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Credit Ratings Influence on Payment Method

- A study on European mergers and acquisitions -

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Abstract

Title: Credit Ratings Influence on Payment Method - A study on European mergers and acquisitions.

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Purpose: The aim of this study is to investigate whether the choice of payment method in mergers and acquisitions is determined by the credit rating existence of the bidder and if the credit rating level has an impact of the financing source.

Methodology: The methods used are Probit and GLM logit regressions. The dependent variables are *payment method* and *fraction of cash* with *credit rating* and *credit rating level* as the explanatory variables. It has been based on the same methodology as Karampatsas et al (2014) and Faccio and Masulis (2005).

Theoretical perspective: The theoretical review consists of previous research on credit ratings and their impact on the payment method, as well as underlying theory of capital structure such as Trade-off theory and Pecking Order theory, and the influence of credit rating agencies.

Empirical foundation: The thesis is based on long-term foreign credit ratings from Moody's and S&P and financial data from 220 firms. The time frame for the sample is between 2000 and 2008.

Conclusion: The outcome of this study suggests that there is a negative correlation between credit rating and payment method, hence firms with credit rating are more likely to pay with equity. Instead of maximizing their debt levels, when the market timing is right to issue equity, firms rather want to maintain financial flexibility and the possibility to raise debt for future investments. We found no relationship between the level of credit rating a firms holds and the payment method.

Keywords: Credit rating agencies, financing decisions, capital structure, payment method, mergers and acquisitions, credit ratings.

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1 Introduction

This thesis is about how the credit rating of a company influences the payment method in mergers and acquisitions. In the first chapter we give a background to the problem (1.1) and then in section 1.2 prior research is discussed that have been conducted within the topic. Thereafter, the research questions and the purpose are presented.

1.1 Background

The Credit Rating Agencies (CRAs) have played an important part over the years and in their role they are specialized in gathering and evaluating information regarding the creditworthiness of a company (Kisgen, 2007).

"The rating agencies had an almost godlike status in the eyes of some investors. Now that trust is gone. It's been replaced with a feeling of betrayal." (Strier, 2008: 539)

The above quotation, by a previous analyst at Moody's, indicates the importance of the CRAs' status. During the last decade they have been scrutinized several times due to different scandals, the case of Enron in 2001 made many question the trustworthiness of the credit ratings. It was one of the largest accounting frauds ever accounted for where the executives falsely inflated the revenues of the company. Another factor contributing to the fall of the company was the rating-linked consequences of the credit rating downgrade, which triggered a series of events and liquidity crises of many companies. The downgraded rating of below investment grade led Enron to face debt payments of $3.9 billion that contributed to their bankruptcy (Kisgen, 2007). Furthermore, the CRAs have been subject to a lot of criticism after the recent financial crisis, which has resulted in them being investigated. The motive behind is that the CRAs provided inaccurate ratings on structured finance products just before they collapsed and went into bankruptcy (Bar-Isaac and Shapiro, 2011; Jarrow and Xu, 2010). Why were there not any predictions of it? Jarrow and Xu (2010) argued that the answer partly lies in the incentive conflict, where the rated firms are paying the rating agencies. This payment conflict can produce inaccurate ratings.

The reason for the CRAs' importance is that the assigned credit rating of a firm can affect it indirectly in various ways, among others the firm's financing decisions and investment

policies (Tang, 2009). If a company is able to maintain a certain credit rating it could give them potential benefits such as signalling information about the quality of the firm that is not publicly available. A downgrade of the company could instead result in costly consequences, such as higher cost of capital (Kisgen, 2007). The credit ratings are therefore said to have an impact on decisions regarding the capital structure of the company.

The capital structure plays a major part in mergers and acquisitions (M&As) investments when it comes to the financing decision. The choice of the financing source is to some extent explained by the Pecking Order of capital structure (Myers, 1984), but it is also influenced by the bidder's strategic preferences in regards to the means of payment (Martynova and Renneboog, 2009). The trend in financing with cash versus stock in takeovers has varied considerably during the years. In general terms, cash is mostly used when the company has higher cash holdings due to for instance economic tailwind. If stock on the other hand is used for the financing it is mostly due to that it is overvalued (Gaughan, 2007). In most cases a mix of the two is employed since there is evidence that the target company might be more reluctant to accept the payment if it is only with overvalued stock (Vermaelen and Xu, 2014).
After the financial crisis, but also initiated before, policymakers both in the US and in Europe started imposing regulations on the CRAs in order to address the problems associated with the industry (Voorhees, 2012). But is it enough? The criticism that the CRAs have been subject to has resulted in vast amount of publication and partly due to the lack of competition they are still very powerful today.

1.2 Problem Discussion

Many researchers have studied the area of credit ratings and its agencies. There is no doubt that credit ratings are a hot topic, since it has been shown that they are able to influence a firm's financial decision. The underlying theory of capital structure is that firms follow a pecking order, suggesting that firms should first of all use internally generated cash, followed by debt and least equity (Myers, 1984). On the other hand, a common perception is that the credit rating has a significant impact on a firm's investments and financing decision and a lot of studies support this view (Bannier et al., 2012, Bo et al., 2008, Gul et al., 2009, Kisgen, 2006, 2007). This can partly be explained by the possibility for firms to signal information through their credit rating, without conveying information to the public (Kisgen, 2007). Information asymmetries can be reduced in the market through refined credit ratings and investors can more easily identify the firm's credit quality. Therefore, credit rating influences,

partly through reduced information asymmetry, the choice of investment fund (Tang, 2009). Previous research has shown a relationship between a firm's investment rate and a change in rating. A positive rating announcement results in an increased investment rate and vice versa. Hence, in the period following a credit rating upgrade firms tend to invest more, as a result of a change in the firm's cost of capital (Bannier et al., 2012; Gul et al., 2009). The conventional view suggests that a firm's credit reputation has significant impact when the firm is seeking external debt financing. High credit rating indicates a sound financial quality of the firm and it can access more external debt to a lower cost, which explains why firms choose to invest more when they reach a better rating (Gul et al., 2009). Kisgen (2006) investigated to what extent credit ratings directly affect capital structure decisions. The results show that firms near a credit rating change, upgrade or downgrade, issue less debt relative to equity compared to firms with a stable rating. Firms that face a risk of being downgraded avoid to issue debt since the likelihood of being downgraded increases substantially, which leads to a higher cost of debt. Firms near an upgrade will face a higher market value and prefer to issue equity instead of debt. Bo et al. (2008) found that the relation between credit ratings and investment is nonlinear, which violates the conventional view. Instead, the relationship can be represented by an inverted U-curve, which is explained by managers' fear of getting downgraded. To conclude, higher rating is beneficial because it gives the firm access to cheaper debt. On the other hand, managers may prefer to issue equity instead due to high market valuation or may be too afraid to invest anything at all.

The research above tells us that there are many features that influence the choice of financing in an investment opportunity. The same factors influence the choice of payment method in M&As. Harford et al. (2009) found that when a bidder's leverage exceeds the target level set by the management, it is more likely to finance the deal with equity. Usually, when studying this area, two extremes develop. The theoretical literature suggests that an acquirer either pay with cash or stocks, even though the majority of deals include a mix of payment. Furthermore, the mix of cash and equity also delivers information (La Bruslerie, 2013). The market timing theory suggests that firms are more prone to issue stock when the stock is overvalued (Vermaelen and Xu, 2014). Rhodes-Kropf and Viswanathan (2004) argued that this is a too simplistic explanation since the target may not accept the payment of overvalued stock. They extended the study and the result showed that the offer is more likely to contain a higher fraction of stocks due to higher misvaluations when the market is overvalued. The findings are supported by Harford (2005), who argued that some mergers are driven by consistent

pricing errors in the market. Burch et al. (2012) results indicated that stock offers are also more likely to be accepted when target's shareholders face substantial capital gains on tax liabilities, since stock offers allow target's shareholders to defer capital gain taxes. According to the Pecking Order theory, firms prefer to use internally generated funds as a source of financing. Martynova and Renneboog (2008) investigated how European acquirers chose to finance cash offers and found that external sources of both debt and equity are commonly used. The findings suggest that investors worries that deals financed with internally generated cash are driven by empire building[1] motives, while debt financed deals signal that the stock may not be overvalued. The study showed that financing decisions are partly determined by the cost of external capital, but also by the strategic preferences of the bidder.

The choice of payment method can have an affect on the completion of a transaction, whether it is successful or not. Furthermore, in the context of M&As it is a well-studied topic, although there is still a significant gap in trying to explain the determinants of payment method (Ismail and Krause, 2010). Faccio and Masulis (2005) studied the choice of payment method in European mergers and acquisitions. The study included both public and private targets in the period 1997-2000. The researchers investigated the trade-off between bidder corporate control threats, which discourage stock financing, and bidder financing constraints, which encourage stock financing. In summary, both bidder's financial condition and corporate control concerns have a clear influence on European M&A financing choices. Karampatsas et al. (2014) studied the US market during the years 1998-2009. They found a new determinant of the payment method in M&As; a firm's credit rating level. Furthermore, firms with higher rating are associated with better access to the public debt market and lower financial constraints. Therefore, bidders holding a high rating level are more likely to use cash financing in a takeover.

There has not been conducted any research outside the US market concerning the relationship between credit ratings and payment method in M&As. Therefore we would like to fill the gap and conduct the study on European firms. As argued by Faccio and Masulis (2005) the European market is an ideal venue for research in the area of credit ratings and payment methods. Europe has access to a wide range of capital markets and is an integrated market that is characterized by institutional settings, laws and regulations. Since both credit rating

[1] Empire building refers to when a manager is more concerned with expanding the size of the company rather than trying to allocate the resources in an optimal way (Ogden et al. 2003).

and payment method have excessive amounts of underlying theory, it would be interesting to combine the two of them on the European market to see whether the results would differ from the US market. In order to investigate this research topic, a combination of Karampatsas et al. (2014) and Faccio and Masulis (2005) studies' methodology is applied in order to get a trustworthy result.

1.3 Research Question

Based on the above discussion the thesis will be focused on examining the following;

- *Is the choice of payment method in mergers and acquisitions determined by the credit rating existence of the bidder?*
- *Among rated firms, does the level of credit rating has an impact on the choice of financing source?*

1.4 Purpose

The aim of this paper is to investigate to what extent a firm's credit rating influences the choice of payment method in mergers and acquisitions on the European market. A bidder that holds a credit rating faces better access to public debt markets and firms with higher rating have relatively better opportunities to raise debt. Hence, we would like to investigate if the relationship holds in order to see whether it affects the choice of payment method.

1.5 Delimitations

The time period for the study is between the years 2000 and 2008, covering the last complete M&A wave and all the steps in a financial cycle. The results could be limited by the fact that the time frame does not show the current situation on the market. However, the period after 2008 has been characterized by low M&A activity (McGee, 2014) and we believe that the time period for a complete M&A wave will result in a more representative sample. The inclusion of the financial crisis and an incomplete financial cycle could have led to a more skewed sample. The sample is based on firms on the European market, which is represented by developed countries that contribute to 90% of Europe's GDP. If all the countries in Europe would have been included this would probably have given us a more unequal sample, therefore in order to be able to answer our research question better and to have a comparable sample, the study has been limited to developed countries.

The credit ratings that have been used is foreign long-term and has been derived from Moody's and Standard and Poor's. The chosen credit rating agencies have in total 80% of the total market and we assume that most companies rely on the ratings from these agencies. However, they weight the risks in their ratings somewhat differently. This may affect our result since not all firms in our sample are rated by both of them or they could have been assigned different ratings. Nevertheless, we do not think this will have a significant impact on our result.

1.6 Thesis Outline

Chapter 2: Literature review

The purpose of this chapter is to review the previous research necessary for understanding the underlying theory of capital structure and payment methods in M&A, followed by supporting theories regarding credit ratings.

Chapter 3: Methodology of the thesis

In the third chapter, we will motivate the chosen methodology approach. Also, the sample selection will be described more thoroughly. The relevant variables and the econometric techniques employed will be presented in order to conduct the study.

Chapter 4: Empirical results

The empirical findings from our study will be presented in this chapter conducted from the methodology in the previous chapter, beginning with descriptive statistics of the collected sample followed by the results from the regressions.

Chapter 5: Analysis

The aim of this chapter is to analyse the outcome of the results from chapter 4. The previous research in this area that has been presented before will be connected to the findings and the result will be discussed.

Chapter 6: Conclusion and suggestion for further research

In the last chapter the conclusions of the study will be presented. It also consists of the contributions of our study and suggestions for further research.

2 Literature Review and Hypotheses

This chapter is the foundation of our study and will give an understanding of the previous research that it has been based on. The focus will be on developing the theories around our main variables; credit rating agencies, capital structure and payment method in M&As.

2.1 Credit Rating Agencies

CRAs are often seen as information producers, the markets are characterized by information asymmetries in the sense that the true creditworthiness of a firm is private to the issuers. The role of the CRAs is to assess the issuers' ability to repay investors, in other words evaluating their credit quality (Fulghieri et al., 2014). Investors on the other hand cannot directly observe the agency's rating policy but must rely on past performance of the agency in order to assess their credibility. This can be summarized as their reputation, which is measured by the debt-paying records of previously rated issuers (ibid.). The credit ratings are employed by a number of market participants, including countries, governments and companies for issuing debt. The credit rating process of the CRAs includes analysing both the business risk and the financial risk (Frost, 2007). The business risk is referring to the industry, competitive position of the company and the quality of the management. Financial risk is on the other hand referring to financial policy, capital structure and financial flexibility (ibid.).

There are roughly 150 CRAs on the market but it is dominated by three main actors, most often referred to as the "Big Three"; Standard and Poor's (S&P), Moody's Investor Service and Fitch. Together they have a combined market share of around 95%. However, S&P and Moody's have around 80% of the market whilst Fitch has 15% (De Haan and Amtenbrink, 2011). The reason for the low competition is that the industry of credit ratings are characterized by high barriers to enter and the fact that it takes time for an agency to build up a reputation and gain trust (Cane et al. 2012). Their strong position is also due to regulations and the oligopolistic structure of the rating industry, which is restricted by high minimum size and high front-end cost (Tichy, 2011). The structure of the credit ratings for the three main actors are very similar, they are all expressed on a scale of letters and are divided into two categories; investment-grade and non-investment grade (speculative). The ratings for S&P and Fitch differ somewhat from the one of Moody's, they use plus and minus on their rating modifiers, whereas Moody's uses numbers. For instance, AA+/AA- from S&P is the same as Aa1/Aa3 from Moody's (Hill et al., 2010).

The CRAs have been criticized during the last decade in several areas; one of them is the lack of transparency when it comes to their assessments. It is not revealed which criteria their ratings are based on or the methods employed to come up with them. The three main CRAs seem to weigh different criteria similarly but Moody's seem to place more weight on external debt and less on default history as negative factor than the other two (Tichy, 2011). Furthermore, CRAs generally have placed a lot of weight to debt-to-export ratios, which has turned out to be quite poor predictors of financial stress. Indicators of liquidity and currency misalignments have been given less weight, which instead has shown to be useful in both predicting currency and debt crises (Reinhart, 2002). Already in the beginning of the financial crises there was an intense discussion about the methods that the CRAs use but their market power and the high barriers to enter was also under criticism. Since they are very influential on the cost of funding, they can easily make an impact on the market by a downgrade or just an announcement of a possible future downgrade. Furthermore, the conflict of interest is another problem associated with the CRAs, referred to as the "issuer-pays" model where the issuer could influence the term of their rating (Eijffinger, 2012). This problem will be discussed more in detail in the next section. The defence that is used by the CRAs, to all the criticism they have received, is the freedom of speech. They argue that the rating is only an expression of their opinion, instead of being viewed as expert advice. This creates a problem; the CRAs see their ratings as only opinions while other major market participants are most often encouraged or forced to use them (Cane et al., 2012).

2.1.1 Agency Conflict

There are three actors that contribute to the principal-agent conflict: CRAs, issuers and investors. These conflicts mainly stem from the revenue bias (also referred to as the "issuer-pays" model), i.e. the CRAs are paid by the issuer and not by the investors. The CRAs assign ratings to the issuer's financial instrument and the investors are in turn interested in investing in them (Voorhees, 2012). The issuer must then decide which CRA to choose, partly basing the decision on whether the investor will see the received rating as valuable or not. However, they tend to choose a CRA that would assign a higher rating which in turn would make them more appealing to investors. The CRA on the other hand wants to issue the most correct rating in order to be able to maintain its reputation but at the same time, it wants to issue the most favourable rating as to not lose its customer. This would mean losing the fee the CRA would receive by issuing the rating (Minescu, 2010). In a study by Covitz and Harrison (2003) they investigated this conflict; whether there is more incentive for the CRAs to favour

issuer interests - conflict of interest hypothesis - or investor interests - reputation hypothesis. They come to the conclusion that even though the issuer has paid the CRA, they do not feel forced to give a favourable credit rating since it is quite common for an issuer to choose more than one agency. The reason is to increase the credibility. Instead, Covitz and Harrison (2003) found evidence that it is the reputation hypothesis that is the dominating one.

There are several ways in which the CRAs are trying to mitigate the conflicts of interest, not at least is it enforced upon them through regulations (Strier, 2008; Voorhees, 2012). For instance, the CRAs are required to provide information regarding conflicts of interest and how they address and manage them (Strier, 2008). On the other hand, Schwarcz (2004) argued that the CRAs already are motivated to assign accurate credit ratings due to the fact that their profitability is tied to their reputation. The reputation can be seen as a substitute for regulation; it drives the accountability that normally is accomplished through the processes of regulations. Another way the CRAs deal with the conflict of interest, in addition to regulations, is by assuring that the employed analysts are not compensated in relation to their contribution to the CRAs revenue or have any interest such as personal or economic in the rated company. Since the independence of employees has not been vividly discussed after the recent financial crisis it is generally believed that this has been handled properly (Johansson, 2010).

The conflicts of interest basically stem from that before 1970, investors paid for the ratings. When they became able to conduct their own analysis, the willingness for paying for the credit assessment disappeared, which led to the introduction of the "issuer-pay" model (Johansson, 2010). Furthermore, the CRAs cannot in advance know which investors that are interested in purchasing a certain financial instrument. Even though they did, it would be difficult to persuade each investor into paying their portion of the rating fee (Schwarcz, 2004). Therefore, there seem to be little alternative to the "issuer-pay" model at the moment. To take into consideration is the fact that the CRAs are private companies; they are not regulated neither at any country nor at a governmental level. Moreover, when they conduct the credit rating it is only the creditworthiness of the investment that is considered, not in relation to the economic desirability to the investors (ibid.).

Even though all the above-mentioned criticism towards the CRAs, credit ratings play an important part in financing decisions today and their role should not be ignored. There is evidence that the effect of a credit downgrade or upgrade signals significant information

about the economic situation of a firm (Dichev and Piotroski, 2001). A downgrade associated with declining financial outlook signals new negative information to the market, whilst a downgrade due to changes in a firm's leverage convey no new negative information to the market. The downgrade associated with changes in a firm's leverage is bad news for bondholders but it could be good news for stockholders. If the firm gets downgraded because the CRA believes that there will be an increase in leverage, it will result in a transfer of wealth from the bondholders to the stockholders (Goh and Ederington, 1993). This in turn is one of the most important agency conflicts.

2.1.2 Information Asymmetry

To improve the efficiency of the market, the CRAs act as "informational intermediaries" between the issuer and the investors. This increases the transparency of the financial instruments, which leads to reduction of information asymmetries in the market (Schwarcz, 2004). Information asymmetry is one of the market imperfections and refers to a situation where one of the participants in a transaction has more information than the other party. This could lead to that the participant with more information takes advantage of the other party's lack of knowledge (Ogden et al., 2003).

In a study by Gatchev et al. (2009), the results showed that both agency costs and information asymmetry play an important role in the financing decisions of the firm. This finding is consistent with Myers (1984) and Myers and Majluf (1984) who also argued that asymmetric information plays an important part. The information asymmetry can affect the firm's demand for investments but results show that financial constraint factors, e.g. credit ratings, respond to market imperfections (Campello and Chen, 2010).

The issuer provides the information, which is used to assign a credit rating by the CRAs. The rating does not cover the risk of fraud and the actual significance of it depends in the end on the reputation among investors of the CRA. Hence, to consider is that the credit rating is not more reliable than the information provided by the issuer (Schwarcz, 2004). Moreover, Gan (2004) argued that CRAs give worse ratings to unsolicited issues due to adjustments for difference in true and unobserved quality. Therefore, issuers that have better private information will self select a CRA and reveal private information in order to receive a higher credit rating.

In order to reduce the information asymmetries, there is evidence that this could be done through credit ratings. Chou and Cheng (2012) argued that diversifying firms are associated with higher information asymmetries due to investors' lack of knowledge about more than some of these segments, hence diversifying firms are traded at a discount. They found that this discount was reduced when information asymmetries were mitigated by credit ratings. Both credit ratings existence and level of credit rating reduced information asymmetries; therefore also the discount. Moreover, He et al. (2011) found evidence that is in line with this but supports more the signalling hypothesis. The credit rating reveals private information about a firm, this in turn becomes the link between debt and stock value uncertainties. A better credit rating or an upgrade signals that the debt value has lower uncertainty; which in turn would mean that the lower level of information asymmetry signals lower uncertainty regarding the stock value (the link).

2.2 Underlying Theory of Capital Structure

Managers consider credit rating as one of the most important determinants when they make decisions about the firm's capital structure (Graham and Harvey, 2001). Managers daily face decisions on how to finance different investment opportunities. It is a difficult decision and the wrong choice of financing source can be devastating for a firm. Issuing debt raises concerns about financial flexibility and credit ratings, while dilution and the value of the stock are the main concerns in the choice of issuing equity (ibid). The concern about the value of a firm's equity is driven by the market timing theory, which suggests that a firm wants to issue equity when its stock is highly valued and repurchase stock when the market value of its stock is low (Baker and Wurgler, 2002). It is shown that the market timing largely influences a firm's real financial policy and capital structure is the outcome of past attempts to time the market (ibid). Harford (2005) argued that according to the behavioural model, which focuses on asset misvaluation, acquisitions are driven by overvalued equity. Vermaelen and Xu (2014) investigated the market timing theory in relation to acquisitions. They argued that bidders want to pay with overvalued stock, but the target shareholders will not accept this. Hence, overvalued stock can only be used when it is justified as the optimal capital structure. Many researchers have tried to address the problem in search for the optimal capital structure and there are two main theories that have been developed within this area: the Trade-off theory and the Pecking Order theory.

2.2.1 Trade-off Theory

Miller and Modigliani (1958) early studied the importance of capital structure for a firm's market value. They assumed perfect capital markets and found that a firm's market value is independent of its capital structure. However, there are no such perfect capital markets. Firms have to pay corporate taxes and a manager's decision on capital structure can lead the firm into bankruptcy. Therefore, Kraus and Litzenberger (1973) introduced corporate taxes and bankruptcy costs into the model, and a trade-off emerged. Debt is a cheap source of financing and it carries the benefit of being tax deductible. Thus, it also increases the firm's probability of default. The relationship between an increased amount of debt and a firm's market value is positive and linear, until the benefits of the tax shield is offset by the increased costs of financial distress. Therefore, it is possible to find the optimal capital structure that maximizes the value of the firm.

Although the trade-off theory is well known in the academic world, there are still other factors that influence the decision of capital structure and make managers deviate from this theory. The trade-off is based on the fact that debt is a cheap source of financing and always accessible. The availability and cost of debt may differ depending on the risk of lending to the company. Credit ratings are a commonly used measurement of the firm's risk, even though it should be considered only as an opinion according to the CRAs. However, it has been shown that credit rating has an affect on a firm's capital structure and also on the trade-off theory. Kisgen (2006) included the costs (benefits) of different credit rating levels into the trade-off theory. He found that, in some cases, a credit rating level and its associated costs influence a firm's capital structure and results in a deviation from its optimal capital structure suggested by the trade-off theory. He also found that firms close to a credit rating change are more reluctant to issue debt. If they would issue more debt when they are close to a rating change it could lead to a downgrade. This in turn could result in a change in their cost of capital. These findings suggest that investors require a return based on a firm's credit rating rather than a firm's debt level. Flannery et al. (2012) partly support this view, but found stronger evidence for the trade-off theory. A firm's credit spread reflects expected future changes in its leverage and these expectations that the investors have are mainly based on the Trade-off theory. Even though the findings are ambiguous, we can draw the conclusion that both credit rating and the Trade-off theory influence a company's cost of capital.

However, firms deviate from their target capital structure (Leary and Roberts, 2005), and Kisgen (2007) evidence shows that credit rating is one reason. Specifically firms with investment grade rating do not follow the trade-off theory and even increase their debt levels when the level is above the target ratio. This is instead supported by the other main theory within capital structure; the pecking order.

2.2.2 Pecking Order Theory

Myers (1984) questioned the Trade-off theory and developed the Pecking Order theory based on his findings. The two models disagree when a firm's debt ratio is above the target ratio but below its debt capacity. In this case, the Trade-off theory suggests that the firm should decrease its leverage while the Pecking Order theory suggests an increase (Jong et al., 2011). As mentioned above, the pecking order is shown to be superior to the Trade-off theory in some cases. The theory suggests that managers follows a pecking order in the decision of the firm's capital structure and should first of all use internally generated funds, followed by debt and least equity (Myers, 1984). Firms follow the pecking order due to information asymmetries, both in the choice of internal and external funds and between debt and equity. The research in this area indicates different result. Lemmon and Zender (2010) found support for the theory. They argued that if external funds are required, debt is preferred over equity, but only when the firm do not need to consider its debt capacity. Hence, equity issuance is mainly driven by debt capacity concerns. Leary and Roberts (2010) found support for a more liberal pecking order, but the theory is driven by incentive conflicts rather than information asymmetry. Frank and Goyal (2003) found some contradicting results. First of all, internal financing is not sufficient and firms commonly use external financing. Second, debt and equity are equally used. However, there was support for the Pecking Order theory among large firms. The results from Fama and French (2005) showed that firms issue equity, both frequently and that the issuance is large. They argued that these firms have benefits that outweigh the costs of issuing equity.

As shown, the literature about the Pecking Order theory is, as well as the Trade-off theory, ambiguous. However, a majority of the findings suggest that if there is evidence for the pecking order it is due to information asymmetry. Hsin-Han Shen (2014) found that firms prefer to issue debt when information asymmetries increase, but also find that the access to debt decreases simultaneously. This means that firms associated with high information asymmetry experience limited access to debt markets and hence restricted condition to raise

debt, which is where the role of CRAs comes into play. CRAs are seen as information intermediaries, as have been mentioned in the previous section, and credit ratings reduces the information asymmetries in capital markets (Chou and Cheng, 2012). There is little research about CRAs role for the Pecking Order theory, but Jong et al. (2011) argued that firms with investment grade rating have less restricted debt capacity. Instead, they consider marginal debt ratio that would make a firm lose its investment grade rating and found that the pecking order explains a majority of their sample.

The lack of research about the relationship between credit rating and the Pecking Order theory can instead be examined through studies of the relationship between credit rating and capital structure. Based on the argument that credit ratings reduce the information asymmetry in capital markets, a suggestion would be that credit ratings may not change the pecking order in a firm's financing decision, but it might alleviate the costs between the different choices of financing.

2.2.4 Credit Rating and Capital Structure

Neither the Trade-off theory nor the pecking order models explicitly take credit ratings into account (Kisgen, 2007). Although some findings of these theories can explain credit ratings impact on a firm's capital structure, we can see that the choice of financing in investment decisions is mainly driven by information asymmetry and debt capacity concerns. Credit ratings can be connected to both of these findings. The existence of credit ratings reduces information asymmetry in capital markets and investors can more easily identify the firm's credit quality (Tang, 2009). Firms with higher credit rating face better access to capital market and lower cost of borrowing, hence also an increased debt capacity. Firms with a lower rating have higher cost of debt and less access to capital markets, but still better conditions than unrated firms due to differences in information asymmetries. Debt becomes cheaper for a high rated firm, but the same relationship is not found for equity (ibid). Kliger and Sarig (2000) even showed that equity value falls when better rating is announced. This supports the asset substitution theory that bondholders benefit from risk reduction in form of increased debt value, whereas shareholders have the subordinated claim. On the other hand, Kisgen (2006) found that firms close to an upgrade have a high market value and are more likely to issue equity rather than debt. It is not only beneficial for investors when information asymmetries are reduced. Firms can also benefit from the possibility of signalling without conveying the information to the market (Kisgen, 2007).

Many theories assume that firms always want to maximize their debt capacity, and their research of financing choice are based on this simplified assumption, but this is not always the case. For instance, managers may want to avoid downgrades by cutting risky investment projects and stay far from using the firm's maximum debt capacity (Bo et al., 2008). Even though some studies showed that investment increase when a firm reaches a better rating due to lower cost of capital (Gul et al. 2009), it does not necessary mean that it reaches its maximum debt capacity. Instead, by keeping a good rating, firms leave space for raising debt at low cost whenever it is needed. This shows that there are many variables that affect a firm's choice of financing in an investment opportunity.

Firms still value credit ratings very high, even though it has been argued by the CRAs that it should only be considered as an opinion. The fact that firms think it is important to have good rating influences the market's perception (Kisgen, 2007). Investors trust CRAs to the extent that they are willing to rely on a third party for their investment decisions (Bo et al., 2008). Credit ratings are important, both in the eyes of firms and their potential investors. The ratings reduce information asymmetry and partly determine a firm's debt capacity, but there are also other factors affecting the choice of financing source. Firms also take reputation into account and may not always act rational. To conclude, credit ratings largely affect investment decisions, even to the extent that merger deals sometimes depends on if the firms involved can maintain their credit level (Kisgen, 2007).

2.3 Payment Method in M&As

There has been conducted an extensive amount of research in order to determine the method of payment choice. Faccio and Masulis (2005), Harford et al. (2009) and Uysal (2011) investigated the impact of a firm's debt capacity on the financing decision of payment between cash and stock. Faccio and Masulis (2005) studied the European market of M&As; they wanted to investigate the payment choice of the bidder. They found that the trade-off between corporate governance concerns and debt-financing constraints largely influence on the payment choice of the bidder. Harford et al. (2009) examined how bidders choose to finance acquisitions but instead looked at deviations from bidder's target debt ratios, which they use as a measure of debt capacity. His results showed that if the bidder's leverage is over its target level, the acquisition is more likely financed with equity than with debt. Uysal (2011) complemented the study by as well examining deviations from the bidder's target debt

ratio. Although, in his study he found that managers take the deviations from the target into account when planning acquisitions.

There are several studies regarding credit ratings and capital structure that are directly related to our study. Faulkender and Petersen (2006), Kisgen (2006, 2009) and Lemmon and Zender (2010) all examined the relationship. Faulkender and Petersen (2006) suggested that a firm with better access to public bond markets have significantly more leverage. They used the debt rating as a proxy for whether the company has access to the capital market or not, examining the US market between the years 1986 and 2000. Their results showed that firms that have access to the public bond market have 35% more leverage. Even though a firm with a credit rating is fundamentally different, this does not affect the results as it is controlled for firm characteristics. Kisgen (2006) followed the same intuition that a credit rating has an impact on a firm's capital structure but instead took it a bit further by examining the impact of the rating on the capital structure decisions. He found that a firm that is close to either a credit downgrade or upgrade issue less debt than equity in relation to a firm that instead is not near a change in their credit rating. The sample consists of US firms during the years 1986 to 2001. In a more recent study by Kisgen (2009), he extended his research by studying whether managers target credit ratings when making capital structure decisions, i.e. the leverage behaviour following a credit rating change. The sample period differ somewhat from the previous study, between the years 1987 and 2003 but still only covers US firms. In his previous study (Kisgen, 2006), financial companies and utilities were not excluded but instead controlled for whereas in this study he excluded them. Furthermore, the outcome of the research suggested that firms react asymmetrically to rating changes; a firm lowers the leverage after a downgrade but responds little to upgrades. Kisgen (2009) argued that managers target specific minimum credit ratings and that a complete model of capital structure must include credit rating with standard tax, information, agency and financial distress factors. Finally, the study by Lemmon and Zender (2010) investigated the impact of debt capacity on capital structure. They used credit rating as a proxy for the debt capacity: whether the firm has high likelihood of being able to access the public debt market. Their results imply that if external funds are required, without considering concerns regarding the debt capacity, debt seems to be preferred to equity. The use of new external equity financing by listed firms is to a large extent explained by the concerns over debt capacity. Hence, the pecking order seems to give a good description of financing behaviour.

There has been one previous study that has investigated the same relationship between credit rating and payment method similar to what we conduct, although it based on the American market. Karampatsas et al (2014) found that the bidders in M&As that have assigned high level of credit rating are more likely to use cash payment as financing source. They associate this result to that highly rated bidders experience lower financial constraints and better access to public debt markets. The time period for their sample is between the years 1998 and 2009 and consists of 6819 observations, where 1747 firm are rated.

The previous studies, which has been discussed above, that are the most relevant and important for our thesis are being presented in the table below.

Table 1 - Overview of previous studies

Authors	Years	Market	Study	Result
Faccio and Masulis (2005)	1997-2000	Europe	M&A payment choices of bidders	Trade-off between corporate governance concerns (dilution of control) and debt financing constraints influence the choice of payment
Faulkender and Petersen (2006)	1986-2000	US	Firm with better access to public bond market have significantly more debt (credit rating as a proxy for acess to bond market)	Firms with access to the public bond market have 35% more leverage
Kisgen (2006, 2007)	1986-2001	US	How credit rating affects choice of payment in M&As	Firm close to a downgrade or upgrade issue less debt than equity
Kisgen (2009)	1987-2003	US	Leverage behavior following a credit rating change	Firms react asymmetrically to rating changes; a firm lowers the leverage after a downgrade but responds little to upgrades
Harford et al. (2009)	1981-2000	US	How deviation from target capital structure affect M&A payment choices	When bidder's leverage is above its target level, equity is more frequently used than debt
Lemmon and Zender (2010)	1971-2000	US	Credit rating as a proxy for access to public debt market affect capital structure decisions	If external funds are required, without considering concerns regarding the debt capacity, debt seems to be preferred to equity
Uysal (2011)	1990-2007	US	The extent to which a firm's leverage deficit the effect of its leverage deficit on the payment method in M&As	Managers take deviatoins from the target level into account when planning acquisitions. Firms that are overleveraged are less likely to make acquisitions and are less likely to use cash in their offers. Acquire smaller targets and pay lower premiums.
Karampatsas et al. (2014)	1998-2009	US	Credit ratings' and credit rating level's affect on payment method in M&As	Credit rating level has a positive impact on cash payment, while the existence of credit rating do not have any significant impact on payment method

2.4 Hypotheses

Based on the previous literature we would like to examine following hypotheses. As argued above, a bidder holding a credit rating should have better access to public debt markets. Therefore, the following hypothesis will be investigated:

> *H1:* A firm that holds a credit rating is more likely to pay with cash in a merger or acquisition.

Furthermore, bidders with better credit quality face relatively better opportunities to borrow, due to lower cost of debt and higher demand for their debt securities. Hence, the following hypothesis is developed:

> *H2:* A firm that holds a higher level of credit rating is more likely to finance the acquisition with cash.

However, these hypotheses do not consider whether a firm want to maximize its debt levels or not. A firm can have reached its target debt level and even though it holds a rating this may not explicitly explain the choice of payment method. Consequently it does not imply a positive relation between holding a credit rating and using cash as payment method in M&As.

3 Methodology

In this chapter we are going to clarify the methodology and research approach that has been used in order to be able to answer the research questions proposed in the first chapter. Furthermore, the procedure of the obtained sample will be discussed. The relevant variables and the used econometric techniques will be presented in the end.

3.1 Methodological Approach

The methodological approach that will be employed in this study is based upon the methodologies from Faccio and Masulis (2005) and Karampatsas et al. (2014). The approach for the two studies is similar; the underlying theory is focused on the choice of payment method. The research from Faccio and Masulis (2005) is based on the European market and it will be employed for the definitions of variables that differ from Karampatsas et al (2014) study on the American market. Furthermore, Karampatsas et al. (2014) add the perspective of credit ratings, which will be investigated in our study with a similar approach. Consequently, the defined variables that are used in our thesis are supported by both studies. The foundation of this thesis is also based on the existing research discussed in the literature review and the presented theories from the previous chapter.

The time period for the employed credit rating is four weeks prior to the acquisition announcement and has been applied as a measure of debt capacity and credit quality as in line with the study by Karampatsas et al. (2014). Since the purpose of this paper is to investigate the effects of credit rating on the choice of payment method, it is important that the data reflects the situation before the acquisition to get a more reliable result. Therefore, we believe that the time period will be enough to capture the desirable effect.

3.1.1 Research Approach

There are two main research approaches that can be applied to a study: deductive or inductive. The deductive approach use literature to identify theories that then will be tested using the data, in the inductive approach the researcher instead develop theories from the data which then is related to the theory (Saunders et al., 2009). In this paper the deductive approach will be employed since the underlying theory of credit ratings and payment methods in M&As by Karampatsas (2014) combined with Faccio and Masulis (2005) is tested.

Furthermore, in order to be able to answer our research questions we have used quantitative data. The approach of quantitative data is applied to understand and measure relevant variables so that the formulated hypotheses can be tested. Secondary data has the characteristics of being collected in another purpose and by someone else (Saunders et al., 2009). In this paper we have used secondary data with the intention of developing our theories that are relevant, the employed sources are described in 3.2.1. The credit ratings from S&P are collected from Thomson Reuters Eikon, which is considered to be secondary data. Primary data on the other hand is where the data is collected from the original source, such as annual reports (Saunders et al., 2009). The credit ratings by Moody's were gathered from their historical database, which is the primary source.

3.2 Data and Descriptive Statistics

In order to apply the methodology from Karampatsas et al. (2014) and Faccio and Masulis (2005), we used several databases to generate a sample with specific characteristics. The same requirements and specifications have been applied as in Karampatsas et al. (2014) study. The database Zephyr was first used to generate all available acquisitions and mergers within Europe that was announced between 2000 and 2008, where the acquirer is publicly traded and the target is both private and public. The sample consists of both successful and unsuccessful deals. The time period of the sample is based on the sixth (and latest) wave of M&As in order to get the most representative sample, and the whole cycle is therefore taken into consideration. This resulted in a sample of 926 transactions.

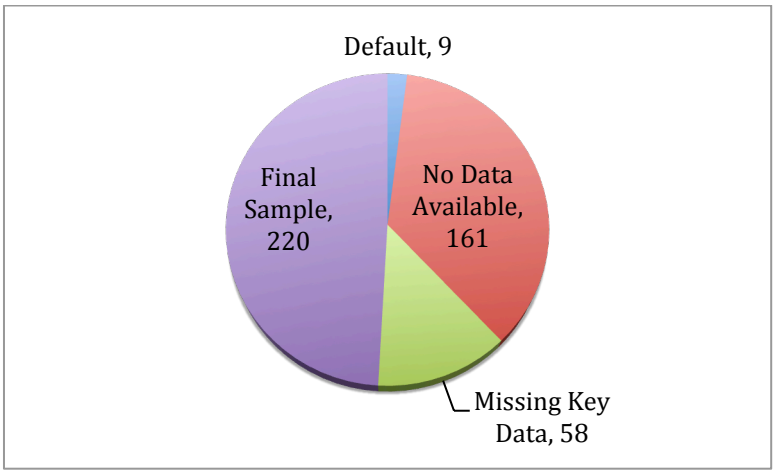
In order to get a representative sample for the European market, the countries with the largest contribution to Europe's GDP in the chosen time period are collected from World DataBank. The eleven countries in our sample contributes to 90% of Europe's total GDP, and the countries are Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Portugal, Spain, Sweden and United Kingdom. These countries are considered to be the most representative of the European market.

Both firms with and without credit rating will be included in the sample. Furthermore, all deals must have a value over €1 million to avoid noise in the analysis and the bidder must seek to acquire more than 50% in order to get transfer of control. The deals must be classified as merger, acquisition or acquisition of majority of assets to be included, thus other deals such as repurchases, liquidations, restructurings, divestitures, leveraged buyout, reverse takeover,

privatization, bankruptcy acquisition and going private are removed. The observations are also required to have transaction value and payment method information, which gave us an outcome of 448 transactions.

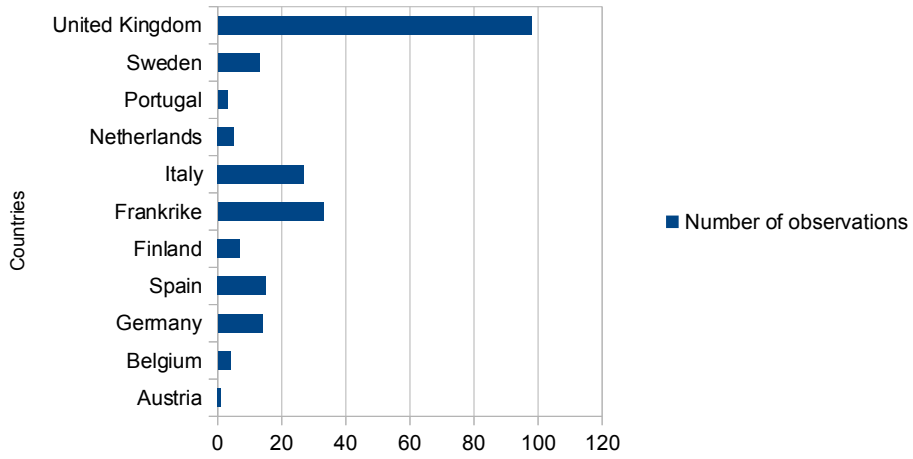
In the next step in our selection procedure, nine firms was omitted due to default and that no information was available. Thereafter, the sample of 439 transactions was reduced even more due to that there were companies that had no financial data or were not found in the databases; Datastream, S&P Capital IQ and Thomson Reuters Eikon. We therefore had to exclude 161 observations. Finally, since we had many control variables to take into consideration, there were cases where key data for some of them could not be identified. Key data for 58 firms were missing and excluded from our sample. Thus, we got a final outcome of 220 observations.

Figure 1. Sample Selection



The final sample consists of eleven countries, as previously mentioned, and the distribution among them is shown in the figure below. It consists of a majority of observations from United Kingdom, France, Italy, Spain and Germany, which is reasonable since these countries have the highest contribution to Europe's GDP. In Appendix 5, each countries contribution to GDP can be found.

Figure 2. Distribution of Countries



The database used for collecting accounting data from annual reports is S&P Capital IQ. Furthermore, historical stock prices have been gathered from DataStream 5.0. Finally, information regarding deal features is collected from Thomson Reuters Eikon.

Credit rating information for the rated bidders is collected from both Moody's and Thomson Reuters Eikon. The reason is that Moody's did not rate all rated firms, therefore we complemented with the other database to obtain ratings from S&P. The credit rating information represents their long-term foreign issue. The reason that the long-term domestic rating is not employed, as in the study by Karampatsas et al. (2014), is because they only had one country to take into consideration. The fact that we have several countries in our sample makes the need of a more comparable measurement greater, which the long-term foreign rating represents. The range in our sample is between Aaa to C for Moody's and between AAA to D for S&P's, which will give a rating level ranging from 0 to 20. The rating scale employed in the study by Karampatsas et al. (2014) has a linear relationship and we have used the same in our study. Although, since we have credit ratings from two different CRAs we have used the linear transformation by Kräussl (2005), which is presented in the table below.

Table 2. Linear Transformation of Credit Ratings into Numerical Scores

Numerical scores	S&P	Moody's
20	AAA	Aaa
19	AA+	Aa1
18	AA	Aa2
17	AA-	Aa3
16	A+	A1
15	A	A2
14	A-	A3
13	BBB+	Baa1
12	BBB	Baa2
11	BBB-	Baa3
10	BB+	Ba1
9	BB	Ba2
8	BB-	Ba3
7	B+	B1
6	B	B2
5	B-	B3
4	CCC+	Caa1
3	CCC	Caa2
2	CCC-	Caa3
1	CC	Ca
0	D	C

3.2.1 Criticism of Data Sources

The data that we have used is secondary, as mentioned in the two sections above, which could result in less reliable results. Since all of the collected data is from established databases that are commonly used by researchers as a source of information, it makes it more dependable. Also, since we have used the databases to complement each other with different data, it gives the sample higher validity because it is not only collected from one source. The credit ratings are collected from both primary and secondary sources. The optimum would have been to gather all of them from primary origin, but since access to S&P's historical credit rating database was denied we had to complement with data from a secondary source; Thomson Reuters Eikon. The ratings gathered from Moody's were compared to the ones in Thomas Reuters Eikon and there were no deviations from the original ones. Therefore, we consider the data to be reliable since it is a well-established database, and we do not believe that this would have affected our results significantly.

3.3 Econometric Techniques

The data in our sample is cross-sectional, which is the type of data where the variables are collected at a single point in time (Brooks, 2008). In our thesis we collected a sample of M&As, reflecting 220 observations, in the time period between the years 2000 to 2008.

In order to be able to investigate the two hypotheses mentioned in the previous chapter two different regression techniques will be used. The dependent variable *method of payment* is a dummy variable and the choice of payment will be investigated using a probit regression. This model estimates the probability of ending up with either of the two outcomes, to pay with cash or stock. The variable *fraction of cash* lies in the interval between 0 and 1, hence a Generalized Linear Model (GLM) logit regression is used instead. The logit model is one of the most commonly used dummy variable regression model and it is based on the cumulative logistic probability distribution, which is defined as the following:

$$F(z_i) = \frac{1}{1+\exp(-z_i)}$$

The GLM logit model have fitted values of *F(zi)* that are bounded within the interval [0,1] and most often give similar characterisation of the data (Brooks, 2008). Furthermore, the idea with the model is to fit the parameters so that the predicted values for *F(zi)* match the actual observed values of the dependent dummy variable as closely as possible for every existing observation. Finally, the model is non-linear, hence, a one unit increase in one of our regressors does not result in the same change in *F(zi)*.

The probit model is most often used as an alternative to the logit model. The only difference between the two is that the probit is instead based on the cumulative normal distribution and is defined as the following:

$$F(z_i) = \frac{1}{\sqrt{2\pi}} \exp(-z_i^2/2)$$

Since one of our dependent variable *payment method* takes a value of 0 or 1, the probit model is the most appropriate one for those regressions. The other dependent variable *fraction of cash* instead takes a value between 0 and 1, which makes the GLM logit model a better fit. Finally, EViews will be used for the implementation.

3.4 Regressions

In order to answer our research questions we tested our two hypotheses with two different samples; a total sample of rated and unrated firms and a sample with only firms holding a credit rating, following the methodology of Karampatsas et al. (2014). Every sample was tested with two different models, probit and GLM logit, since we have the two different dependent variables: *payment method* and *fraction of cash*. This resulted in a total of four regressions.

The following regressions are defined:

1. $Prob(payment\_method=1) = F(a + ß1credit\_rating + ß2lnsize + ß3leverage + ß4collateral + ß5book\_to\_market + ß6runup + ß7cash\_flow\_to\_assets + ß8number\_of\_analysts + ß9relative\_size + ß10diversifying\_deals + ß11private + u)$

2. $fraction\_of\_cash = a + ß1credit\_rating + ß2lnsize + ß3leverage + ß4collateral + ß5book\_to\_market + ß6runup + ß7cash\_flow\_to\_assets + ß8number\_of\_analysts + ß9relative\_size + ß10diversifying\_deals + ß11private + \mathcal{E}$

The two above equations aim to understand if the existence of a credit rating affects the payment method or fraction of cash used in M&As. Here, the whole sample is used as a base in order to see whether rated firms are more likely to pay with cash.

3. $Prob(payment\_method=1) = F(a + ß1credit\_rating\_level + ß2lnsize + ß3leverage + ß4collateral + ß5book\_to\_market + ß6runup + ß7cash\_flow\_to\_assets + ß8number\_of\_analysts + ß9relative\_size + ß10diversifying\_deals + ß11private + u)$

4. $fraction\_of\_cash = a + ß1redit\_rating\_level + ß2lnsize + ß3leverage + ß4collateral + ß5book\_to\_market + ß6runup + ß7cash\_flow\_to\_assets + ß8number\_of\_analysts + ß9relative\_size + ß10diversifying\_deals + ß11private + \mathcal{E}$

These equations are based on the sample of only rated firms, where the aim is to see if the credit rating level of a firm has any affect on the payment method or the fraction of cash used as a financing source.

3.4.1 Regression Assumptions

In situations where the dummy variable is the explanatory variable, the most appropriate model to use is either the GLM logit or the probit model as have been mentioned above. However, in order for the models to be reliable there are a number of assumptions that must be fulfilled. Similar to other varieties of multiple regressions, both of the models are sensitive to extremely high correlation among the independent variables, which could lead to multicollinearity. The outcome of the problem is most often extremely large standard errors for parameter estimates (Fidell and Tabachnick, 2007). In order to control for multicollinearity a correlation test has been performed in EViews, which can be viewed in Appendix 1. Multicollinearity exists in a sample if the correlation between two variables is higher than 0,80 (Brooks, 2008). As can be examined by the table in the appendix, none of the variables have higher correlation than 0,80. Hence, there is no problem of multicollinearity in our sample. Another assumption that must be taken into consideration is the existence of outliers, which can result in that the model has poor fit. The outliers of a sample can be found by examination of the residuals (Fidell and Tabachnick, 2007). In our sample we had no extreme outliers, which meant that we did not need to remove any of our observations. Finally, a last assumption is that the sample needs to be quite large in relation to the number of independent variables in order to get a good fit for the models. This could lead to that they produce extremely large parameters and standard errors (ibid.). Since our sample does not show any of the mentioned problems, there are no indications that it needs to be controlled for even though we do not have that large of a sample. Although, the outcome of the result could have been different and more representative if the sample would have been greater since it is not that large in comparison to Karampatsas et al. (2014).

3.5 Variables

3.5.1 Dependent Variables

A regression tries to explain a relationship between the dependent and explanatory variable(s), whereas the dependent variable depends on one or a number of explanatory variables (Brooks, 2008). The purpose of this paper is to investigate if credit ratings affect the choice of payment method in M&As. As in the study by Karampatsas et al. (2014) two dependent variables will be used to investigate the relationship; *payment method* and *fraction of cash*. These two dependent variables may possibly be explained by a firm's credit rating. The definition of *payment method* is whether the offer contains more or less than 50% cash as

part of the total offer by the bidder to the target shareholders. In the probit regression, *payment method* is a dummy variable, which takes on a value of 1 for deals financed with more than 50% cash; and 0 otherwise. In the GLM logit regression, *fraction of cash* lies in the interval 0 and 1.

3.5.2 Explanatory Variables

The explanatory variable(s) in a regression tries to explain the behaviour of the dependent variable. The regression tries to explain movements in the dependent variable by movements in the explanatory variable(s). The explanatory variable(s) does not depend on any other variable and is also called the independent variable (Brooks, 2008). In this study, we suggest that the payment method is partly explained by credit ratings, and to be able to explain this relationship, *credit rating* and *level of credit rating* are included as explanatory variables. These variables are presented below and are the same explanatory variables that have been used by Karampatsas et al. (2014).

Through our hypothesis we want to investigate if bidders holding a credit rating are more likely to pay with cash, since they should have better access to public debt markets. Hence, the sample will be divided into two groups, with or without credit rating assigned by Moody's and S&P. We call this variable *credit rating*, which is a dummy variable that takes on value 1 for rated firms, and 0 for unrated firms.

In this paper the hypothesis also suggest that a firms with higher credit rating level should be able to borrow at a lower cost and face a higher demand for their debt securities, which will affect the choice of payment method. Our sample contains a rating range between Aaa/AAA-C/D from Moody's and S&P, which is translated to a range of number from 0 to 20, where Aaa/AAA level takes 20 and C/D takes 0. This variable is called *credit rating level* and is a continuous variable for rated bidders.

3.5.3 Control Variables

Previous studies have shown that there are many possible determinants of the choice of payment in M&As. To show that the decision of payment method clearly depends on credit rating, a number of control variables are introduced to the regression. A control variable control for other factors that may have an impact on the dependent variable and its relationship to the explanatory variable(s) (Brooks, 2008).

Faccio and Masulis (2005) investigated whether a firm's debt capacity has an impact on the choice of payment method in M&As. As a proxy for debt capacity they use the variable *collateral*, since a firm's ratio of tangible assets has a strong positive impact on its possible debt level (Hovakimian et al., 2001). Bidders that offer a majority of cash also have a higher percentage of collateral than bidders that pay with a majority of stocks, which is found that have a positive impact by Faccio and Masulis (2005). Nevertheless, Karampatsas et al. (2014) did not find it significant. The variable *collateral* is measured as the ratio of property, plant and equipment (PPE) to the book value of total assets at the end of the fiscal year prior to the acquisition announcement. Another variable that also affect the bidder's debt capacity is *size*. Karampatsas et al. (2014) argue that larger firms are more diversified, which leads to a lower probability of default, and hence, the possibility to take on more debt. The variable *size* is measured as the natural logarithm of the market capitalization 4 weeks prior announcement of the deal. Already existing debt can decrease a firm's financial flexibility and make it difficult to issue more debt. Therefore, the financial condition of the firm may reduce the ability to take on debt; hence a stock offer is more likely. To measure firms' financial condition, the variable *leverage* is introduced to the model. Faccio and Masulis (2005) found this variable to have a significant impact on the payment method, firms with significant amount of debt prefer to finance the acquisition with stock. On the other hand, Harford et al. (2009) and Karampatsas et al. (2014) found a positive relationship between leverage and cash payment. They argue that firms prone to pay with equity usually have greater growth opportunities and less leverage. *Leverage* is measured as the ratio of a firm's total debt to the book value of assets in the end of the fiscal year prior acquisition announcement.

Growth opportunities can affect a firm's payment method in an acquisition. La Bruslerie (2013) found those firms with high growth potential and a high stock value are more prone to pay with cash. On the other hand, Martin (1996) and Karampatsas et al. (2014) found a positive relation between book-to-market and cash payment. Firms with higher growth opportunities prefer to pay with stock. The bidder's *book-to-market* value is used as a proxy for growth opportunities, and is measured as the ratio of the book value of equity at the fiscal year-end prior to the deal announcement to the market value of equity 4 weeks prior to the acquisition announcement. Furthermore, when the stock is overvalued it is more likely that the bidder will pay with equity (Rhodes-Kopf and Viswanathan, 2004; Chemmanur et al., 2009), and to measure bidder's overvaluation the variable *run-up* is used. This variable is

measured as the bidder market-adjusted buy-and-hold returns over the period (-205, -6) days prior announcement. Karampatsas et al. (2014) found this variable highly significant on a firm's choice of payment method.

The variable *number of analysts* is introduced to control for information asymmetry in the market. Information asymmetries can result in that bidders try to pay with overvalued stock and it is less likely that target accepts this if the real value of the bidder's stock is unknown. A higher number of analysts that monitor the firm result in less information asymmetry as argued by Chemmanur et al. (2009) and supported by Karampatsas et al (2014).

Faccio and Masulis (2005) found that private targets are more likely to accept cash, since their need for liquidity is greater. Target's status is therefore included, and Karampatsas et al. (2014) found this variable to be highly significant and have a positive impact on the *payment method*. The variable *private* is a dummy variable that takes on the value 1 for private targets, and 0 otherwise.

The Pecking Order theory states that firms should first of all use internal cash to finance investment (Myers, 1984), but it also increases the likelihood that the managers engage in empire-building activities (Jensen, 1986). Therefore, as in line with Karampatsas et al. (2014), a positive relationship is expected between cash flow and probability of a cash offer. The variable *cash flow to assets* is measured as the ratio of EBIT excl. unusual items plus depreciation minus total dividend divided by the total asset in the end of the fiscal year before the acquisition announcement.

The larger target relative to the bidder, the higher likelihood of paying with equity, since it is difficult to raise a relatively large amount of cash (Harford et al., 2009). The variable *relative size* is a ratio of the transaction value to the bidder's market value 4 weeks prior acquisition announcement.

Finally, the variable *diversifying deals* is introduced to our model. Faccio and Masulis (2005) argued that the target is reluctant to accept a stock offer, since it has little knowledge about the bidder's industry and business risk, and hence the true value of the firm. However, Karampatsas et al. (2014) did not find the variable to be significant. The variable *diversifying deals* is defined as a dummy, which takes on the value 1 for inter-industry transactions, and 0 otherwise. Industry relatedness is determined through the UK 3-digit SIC level.

3.5.4 Excluded Variables

Karampatsas et al. (2014) argued for a number of additional variables that should be used to control for market credit condition, competition, monitoring, hostility and mode of acquisition. However, we have chosen to exclude these variables for various reasons. The variables *interest rate spread* and *competition* are not significant in the research on the US market and due to lack of data we find it reasonable to exclude these variables from our dataset. In our sample, all deals are friendly and therefore the variable *hostile* is also excluded. Even though the variables *tender* and *blockholder ownership* were significant in the study by Karampatsas et al. (2014) they are excluded because of missing data.

3.6 Endogeneity

One of the most important issues that many studies are confronted by is the problem of endogeneity. It is defined as a correlation between the explanatory variables and the error term in the regression. The outcome could lead to biased and inconsistent parameter estimates, which makes it almost impossible to make reliable inference (Roberts and Whited, 2013). Even though there are available techniques to mitigate the problem of endogeneity, the error term is unobservable and therefore one can never be sure that it has been completely solved. There are two main different causes of endogeneity in our sample; omitted variables and selection bias. Omitted variables is when an explanatory variable is excluded although it should not have been, which ends up in the error term. If the part of the error term that includes the omitted variable is correlated with any of the independent variables, endogeneity is a problem (Roberts and Whited, 2013). The selection bias refers to the non-random assignment to different groups, which means that firms might make a choice on factors that are observable or unobservable (ibid.). In our collected sample, the credit rating variables have been treated as exogenous. This implies that the decision to obtain a credit rating and the level of credit ratings is randomly allocated across the sample. However, as argued by Karampatsas et al. (2014), due to the fact that firms can partially determine if they want to obtain a credit rating or if they want to have higher rating level it is quite likely that the decision to obtain a credit rating is based on firm specific characteristics that are not accounted for. Therefore, there is a need to control for the problem in order to be able to mitigate the outcome of biased and inconsistent estimation of the parameters.

3.6.1 Instrumental Variables

To get rid of the part that causes the endogeneity problem, instrumental variables (IVs) can be used in the model. An IV needs to fulfil two criteria. First, it needs to be correlated with the endogenous variable, in our case credit rating and level of credit rating. Second, it has to be uncorrelated with the error term. Although, this is difficult to test since the error term is unobservable. However, if the IV is partly correlated with the dependent variable it is likely to be correlated with the error term as well. Hence, an IV that fulfils these criteria can only affect the dependent variable through the endogenous variable. (Roberts and Whited, 2013)

In this study we have chosen IVs from the methodology used by Karampatsas et al. (2014) since we believe that they are also applicable to our study. The first variable *regulated industry* is included in the regression on both credit rating and level of credit rating. Firms in regulated industries rely more on public debt than other firms, since they face lower agency costs and do not have any needs for monitoring. Thus, these firms reveal their cost of capital which is beneficial to obtain a rating as argued by Karampatsas et al. (2014). The variable is a dummy variable that takes on the value 1 if the firm is a financial institution or a utility firm, and 0 otherwise. The specification of the firm's industry is based on the firm's three digit SIC-codes as by Faccio and Masulis (2005).

In the endogeneity control for credit rating, an additional variable is added, *industry fraction.* Firms in well-established industries are more likely to get a credit rating when they issue a bond (Faulkender and Petersen, 2006). Investors are already familiar with the industry and banks save cost in order to underwrite the bond issue (ibid). To get the variable and control for this effect, the fraction of firms with credit rating in the same industry is added to the log of 1. The industry is once again based on the SIC-code. To control for endogeneity problem for level of credit rating, the variable *industry level* is used instead. This is the median level of credit rating in the fiscal year prior the acquisition for each industry group.

3.6.2 Methodology for Endogeneity Control

The test for controlling for endogeneity has been conducted manually in EViews with the Hausman test as described in Brooks (2008). Since we worry that credit rating and credit rating level is not completely exogenous; what we mean when we assume and say that they are endogenous is that there are some other variables that influence the two of them. Hence, there are equations that explain credit rating and credit rating level. The first step in the

Hausman test is to obtain the reduced form equations; writing the endogenous variables as a function of the other variables. The two equations, with the included IVs, are defined as the following:

1. $credit\_rating = ß0 + ß1lnsize + ß2leverage + ß3collateral + ß4book\_to\_market + ß5runup + ß6cash\_flow\_to\_assets + ß7number\_of\_analysts + ß8relative\_size + ß9diversifying\_deals + ß10private + ß11industry\_fraction + ß12regulated\_industry + u$

2. $credit\_rating\_level = ß0 + ß1lnsize + ß2leverage + ß3collateral + ß4book\_to\_market + ß5runup + ß6cash\_flow\_to\_assets + ß7number\_of\_analysts + ß8relative\_size + ß9diversifying\_deals + ß10private + ß11industry\_level + ß12regulated\_industry + u$

Thereafter, the fitted values of *credit_rating* and *credit_rating_level* are obtained. These values are then introduced to the equations of interest, equations 1-2 and 3-4. In Appendix 2 the output of the Hausman test can be viewed.

3.6.3 Further Robustness Tests

In Karampatsas et al. (2014), they have conducted another robustness test, in addition to the endogeneity control, in order to check that the model can handle variability and still remain effective. The robustness tests for unused debt capacity have not been carried out in our study due to the lack of data. Since our sample consists of too few target firms that holds a rating due to that most if them are private, it was not possible to go through with the test.

3.7 Validity

Validity refers to that the used data should both relevant and valid. Hence, if the method that has been used measures what it is supposed to measure (Saunders et al., 2009). There are two types of validity, external and internal. The external validity is to what extent that the results of the study are generalizable, if they can be applied to similar studies or settings. In order for that to be possible it means that the research study has to be representative for the area that it should be applied to. The internal validity instead refers to whether there exists a causal relationship between the measured variables (ibid.).

The external validity of this study can be referred to whether the countries in the sample are representative of the European market or not. Since we have taken the top countries representing 90% of the total GDP of Europe, we believe that the chosen countries represent Europe well and the validity has been strengthen to some extent. Although, it might still be difficult to generalize the results since the laws and regulations among the different countries differ, but also their access to debt and equity capital. Therefore, this must be considered in order to be able to generalise the results. Including control variables in order to control for firm-specific factors has strengthened the internal validity. Furthermore, since we have used long-term credit ratings in the study, the effects of business or credit cycles have been mitigated.

3.8 Reliability

Reliability is defined as to what extent the data collection techniques and analysis procedure will result in consistent findings (Saunders et al., 2009).

The credit ratings that we have employed have been collected from Moody's but also from Thomson Reuters Eikon. Moody's is one of the three biggest CRAs and either they or S&P have rated most rated companies. Therefore we see the source as a reliable and accurate for historical credit ratings. However, due the restricted user profile that we received from Moody's (a free trial) there were credit ratings that we could not access. Hence, we needed to complement the data with credit ratings from the Thomson Reuters Eikon database. Since the database is widely used by researchers, it is considered reliable. For the collection of financial data for the companies, S&P's Capital IQ was employed. The data from there has been derived from annual reports from the companies, which means that it has been approved before. Thus, the reliability of the data is considered to be quite high. Finally, data regarding stock prices were collected from Datastream. This database is also well used by researchers, which gives the collected data higher reliability.

4 Empirical Results

In this chapter we will first present the descriptive statistics of our study, which will give an understanding of the sample we have collected. Thereafter, the results of the regressions will be shown both with tables and with interpretational text.

4.1 Descriptive Statistics

To get an overview of the sample, the data is summarized and presented in the tables below.

Table 3. Descriptive Statistics – Payment Method

	Total sample		(1) Cash > 50%		(2) Cash < 50%	
	Mean	Median	Mean	Median	Mean	Median
N	220		175		45	
% credit rating	35,45%		35,43%		35,56%	
Size (€ million)	6652,95600	613,01600	6937,24300	648,81700	4457,39700	420,00000
Leverage	0,61430	0,63102	0,62705	0,64591	0,56409	0,53126
Collateral	0,22885	0,15557	0,23344	0,16358	0,21104	0,11366
Book-to-market	0,57352	0,38853	0,60438	0,39954	0,45352	0,04994
Run-up	0,07827	0,05828	0,06899	0,06122	0,11436	0,04286
Cash flows to assets	0,05580	0,04738	0,05743	0,05079	0,04944	0,04058
Number of analysts	15,39545	11,00000	15,88000	11,00000	13,51111	6,00000
% Diversifying deals	0,43636	-	0,41714	-	0,51111	-
Relative size	155,73740	43,11013	137,86180	38,66094	225,25360	57,74747
% Private	0,790909	-	0,81143	-	0,71111	-

Table 3 shows the descriptive statistic for our total sample and for the two different alternatives of payment method. In our sample of 220 observations, 175 of them pay with a majority of cash and 45 pay with a majority of stock. The fraction of firms with credit rating is 35,5% for both groups. The mean size of the firms that paid with cash is €6937,24 million, which is larger than for firms that pay with stock (€5547,40 million). Cash-dominated deals have also higher mean and median leverage, collateral, book-to-market value, and cash-flow-to-assets than stock-dominated deals. Furthermore, they also have on average a higher number of analysts that monitor the firm. Stock-dominated deals have higher mean run-up and relative size, but also include more non-diversifying deals.

Firms that are involved in stock-dominated deals are on average smaller but the size of the deal is on average larger relative to the bidders own value than for firms that pay with cash. Firms that pay with cash are on average larger, have more leverage, collateral, which indicates that these firms are more mature companies and have on average higher cash-flow

and lower growth opportunities. It also indicates that firms involved in cash-dominated deals are smaller, younger firms with higher growth opportunities.

Table 4. Descriptive Statistics – Credit Rating

	Total sample		With credit rating (1)		Without credit rating (2)	
	Mean	Median	Mean	Median	Mean	Median
N	220		78		142	
Size (€ million)	6652,95600	613,01600	17220,02000	8090,99400	848,01940	253,23600
Leverage	0,61430	0,63102	0,67489	0,68712	0,58102	0,58453
Collateral	0,22885	0,15557	0,28776	0,25476	0,19650	0,12215
Book-to-market	0,57352	0,38853	0,67049	0,41849	0,52025	0,37643
Run-up	0,07827	0,05828	-0,02458	-0,00559	0,13477	0,09141
Cash flows to assets	0,05580	0,04738	0,05325	0,03698	0,05719	0,05529
Number of analysts	15,39545	11,00000	29,23077	29,00000	7,79578	5,00000
% Diversifying deals	0,43636	-	0,46154	-	0,42254	-
Relative size	155,73740	43,11013	214,33150	22,37671	123,55190	53,55535
% Private	0,790909	-	0,53846	-	0,92958	-

Table 4 shows the sample divided into groups with credit rating and without. In our sample there are 78 observations with credit rating and 142 unrated observations. The sample with credit rating contains significantly larger firms (€17220,02 million) than the sample without credit rating (€848,02 million). We can also see that firms with credit rating have on average more leverage and collateral than other firms. Furthermore, *book-to-market*, *number of analysts*, *relative size* is also higher for rated compared to unrated firms. The group with rated firms have a negative *run-up* while the group with unrated firms have a positive coefficient for this variable. Firms with credit rating have a lower cash flow to assets than firms without credit rating. The total sample contains mostly private targets, but the fraction of private targets is slightly higher for the group without credit rating.

Firms with credit rating are much larger than firms without rating; even the median for rated firms is greater. The characteristics are on average similar as for firms that pay with cash and firms in this group are likely to be mature companies. Furthermore, their book-to-market value are higher than for unrated firms, which indicates higher growth opportunities for firms without rating.

The result from the descriptive statistics indicate that firms involved in cash-dominated deals are mature firms with a steady cash flow, while firms involved in stock-dominated deals have larger growth opportunities and lower cash flow. Characteristics of firms in cash-deals are

similar to the ones for firm with credit rating, although it is not possible to draw any conclusion from the descriptive statistics; instead the regressions will show how and to what extent each variable influence the choice of payment method.

4.2 Regression Results

In order to test our hypotheses, four different regressions were performed. The results are the following:

Table 5. Credit Rating

N=220	GLM Logit (1)		Probit (2)	
	Coefficient	P-value	Coefficient	P-value
Constant	-4,939317 (3,938916)	0,2098	-2,807970*** (1,067944)	0,0086
Credit rating	-1,199313 (1,604745)	0,4548	-0,830617** (0,388434)	0,0325
Ln(size)	0,386573 (0,512663)	0,4508	0,261132* (0,148685)	0,079
Leverage	4,623742 (3,267335)	0,157	2,261684*** 0,688778)	0,001
Collateral	0,065754 (1,890781)	0,9723	0,106236 (0,486977)	0,8273
Book-to-market	2,223835 (1,920092)	0,2468	0,940497*** (0,224568)	0,0049
Run-up	0,598170 (1,285774)	0,6418	-0,144283 (0,281017)	0,6076
Cash flows to assets	5,156156 (7,111413)	0,4684	3,966578* (2,234704)	0,0759
Number of analysts	-0,009451 (0,055110)	0,8638	-0,006268 (0,018250)	0,7312
Relative size	-0,000839 (0,001056)	0,4267	-0,000526* (0,000302)	0,0815
Diversifying deals	-0,587710 (0,787206)	0,4553	-0,215522 (0,223783)	0,3355
Private	0,575257 (1,038212)	0,5795	0,500270 (0,319692)	0,1176
Pseudo R-square	0,773491		0,123889	

*The table above reports the coefficients, standard errors within parenthesis and p-values. * p= 1%, ** p= 5% and *** p= 10%.*

The two first regressions investigate the relationship between the existence of *credit rating* and *payment method* from Equation 1 and 2. Unfortunately, the GLM logit model has no significant variables, but leverage and book-to-market influence payment method more than the other variable since they have the lowest p-value. This is consistent with the result in the probit model.

The probit model shows that our main variable of interest *credit rating* is significant on 5% level and has a negative impact on *payment method*, which implies that firms with credit rating are more likely to pay with stock. However, *credit rating* is not the most explanatory

variable. *Leverage* and *book-to-market* are significant on 1% level and have the largest influence on *payment method*. Both of them have positive coefficients, which indicates that firms with more leverage and lower growth opportunities are more likely to pay with cash. Furthermore, *size*, *cash flows to assets* and *relative size* are significant on 10% level. *Size* and *cash flows to assets* positively influence the *payment method*, which means that larger firms and firms with higher cash flows are more prone to pay with cash. The result implies that these firms have more money to spend and would prefer to use cash to finance investments. *Relative size* has a negative sign, which indicates that the larger the deal size is in relation to the bidders own value the less likely the firm is to pay with cash.

Table 6. Level of Credit Rating

N=78	GLM Logit (1)		Probit (2)	
	Coefficient	P-value	Coefficient	P-value
Constant	-0,690003 (1,947730)	0,7231	-4,516829 (3.237279)	0,1629
Level of credit rating	-0,012161 (0,058278)	0,8347	0,056401 (0,076953)	0,4636
Ln(size)	0,041081 (0,213308)	0,8473	0,152285 (0,304719)	0,6172
Leverage	0,031661 (0,879523)	0,9713	2,11373 (1.550979)	0,1729
Collateral	-0,107022 (0,659001)	0,871	-0,552638 (0,840973)	0,5111
Book-to-market	0,131895 (0,232710)	0,5709	1,972477** (0,894088)	0,0274
Run-up	-0,361183 (0,515491)	0,4835	-1,526626** (0,770616)	0,0476
Cash flows to assets	0,296905 (2,880114)	0,9179	5,422649 (5,292734)	0,3056
Number of analysts	0,002427 (0,021042)	0,9082	0,012554 (0,031880)	0,6938
Relative size	-6,750005 (0,000314)	0,8298	-0,000918 (0,000482)	0,0566
Diversifying deals	0,010286 (0,010286)	0,9737	0,23906 (0,434189)	0,5819
Private	0,140793 (0,275204)	0,7075	0,678493 (0,528708)	0,1994
Pseudo R-square	0,779459		0,177704	

*The table above reports the coefficients, standard errors within parenthesis and p-values. * p= 1%, ** p= 5% and *** p= 10%.*

The regressions in Equation 3 and 4 investigate the relationship between *level of credit rating* and *payment method*, among rated firms. The GLM logit model is also here insignificant, while the probit model show some significant variables. Although, *level of credit rating* is not significant, which indicates that the associated benefits or costs of a certain credit rating do not explicitly influence the choice of payment method, and it may be other circumstances that influence if a firm choose to finance its investment with cash or stock. *Book-to-market* and *runup* are the most influential variables on payment method among rated firms, both

significant at 5% level. *Book-to-market* has a positive impact on payment method, which implies the same explanation as mentioned above for the total sample. *Run-up* has a negative impact on *payment method*, which indicates that when a firm's stock price increases in the period before announcement the firm is more likely to pay with stock. *Relative size* is significant at 10% level and the same holds as for the previous regression, the larger deal value the more likely is the firm to pay with stock.

The results from the two groups are slightly different, which may be due to the different characteristics of rated and unrated firms. For our main variables of interest, *credit rating* and *level of credit rating*, we find that *credit rating* significantly influence the choice of payment method, while *level of credit rating* does not. For both groups, *book-to-market* has the highest influence on the choice of payment method. The variable *leverage* is highly significant in the total sample but not for the rated group, which indicates that level of debt has a greater influence for unrated firms. For rated firms, the *run-up* has a significant impact, so when the stock price increases in the period before the announcement firms want to pay with stock.

The pseudo R-squares for the two GLM logit have high values; the regression on *credit rating* had a pseudo R-square of 77,4% and on *credit rating level* 77,9%, which suggest that the models have quite a good fit. The probit models had pseudo R-squares that were significantly lower, the regression on *credit rating* had a pseudo R-square of 12,4% and on *credit rating level* 17,8%, which indicates that the model does not explain the dependent variable that well. Although, pseudo R-square is not the real R-square it still gives some indications whether the model has good fit or not. The pseudo R-squares for the probit models are very low, although it is a small but reliable relationship, since many of the variables are significant. Even though the GLM logit models has higher pseudo R-squares and explains the dependent variable well, no reliable relationships can be found.

4.3 Endogeneity Control

To investigate a potential endogeneity problem, we performed two Hausman tests with our chosen IVs, which can be found in Appendix 2. *Regulated industry* was not significant but *industry fraction* and *industry level* was highly significant at 1% level. Both of them have a positive coefficient as expected. One of the tests also showed significance for the fitted value of credit rating, which supported our prediction that the variable *credit rating* is endogenous. The other variable, *credit rating level,* did not show any signs of endogeneity. Credit rating is

argued to be endogenous, as mentioned before, due to selection bias. However, it is more difficult to choose level of rating even though, as mentioned, in chapter 2 firms can to some extent influence. Therefore, we choose to control for endogeneity for this variable as well in order to see whether we could get a model with better fit. To control for the problem, a two stage least square (2SLS) regression was performed to get a better outcome with the following result below.

Table 7. Endogeneity Control – Credit Rating

N=220	Fraction of cash		Payment method	
	Coefficient	P-value	Coefficient	P-value
Constant	-0,160260 (0,228415)	0,4837	-0,0202962 (0,267696)	0,4492
Credit rating	-0,370580*** (0,117742)	0,0019	-0,372978*** (0,137990)	0,0074
Ln(size)	0,080719** (0,032753)	0,0145	0,088336** (0,38386)	0,0224
Leverage	0,486339*** (0,139677)	0,0006	0,532232*** (0,163697)	0,0013
Collateral	0,122866 (0,107700)	0,2553	0,093275 (0,126221)	0,4607
Book-to-market	0,143938*** (0,044592)	0,0014	0,155008*** (0,052261)	0,0034
Run-up	-0,023305 (0,067297)	0,7295	-0,046332 (0,078870)	0,5575
Cash flows to assets	0,357622 (0,462119)	0,4399	0,729665 (0,541590)	0,1794
Number of analysts	0,000957 (0,003950)	0,8087	-0,000575 (0,004629)	0,9013
Relative size	-3,640005 (7,14005)	0,6108	-9,000005 (0,057455)	0,2838
Diversifying deals	-0,05623 (0,049025)	0,2527	-0,043109	0,4539
Private	0,125785* (0,074239)	0,0917	0,116622 (0,087006)	0,1816
F-statistic	3,024272	0,0009	2,48307	0,0060
R-square	0,091897		0,085514	
Adjusted R-square	0,043872		0,037152	

*The table above reports the coefficients, standard errors within parenthesis and p-values. * p= 1%, ** p= 5% and *** p= 10%.*

Credit rating is still significant, but now at 1% level. The coefficient is also here negative but not as much as in the previous regression. The implication is the same; rated firms are more likely to pay with stock. *Leverage* and *book-to-market* are, as in the previous regression, significant at 1% level and are together with credit rating the most explanatory variable. Furthermore, *size* is also significant, but now at 5% level. After controlling for endogeneity, larger firms with lower growth opportunities are still more likely to pay with cash, while firms with low leverage are more likely to pay with stock. When we control for endogeneity in the regression on the dependent variable *fraction of cash*, *private* is also significant, at 10% level, which indicates that firms that acquire private targets are more likely to pay with cash.

However, *private* is not significant in the regression with *payment method* as the dependent variable.

Table 8. Endogeneity Control – Credit Rating Level

N=78	Fraction of cash		Payment method	
	Coefficient	P-value	Coefficient	P-value
Constant	0,400287 (0,632954)	0,5293	0,423142 (0,672656)	-0,5316
Credit rating level	-0,10741 (0,021091)	0,6123	-0,008484 (0,022414)	-0,7063
Ln(size)	0,035262 (0,068863)	0,6103	0,02635 (0,073182)	-0,7200
Leverage	0,048782 (0,290583)	0,8672	0,144285 (0,308810)	-0,6419
Collateral	-0,079674 (0,205731)	0,6998	-0,100806 (0,218635)	-0,6463
Book-to-market	0,12324 (0,083236)	0,1435	0,123377 (0,088457)	-0,1678
Run-up	-0,276262 (0,165742)	-0,1003	-0,292643 (0,176138)	-0,1014
Cash flows to assets	0,282654 (0,961827)	0,7698	0,248635 (1,022157)	0,8086
Number of analysts	0,001836 (0,006793)	0,7877	0,002133 (0,007219)	-0,7686
Relative size	-5,910005 (9,961827)	0,5550	-0,000114 (0,000106)	-0,2873
Diversifying deals	0,012041 (0,099241)	0,9038	0,019849 (0,105466)	0,8513
Private	0,113917 (0,118890)	0,3415	0,079226 (0,126347)	0,5328
F-statistic	0,751488	0,6857	0,715698	0,7194
R-square	0,110248		0,104795	
Adjusted R-square	-0,038044		-0,044405	

*The table above reports the coefficients, standard errors within parenthesis and p-values. * p= 1%, ** p= 5% and *** p= 10%.*

After controlling for endogeneity in the variable *level of credit rating*, none of the variables are significant. This is probably because *level of credit rating* was exogenous already from the beginning, hence the 2SLS model gave a worse fit than the chosen model used initially. Although, *book-to-market* and *run-up* are still the most influential variables on payment method even though they are not significant.

It is clear that the 2SLS model did not give a better fit for *level of credit rating*, hence the originally model will be the one employed for our analysis. For *credit rating* the 2SLS gave somewhat higher significance for *credit rating, size* and *private*. However, the variables did not change that much and R-square was lower than the initial models, which makes us chose them for the analysis. The F-statistics were also only significant for *credit rating,* which suggests that there is a relationship between *payment method* and one or several of the independent variables. For *credit rating level,* where the F-statistics were not significant, this could imply that none of the

variables were able to explain the variations in *payment method*. However, this supports the evidence of no endogeneity for the explanatory variable *credit rating level.*

5 Analysis

The following chapter aims at comparing the empirical results with the mentioned theory in chapter 2. We will present differences and similarities between the two and make an analysis. In the end of the chapter a section with limitations will be discussed, which possibly can restrict the study.

From the descriptive statistics one can see that firms who pay with cash have similar characteristics as firms with credit rating. However, it does not necessarily mean that firms with credit ratings are paying with cash. The data shows that firms with credit ratings are on average larger and have more debt than firms without rating, which suggests that it takes some time for a firm to achieve a credit rating and requires a firm to have certain amount of debt. Furthermore, this is in line with the findings from Faulkender and Petersen (2006) who found that the firms holding a credit rating have on average 35% more leverage. Firms with credit rating also engage on average in larger deals compared to their own value, which indicates that they would rather pay with stock, since it may be difficult to raise such a big amount of debt. Rated firms are also on average covered by more analysts than unrated firms, which according to theory decrease information asymmetries and possibly reduce the cost between debt and equity as have been argued by Karampatsas et al. (2014).

Even though the descriptive statistic gives us some indications for our sample, we need to look at the regressions to draw any conclusions. Our first hypothesis tests if firms with credit ratings are more likely to pay with cash. From our probit regression results one can see that credit rating is significant, but has a negative coefficient, which suggests that firms with credit rating would rather pay with stock. The result contradicts our predictions and it means that H1 is not supported. It also contradicts the result from Karampatsas et al. (2014), who did not find any significance for credit rating. Nevertheless, the significance of the variable is consistent with previous studies that show that credit rating affects financing and investment decisions (Tang, 2009; Bannier et al., 2012; Bo et al. 2008; Kisgen, 2006, 2007).

Although previous research also showed that credit rating has an impact on capital structure and financing decisions, the support for our result that firms with credit rating are more likely to pay with stock is more ambiguous. Findings by Tang (2009) showed that firms with credit rating have better access to capital markets and lower cost of borrowing, hence higher debt

capacity. This may also be applicable for our study, but higher debt capacity may not be consistent with the choice of cash as payment method. Instead, the result from our study can be supported by Bo et al. (2008) who suggests that it is not always the case that firms want to maximize their debt capacity. Our results imply that firms instead of maximizing their debt levels rather want to leave space for the possibility of raising additional debt in the future if needed. Another explanation to the results might be that issuing debt results in restrictions by the creditors and Lemmon and Zender (2010) argued that equity issuance is mainly driven by debt capacity concerns. Firms may want to maintain their financial flexibility and not raise debt as long as the associated costs of raising debt are higher than the one's for issuing equity. Further explanation is that capital structure decision is also determined by a firm's target ratio. Rated firms in our sample which chose to pay with stock may have reached their target capital structure, and do not want to issue further debt. This could be explained Harford et al. (2009) results that imply that when a bidder's leverage exceeds the target level, the bidder is more likely to finance the acquisition with stock.

The result of a negative credit rating impact could also be explained by the market timing theory. As argued by Vermaelen and Xu (2014) firms chose to issue stock when their equity is overvalued. Furthermore, Harford (2005) found that some mergers are driven by overvaluation. These theories suggest that there may be a majority of overvalued bidders in our sample.

While credit rating is only significant at the 5% level, *leverage* and *book-to-market* seem to be the major determinants of the choice between cash and stock. The results suggest that firms with more leverage are more likely to pay with cash, which is in line with Harford et al. (2009) who found that firms with less leverage are more likely to pay with stock. However, it is in contradiction to Faccio and Masulis (2005) findings. They argue that bidders in stock-dominated deals have greater growth opportunities and less leverage. Karampatsas et al. (2014) found as well in their study that the variable *leverage* was significant and had a positive impact. The other major determinant of payment method, *book-to-market*, is positive and firms with a high book-to-market value are more likely to pay with cash. The result contradicts the findings by La Bruslerie (2013) who found this relationship to be negative. On the other hand, it is consistent with Martin (1996) findings that firms with higher growth opportunities (lower book-to-market) are more likely to pay with stock. Firms with growth opportunities want to maintain their financial flexibility for their future investment needs to

be able to meet the growth expectations. The result is as well in line with the one's from Karampatsas et al. (2014), who found support for the growth opportunity theory.

Size has significant impact on payment method as shown by our regressions. Large firms are more diversified, hence have lower probability of default and are able to raise more debt, which is argued by Karampatsas et al. (2014). The variable *cash flows to assets* showed a positive and significant relationship between a bidder's cash flow and choice of payment method. It suggests that higher cash flows increase the probability of cash payment. This is consistent with Jensen's free cash flow hypothesis (1986); managers for firms with excessive free cash flows more willingly use cash for their investments. This is also supported by Myers (1984) Pecking Order theory that firms first of all prefer to use internally generated cash. Both *size* and *cash flows to assets* are as well positive and have a significant impact in the study by Karampatsas et al. (2014). Furthermore, *relative size* has a negative impact on payment method. It implies that when the value of deal is higher than the market value of the bidder, the bidder may face difficulties to get enough financing from internally generated funds and debt, which is argued by Harford et al. (2009). Hence, if the relative size is large the bidder may be forced to pay with stock.

The other variables in our regression are insignificant. Among these variables, *private* is the closest one being significant with a p-value slightly over the 10% level. The coefficient indicates that if a bidder acquires a private target it is more likely to pay with cash. Faccio and Masulis (2005) argue that private targets are usually more illiquid and their shareholders probably prefer cash before stock. The result is also in line with Karamptsas et al. (2014) findings. Since the variable is not significant we cannot draw any conclusions that support their study. *Diversifying deals*, *number of analysts*, *run-up* and *collateral* are further away from being significant. In the study by Karampatsas et al. (2014) neither *diversifying deals* nor *collateral* are significant, thus cannot support the theories behind them. However, they found significance for *number of analysts*, which implies that there might be differences in information asymmetries between the American and European market.

To investigate the second research question, whether the level of credit rating influences the choice of financing source, regressions with *credit rating level* as our main variable of interest were conducted. Examining the results, one can see that *credit rating level* does not have a significant impact on the dependent variable *payment method*. Karampatsas et al. (2014)

found *level of credit rating* to be significant and positively influence the choice of payment method. Although, our result indicates that a higher debt capacity may not explicitly explain the choice of payment method. Kisgen (2006, 2007) and Tang (2009) argued that firms are cautious about their credit ratings, which could partly be related to our findings. Kisgen (2006, 2007) found that firms that are close to an upgrade or a downgrade tend to issue less debt. His results are supported by Tang (2009) who found that if a firm issues too much debt it faces the risk of being downgraded, which can lead to costly consequences, such as higher cost of capital and decreased access to the debt markets. Furthermore, Kliger and Sarig (2000) found that equity value falls when better rating is announced. This could mean that even though a firm has a high credit rating, hence a high debt capacity, they could choose not to borrow in order to maintain their rating level. As argued by Schwartz (2004) a credit rating reduces information asymmetries in the market, thus there could be lower information asymmetries among rated firms. This could lead to reduced costs associated with the pecking order, which may offset the benefits of raising debt. To conclude, the H2 cannot be explained by our findings since the results neither imply that a firm with higher level of credit rating is more likely to finance with cash nor with equity.

The control variables, *book-to-market* and *relative size,* are significant as in the above regressions with credit rating. The same explanation as mentioned for their impact in the section above is applicable for this result. Even though *book-to-market* has greater impact on payment method in the regression with *level of credit rating* as explanatory variable, the variable is less significant than the regression with *credit rating*. Unlike the regression with credit rating, the variable *run-up* is now significant with a negative impact on payment method. It implies that the higher increase of the stock price to the announcement date, the more likely the firm is to pay with stock. The same negative relationship was found by Karampatsas et al. (2014). Furthermore, the results are in line with the suggested market timing theory by Vermaelen and Xu (2014). Firms try to time the market and therefore are more likely to pay with stock when they experience an increase in stock prices.

Myers (1984), Jensen (1986) and Karampatsas et al. (2014) suggest a positive relationship between *cash flow to assets* and cash payment. However, we do not find any significance for this variable in this regression even though the coefficient is positive. It implies that a firm's cash flow does not impact its choice of payment method. As argued for *level of credit rating*, an explanation could be that information asymmetries are lower for rated firms than for the

total sample, hence there may be decreased incentives to follow the pecking order. *Leverage* is neither significant in this regression. Faccio and Masulis (2005) and Harford et al. (2009) came to different conclusions for this variable, as discussed above in the section regarding *credit rating*. It indicates that the implication for leverage is biased. However, *leverage* was significant for the total sample and a possible explanation for the difference between the groups may be that rated firms are less restricted when it comes to leverage. Furthermore, the variable *size* is not significant in the sample for rated firms as it was for the total sample. Karampatsas et al. (2014) instead found the variable to be significant and had a positive relationship, which was argued by that larger firms are more diversified and therefore have lower probability of default. Nevertheless, we cannot support these findings.

The variables *collateral*, *number of analysts*, *diversifying deals* and *private* are for the regressions with *credit rating level* as main variable of interest insignificant, as they were for the variable *credit rating*.

None of our hypotheses are supported by the result of our sample. Credit rating is significant but contradicts our predictions that credit rating would give the firm higher debt capacity and better access to capital markets. Instead, credit rating is shown to have a negative impact on payment method, which implies that rated firms are more likely to pay with stock. Furthermore, the Hausman test revealed that we have an endogeneity problem in the sample. As discussed in previous chapter it may be due to selection bias and omitted variable. The problems are partly derived from the agency conflict; where companies to some extent may be able to influence their rating or whether they want to be rated or not as argued by Minescu (2004). The test showed that *credit rating* is endogenous, however there were no findings for the problem in *level of credit rating*. Although we corrected for endogeneity in both 2SLS regressions, the results did not deviate significantly from the original regressions with GLM logit and probit.

5.1 Limitations

This study has been based on data from 2000 to 2008. Hence, the results that we found are therefore restricted to the time frame. Moreover, even though we have taken the time period of a whole M&A wave into consideration, the financial crisis of 2008 could still have influenced some of the results due to its extensive impact. The run-up to the financial crisis

may have affected the payment choice of many acquisitions. Another determinant of investment decision that restricts the findings in our result is the fact that the different countries in our sample do not have the same laws and regulations. However, since all of the included countries are developed countries and are part of the European Union, it makes the sample more homogeneous. However, there might be influences regarding these differences that have not been accounted for and it should be noted that it might have had an impact on the outcome. In our sample, firms such as financial institutions and utility companies are included, which might have affected the outcome of our result. Other studies, like Kisgen (2009), excluded them because their capital structures differ extensively from other firms. Although, we have chosen to include them, which has been done as well in the study by Karampatsas et al. (2014), in order to get a more comparable result between the two studies. In our sample all financial institutions and utility companies are rated and a majority of these firms paid with stock. Hence, these observations could have influenced and given a somewhat misrepresented outcome.

6 Conclusion

The focus in the last chapter is to give a summary of the findings and relate them to our research questions. The contribution of our study will be shown and the possibilities for further research will be discussed.

The objective of our study was to answer the two research questions stated in the first chapter. The first question that we wanted to investigate was whether the choice of payment method in M&As is determined by the credit rating existence of the bidder. The relationship was tested through the hypothesis: *a firm that holds a credit rating is more likely to pay with cash in merger or acquisition.* Although our result was significant, the hypothesis was rejected. Instead we found that firms with credit rating are more likely to pay with stock. Our results suggest that firms instead of maximizing their debt levels rather want to maintain financial flexibility for the possible need of debt in future investments. Furthermore, firms issue equity due to debt capacity concerns, which could imply that firms in our sample may have reached their maximum debt levels. Another explanation of our result may be that the time period chosen have been characterized by a general overvaluation of the market, hence there have been more M&As driven by overvalued equity. During this period, firms might have experienced that the benefits of raising debt have been offset by the decreased costs of issuing equity.

In this study, the second research question we wanted to investigate was whether the credit rating level of a firm affected its choice of financing source, which was tested through the hypothesis: *a firm that holds a higher level of credit rating is more likely to finance the acquisition with cash*. Since we did not find any significant result, we could neither reject nor find support for the hypothesis. Although, it could mean that even though a firm has a high credit rating, hence a high debt capacity, they could choose not to borrow in order to not lose their rating level. Instead it could be the change in rating that determines the payment method and not the actual level of rating of the firm. However, we have not investigated the change in credit rating, but the insignificance indicates that there is no clear relationship between level of credit rating and payment method. It is supported by previous research in this topic that the results are ambiguous. Another possible explanation of our insignificant result could be that firms with credit rating experience less information asymmetry than unrated firms. The assigned credit rating of a firm reduces information asymmetry in the market. Thus, rated

firms may have less incentive to follow the pecking order. This suggests that the level of credit rating does not decrease information asymmetries and neither affect choice of payment method. It is rather the existence of credit rating that influences the choice between cash and stock. Although information asymmetry has been partly controlled for, it could still have influenced the results to some extent.

It has been argued that firms with credit rating have higher debt capacity, although we find significance for leverage as well. This implies, for the total sample, that leverage could influence the choice of payment method. However, rated firms may have less restricted debt capacity and better access to debt markets, which suggests that leverage only has an impact for unrated firms. Firms without rating may be restricted by their existing debt levels when they seek external financing for investment opportunities. Nevertheless, we did not find significance for leverage among rated firms, which support our discussion that these firms could be less restricted by their access to debt.

Financial institutions and utility companies have been included in our study, in order to get a more comparable result, which could have affected the outcome. Since all of these firms were rated it could suggest that it is more commonly for them to hold a rating. Furthermore, the majority of these firms paid with stock, which could be explained by the lack of tangible assets, and hence less collateral when seeking external financing. These observations could have influenced our result by a sample of over represented firms with credit rating who paid with stocks.

To conclude, none of our hypotheses were supported, but the circumstances could still be explained by previous literature within the subject of credit rating and payment method in M&As. Our conclusions leave space for further studies which will be discussed in the following section.

6.1 Suggestion on Further Research

Our sample is quite small, due to the lack of time and resources, and it would be interesting to see whether the result would be different on a larger sample. As mentioned previously in this paper, the time period chosen may have affected the support of our hypotheses. Instead the study could be conducted on a larger time period to capture the effect of both under- and

overvalued market. It would also be interesting to see the effect of the last financial crises, to capture the change of CRAs behaviour and a period of a truly low M&A activity.

Our sample is only based on developed countries; it could be interesting to replace the sample with countries from emerging markets. Those markets are most often seen as less transparent than for developed countries, more risky and the creditworthiness is less accessible. This makes us believe that the outcome would probably differ significantly.

7 References

7.1 Books

Brooks, C. 2008. *Introductory Econometrics for Finance.* New York: Cambridge University Press.

Fidell, L.S., Tabachnick, B.G. 2007. *Using Multivariate Statistics.* Boston: Pearson Education Inc.

Gaughan, P.A. 2007. *Mergers, Acquisitions, and Corporate Restructurings.* New Jersey: John Wiley & Sons, Inc.

Ogden, J.P., Jen, F.C., O'Connor, P.F. 2003. *Advanced Corporate Finance: Policies and Strategies.* New Jersey: Prentice Hall.

Saunders, M., Lewis, P., Thornhill, A. 2009. *Research Methods for Business Students.* England, Essex: Pearson Education Limited.

7.2 Articles

Baker, M., Wurgler, J. Market Timing and Capital Structure. *The Journal of Finance* vol. 57, no. 1 (2002): 1-32.

Bannier, C.E., Hirsch, C.W., Wiemann, M. Do Credit Ratings Affect Firm Investments? The Monitoring Role of Rating Agencies. *Illinois Law Review* no. 2 (2012).

Bar-Isaac, H., Shapiro, J. Credit Ratings Accuracy and Analyst Incentives. *American Economic Review: Papers and Proceedings* no 101:3 (2011): 120-124.

Bo, H., Lensink, R., Murinde, V. Credit Ratings and Corporate Investment: UK Evidence. *Department of Financial & Management Studies, School of Oriental and African Studies, University of London* (2008).

Burch, T.R., Nanda, V., Silveri, S. Taking Stock or Cashing In? Shareholder Style Preferences, Premiums and The Method of Payment. *Journal of Empirical Finance* no. 19 (2012): 558-582.

Cane, M.B., Shamir, A., Jodar, T. Below Investment Grade and Above the Law: A Past, Present and Future Look at the Accountability of Credit Rating Agencies. *Fordham Journal of Corporate & Financial Law* vol. 17 (2012): 1063-1126.

Campello, M., Chen, L. Are Financial Constraints Priced? Evidence from Firm Fundamentals and Stock Returns. *Journal of Money, Credit and Banking* vol. 42, no. 6 (2010).

Chemmanur, T.J., Paeglis, I., Simonyan, K. The Medium of Exchange in Acquisitions: Does The Private Information of Both Acquirer and Target Matter? *Journal of Corporate Finance* no. 15 (2009): 523-542.

Chou, T-K., Cheng, J-C. Credit Ratings and Excess Value of Diversification. *Journal of Empirical Finance* no. 19 (2012): 266-281.

Covitz, D.M., Harrison, P. Testing Conflicts of Interest at Bond Rating Agencies with Market Anticipation: Evidence that Reputation Incentives Dominate. *Finance and Economics Discussion Series* no. 68 (2003).

De Haan, J., Amtenbrink, F. Credit Rating Agencies. *DNB Working Paper* no. 278 (2011).

Dichev, I.D., Piotroski, J.D. The Long-run Stock Returns Following Bond Ratings Changes. *The Journal of Finance* vol. 56, no. 1 (2001): 173-203.

Eijffinger, S.C.W. Rating Agencies: Role and Influence of Their Sovereign Credit Risk Assessment in the Eurozone. *Journal of Common Market Studies* vol. 50, no. 6 (2012): 912-921.

Faccio, M., Masulis, R.W. The Choice of Payment Method In European Mergers And Acquisitions. *The Journal of Finance* no. 3 (2005).

Fama, E.F., French, K.R. Financing Decisions: Who Issues Stock? *Journal of Financial Economics* no. 76 (2005): 549-582.

Faulkender, M., Petersen, M.A. Does the Source of Capital Affect Capital Structure? *Review of Financial Studies* vol. 19, no. 1 (2006): 45-79.

Flannery, M.J., Nikolova, S., Öztekin, Ö. Leverage Expectations and Bond Credit Spreads. *Journal of Financial and Quantitative Analysis* vol. 47 no.4 (2012): 689-714.

Frank, M.Z., Goyal, V.K. Testing the Pecking Order Theory of Capital Structure. *Journal of Financial Economics* no. 67 (2003): 217-248.

Frost, C.A. Credit Rating Agencies in Capital Markets: A Review of Research Evidence on Selected Criticism of the Agencies. *Journal of Accounting, Auditing & Finance* vol. 22, no.3 (2007): 469-492.

Fulghieri, P., Strobl, G., Xia, H. The Economics of Solicited and Unsolicited Credit Ratings. *Review of Financial Studies* vol. 27, no. 2 (2014): 484-518.

Gan, Y.H. Why Do Firms Pay for Bond Ratings When They Can Get Them for Free? *The Wharton School, University of Pennsylvania, Philadelphia* (2004).

Gatchev, V.A., Spindt, P.A., Tarhan, V. How do Firms Finance Their Investments? The Relative Importance of Equity Issue and Debt Contracting Costs. *Journal of Corporate Finance* no. 15 (2009): 179-195.

Goh, J.C., Ederington, L.H. Is a Bond Rating Downgrade Bad News, Good News, or No News for Stockholders? *The Journal of Finance* vol. 48, no. 5 (1993): 2001-2008.

Graham, J.R., Harvey, C.R. The Theory and Practice of Corporate Finance: Evidence From the Field. *Journal of Financial Economics* no. 60 (2001): 187-243.

Gul, F.A., Zhao, X., Zhou, G. Credit Rating Transitions, Investor Sentiment and Corporate Investment Decisions. *School of Accounting and Finance The Hong Kong Polytechnic University* (2009).

Harford, J. What Drives Merger Waves? *Journal of Financial Economics* no. 77 (2005): 529-560.

Harford, J., Klasa, S., Walcott, N. Do Firms Have Leverage Targets? Evidence From Acquisitions. *Journal of Financial Economics* no. 93 (2009): 1-14.

He, Y., Wang, J., Wei, J.K.C. Do Bond Rating Changes Affect the Information Asymmetry of Stock Trading? *Journal of Empirical Finance* no. 18 (2011): 103-116.

Hill, P., Brooks, R., Faff, R. Variations in Sovereign Credit Quality Assessments Across Rating Agencies. *Journal of Banking & Finance* no. 34 (2010): 1327-1343.

Hsin-Han Shen, C. Pecking Order, Access to Public Debt Market, and Information Asymmetry. *International Review of Economics and Finance* no. 29 (2014): 291-306.

Hovakimian, A., Opler, T., Titman, S. The Debt-Equity Choice. *Journal of Financial and Quantitative Analysis* vol. 36 no.1 (2001).

Ismail, A., Krause, A. Determinants of The Method of Payment in Mergers and Acquisitions. *The Quarterly Review of Economics and Finance* no. 50 (2010): 471-484.

Jarrow, R., Xu, L. Credit Rating Accuracy and Incentives. *The Journal of Credit Risk.* Volume 6, no. 3 (2010): 133-151.

Jensen, M.C. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review* vol. 76 no. 2 (1986): 323-329.

Johansson, T. Regulating Credit Rating Agencies: The Issue of Conflicts of Interests in the Rating of Structured Finance Products. *Journal of Banking Regulation* vol. 12, no. 1 (2010): 1-23.

Jong, A., Verbeek, M., Verwijmeren, P. Firms' Debt-equity Decisions When the Static Tradeoff Theory and the Pecking Order Theory Disagree. *Journal of Banking & Finance* no. 35 (2011): 1303-1314.

Karampatsas, N., Petmezas, D., Travlos, N.G. Credit Ratings And The Choice of Payment Method In Mergers And Acquisitions. *Journal of Corporate Finance* no. 25 (2014): 474-493.

Kisgen, D.J. Credit Ratings and Capital Structure. *The Journal of Finance* no. 3 (2006): 1035-1072.

Kisgen, D.J. The Influence of Credit Ratings on Corporate Capital Structure Decisions. *Journal of Applied Corporate Finance.* Volume 19, no. 3 (2007).

Kisgen, D.J. Do Firms Target Credit Ratings or Leverage Levels? *Journal of financial and quantitative analysis* vol. 44, no. 6 (2009): 1323-1344.

Kliger, D., Sarig, O. The Information Value of Bond Ratings. *Journal of Finance* no. 6 (2000).

Kraus, A., Litzenberger, R.H. A State-Preference Model of Optimal Financial Leverage. *Journal of Finance* vol. 28 (1973): 911-922.

Kräussl, R. Do Credit Rating Agencies Add to the Dynamics of Emerging Market Crisis. *Journal of Financial Stability* no. 1 (2005): 355-385.

La Bruslerie, H. Crossing Takeover Premiums and Mix of Payment: An Empirical Test of Contractual Setting in M&A Transactions. *Journal of Banking & Finance* no. 37 (2013): 2106-2123.

Leary, M.T., Roberts, M.R. Do Firms Rebalance Their Capital Structures? *Journal of Finance* no. 6 (2005).

Leary, M.T., Roberts, M.R. The Pecking Order, Debt Capacity, and Information Asymmetry. *Journal of Financial Economics* no. 95 (2010): 332-355.

Lemmon, M.L., Zender, J.F. Debt Capacity and Tests of Capital Structure Theories. *Journal of Financial and quantitative analysis* vol. 45, no. 5 (2010): 1161-1187.

Martin, K.J. The Method of Payment in Corporate Acquisitions, Investment Opportunities, and Management Ownership. *Journal of Finance* no. 51 (1996): 1227-1246.

Martynova, M., Renneboog, L. What Determines the Financing Decision in Corporate Takeovers: Cost of Capital, Agency Problems, or the Means of Payment? *Journal of Corporate Finance* no. 15 (2009): 290-315.

McGee, S. 2014. *Mergers & Acquisitions: The Long-Awaited Boom is Coming.* Credit Suisse, accessed 21 May 2014: https://www.credit-suisse.com/se/en/news-and-expertise/news/economy/global-trends.article.html/article/pwp/news-and-expertise/2014/02/en/mergers-acquisitions-the-long-awaited-boom-is-coming.html.

Miller, M.H., Modigliani, F. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review* vol. 48, no. 3 (1958): 261-297.

Minescu, A-M. Rating Agencies - General Issues and Potential Solutions. *Petroleum-Gas University of Ploiesti, Economic Science Series.* Vol. 62, no. 2 (2010): 110-115.

Myers, S.C. The Capital Structure Puzzle. *Journal of Finance* no.39 (1984): 575-592.

Myers, S.C., Majluf, N.S. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal of Financial Economics* no. 13 (1984): 187-221.

Reinhart, C.M. Default, Currency Crises, and Sovereign Credit Ratings. *The World Bank Economic Review* vol. 16, no. 2 (2002): 151-170.

Rhodes-Kropf, M., Viswanathan, S. Market Valuation and Merger Waves. *The Journal of Finance* no. 6 (2004).

Roberts, M.R., Whited, T.M. Endogeneity in Empirical Corporate Finance, in G. Constantinides, M. Harris and R. Stulz (eds). *Handbook of the Economics of Finance* vol. 2, part A (2013): 493-572.

Schwarcz, S.L. Private Ordering of Public Markets: The Rating Agency Paradox. *Treasury Affairs* vol. 1, no. 2 (2004): 18-25.

Strier, F. Rating the Raters: Conflicts of Interest in the Credit Rating Firms. *Business and Society Review* vol. 113, no. 4 (2008): 533-553.

Tang, T. Information Asymmetry and Firms' Credit Market Access: Evidence from Moody's Credit Rating Format Refinement. *Journal of Financial Economics* no. 93 (2009): 325-351.

Tichy, G. Credit Rating Agencies: Part of the Solution or Part of the Problem? *Intereconomics* vol. 46, no 5 (2011): 232-262.

Uysal, V.B. Deviation From the Target Capital Structure and Acquisition Choices *Journal of Financial Economics* no. 102 (2011): 602-620.

Vermaelen, T., Xu, M. Acquisition Finance and Market Timing. *Journal of Corporate Finance* no. 25 (2014): 73-91.

Voorhees, R. Rating the Raters: Restoring Confidence and Accountability in Credit Rating Agencies. *Case Western Reserve Journal Of International Law* no. 44.3 (2012): 875-889.

7.3 Databases

Moody's Credit Assessment, Moody's Investors Service, Inc.
www.moodys.com

S&P Capital IQ, Standard and Poor's Financial Services LLC.
www.capitaliq.com

Thomson Datastream Advance 5.0, Thomson Financial Ltd.

Thomson Reuters Eikon, Thomson Reuters.

World DataBank, The World Bank Group.
www.databank.worldbank.org

Zephyr, Bureau van Dijk.

Appendix

Appendix 1: Correlation Matrix

Credit Rating

Correlation t-statistic Probability	Book-to-market	Cash flow to assets	Collateral	Credit Rating	Diversifying Deals	Leverage	Number of Analysts	Private	Relative Size	Run-up	Size
Book-to-market	1,000000 ----- -----										
Cash flow to assets	-0,204476 -3,084216 0,0023	1,000000 ----- -----									
Collateral	0,016298 0,240666 0,8100	-0,015684 -0,231595 0,8171	1,000000 ----- -----								
Credt Rating	0,120756 1,796085 0,0739	-0,033165 -0,489950 0,6247	0,196775 2,963287 0,0034	1,000000 ----- -----							
Diversifying Deals	-0,012642 -0,186673 0,8521	-0,027156 -0,401109 0,6887	0,008271 0,122121 0,9029	0,037622 0,555881 0,5789	1,000000 ----- -----						
Leverage	-0,137145 -0,186673 0,8521	-0,257914 -3,941403 0,0001	-0,018848 -0,278332 0,7810	0,235813 3,5827 0,0004	0,143407 2,139493 0,0335	1,000000 ----- -----					
Number of Analysts	0,070419 1,042307 0,2984	0,077638 1,149785 0,2515	0,108035 1,604514 0,1100	0,732575 15,89032 0,0000	-0,005215 -0,076994 0,9387	0,213006 3,21886 0,0015	1,000000 ----- -----				
Private	-0,020409 -0,301404 0,7634	0,189072 2,842895 0,0049	-0,095502 -1,416542 0,1580	-0,460091 -7,651056 0,0000	-0,223745 -3,389481 0,0008	-0,114924 -1,708152 0,0890	-0,510924 -8,775570 0,0000	1,000000 ----- -----			
Relative Size	0,191362 2,878629 0,0044	-0,136091 -2,028237 0,0438	-0,092245 -1,367820 0,1728	0,122566 1,823420 0,0696	0,195194 2,938524 0,0037	0,163657 2,449387 0,0151	0,073447 1,087362 0,2781	-0,216064 -3,267328 0,0013	1,000000 ----- -----		
Run-up	-0,208712 -3,150986 0,0019	0,002318 -0,034223 0,9727	-0,077374 -1,145848 0,2531	-0,209962 -3,170727 0,0017	0,007391 0,109136 0,9131	-0,080791 -1,196773 0,2327	-0,092056 -1,364994 0,1737	0,093502 1,386620 0,1670	-0,116240 -1,727980 0,0854	1,000000 ----- -----	
Size	0,000441 0,006510 0,9948	-0,026560 -0,392296 0,6952	0,041443 0,612425 0,5409	0,512365 8,809097 0,0000	0,050980 0,753691 0,4518	0,022256 0,328691 0,7427	0,700630 14,49801 0,0000	-0,527009 -9,155852 0,0000	-0,030267 -0,447092 0,6553	-0,079547 -1,178234 0,2400	1,000000 ----- -----

Credit Rating Level

Correlation t-statistic Probability	Book-to-market	Cash-flow-to-assets	Collateral	Diversifying deals	Leverage	Number of analysts	Private	Relative size	Run-up	Size	Credit rating level
Book-to-market	1,000000 ----- -----										
Cash flow to assets	-0,334052 -3.089688 0,0028	1,000000 ----- -----									
Collateral	-0,117031 -1,027315 0,3075	-0,117031 -1,027315 0,3075	1,000000 ----- -----								
Diversifying deals	-0,136664 -1,202693 0,02328	-0,066209 -0,578464 0,5647	-0,097346 -0,852697 0,3965	1,000000 ----- -----							
Leverage	-0,132977 -1,169654 0,2458	-0,114847 -1,007877 0,3167	-0,320528 -2,949940 0,0042	0,134385 1,182269 0,2408	1,000000 ----- -----						
Number of analysts	-0,120967 -1,062371 0,2914	0,077579 0,678362 0,4996	-0,211031 -1,882111 0,0636	-0,010866 -0,094737 0,9248	0,042248 0,368636 0,7134	1,000000 ----- -----					
Private	0,037234 0,324820 0,7462	0,282696 2,569288 0,0121	0,142541 1,255461 0,2132	-0,277778 -2,520816 0,0138	-0,022408 -0,195399 0,8456	-0,296545 -3,765734 0,003	1,000000 ----- -----				
Relative size	0,268442 2,429389 0,0175	-0,227379 -2,035562 0,0453	-0,226925 -2,031278 0,0457	0,274519 2,488822 0,0150	0,2333379 2,092332 0,0397	0,026580 0,231805 0,8173	-0,174183 -1,542069 0,1272	1,000000 ----- -----			
Run-up	-0,141883 -1,249548 0,2153	0,022583 0,196920 0,2153	-0,016889 -0,663231 0,8833	-0,075859 -0,663231 0,5092	-0,180071 -1,595910 0,1147	0,148672 1,310655 0,1939	0,122709 1,077897 0,2845	-0,173016 0,531410 0,1298	1,000000 ----- -----		
Size	-0,086572 -0,757566 0,4511	-0,086572 -0,757566 0,4511	-0,124255 -1,091687 0,2784	0,081553 0,713342 0,4778	-0,228363 -2,044852 0,0443	0,655800 7,573018 0,0000	-0,470457 -4,647831 0,0000	-0,113029 -0,991718 0,3245	0,064702 0,565247 0,5736	1,000000 ----- -----	
Credit rating level	-0,062566 -0,0546511 0,5863	-0,189655 -1,683938 0,0963	0,068672 0,600086 0,5502	0,021916 0,191109 0,8490	0,014072 0,122689 0,9027	0,396730 3,767813 0,0003	-0,242494 -2,179057 0,0324	-0,0300058 -0,262161 0,7939	0,164089 1,450155 0,1511	0,273052 2,474442 0,0156	1,000000 ----- -----

Appendix 2: Hausman Test

Credit Rating

N=220	Reduced		Structual (GLM logit) on raction of cash		Structual (probit) Payment method	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	-0,619183*** (0,126416)	0,0000	-1,320730*** (0,284491)	0,0000	-3,719566*** (1,201312)	0,0020
Credit rating			0,030694 (0,142460)	-0,8294	-0,125691 (0,537402)	0,8151
Credit rating fitted value			-0,479573** (0,212639)	-0,0241	-1,485375* (0,768503)	0,0533
Industry fraction	0,706198*** (0,053241)	0,0000				
Regulated industry	0,000845 (0,066166)	0,9898				
ln(size)	0,061344*** (0,018335)	0,0010	0,088884* (0,040830)	-0,0295	0,407375** (0,169405)	0,0162
Leverage	0,259620*** (0,085266)	0,0026	0,538801*** (0,176071)	-0,0022	2,496463*** (0,715155)	0,0005
Collateral	0,064364 (0,066352)	0,3332	0,150504 (0,134093)	-0,2617	0,201029 (0,494129)	0,6841
Book-to-market	0,055502** (0,027112)	0,0419	0,141937*** (0,046431)	-0,0022	0,963873*** (0,334028)	0,0039
Run-up	-0,076288* (0,041104)	0,0649	-0,046215 (0,084584)	-0,5848	-0,255416 (0,289436)	0,3775
Cash flows to assets	0,372545 (0,289279)	0,1992	0,278738 (0,575509)	-0,6281	4,199928* (2,299944)	0,0678
Number of analysts	0,002646 (0,002438)	0,2790	0,002818 (0,005449)	-0,6050	-0,006098 (0,018380)	0,7401
Relative size	5,220005 (4,40005)	0,2369	-7,120005 (9,840005)	-0,4693	-0,000454 (0,000302)	0,1324
Diversifying deals	-0,001121 (0,030469)	0,9707	-0,057060 (0,062854)	-0,3640	-0,225362 (0,226836)	0,3205
Private	0,042196 (0,046758)	0,3679	0,172513* (0,098858)	-0,0810	0,511350 (0,323989)	0,1145
F-statistic	77,64440	0,0000				
R-square	0,818219					
Adjusted R-square	0,807681					
Pseudo R-square					0,141103	

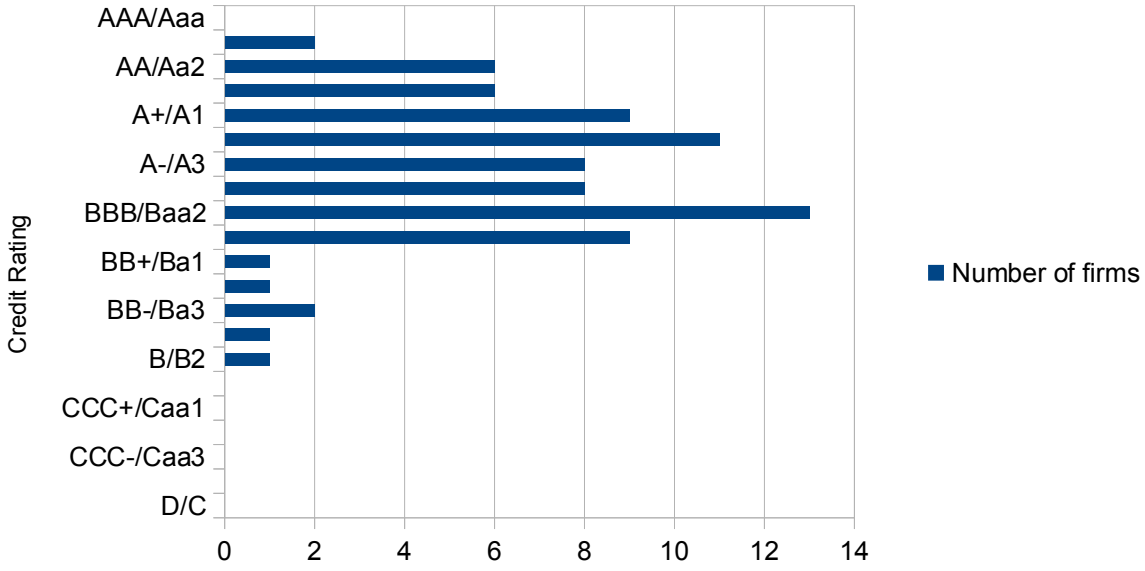
Credit Rating Level

N=78	Reduced		Structual (GLM logit) on faction of cash		Structual (probit) on payment method	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	2,419553 (1,971141)	0,2241	-0,612693 (0,815786)	-0,4526	-4,394106 (3,260083)	-0,1777
Level of credit rating			0,007503 (0,046883)	-0,8728	0,14152 (0,147661)	-0,3379
Level of credit rating fitted value			-0,026016 (0,058207)	-0,6549	-0,115619 (0,170200)	-0,4969
Industry level	0,993532*** (0,068333)	0,0000				
Regulated industry	0,164718 (0,398343)	0,6806				
ln(size)	-0,140600 (0,219695)	0,5244	0,048179 (0,089373)	-0,5898	0,164603 (0,307580)	-0,5925
Leverage	-1,237602 (0,935165)	0,1903	-0,004328 (0,336014)	-0,9897	2,241031 (1,581865)	-0,1566
Collateral	0,789389 (0,642643)	0,2237	-0,128846 (0,289098)	-0,6558	-0,546193 (0,845713)	-0,5184
Book-to-market	-0,288254 (0,265005)	0,2807	0,110194 (0,082831)	-0,1834	2,085383** (0,929686)	-0,0249
Run-up	-0,451865 (0,529635)	0,3967	-0,0683437967	-0,0936	-1,456341* (0,772189)	-0,0593
Cash flows to assets	-3,530459 (3,011837)	0,2454	0,075093 (1,116953)	-0,9464	5,064136 (5,268158)	-0,3364
Number of analysts	0,003359 (0,021544)	0,8766	0,002633 (0,008837)	-0,7657	0,015867 (0,032727)	-0,6278
Relative size	-6,940005 (0,000315)	0,8263	-6,950005 (0,000124)	-0,5758	-0,000964** (0,000489)	-0,0486
Diversifying deals	0,053756 (0,314147)	0,8647	-0,004919 (0,130165)	-0,9699	0,250981 (0,435891)	-0,5648
Private	-0,436666 (0,386226)	0,2624	0,165088 (0,156503)	-0,2915	0,695076 (0,529239)	-0,1891
F-statistic	27,97211	0,0000				
R-square	0,83777					
Adjusted R-square	0,80782					
Pseudo R-square					0,183563	

Appendix 3: Definition of Variables

Variables	Definition
Panel A: measures of payment method	
Fraction of cash	Fraction of cash as part of the total price offered by the bidder to the target shareholders.
Payment method	Dummy variable: 1 for deals financed with more than 50% cash, 0 for deals financed with more than 50% stock.
Panel B: credit rating variable	
Credit rating	Dummy variable: 1 for rated bidders, 0 for unrated bidders.
Level of credit rating	Continuous variable for rated bidders: 1-22, highest rating takes 22 and lowest rating takes 1.
Investment grade	Dummy variable: 1 for investment grade bidders (above BBB/Baa2), 0 for speculative grade bidders (below BBB/Baa2)
Panel C: firm characteristics	
Size	Market value of equity 4 weeks prior to the acquisition announcement in € million.
Leverage	Total financial debt divided by the book value of total assets in the fiscal year prior to the acquisition announcement.
Collateral	The ratio of property, plant and equipment to total assets in the fiscal year prior to the acquisition announcement.
Book-to-market (B/M)	Book value of equity in the fiscal year prior to the acquisition announcement divided by the market value of equity 4 weeks prior to the acquisition announcement.
Run-up	Market-adjusted buy-and-hold returns of the firm over the period starting (-205, -6) days prior to the acquisition announcement.
Cash flows to assets	Income before extraordinary items plus deprectiation minus dividends on common and preferred stock divided by the total assets in the fiscal year prior to the acquisition announcement.
Number of analysts	The number of equity analysts following the firm.
Panel D: deal characteristics	
Relative size	The ratio of the deal value to bidder's market value of equity 4 weeks prior to the acquisition announcement.
Diversifying deals	Dummy variable: 1 for inter-industry transaction, 0 intra-industry transaction. Industries are defined at the 2-digit SIC level.
Private	Dummy variable: 1 for private targets, 0 for public targets.
Panel E: instrumental variables	
Industry fraction	Log of 1 plus the fraction of firms in the same 3-digit SIC industry group that have credit ratings the fiscal year prior to the acquisition announcement.
Industry level	The median credit level of firms in the same 3-digit SIC industry group the fiscal year prior acquisition announcement.
Regulated industry	Dummy variable: 1 if firms is a financial institution (1-digit SIC level 6) or a utility firm (2-digit SIC level 49), 0 otherwise.

Appendix 4: Distribution of Credit Ratings



Appendix 5: Each countries contribution to GDP