. Moreover, *Asset Tangibility*'s insignificant result may come from the result of *Leverage*. It may be more complex than just having tangible assets on the balance sheet, similar to the discussion about the variable *Leverage*. Another important distinction to mention regarding the *Asset Tangibility* is the fact that there are differences between industries, and therefore, the control variable *Industry Sector* might capture the effect.

Regarding hypothesis H_3, the variable *Public* remains significant at a 0.1%-level but with a slightly lower average marginal effect size. In connection with the research by Faccio and Masulis (2005), this result shows that an unlisted target is more willing to have cash since stock entails more considerable risk for the target owner's portfolio. In the European Developed Market, it is more common with one owner of the target company and thus, the personal risk of owning shares increases as well, causing cash to be preferred instead.

Over to hypothesis H_4, we do not find any support for this hypothesis. First off, the variable *Relative Deal Size* becomes insignificant in Table 3 and the previous explanation of this variable's effect, on the choice of payment method, does not hold. Previous research, with a shorter time frame, have found that the effect on the bidder's voting power might be threatened if the relative size is large (Faccio and

Masulis, 2005; Eckbo et al., 2018). During our sample period, it might be the case that companies have changed their perspective and are willing to give the target's owners more influence in the company. Another explanation could be that the type of shares that the target's owners get may vary in form. For example, they may receive preference shares with less voting rights but a higher share of dividends. These shares enable the bidder to avoid the risk of threatening their voting rights, and thus, this explains the result. Henceforth, making stock payments a seemingly less threat to the owners of bidders companies in the European Developed Markets. Lastly regarding the variable *Subsidiary*, if the target is a subsidiary the probability of a stock bid increases by approximately 20% which also alter the proposed effect in H_4. Although we discussed that the sellers might prefer cash and thus demand cash payments when selling subsidiaries, based upon the findings of Faccio and Masulis (2005), this fact may not be untrue. Sellers may prefer stock payments instead as that would imply a chance of getting more from the deal, due to the potential future growth in the value, compared with payments by cash at a fixed price.

About hypothesis H_5, the variable *Operating Efficiency* remains significant at a 0.1%-level but not according to H_5. A possible explanation for the negative sign is due to the higher efficiency of the bidder and thus being more profitable, making cash payments preferred as this alternative becomes less costly when comparing the option with stock payments. In this case, the theory of *Opportunistic Behavior* is proven wrong. The results are explained better by the theory of *Rational Payment Design* that lean towards the uncertainty in terms of asymmetric information and difficulties of selling the overvalued stocks of the bidder. Furthermore, the variables *CF-transaction* and *Dividend* remain insignificant and our proposed explanations of these variable's effect, on the choice of payment, does not appear to be applicable.

Furthermore, we find support for H_6 as the variable *Industry* remains significant at 0.1% and it shows that the probability of a stock bid increases by about 9.5% when operating in the same industry. Concerning previous literature, the owners of the target are prone to bear the risk of the bidder by owning shares if they have good knowledge about the bidder's business environment, and thus it seems reasonable that the probability of a stock bid increases when operating in the same industry (Faccio and Masulis, 2005). In the case of *Cross-Border*, the probability of stock bid decreases by 18.74% when the transaction is a cross-border deal, which strengthens H_7. The implications and risks of having stocks abroad, such as interest rates, exchange rates risk and taxes, appear to affect our sample (Faccio and Masulis, 2005). Also, the coefficient sign of the variable *BidderAge* is aligned with previous literature (Martynova and Renneboog, 2009) but we do not find any significant results.

Lastly, in our sample, we have few bidder companies who report R&D expenses (only 9.7%), which may not be the true picture according to the accounting rules in Europe compared to the US. Turlington et al. (2019) find a difference between the US and EU when comparing the IFRS and GAAP standards for reporting R&D-expenses which is essential to highlight as Eckbo et al. (2018) propose that this variable

is of importance (which uses a sample of US firms). Therefore, we estimate without controlling for *R&D*, and the results are reported in C.1. The only difference is that the variable *Size* is significant throughout all models when controlling for robustness. A possible explanation is that our data do not represent the actual level of R&D expenses causing the data provided not to report the best correct values.

Lastly, not displayed in the thesis regarding the possible data bias, we follow Faccio and Masulis (2005) and do a similar approach where we divide our sample into 80% cash bid and 20% stock bid. This analysis results in the same result as Table 3 regarding significance and coefficient sign which makes our results robust and highlights that the possible data bias may not affect the result.

6.2 Abnormal Returns

In this Section, we present the *CAR* results with respect to the choice of the payment method. Table 4 shows the mean *CAR(3)* and *CAR(5)* for both stock and cash bids measured by the two approaches, *Market Model* and *FF3M*. Comparing the two approaches, the *Market Model* shows that the *CAR* for cash is insignificant and positive for both event windows. The result for the stock payment is negative and significant, at a 1%-level with a three days event window. However, we find no result of the mean that is significantly different from zero with an event window of five days. Turning to the *FF3M* approach, we see a difference where the *CAR(3)* for cash is negative and insignificant, but for the stock, we see that the significant level remains, although with a slightly lower mean.

Hypothesis H_8 is confirmed and aligned with previous research (Myers and Majluf, 1984; Andrade et al., 2001; Savor and Lu, 2009; Akbulut, 2013; Vermaelen and Xu, 2014). A possible explanation for this result is that paying with stock is a less preferred payment method, seen as a pessimistic firm action (Myers and Majluf, 1984). It could further be a mechanical effect of a diluting stock price if the *post*-value of the bidder remains constant. However, this should not happen as the acquisition of the target will add new value to the bidder, thus creating a zero-sum outcome. Moreover, from a mechanical perspective, we argue that bidders are capable of maintaining their *pre*-transaction share price to be the same *post*-transaction. Making the payment with a proportionate number of stocks that equals the *post*-value of the bidder share price equal to the *pre*-value enables the price to remain constant and thus compensates for a potential dilution of the share price. However, as the share price is negatively affected and henceforth the return as well, bidders do not seem to account for creating this balance when making stock payments, as then we would not see negative returns meaning that they dilute their share price. Further, we suggest an explanation for the negative returns due to the difficulties of assessing the value of the target due to asymmetric information discussed in the *Rational Payment Design*. Additionally, as discussed in the theory of *Opportunistic Behavior*, the target may not accept a price lower than the reservation value of the target forcing the bidder to overpay, which causes the return to be negative at the date of the announcement (Eckbo et al., 2018).

Furthermore, hypothesis H_9 is not confirmed even though the mean *CAR* is positive which is similar to previous research (Vermaelen and Xu, 2014). Although the number of observations amounts to 747, more observations may give another result. What this indicates, in our sample, is that the announcement effect for cash bids is not significantly different from zero, and thereby, we do not prove H_9. An explanation for these results could be the long time horizon used or that there have been merger waves during this time which have had different *CARs* for cash, both negative and positive. The time horizon could have smoothed up the *CAR*, and therefore we do not find a significant *CAR*.

TABLE 4: THE PAYMENT METHOD AND THE CUMULATIVE ABNORMAL RETURN

	Market Model				FF3M			
	CASH		STOCK		CASH		STOCK	
	CAR(3)	CAR(5)	CAR(3)	CAR(5)	CAR(3)	CAR(5)	CAR(3)	CAR(5)
Mean	0.0074	0.0289	-0.0603**	0.0094	-0.0015	0.0236	-0.0534**	0.0060
	(0.26)	(1.16)	(-3.26)	(0.51)	(-0.05)	(0.96)	(-2.75)	(0.35)
N	747	747	1,014	1,014	747	747	1,014	1,014

Table Description: Table 4 shows the mean *CAR* for all bidder's, dependent on their choice of payment method, based upon our sample data between the years 1998 to 2021, using an Estimation Window of 125 days, an Event Window of three or five days with a gap of 20 days. *CAR* for each bidder is calculated according to equation (10). T-statistics are reported in the parentheses (* p<0.05, ** p<0.01, *** p<0.001) and H_0 is that the mean is not significantly different from zero.

In connection with Table 4, Table C.2 shows that the *AR* for both cash and stock is negative on the day before the announcement but is larger for cash. Also, the effect, dependent on the payment method, is visible on the announcement date (day zero) as the two payment options show different signs on the returns. Table C.2 may further explain why the effect disappears for stock payments when examining the event window of five days since the returns are much larger two days before/after, causing the return to be smoothed out.

Moreover, to further strengthen the understanding of how payment choice affects the *CAR*, a bivariate regression is introduced to test if there is a significant difference between stock bids and cash bids on performance. According to Table 5, the dependent variable is the *CAR* for both stock bids and cash bids, based on the *Market Model* and *FF3M*. We can see a significant difference between stock and cash bids at a 1%-level, measured by the dummy-variable *STOCK*, for *CAR(3)* in the approach of the *Market Model*. This result supports hypothesises H_8 and H_9 as there is a significant difference between the groups (Uysal, 2011; Vermaelen and Xu, 2014). The difference mainly comes from the fact that cash bids tend to generate positive *ARs* while vice versa for returns related to stock bids. However, the effect is insignificant when controlling it by the *FF3M* approach and is thus not too strong.

TABLE 5: THE CUMULATIVE ABNORMAL RETURN - STOCK VS CASH

	Market Model		FF3M	
	CAR(3)	CAR(5)	CAR(3)	CAR(5)
STOCK	-0.0678*	-0.0195	-0.0520	-0.0176
	(-2.00)	(-0.63)	(-1.54)	(-0.58)
Intercept	0.0074	0.0289	-0.0015	0.0236
	(0.26)	(1.16)	(-0.05)	(0.96)
N	1,761	1,761	1,761	1,761

Table Description: Table 5 presents *CAR(3)* and *CAR(5)* as dependent variables for both the *Market Model* (8) and the *FF3M* (see Equation (9)). *STOCK* is a dummy variable equal to *one* if it is a stock payment. T-statistics are shown in parentheses. * p<0.05, ** p<0.01, *** p<0.001 and H_0 is that the mean difference is not significantly different between the groups.

Lastly, previous research has extended the analysis in Table 5 by adding the determinants of payment method as explanatory variables in the regression (Eckbo et al., 2018; Uysal, 2011; Yang et al., 2019). In Appendix C.3, we test this in our sample but do not find any significant results for these variables. Thus, the coefficient for *STOCK* is significantly negative, which means that even though we control for *Capital Structure*, *Deal Characteristics*, *Profitability* and *Non-Financial Characteristics*, the variable *STOCK* has a significant negative return compared to the return of cash bids.

6.3 Discussion

A primary goal is to compare our results with the findings of Eckbo et al. (2018) and Faccio and Masulis (2005), and we find both similarities and differences. We similarly find that the factors presented in Table 3 drive the payment method choice through the logit regression. Based on the significant variables, we show that a higher level of *Capital Structure* increases the probability of a stock bid while a higher level of *Profitability* decreases the probability of a stock bid. We also find that factors concerning *Deal Characteristics* and *Non-Financial Characteristics* drive the choice of the payment method.

Concerning the theories *Opportunistic Behaviour* and the *Rational Payment Design*, *Opportunistic Behaviour* is relevant for explaining why a higher level of *Tobins Q* and *Cash Holding* would increase the probability of a stock bid. Similarly, Eckbo et al. (2018) base their results on the target's perspective. However, the *Rational Payment Design* offers an applicable explanation of why a higher level of *Operating Efficiency* makes the probability of a stock bid less likely. These findings signify that there is asymmetric information on the bidder's valuation on the target side. The target may see it challenging to motivate the high price on the bidder's shares that may come from the *Operating Efficiency*, i.e., the bidder effectively turns its capital. Thus, it is difficult to sell overvalued shares of the bidder, making a cash bid preferred instead.

Differently to Eckbo et al. (2018) and Faccio and Masulis (2005), we do not account for the characteristics of the targets due to a lack of available data. Our results are thus limited, and further research should focus on testing measurements to better capture information asymmetries between the bidders and the target to bring more insights to the debate about the determinants of the payment method and the effect on performance in the European Developed Market. Also, we find differences in the results in comparison with Faccio and Masulis (2005), regarding the *Relative Deal Size*. We do not find a significant effect of this variable but according to the authors, this variable is of importance in the European market. Therefore, we propose that for future research to include mixed bids and also control for the type of stock that bidders announce to pay with, for example, preference shares with less voting power.

As mentioned in Section 6.1, Table 5 displays that the *CAR* is significantly higher for cash payments than stock payments and what becomes interesting is why bidders insist on paying with stock even though that payment method creates a lower return? Intuitively one might think that the reason for this is that bidders do not focus on the short term effect of the M&A as they expect the long term effect to be positive. Although Akbulut (2013) find that stock payments are driven by overvalued acquirers, which destroy shareholder value in both the short and the long-term view, Savor and Lu (2009) offer a possible explanation as they find that successful stock payments (i.e., the deal is completed) generate a higher return than unsuccessful deals, as long as the target is less overvalued than the bidder. This overvaluation means that the bidders are better of by making a stock payment deal than no deal at all, even though they generate a negative return. Eckbo et al. (1990) and Eckbo et al. (2018) find that when the target knows less about the bidder, causing a greater information asymmetry gap between them, stock is preferred to minimize the cost of adverse selection that comes from using cash. In addition, as discussed in Section 3, Shleifer and Vishny (2003) show that bidders make a stock bid to mitigate negative returns. That said, even though stock payments generate negative returns, overvalued bidders prefer to pay with stock as it can reduce overpayment costs.

In connection with the discussion above, the theory of *Opportunistic Behaviour* presented by Eckbo et al. (2018) shows that cash becomes a relatively costly payment method when the expected overpayment costs exceed the target's undervaluation of the bidder. Transaction costs related to cash payments could be interest rates and other costs regarding loans. In comparison, costs of the stock payment could emerge from issuing new shares or giving out existing shares that the company owns. The choice of payment method may also come from making a strategic manoeuvre that Eckbo et al. (2018) introduce with the *Opportunistic Behaviour*. For instance, an undervalued company have the opportunity to strategically purchase back shares, causing a reduction of their public float shares and signifying optimism that the company should have a higher valuation, resulting in a stock run-up before the bid. Therefore, the bidder can utilize their undervaluation, leading to a less costly stock payment. Also, this enables the payment to be done by giving out fewer shares to the target and thus giving out less ownership. This discussion

translates into that the choice of payment method may come from other factors than we propose and may be interesting to include in future research. Such as the findings of the importance of examining ownership as is shown by Faccio and Masulis (2005). Based on this and the findings of Akbulut (2013); Eckbo et al. (2018, 1990); Shleifer and Vishny (2003), and Savor and Lu (2009), we argue that although bidders are negatively affected by stock bids in the short term, bidders prefer to pay with stock since this option offers strategic tools, such as mitigating costs or exchanging ownership, that is not offered by paying with cash.

Lastly, regarding the determinants of the payment method, we conclude that our data may contain selection bias. Heckman (1979) discusses the problems of selection bias which results in biased estimates, and for our thesis, it is the announcement of a bid from the bidder. We do not find data for all potential bids that did not occur or targets that did not find a buyer, only the actual bids announced. The fact that data only exists for selected targets, i.e., an announced bid, may cause this selection bias. Faccio and Masulis (2005) open up a discussion about this selection bias by looking at what characteristics generates a bid in the first place, and through the *Heckman Selection model*, they instrument this into their results. They argue that there is no problem of selection bias in their sample because of the statistically non-significant *Inverse Mills ratio*. Heckman (1979), on the other hand, does argue that there is still a bias even though the instrumented variable is not significant and future research is, therefore, advised to include this analysis in the investigation of the payment method. In our thesis, it may be the case that the Heckman regression could alter our results so that the impact of now seemingly non-significant factors shows a significant effect on the choice of the payment method, as previous research find (Eckbo et al., 2018; Faccio and Masulis, 2005).

7 Conclusion

We investigate what factors determine the choice of payment method when choosing between payment of stocks or cash during an acquisition or merger. We also examine how that choice of payment method affects the bidder's performance in the short term. We base our results on a sample of 2,647 transactions in the European Developed Markets, covering the years 1998 - 2021.

One of our main contributions is that we conclude that the factors of the bidder's *Capital Structure*, *Deal Characteristics*, *Profitability of the Bidder* and *Non-Financial Characteristics* drive the choice of the payment method, similarly to the findings of Eckbo et al. (2018) and Faccio and Masulis (2005). Explaining these relationships is done by assessing what the rational choice should be, based upon the two theories of *Opportunistic Behaviour* and *Rational Payment Design* and based on findings in previous research. Overall, both theories seem to explain the results of some variables based on the sample we have used. However, the theory of *Opportunistic Behaviour* is more dominant as it can explain the results

of more variables. Important to mention, other variables measuring the uncertainty and asymmetry of the target's value may show that the *Rational Payment Design* can explain more than we find. These findings are further robust when controlling for completed deals, the industry of the bidder and seasonal effects.

Another contribution is that through the *Market Model* and the *FF3M*, we find that stock payments create a significant negative cumulative abnormal return with an event window of three days. We also find that stock payment generates a significantly lower return than cash payments. We further discuss and conclude that even though stock payments generate a lower return than cash payments, bidders insist on making payments with stock as they could potentially offer other attributes of interest necessary for the bidder's performance.

Finally, we propose that further research could implement the Heckman model analysis (Heckman, 1979) to account for the selection bias that comes with bidders "selecting" targets. Our second suggestion is to examine more characteristics of the target to get a better scope of the information asymmetry between these parties. This is to distinguish possibly better which of the theories of *Opportunistic Behaviour* and *Rational Payment Design* explains the determinants of the choice of the payment method.

8 References

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9 Appendix

A Data

A.1 Total Number of Mergers and Acquisitions

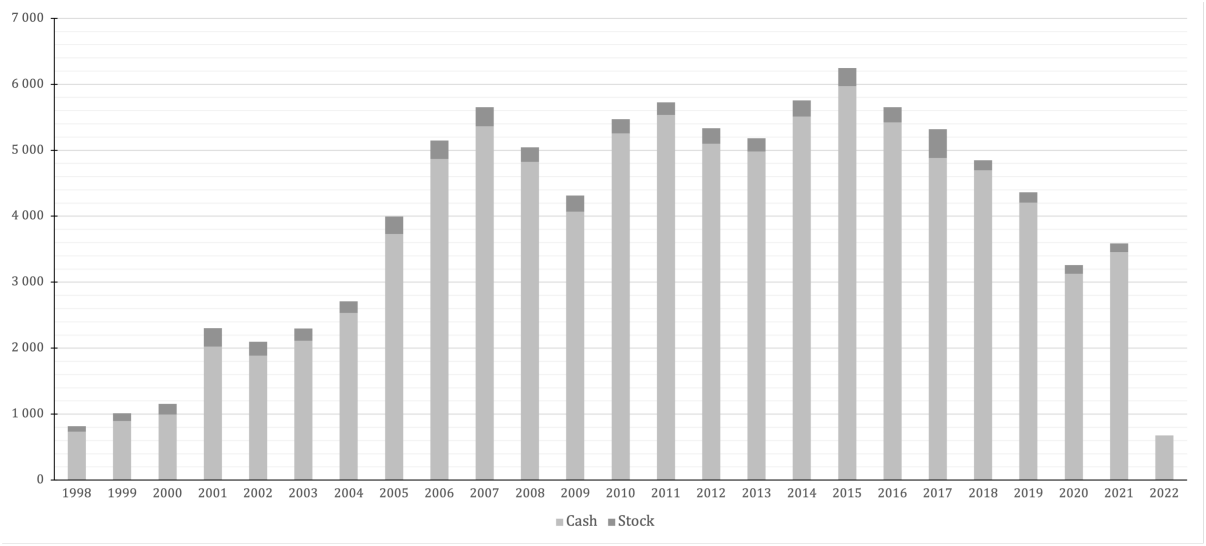

Figure description: Figure A.1 shows the number of closed MA's for each year between the period of 1998 to the beginning of 2022, based upon data from SP Capital IQ, containing 97 953 transactions from the European Developed Market. The European Developed Market contains the following countries; Andorra, Austria, Belgium, Channel Islands, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Greenland, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom and the Vatican City.

A.2 Final Sample

Year	Cash bids	Stock bids	Mixed bids
1998	44	23	0
1999	57	42	1
2000	81	97	0
2001	81	90	2
2002	48	68	1
2003	44	55	1
2004	51	59	0
2005	67	68	1
2006	71	78	0
2007	93	100	0
2008	59	60	1
2009	58	63	0
2010	39	50	0
2011	36	44	0
2012	41	44	0
2013	38	47	0
2014	40	43	0
2015	36	46	0
2016	62	48	0
2017	42	43	0
2018	36	31	2
2019	48	48	0
2020	69	47	0
2021	70	42	1
Total	1,311	1,336	10

Table description: Table A.2 display the final sample used and the number of mixed, cash and stock bids, collected from the database of S&P Capital IQ, between the years of 1998 to 2021. The data is based upon the following countries; Andorra, Austria, Belgium, Channel Islands, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Greenland, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom and the Vatican City.

A.3 Industry Sector

Industry Sector	Number of Observations
Communication Services	201
Consumer Discretionary	180
Consumer Staples	125
Energy	103
Financials	600
Health Care	195
Industrials	349
Information Technology	380
Materials	141
Real Estate	298
Utilities	75
Total	2,647

Table description: Table A.3 displays the number of observations per industry sector defined by S&P Capital IQ's definition of SIC codes.

A.4 Descriptive Statistics of Total Sample

	Cash							Stock							Full Sample						
	N	Mean	Std	Kurtosis	Min	Median	Max	*N*	Mean	Std	Kurtosis	Min	Median	Max	*N*	Mean	Std	Kurtosis	Min	Median	Max
Total Equity	*1,311*	2,300.9	7,055.0	93.5	-4,555.9	248.3	123,651.0	*1,336*	2,679.8	10,766.3	195.5	-1,961.4	187.5	236,842.9	*2,647*	2,480.6	9,317.2	214.3	-1,961.4	207.1	236,842.9
Total Debt	*1,311*	4,728.7	25,710.8	98.4	-1.2	116.9	404,174.4	*1,336*	6,769.0	40,841.1	237.8	0.0	59.2	939,567.0	*2,647*	5,908.1	35,044.5	260.1	-1.2	84.8	939,567.0
Total Assets	*1,311*	17,998.2	100,759.8	200.9	0.0	631.4	2,202,423.0	*1,336*	22,591.8	110,415.2	126.0	0.0	432.0	2,057,698.0	*2,647*	20,977.6	109,383.3	153.1	0.0	526.3	2,202,423.0
PP&E	*1,311*	2,085.9	8,212.8	140.7	0.0	27.3	157,112.7	*1,336*	2,274.0	12,004.7	285.7	0.0	24.0	291,142.0	*2,647*	2,130.5	10,331.5	320.8	0.0	23.9	291,142.0
Cash	*1,311*	734.7	5,575.5	351.9	0.0	28.6	119,002.8	*1,336*	816.5	5,277.2	269.3	0.0	30.0	117,840.7	*2,647*	757.0	5,197.9	309.9	0.0	28.9	117,840.7
Revenue	*1,311*	2,946.6	10,604.4	251.4	-2,999.3	274.6	252,632.0	*1,336*	3,160.1	11,296.2	61.2	-79.0	156.7	143,290.5	*2,647*	3,055.0	11,285.2	143.0	-2,999.3	195.3	252,632.0
R&D Expenditures	*1,311*	48.6	393.8	148.2	0.0	0.0	5,940.2	*1,336*	35.2	276.4	211.4	0.0	0.0	5,907.0	*2,647*	40.2	326.5	185.4	0.0	0.0	5,940.2
COGS	*1,311*	1,738.8	7,325.2	241.3	-58.6	66.0	169,946.0	*1,336*	1,836.6	8,017.1	104.4	-1.8	38.0	140,046.8	*2,647*	1,792.2	7,904.2	159.7	-58.6	43.6	169,946.0
SGA	*1,311*	514.1	1,873.0	70.8	0.0	23.3	27,234.0	*1,336*	588.7	2,218.5	65.8	0.0	18.0	27,869.9	*2,647*	548.8	2,096.7	70.5	0.0	18.7	27,869.9
Operating Cash Flow	*1,311*	388.7	3,397.0	450.2	-28,059.0	16.1	94,035.0	*1,336*	455.0	2,923.9	71.2	-18,247.2	5.0	36,332.8	*2,647*	413.8	3,297.0	307.8	-28,059.0	7.2	94,035.0
Market Cap	*1,311*	4,352.2	14,843.7	76.2	0.0	238.7	208,613.5	*1,336*	6,622.4	32,997.7	167.5	0.0	292.8	586,428.6	*2,647*	5,528.6	26,642.7	230.9	0.0	255.3	586,428.6
Dividends	*1,311*	50%	50%	-2.0	0.0	1.0	1.0	*1,336*	46%	50%	-2.0	0.0	0.0	1.0	*2,647*	47%	50%	-2.0	0.0	0.0	1.0
Public	*1,311*	3.4%	18.0%	24.93	0	0	1	*1,336*	9.7%	29.5%	5.49	0	0	1	*2,647*	7.1%	25.7%	9.19	0	0	1
Subsidiary	*1,311*	75.7%	42.9%	-0.55	0	1	1	*1,336*	83.9%	36.8%	1.42	0	1	1	*2,647*	80.5%	39.6%	0.39	0	1	1
Industry	*1,311*	33.9%	47.4%	-1.54	0	0	1	*1,336*	47.0%	49.9%	-1.99	0	0	1	*2,647*	41.2%	49.2%	-1.87	0	0	1
Deal Status	*1,311*	89.9%	30.2%	4.99	0	1	1	*1,336*	81.9%	38.5%	0.75	0	1	1	*2,647*	85.3%	35.5%	1.96	0	1	1
Age of Target	*1,311*	18.1	39.2	26.9	-15.0	0.0	425.0	*1,336*	21.6	40.3	14.5	-9.0	6.0	402.0	*2,647*	20.1	39.8	18.0	-15.0	4.0	425.0
Age of Bidder	*1,311*	48.9	55.9	11.5	0.0	27.0	509.0	*1,336*	40.3	56.2	17.0	0.0	17.0	530.0	*2,647*	44.2	56.2	14.3	0.0	21.0	530.0
Transaction Value	*1,311*	340.3	1,292.2	109.2	7.0	51.7	21,375.3	*1,336*	1,935.0	10,491.8	213.0	7.0	69.1	209,367.9	*2,647*	1,249.0	8,004.8	366.2	7.0	59.5	209,367.9
Enterprise Value	*1,311*	4,413.9	16,880.3	93.3	-1,672.9	156.4	244,147.2	*1,336*	6,988.8	39,785.3	200.2	-11,156.8	168.9	825,251.5	*2,647*	5,781.8	31,983.4	279.7	-11,156.8	154.3	825,251.5
Net Income	*1,311*	265.7	922.0	58.1	-3,835.0	20.8	13,886.0	*1,336*	210.4	1,147.1	51.6	-10,886.4	6.4	13,508.2	*2,647*	228.3	1,052.8	58.8	-10,886.4	11.4	13,886.0

Table description: Table A.4 shows the total number of observations (*N*) in each group *Cash Bids*,*Stock Bids* & *Full Sample*, the mean and the standard deviation. All values are in Euro Millions and contains variables related to Balance Sheet items, Income statement items and Cash Flow items. The following dummy variables are further displayed; *Public* (1 if target is listed), *Subsidiary* (1 if target is an subsidiary), *Deal Status* (1 if deal status complete) and the *Industry* (Equal to 1 if the bidder and the target are in the same industry. Otherwise equal to 0).

B Method

B.1 Variable Description

VARIABLE	DESCRIPTION
y_i	Equals one if there is a stock bid and zero for cash bids
Capital Structure	
Size_i	The natural logarithm of total assets in bidder
Leverage_i	Total debt / total asset in bidder
Cash Holding	Cash / total assets in the bidder
Tobins Q_i	Market value of firm / book value of firm in the bidder
$\text{R\&D}_i$	R&D expenses / total assets in bidder
$\text{Asset Tangibility}_i$	Property, plant and equipment / total assets in the bidder
Deal Characteristics	
$\text{Relative Deal Size}_i$	Transaction value / (transaction value + enterprise value of the bidder), where transaction value is the bid that the bidder proposed
Public_i	Equals one if the target is public and zero otherwise
Subsidiary_i	Equals one if the target is a subsidiary and zero otherwise
Profitability of the bidder	
CF-transaction_i	Cash flow of bidder from operating activities / Transaction value
$\text{Operating efficiency}_i$	Revenue of bidder / total assets of the bidder
Dividend_i	Equals one if the bidder pays dividends and zero otherwise
Non-Financial Characteristics	
Industry_i	Equals one if the target and the bidder acts in the same industry
Cross-Border_i	Equals one if the deal is a cross border deal
BidderAge_i	Is the age of the bidding firm at the transaction date.
Robustness Test	
$\textit{Completed Deals}_i$	Is a dummy that equals one if the deal is completed
$\textit{Industry Sector}_i$	Is a dummy for each industry sector described in A.3
$\textit{Year}_i$	A dummy for each year of the sample

Table description: Table B.1 presents a variable description of the variables described in the method.

B.2 Total Assets

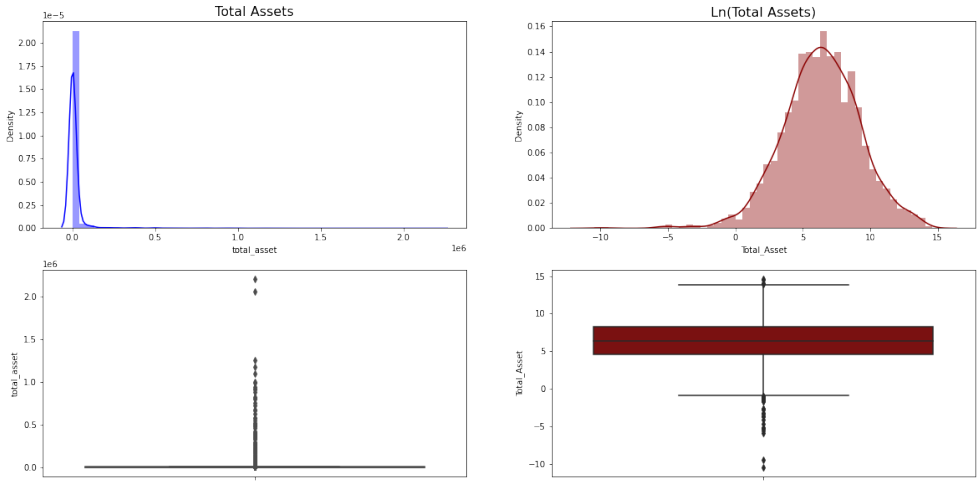

Figure description: Figure B.2 show the distribution of the variable $Total\ Assets_i$ before adjustments (*left*) and after the data has been adjusted for by taking the natural logarithm (*right*). The top figures shows that the distribution becomes smoother when taking the log while the lower figures shows that there are less observations outside the box-diagram. Based on the latter and the knowledge of missing values, winsorizing is done to all variables of relevance.

B.3 Correlation Matrix

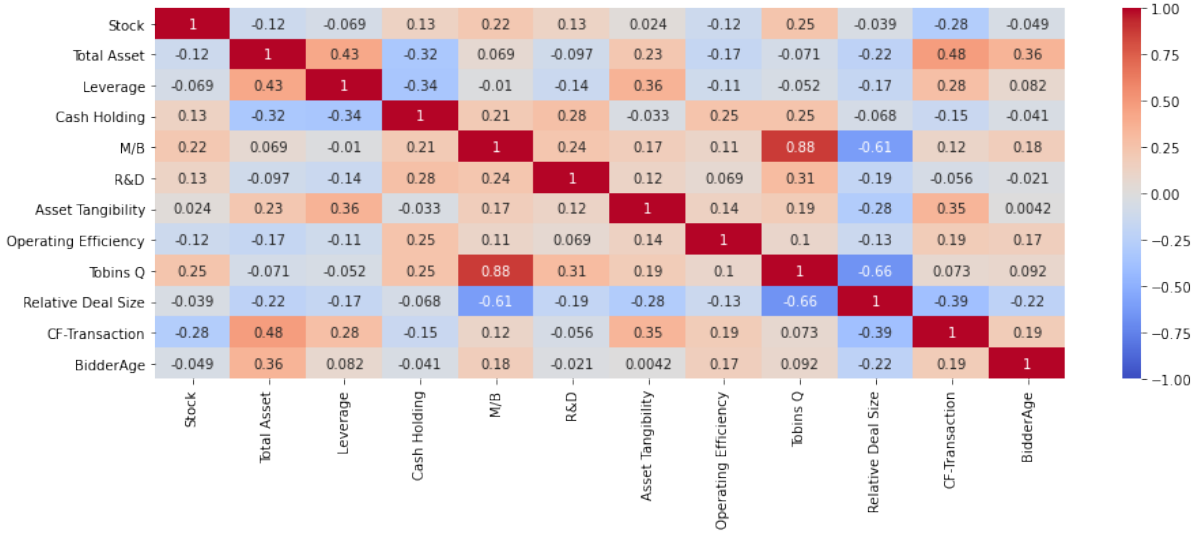

Figure description: Figure B.3 shows the monotonic correlation between all variables intended to use at first sight. A darker shade shows a higher correlation while vice versa is shown for values of lighter colour.

B.4 Descriptive Statistics

	μ	σ	Min	25%	50%	75%	Max
Size	6.335	2.736	0.701	4.464	6.291	8.221	12.108
Leverage	0.221	0.215	0	0.013	0.183	0.353	1
Cash Holding	0.126	0.171	0	0.018	0.060	0.160	1
Tobins Q	2.220	12.922	0	0	0.495	1.249	370.806
R&D	0.020	0.088	0	0	0	0	1.641
Asset Tangibility	0.246	0.319	0	0	0.084	0.389	1
Realtive Deal Size	0.465	0.419	0.000	0.056	0.311	1	1
CF-Transaction	2.689	15.696	-56.607	0	0.092	1.124	276.952
Operating Efficency	0.661	0.737	0	0.088	0.449	0.965	6.912
BidderAge	44.241	56.202	0	9	21	59	530

Table description: Table B.4 includes all 2,647 observations and displays the Mean, Standard deviation, Min/Max value and the 25, 50 and 75 percentiles.

C Results

C.1 Robustness Test No R&D

	All (R&D excluded)			
	(1)	(2)	(3)	(4)
Capital Structure				
Size	-0.0124**	-0.0104*	-0.0103*	-0.0112*
	(0.0050)	(0.0049)	(0.0049)	(0.0049)
Leverage Ratio	-0.0770	-0.0449	-0.0451	-0.0350
	(0.0481)	(0.0522)	(0.0522)	(0.0519)
Cash Holding	0.296***	0.282***	0.282***	0.287***
	(0.0667)	(0.0641)	(0.0641)	(0.0639)
Tobins Q	0.0106	0.0283***	0.0283***	0.0262***
	(0.0128)	(0.0077)	(0.0078)	(0.0075)
Asset Tangibility	0.0685*	0.0679*	0.0677	0.0655
	(0.0328)	(0.0346)	(0.0347)	(0.0.348)
Deal Charachteristics				
Relative Deal Size	-0.0763*	-0.0343	-0.0337	-0.0339
	(0.0377)	(0.0292)	(0.0295)	(0.0293)
Public	0.308***	0.265***	0.265***	0.281***
	(0.0442)	(0.0460)	(0.0460)	(0.0471)
Subsidiary	0.148***	0.224***	0.225***	0.217***
	(0.0227)	(0.0253)	(0.0255)	(0.0257)
Profitability of the Bidder				
CF-Transaction	-0.00211	-0.00206	-0.00206	-0.00202
	(0.0012)	(0.0012)	(0.0012)	(0.0012)
Operating Efficiency	-0.123***	-0.133***	-0.133***	-0.138***
	(0.0142)	(0.0154)	(0.0155)	(0.0158)
Dividend	-0.0202	0.00269	0.00259	0.00159
	(0.0227)	(0.0240)	(0.0240)	(0.0239)
Non-Financial Characteristics				
Industry	0.121***	0.0923***	0.0925***	0.0959***
	(0.0186)	(0.0199)	(0.0200)	(0.0199)
Cross Border	-0.159***	-0.176***	-0.176***	-0.179***
	(0.0188)	(0.0191)	(0.0191)	(0.0191)
BidderAge	-0.000192	-0.000234	-0.000233	-0.000232
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Completed Deals	*No*	*Yes*	*Yes*	*Yes*
Industry Sector Dummy	*No*	*No*	*Yes*	*Yes*
Year	*No*	*No*	*No*	*Yes*
N	2647	2272	2272	2272
pseudo R^2	0.1088	0.1319	0.1319	0.1346

Table description: Table C.1 displays the logit regression results (4). The dependent variable y_i is Stock and the independent variables is described in the variable description B.1. Robust standard errors are shown in parentheses * p<0.05, ** p<0.01, *** p<0.001.

C.2 Abnormal Return in Event Window

	Market Model		FF3M	
Day	Cash	Stock	Cash	Stock
-2	3.73%	1.95%	3.44%	2.47%
-1	-5.48%	-0.06%	-6.39%	-0.09%
0	2.98%	-3.70%	3.42%	-3.75%
1	3.08%	0.55%	2.91%	0.55%
2	-2.06%	1.54%	-1.81%	1.58%

Table Description: Table C.2 presents the average Abnormal Return for the event window, for cash and stock bids, through both the Market Model and the Fama French three factor model.

C.3 Determinants of the Choice of Payment Method and CAR

	Market Model			
	CAR(3)			
STOCK	-0.0841*	-0.0846*	-0.0852*	-0.0866*
	(0.0382)	(0.0402)	(0.0393)	(0.0394)
Size	-0.00342	0.00188	0.00138	0.00167
	(0.00896)	(0.00965)	(0.00995)	(0.00996)
Leverage	0.108	0.144	0.147	0.131
	(0.0767)	(0.0842)	(0.0965)	(0.0976)
Cash Holding	0.0387	0.0615	0.0606	0.0491
	(0.123)	(0.135)	(0.144)	(0.144)
Tobins Q	-0.000507	-0.000881	-0.000890	-0.000639
	(0.00214)	(0.00208)	(0.00265)	(0.00266)
R&D	-0.187	-0.153	-0.151	-0.130
	(0.186)	(0.196)	(0.219)	(0.220)
Asset Tangibility	-0.0695	-0.0871	-0.0854	-0.0858
	(0.0475)	(0.0528)	(0.0548)	(0.0548)
Operating Efficiency	0.0175	0.0288	0.0277	0.0337
	(0.0298)	(0.0324)	(0.0303)	(0.0308)
Relative Deal Size	-0.0185	-0.0554	-0.0591	-0.0544
	(0.0551)	(0.0576)	(0.0604)	(0.0605)
Public	0.0909	0.0734	0.0731	0.0624
	(0.0555)	(0.0637)	(0.0714)	(0.0720)
Subsidiary	0.0405	0.0104	0.00465	0.00717
	(0.0411)	(0.0500)	(0.0553)	(0.0553)
CF-Transaction	-0.000666	-0.000869	-0.000903	-0.000909
	(0.000705)	(0.000744)	(0.00101)	(0.00101)
Profit Margin	0.000154	0.000140	0.000140	0.000156
	(0.000263)	(0.000251)	(0.000467)	(0.000468)
Dividend	-0.0329	-0.0499	-0.0494	-0.0524
	(0.0383)	(0.0410)	(0.0434)	(0.0435)
Industry	0.00828	0.0140	0.0122	0.00921
	(0.0337)	(0.0371)	(0.0367)	(0.0368)
Cross-Border	-0.0382	-0.0364	-0.0361	-0.0344
	(0.0355)	(0.0383)	(0.0379)	(0.0380)
BidderAge	0.000350	0.000356	0.000346	0.000349
	(0.000350)	(0.000385)	(0.000331)	(0.000331)
Completed Deals	*No*	*Yes*	*Yes*	*Yes*
Industry-Sector	*No*	*No*	*Yes*	*Yes*
Year	*No*	*No*	*No*	*Yes*
Intercept	0.00977	0.0164	0.0489	-5.928
	(0.0790)	(0.0862)	(0.108)	(5.533)
N	1,761	1,496	1,496	1,496

Table Description: Table C.3 presents the CAR(3) as a dependent variable for the market model. *STOCK* is a dummy variable that is equal to one if it is a stock bid. Standard errors in parentheses * p<0.05, ** p<0.01, *** p<0.001.