The Influence of Credit Ratings on the Choice of Payment in the German Merger & Acquisition market

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ABSTRACT

With this study we aim to investigate if credit ratings and credit rating levels influence the choice of payment in the German merger and acquisition markets. Then we aim to compare our findings with a research paper which has investigated the mergers and acquisition market in the United States and draw similarities and differences.

The methods to examine the effect are, beside the descriptive analysis, the Generalized Linear Model Logit Regression and the Probit Regression Model. Our dependent variables for the regressions are payment method and our independent variables are ratings existence and rating level. These variables are in line with our compromise research paper to establish an easier basis for the comparison. The underlying theory is based on previous literature regarding capital structure, corporate governance, credit rating agencies and the influence on ratings. We extracted our relevant data from leading databases such as Zephyr and Datastream. Our sample consists of 50 observations within the German transaction market and a time horizon from 1998 - 2009.

As a result we can confirm our hypotheses by our regression analyses. We find a significant and positive relationship for both explanatory variables credit rating existence and credit rating level. Hence, our endogeneity showed insignificance for all of our variables. We assume that this is based on our small sample size and the huge volatility.

For our empirical analysis we used different econometric approaches to investigate the relationship. We found some vital differences and some similarities compared to the findings on the US market. One of the main differences is that we find a positive correlation for the rating existence and the use of cash. Surprisingly and contradicting to previous studies, we could not find any correlation between the leverage of a company and the choice of payment. This is also contradicting to our finding that rated companies use more cash, financed by debt, and therefore should have an increased leverage. This might also be due to our low sample size.
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1. INTRODUCTION

1.1 PROBLEM BACKGROUND

“Credit Rating Agencies are some of the most powerful players in world finance” (The Guardian, 2012). It is commonly known that credit ratings have a huge impact on the financial situation of a firm. This not only due to the reliability of a company, but also for investor behavior (Standard & Poor’s, 2015). Through rating decisions credit rating agencies are capable of influencing the capital structure of a firm, its investment funding decisions and ratings affect indirectly the choice of payments in mergers & acquisitions (M&A) (Kisgen, 2006).

Coval et al. (2008) has outlined the importance of credit ratings in his study; Rating agencies are financial institutions that decrease information asymmetries between lenders and borrowers. Therefore they enable a more transparent functioning of the credit market. Investors use ratings for various decisions, especially to assess investment options. The importance of ratings is also reflected by criteria of institutional investors. Some of them have minimum rating expectations before investments. Manso (2013) emphasizes in this context that only firms with a high rating grade will survive, because the default probability is affecting the interest payment (Manso, 2013, p. 536).

Ratings are based on manifold quantitative and qualitative measures like leverage ratio, cash-flow forecasts and legal and regulatory environment. Therefore the financial literature has accessed the influence of credit ratings on the choice of payments of investments.

Given that Credit Ratings play an increasingly significant role in Europe we want to examine the effect of credit ratings on the payment method of Merger & Acquisition transactions in Germany and contrast our findings with a similar research in the US market. The choice of financing an investment can be either through cash or stocks (Faccio and Masulis, 2005, p. 2). Because most bidders have restricted liquid assets, cash offers are usually debt financed, which in turn is affected by the rating. Following the line of Chang (1998) the choice of payment plays moreover an important role when it comes to post-merger performance. Travlos (1987, p. 944) reported negative returns for companies financing their acquisitions with stocks and no abnormal returns for an investment financed with cash.

In a perfect market, there should be no preferences regarding the choice of payment for mergers and acquisitions because there would be no discrepancy between the outcomes. In reality bidders but also target firms favor certain choices of payments based on several factors (Sundarsanam and Mahate, 2003, p. 305). The choice of the payment method for mergers and acquisitions has been examined in several studies with different outcomes. Reviewing the recent literature we find that different forms of financing investments have significant signaling effects which may lead to an impact on stock returns due to the method of financing decisions (Travlos, 1987, p. 943). Travlos (1987) also reports in his research that there is no direct evidence on the method of payment related to takeovers which influences the shareholders return but in contradiction he also states that an increasing opinion around literature arises, that there is a negative relation between the stock price and stock offerings. Travlos comes to the result, that there is a
loss in pure stock acquisitions for bidding firms and no abnormal returns in cash offers (Travlos, 1987, p. 944).

The majority of the researchers agree on that the payment method influences the takeover, the subsequent performance of the bidders firm and the return of the shareholders (Travlos, 1987, p. 943; Eckbo & Langohr, 1989, p. 1; Sundarsanam & Mahate, 2003, p. 306; Renneboog & Martynova, 2006, p. 11).

Eckbo and Langohr (1989) investigate, among other things, the payment method in public and private tender offers in France. They find out that disclosure regulations and information asymmetry play an important role and partly deter acquisition activities. They argue that the use of equity conveys, in terms of agency problems, disadvantageous information and cash offers eliminate agency problems due decreased cash amounts. Further, they come to the conclusion that there is theoretical evidence that the choice of payment helps to repel bidding competition under asymmetric information (Eckbo and Langohr, 1989, p. 1). Additionally, they find out that firms are valued higher in a takeover offer, when the payment is in cash rather than stock payment, which influences the choice of payment significantly. Beyond that, shareholders usually pay capital gain taxes for cash offers, whereas securities allow a deferral of taxes. This implies, that an additional incentive has to be offered in case of cash offers to compensate the immediately tax liability (Eckbo and Langohr, 1989, p. 21).

Sundarsanam and Mahate (2003) conduct a research regarding the method of payment and post-acquisition performance for the United Kingdom merger and acquisition market and compare their findings with the US. They come to the conclusion that shareholders of target firms in the UK and in the US receive capital gains. In contradiction the returns for bidders omit small positive, negative or zero (Sundarsanam and Mahate, 2003, p. 299). Going more into details, they distinguish between glamour stocks, which are highly valued stocks with high growth potential and value stocks, which are low growth potential firms. This distinction is important in terms of investment opportunities and valuation. Sundarsanam and Mahate (2003) state in their research paper that glamour stocks have high pre-acquisition and low post-acquisition returns, regardless of the choice of payment. Further, they conclude that glamour stocks acquirer use equity and value stocks acquirer use cash as the preferred payment method (Sundarsanam and Mahate, 2003, p. 301).

Credit ratings between US and Germany can reveal significant information for especially cross-border M&A activities between those two regions. Thereby we clarify also the importance of the choice of payments in the M&A market and provide more evidence on the substantial role of credit rating agencies in the financial sector. This is relevant for both sides in a transaction, bidder and target. From the bidder side of view it is relevant to figure out the influencing variables of the likelihood on a transaction, of which one is the choice of payments. It is also relevant for both sides to consider the higher value of a target in a takeover offer when the payment was proposed in cash. This is to compensate the instant tax liability because shareholders pay capital gain taxes for a cash offers. Shareholders can benefit trough that with an increased knowledge about the correlation between the bidders rating and the offer. Besides that, the method of payment influences also corporate control issues, which is relevant in the background of the agency theory. To sum up, the discussed issue has direct and indirect benefit for a broad range of participants in the whole transaction chain.
1.2 THEORETICAL BACKGROUND

Quite a few studies have been conducted regarding merger & acquisition financing and the parameter which effect these decisions. The majority is focusing on the US market and as far as we know only a very few studies are focusing on the European market in this context. Faccio and Masulis (2005) examine the choice of payment method on mergers & acquisitions. They are focusing on privately and publicity held targets on the whole European market with a relatively short time horizon of four years.

The choice of payment for acquisitions is influenced by several factors. Following Uysal (2011), capital structure theory plays a significant role in M&A’s through affecting the leverage ratio of a company before an acquisition. He found out that companies with a higher leverage ratio than their target debt ratio tend to acquire less and avoid cash-payments for the transaction. He also describes that companies rebalance their capital structure when they anticipate a future acquisition.

To get a better understanding about the background of credit ratings and their affect on the choice of payments it is also relevant to outline briefly the relationship between credit ratings and capital structure theories. Kisgen (2006) focuses in his research paper more detailed on the significance of credit ratings for capital structure as an important consideration on investment decisions because of the costs/benefits which occur with different rating levels. Graham and Harvey (2001) found out that credit ratings play the second most important role when it comes to capital structure trough the determination of access to funds in the capital market. This is a very important relationship because there is evidence that changes in rating levels (mainly downgrades) are direct costs for the firm and therefore affect business operations, capital market access, employee and supplier relationships this may also affect investment decisions (Kisgen, 2006, p. 1039, 1040). He comes to the result that firms which are close to a change in their rating level tend to issue less debt than equity. These results are not in line with existing capital structure theories (Kisgen, 2006, p. 1035). Additionally, he examines the reaction followed by rating changes, where he comes to the result that a firm’s capital structure is more affected by downgrades because of the subsequent debt reducing and the reluctance to issue new debt following an upgrade (Kisgen, 2007, p. 33). This could lead to a reduction in investment operations and a great reluctance in mergers & acquisitions due do the lack of funding sources. Further, Faulkender and Petersen (2006) conducted a study to examine if and to what extend the source of capital affects the capital structure. In comparison to Kisgen`s (2006) study, Faulkender and Petersen (2006) dig deeper into how firms choose their capital structure. In their research, they conclude that private firms have higher credit constraints due to a lack of information, which results in cost of collecting information of other market participants or funding suppliers. For public traded firms, where rating agencies officiate as information intermediaries, the credit constraints are less but still exist. Here is assumable that those firms have higher leverage because they have easier access to funding sources (Faulkender and Peterson, 2006, p. 74).

Numerous studies already emphasized the lower cost of debt when a firm has a high credit rating, which leads to an increased debt capacity (Billett, Hribar and Liu 2011). This implies that credit ratings have an indirect affect on the choice of payments in transactions and furthermore on the increased investment rate in M&A’s as a result of cheaper access to additional funds (Bannier et al., 2012).
The indirect correlation between credit ratings and payment methods for M&A’s in the US has been researched by Karampatsas et al. (2014). They point out the positive relationship between ratings and cash-ratios in payments, highlighting the importance of credit ratings on the payment method. While a cash offer has no impact, issuing new shares dilutes the existing voting rights of old shareholders. Especially when the shareholder concentration is relatively high, the interest on maintaining control increases the likelihood to be paid in cash, particularly when the existing voting power is in the range of 20 to 60 percent (Faccio and Masulis, 2005, p.2).

Beside the credit rating a company’s corporate governance structure is also influencing the company’s method of payment (Ashbaugh-Skaife et al., 2006). They take in their research a closer look on the corporate governance and its affect on credit ratings. This is interesting and relevant for our studies because the German Corporate Governance structure differs from the Anglo-Saxon Corporate Governance structure. Corporate Governance is important for rating agencies because weak governance may effect a firms financial positions, encourages fraud or disregards stakeholders' rights. They state that weak governance leads to higher debt costs (Ashbaugh-Skaife et al., 2006, p. 205). The authors explain this relationship with the agency theory and the two types of agency conflicts that may increase default probability. Further, they find that ratings have a positive relation to weaken shareholder rights in terms of takeover defense (Ashbaugh-Skaife et al., 2006, p. 204).

Renneboog and Martynova (2006) review in their research paper the vast literature for corporate control and focus mainly on surges and downfalls in M&A activity. They find out, that the takeover market is motivated by regulatory changes and driven by industrial and technological shocks (Renneboog and Martynova, 2006, p. 3). Referring to earlier researches, Renneboog and Martynova state that mergers are usually financed with equity whereas tender offers are in cash and more profitable for the target shareholders. These findings confirm the Sundarsanam and Mahate (2003) findings. Additionally, Renneboog and Martynova (2006) point out that equity bids cause lower returns than cash bids. By investigating the different effect of the payment methods in Europe and in the US, they find out that there is a significant difference. Whereas equity-financed takeovers in Europe result in positive returns for bidder’s shareholders, equity-financed takeovers in the US result negative returns for bidders' shareholders. In both samples equity deals exceed cash deals (Renneboog and Martynova, 2006, p. 36). Most of those studies have been conducted in the United States. The US market is a favorable ground for those studies trough its high M&A activity and strong dependence on credit rating agencies. The positive correlation between the credit rating level and the payment method has been proofed in the US market.

The European market differs substantially from the US market in terms of market regulations, corporate laws and governance, supervision and ownership concentration (Faccio and Masulis, 2005, p. 1). Faccio and Masulis used 13 European countries in their studies, examining the choice of payment for mergers and acquisitions. The authors focus on the trade-off between corporate control threats and financing constraints. They come to the conclusion that cash is preferred, when the bidders main shareholder has an intermediate voting power and that bidders prefer cash in case of any threat concerning the voting control (Faccio & Masulis, 2005, p.32). We think that Europe is still too diversified. Therefore we focus on the Germany in comparison to the US because of its strong contradictions. Germany is on the one hand Europe's biggest
Our research contributes to individuals in terms of giving scientifically insight about the differences between the German and US M&A market and how credit ratings influence the choice of payment for those deals. Further, it specifies what the choice of payment. This can be useful to Investment Banking Analysts, Chief Financial Officers and other capital market participants who are in charge of analysis investment. On the other side our research can also contribute to companies considering a rating, in terms of outweighing the cost and benefits. Industrial companies, which might consider a rating or want to expand through acquisition investments, can use our findings to analyze how ratings build or mitigate funding constraints and therefore influence the decision. In addition, we present and compare the findings with a similar scientific paper examining the US market (Karampatsas et al., 2014). This can be useful for corporations having subsidiaries in either state. We let a diversity of variables influence our outcome to examine a broad field of possible influencing factors. Further, we are focusing only on listed bidders but listed and unlisted targets, while in the US, primarily listed companies are subject to researches. The purpose is to catch a broader range of observations. Regarding our choice of variables, we use the same dependent and independent variables as our reference. Regarding the supporting variables, we have decided to use less than Karampatsas et al. (2014) due to a lack of data sources.

1.3 RESEARCH QUESTIONS

What is the effect of credit ratings on the payment method in German mergers and acquisitions? What are the differences and similarities between the findings on the German market compared the US market?

1.4 PURPOSE

The main purpose of this research is to gain a deeper understanding to which extent credit ratings affect the choice of payment in the German merger and acquisition market and to highlight the main differences between previous findings on the US market. In this context it is necessary to identify the main influencing factors for the decision on the choice of payment. The choice of Germany is mainly based on the substantial different regulatory system and market conditions compared to the US. By using a quantitative research design, we make a practical contribution to the existing international mergers and acquisition research. We compare our findings with those on the US market, outlining the differences and adding new insights, we hope to extent the knowledge about the relationship between ratings and investment funding decisions in the German mergers and acquisition market.

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1 In 2013 Germany's GDP was 3,730 trillion US$ followed by France with 2,646 trillion US$ (www.worldbank.org).
2. SCIENTIFIC METHODOLOGY

2.1 ONTOLOGICAL CONSIDERATIONS

Ontology deals with the nature of social entities. In particular ontology questions if social entities are constructed from perceptions of social actors or if they exist independently (Bryman & Bell, 2011 p. 20; Saunders et al., 2012, p. 130). This plays a major role in the perception of qualitative and quantitative research. While in the qualitative approach the meaning of the concepts concern and discussions regarding the definition of concepts are standard, discussions within the quantitative approach focus on issues regarding data and measurement (Gortz & Mahoney, 2012, p. 207). In other words, qualitative studies try to specify attributes to characterize the social entities, whereas quantitative studies focus on measurements and not particularly on the meaning (Gortz & Mahoney, 2012, p. 207). Social ontology can be sub-divided into two main positions: objectivism and constructionism (Bryman & Bell, 2011 p. 20). In general, objectivism can be described as a position which categorizes social phenomena and their meaning as independent of social actors (Bryman & Bell, 2011 p. 21). The contradicting position, constructivism, represents the approach that social phenomena and their meaning are established by social actors, which means social phenomena and their meaning are produced through interactions and change constantly (Bryman & Bell, 2011 p. 22).

In the context of finance, Lagoarde-Segot (2015) argues that finance research has its roots in the objectivism ontology but belongs exclusively to the ‘positivist functionalist paradigm’. Relating the financial world to the real world, entities like financial markets, institutions, money and also financial behavior (risk-return optimization) are entities and exist independent from external social actors (Lagoarde-Segot, 2015, p. 2). Lagoarde-Segot covers the opinion, that the academic finance research is a mix of the quantitative research strategies, ontological objectivism and epistemological positivism by focusing on the identification of regulations and mechanism which unite the different social entities in the financial sector through methodologies derived from natural sciences (Lagoarde-Segot, 2015, p. 2).

For our study we consider objectivism as an appropriate ontological consideration, because we conduct a quantitative research where we aim to investigate how rating agencies influence the choice of payment in mergers and acquisitions. Objectivism is concerned about social phenomena and their meanings existing independently from social actors, like banks, rating agencies etc. We assume rating agencies and other actors within the financial realm to be independent social actors which can be viewed as tangible objects with rules, regulations and standardized routines (Bryman & Bell, 2011 p. 21).

In contradiction we think that the constructivism approach is inappropriate for our research, because our studies consist of a quantitative character and not a qualitative character. The social actors we are dealing with are not under constant review and independent from its social actors whereas the constructivism approach suggests that the social entities are constantly realized by social actors.
2.2 EPISTEMOLOGICAL CONSIDERATIONS

The nature of knowledge is concerned in the epistemology. The question of whether knowledge is an external reality that has to be acquired or a relative concept linked to personal experience is treated within the different contradicting paradigms of epistemology (Lagoarde-Segot, 2015). Two of the main fronting views are positivism, in which social worlds are accepted to be studied with the same methods and principles like natural sciences, and interpretivism, which rejects that argument and has to be studied with different approaches (Bryman and Bell, 2012). Because interpretivism rejects the application of natural science models on social science, we decided to approach our thesis with a positivistic view in order to answer our research question.

To answer the question if the social worlds can be studied scientifically, we agree with the argument of Lagoarde-Segot (2015) that academic finance research can be studied almost exclusively within the positivist paradigm. He emphasizes this with his objectivist ontological view of finance that the financial world, just as the natural world, consists of stable and independent tangible entities external to the observer. We support that view and argue that the objects of our study, like the credit rating agencies, have an external reality arisen from the different set of regularities and limitations. Further, this is also be supported by statistical causality analysis, like the impact of macroeconomic news on shareholder returns (Lagoarde-Segot, 2015), or the relation of our research question.

On the other hand Lagoarde-Segot (2015) states that financial interactions reflect the causality mechanisms uncovered by empirical research (e.g. through econometric analysis) and therefore characterizes the financial realm to be reducible into smaller elements and incapable of being broken down. Neither can it be reconstructed through reverse operations or models.

2.3 RESEARCH APPROACH

The role of theory in research is significant because it sets the basis for the design and the further progress. The main two levels of theory are the deductive theory and the inductive theory. Based on our epistemological and ontological considerations we have chosen the deductive theory as the frame for our research. The deductive approach is considered as the general perspective of the relationship between theory and research (Bryman & Bell, 2011 p. 11) and is a theory testing approach where hypotheses are tested, rejected or confirmed. This is based on previous theoretical considerations related to the field of research (Bryman & Bell, 2011 p. 11). In other words, the deductive approach is based on existing theory where hypothesis are deduced from and determine the data collection process. According to Bryman & Bell (2011) the deductive theory also involves inductive steps. This is the case, when the researcher extracts his findings and integrates them into the reviewed literature. Our study consists of quantitative research, because we want to apply different existing financial theories and measurements to our studies in order to investigate if these hold for different samples. Previous literature and the comparison with findings from the US market help us to collect the necessary and relevant data. The frame of this study is based on existing theory with similar concepts and but based on different geographical samples. Due to our aim to compare the findings and hypotheses to the existing theory and
findings we keep our data collection, interpretation and integration close to the research conducted by Karampatsas et al. (2014).

In contrast to the deductive research approach, the inductive approach is less theory testing but more theory building. A theory is build based on an outcome of research which means that researchers following an inductive approach creating universal inferences out of observations (Bryman & Bell, 2011 p. 13). Generally, the inductive approach is associated to qualitative researches, which makes this approach inappropriate for our study. Regardless, of general approach allocations to procedural methods, Bryman and Bell (2011, p. 13) indicate that researchers following an inductive approach use grounded theory data to make new theories. This leads to impartiality based on previously accepted theories. For our purpose we did not chose an inductive approach because existing theory lead us to conduct this study and gather the relevant data and information needed.

2.4 RESEARCH STRATEGY

The choice of the research strategy, design and method should be all in line with the research question. There are two main types of research strategies existing to conduct a business research study, which is picked depending on the research purpose: quantitative and qualitative design (Bryman & Bell, 2011, p.27). Although it is not so simplistic, we simplify the character and say that quantitative studies can be oriented in a deductive perspective, in which theory testing is the main research design and is resulting in either a confirmation or a rejection of the selected hypotheses. In contrast, in a qualitative study the building of a theory is the main purpose.

The main distinctions entail different methods of data collection and types, ontological and epistemological views. While a quantitative study is based on numerical data collected from surveys and experiments, a qualitative study tries to get a deeper understanding of the subjective meanings of actors. The data collection emphasizes more on words rather than quantifications and common methods for this purpose are interviews (Bryman & Bell, 2011, p. 27). Another contradiction is the view of social realities in both study strategies. In the qualitative approach the social reality is in a constantly shifting status and environment while the quantitative study embodies it as an external, tangible and objective reality. Lastly, the practices and norms of natural sciences are used in a quantitative study, following the positivism paradigm, while the qualitative approach rejects this and emphasizes on the individual interpretation of the social world.

Our research question and purpose will be studied with collected numerical data; hence our chosen research strategy will be based on a quantitative approach. Additionally we will not generate a new theory. We will examine if previously generated hypotheses, which were tested already on a different market with different conditions, hold on the market we chose and compare the findings. As we outlined with the study of Lagoarde-Segot (2015), we follow the argumentation that the financial realm can almost exclusively been studied with a positivistic epistemological approach. A quantitative design fits into this consideration. Our ontological perspective is the objectivism. In our point of view social entities like credit rating agencies exist independently from individual’s creation. Moreover the variables of our analysis can be seen as objective
entities through regulation frameworks and the particular beneficial impacts on the financial realm.

3. GERMAN FINANCIAL SYSTEMS AND UNDERLYING THEORIES

3.1 THE GERMAN FINANCIAL SYSTEM

The financial system which broader definition according to Krahnen and Schmidt (2004) is 'the interaction between the supply of and the demand for provision of capital and other finance-related service' containing details about activities of market participants, regulations regarding infrastructure supervision and disclosure requirements in the financial market (Thakor, 1995, p. 918) whereas the financial sector consists of financial institutions, e.g. the central bank, other banks, non-financial institutions, organized financial markets and regulatory and supervisory authorities with the aim to offer and provide financial services within the economy (Krahnen & Schmidt, 2004, p.21).

3.1.1 BANKING INFRASTRUCTURE AND SYSTEMS

The financial system in Germany is characterized by a weak corporate stock and bond market, a strong universal banking system and a high ownership concentration (Dietl, 1998). Therefore the German banking industry differs substantially from many other industries in terms of structural complexity and the power of the banks (Krahnen & Schmidt, 2004, p. 311) which motivates us to conduct our thesis and draw comparisons between the different markets in terms of rating effects on the choice of payment. In the late 90s there were approximately 3700 independent banks with more than 48,000 banking offices in Germany which are categorized under the legal terms defined in the German Banking Act. This number outlines that Germany has been and still belongs to the countries with the most compacted banked economy in the world (Krahnen & Schmidt, 2004, p. 31). The majority of the banks in Germany are universal banks. This means, they conduct beside the commercial banking operations also investment banking operations and comprise all services within one institution. The majority can be characterized as private held commercial banks, saving banks and cooperative banks, whereas the commercial banks play the major role in investment banking business within the German sector (Krahnen & Schmidt, 2004, p. 33). The biggest group, the saving banks, is held public and can be subdivided into different layers of institutions. Local saving banks which operate in their designated areas and focus on traditional banking businesses, regional level banks which operate in different states and one institution at the top. Because the majority of the saving banks are held public, the public sector bails out the institutions if they face financial distress. Thus they are not following a profit-maximizing approach (Krahnen & Schmidt, 2004, p. 33). The third group, the cooperative banks, is financial institutions not belonging to one of the other groups. They are rather small and are member-owned, which means they provide funding sources and advisory for the business of the members world (Krahnen & Schmidt, 2004, p. 33).
The significant power of the banks within the German sector can be explained by the ratio of asset to the Gross Domestic Product (Theissen, 2004, p. 140). Compared to other industrialized countries this is relatively high due to the high deposit taking and lending business in Germany (Krahnen & Schmidt, 2004, p. 35).

The German financial market is, in comparison to the German economy, relatively small, although it has the fourth largest equity market in terms of market capitalization after the United States, Japan and the United Kingdom (Krahnen & Schmidt, 2004, p. 36). Further it has been seen as 'underdeveloped' and considered uninteresting for the majority reflected by the institutional structure (Krahnen & Schmidt, 2004, p. 36) and it decentralization. Even though the German financial market has made great improvements since the mid-nineties the market is still considered limited as a source of funding (Krahnen & Schmidt, 2004, p. 37).

Therefore, the leading funding source in Germany and continental Europe are bank loans (Lahusen & Walter 2004). Additionally, Ergungor (2004) argues that different financial systems emerge from the different prevailing laws. He argues that the German civil law traditions explain the German bank-dominated systems because banks are required when technological progress and investments are understood and the market-oriented systems prevail from common-law traditions and are required in situations of fast growing technologies, like in the United States and England (Ergungor, 2004, p. 2871).

According to a survey of Deutsche Bank in 2004 (Lahusen & Walter, 2004), the leverage ratio of German small and medium enterprises (SME) were twice as high as those of US SME’s. Bank loans in the Eurozone represent 87% of all received funds (Lahusen & Walter 2004).

The US system in contrast provides strong developed capital market forces with highly fragmented ownership and favoring market regulations (Dietl, 1998, p. 154). They represent the prototype of neoclassical regulation. This regulation system intends to promote the market forces, which leads to an easier access for even small corporations into a well-developed capital market.

In this context, we think it is a great opportunity to examine the 'developing' German financial market in terms of a funding source for mergers and acquisition transactions.

The U.S banking infrastructure differs from Germany in terms of its market-orientation (Ergungor, 2004, p. 2871) compared to the prevailing bank-based orientation in Germany. Regarding which system is more advantageous in terms of funding sources, there have been conducted a large number of researches and controversial discussions are prevailing in the existing literature. This makes it so interesting for our thesis, because we are able to provide additional information to the existing literature on which system might be more beneficial in terms of mergers and acquisitions funding. On the one hand the bank-orientated system provides advantages in financing expansions of firms, supporting new establishments and the efficiency of capital allocation (Beck & Levine, 2002, p. 148). Further, bank-based systems tend to mitigate the effectiveness of mergers and acquisitions because shareholders tend to keep their shares instead of selling them, which makes M&A’s less profitable (Beck & Levine, 2002, p. 148).

On the other hand the market-based financial systems mitigate the banks bias towards less-profitable investments and encourage growth and innovation. Additionally, the

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2 Market Value of Equity as a percentage of GDP was 30.7% in 2002.
market-based system provide an efficient way of asset allocation, but this argument holds for both systems (Beck & Levine, 2002, p. 148)

3.1.2 BANKING REGULATIONS AND SUPERVISION

Another significant difference between the Europe and U.S. banking infrastructure is the supervision structure. This plays a major role because of the different legislations and principles, which have different effects on the operating business of financial institutions. Against the background of the credit crisis in 2007, Europe has established new supervision Authorities with different supervision responsibilities. The European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority (EIOPA) and the European Systemic Risk Board (ESRB) have started their operations (European Commission - IP/09/134, 2009).

Those newly implemented European supervisory institutions ensure with the national Authorities the financial supervision within the financial market and the establishment of a European System of Financial Supervision (ESFS) (www.bafin.de). The main responsibility of the ESFS is to ensure the application of regulations and the confidence in the financial market. Further the European Commission established the "Single Supervisory Mechanism" which is the transfer of supervisory power to the European Central Bank (ECB). Now, the ECB supervises the 120 significant banks of the European Union (https://www.bankingsupervision.europa.eu). This is relevant in terms of collateral and capital adequacy ratio which also might affect the ratings and access to debt funding sources.

The United States banking regulations are part of the Federal Reserve System are based on four components: safety and soundness, adequate capital, deposit insurance and systemic risk. Compared to the German infrastructure the banks are subject to a dual level supervision on the state level and federal level (Jickling & Murphy, 2010 p. 14). The main federal supervision authority is the Office of Comptroller of the Currency (OCC). It regulates a broad line of financial functions on the federal level (Jickling & Murphy, 2010 p. 15). Banks which are not part of the Federal Reserve System are regulated by the Federal Deposit Insurance Company (FDIC). As an independent institution, the FDIC insures the deposits and supervises financial institutions (Jickling & Murphy, 2010 p. 15).

The Federal Reserve (FED) as the central bank is responsible for the national monetary policies. Additionally, the FED has supervision and examination authorities for many financial institutions, including branches of foreign banks (Jickling & Murphy, 2010 p. 15).

Responsible for the regulations of the financial market is the Securities and Exchange Commission (SEC). It ensures fair and orderly markets and protects investors from fraud (Jickling & Murphy, 2010 p. 18). Beyond, the Commodities Futures Trading Commission (CFTC) supervises the future exchange and prevents disproportional speculations and price manipulation for commodities (Jickling & Murphy, 2010 p. 18). The United States Banking and Supervision is subject to more regulating and supervision agencies. To find a detailed description and listing of all responsible agencies, please see Jickling & Murphy, 2010.
3.1.3 CORPORATE GOVERNANCE

Thomson and Canyon define Corporate Governance as 'the control and direction of companies by ownership, boards, incentive systems, company laws and other mechanisms' (Thomson & Canyon, 2012, p. 4). In this context it is clear that Corporate Governance is affected by many variables and may also have a huge effect on strategic and operative decisions. Therefore it is essential for our work to draw out the main differences between the Corporate Governance in the United States and Germany in terms of ownership concentration, shareholder rights, board of directors and internal regulations.

3.1.3.1 OWNERSHIP STRUCTURE

The ownership concentration and intermediation in Anglo-Saxon countries like the United States is restricted by the neoclassical capital market regulation, which favors a highly fragmented corporate ownership. This means, that the firms have a widely held shareholder basis, whereas in Europe the shareholder concentration is determined by a few large shareholders (Köke, 1999). Further Elston & Yang (2009) identify that banks in Germany have a strong influence on firms and there is less protection for minority shareholders. In addition, Fronningen & van der Wijst (2009) conducted an empirical study regarding the relationship between corporate ownership and performance. They found out, among the empirical results, that 59% of the 70 biggest German companies are family or corporate controlled and only 31% widely held. The other 10% were government hold.

In contradiction, private households constitute the largest group of shareholders in the United States. They own more than three quarters of all US stocks (Investment Company Institute, 1999). It important to pay attention to the different ownership structures, because ownership concentration may an impact on companies performance. According to Fama and Jensen (1983) a concentrated ownership will encourage managers to confine themselves and reduce minority shareholders wealth (Fama & Jensen, 1983, p 304). Additionally, Fama and Jensen (1983) argue that open corporations and organizations, where stockholders are not bound to hold positions within the organization, have an effect on the mergers. The bidder firm can compass the management and board by gaining control via tender offers or by suggestion votes for directors (Fama & Jensen, 1983, p 313).

The above mentioned findings give us another good reason why to examine and compare the effects on ratings on the choice of payment for mergers and acquisition because in the financial world almost everything is linked in one or another way together.

3.1.3.2 SHAREHOLDER RIGHTS AND VALUES

The central objective of the US based regulation system is the protection of shareholder interests (Baums and Scott, 2005). Judges in the US affirmed the importance of maximizing the shareholder value a lot. A statement of this principle has been made by Easterbrook & Fischel (1991): "Managers must prefer investors' interests to their own in the event of conflict. That is the core of the duty of loyalty." US corporate law is
mainly permissive, in contrast to Germany rights and obligations are less uniformly allocated (Dietl, 1998, p. 146).
Although the company laws of the United States and in Germany have much in common, the shareholders protection varies in many ways (Braendle and Noll, 2004). Braendle (2006) found out in this study that the shareholder protection in Germany is less comprehensive than in the US. Moreover, the conflict of interest between managers and corporations are regulated less developed in Germany than in the US. Shareholders in US have only limited powers to engage in the management and the control. On the other hand, they have the right to inspect corporate books and to remove directors without a cause, which is according to Germany’s Anti-Takeover-Regulation not possible (Dietl, 1998, p. 117, 147).

3.2 MERGERS AND ACQUISITIONS

Mergers and acquisitions are one of the most dramatic and tangible manifestations of the corporate finance and it is evident that its prominence is increasing since the new millennium (Straub et al., 2012). The discussion whether mergers create shareholder value for the target and bidder firms takes a major role in the recent corporate finance theory (Sundarsanam and Mahate, 2003). Nevertheless previous empirical research for this question has been inconclusive and ambiguity, hence a clear-cut answer is still outstanding. It is a well-known fact that M&A occur in clusters, so called merger waves, and the explanation for that are various (Kummer & Steger, 2008). Gorton et al. (2005) found out that the doctrine eat or be eaten is involved in the finance sphere and that merger waves are part of defensive strategies. Moreover he argues that managers can reduce their chance of being acquired by acquiring another firm through increase the company’s size and exacerbating becoming a takeover target. He also shows that managers sometimes value private benefits to control which can lead to unprofitable defensive acquisitions. This can be one explanation of the numerous unprofitable, unsuccessful transactions and the high failure rate in M&A in a behavioral perspective. Beside that various theories describe M&A motivation as an option to achieve growth (Empire-Building theory), to achieve synergies and cut expenses (Efficiency theory), achieve market power (Monopoly theory) and more (Trautwein, 1990).

The type of mergers and acquisitions are depending on the relative market position of the target and can provide different kinds of benefits to the merging firms. Most of the transactions have a horizontal character, which is when company’s merger in the same line of business and aim to achieve economies of scale. A vertical merger can expand companies back to the source of raw materials or forward in to the ultimate costumer to broaden the company’s market position. A merger in which two companies in unrelated businesses are involved is regarded as a conglomerate merger (Brealey et al., 2011, p. 729).

3.2.1 MERGER MARKET AT A GLANCE

Empirical studies identify that mergers occur in clusters, so called merger waves. Six waves have been identified with high merger activity in the US history. Starting with the first wave between 1897 and 1904, they were all characterized by different predecessors and some unique patterns (Renneboog & Martynova, 2006, p.7). The
following three waves occurred between 1916 and 1929 and 1965 and 1984. The fifth merger wave took place in the early 1990s, followed by the intense merger period between 2003 and 2007, referred as the sixth merger wave (Gaughan, 2011, p. 35). This merger booms were triggered by different factors. According to recent studies merger waves triggered mainly by economic, regulatory and technological shocks (Gaughan, 2011, p. 36, Mitchell and Mulherin, 1996, p. 193-229). They were also followed by a rapid credit expansion, booming stock markets and ended up all in with the collapse of stock markets. It is also remarkable that takeovers often occur in periods with changing regulatory. The various merger waves caused major changes in the structure of US business. The conglomeration of the American industry resulted in the formation of the current structure of the market: thousands of multi-national corporations.

The lengths and start of each wave is not specific, but studies can proof that the duration and the frequency has increased and that the time periods between the waves have sunken (Gaughan, 2011). When this evolution is combined with the rapidly growing international character of M&A`s, it is obvious that this field is becoming an ever more important part of the world of corporate finance and corporate strategy (Gaughan, 2011).

On the other hand the geographical patterns can be tracked and defined more accurate. It is known that the first two waves were mainly triggered and relevant in the US market, while the following waves covered more and more the global market. The pace of mergers and acquisitions has picked in the early 2000s and ended in a record-setting fifth merger wave. In 2014 the US markets deal activity rocketed again, beating his own record of 2007. The deal size boosted to 1,610 billion USD, which was remarkably 40% higher than the previous year and covering 45% of the global M&A-volume. This emphasizes the leading position of the US in the international merger market (Düsterhoff, 2014, p. 74).

Beside US, UK and continental Europe, Asia significantly impacted the fifth wave (Sundarsanam, 2010, Gaughan, 2011, p. 2). In 2014 the Asian sector grew by 23% to 657 billion USD. Recent studies show the positive correlation of the transaction activity between US and Europe (Sundarsanam, 2010). The following figure shows the development of M&A activity in both, Europe and US, emphasizing the strong correlation.
It can be seen that the European and US M&A volume began to rise in 2003 and started declining after the peak of 2007 by the effects of the global recession triggered by the subprime crisis (Gaughan, 2011, p. 3). Furthermore he argues that most regions of the world are following the merger activity patterns of the United States and Europe. He exemplifies this with Australians deal volume development from 2003 until 2009, triggered by the same reasons as for the US and European market. In contrast, the situation was somewhat different in China and Hong Kong. The deal size in these markets has faced a steady growth even in 2008 and only off sharply in 2009.

3.2.2 MERGER MARKET IN GERMANY

Faccio and Masulis (2005) argue that the European merger market is more diversified in terms of corporate governance rules, laws, securities regulations, supervisory authorities and market conditions and ownership concentration than the US market. Particularly, the German market differs substantially from the US market and rating become more important and essential (Düsterhoff, 2014). This motivates us to focus on the German market to examine the differences compared to findings on the US market. Particularly we chose the German market to contrast with the US market because of its leading economic role in Europe, the strong M&A activities and most importantly the different regulatory systems and ownership concentrations. The German merger & acquisition market is globally ranked on the fifth place with a transaction volume of 104.5 billion USD in 2014 and 897 confirmed deals (Düsterhoff, 2014). The biggest top-ten deals
consisted of a transaction volume of 68.8 billion USD which is a significant increase to the previous years. The almost constantly growing deal size and transaction volumes indicate that Germany solidifies and strengthens its role in the European merger and acquisition market (Düsterhoff, 2014).

Despite the hazy character of M&A’s, whether if it is beneficial for future growth, the European M&A market faces a continuous flourish process of growth (Straub et al., 2012). Europe has become the world’s largest economic area and the M&A activity has reached record heights after the new millennia (Sundarsanam, 2010). Internationalization has become a major trend in the recent M&A waves. In the past two decades a quarter of the global M&A activity involved bidders and targets from different countries (Makaew, 2012, p. 1).

Although the majority of the M&A literature is based on domestic (U.S.) market through its high activity, cross-border merger became more and more frequent and has an aggregated volume over eight trillion dollars as shown in Figure 2 (Makaew, 2012). Cross-border transactions popularity is predicted to increase in the future and it will be a challenging process in the background of different local regulations, supervision coverage, ownership concentration and behaviors.

**Figure 2: Cross Boarder Deals vs. Domestic Deals**

![Figure 2: Cross Boarder Deals vs. Domestic Deals](image)

In the background of the increasing popularity of M&A’s in general, particularly cross-border transactions, and the US as the greatest international bidder in the German M&A market, we choose Germany as a contrast to the US market to investigate differences and similarities on the payment method used. In contrast with the US and the Asian sector, Germany’s transaction volume decreased slightly by 4% to 104 billion USD in 2014, isolating itself from the trend. Compared to the US, the German M&A market is less developed in terms of deal activity and size.

That is not only due to the fact that M&A’s are a relatively young phenomenon, but also due to the easier access to the capital market in the US. While in the US the transaction activity increased in the end of the 19th century, Germany’s M&A enjoyed higher popularity after the fall of the Berlin wall in 1989 (M&A Database, 2015). Just like the US market the German market was also driven by the overall effects of M&A’s resulted in a major concentration of firms and economic activity (Rodriguez-Pose and Zademach, 2003).


3.3 CREDIT RATING AGENCIES

Providing for more than 42,000 issuer and 745,000 securities, with an outstanding par value of more than $30 trillion, reliable credit ratings, Credit Rating Agencies play an incomparable role within the financial market (Langohr & Langohr, 2010, p. 23). But what exactly are credit ratings and why do they play such a crucial part as information intermediaries?

Until now there does not exist a standard definition of credit ratings. Langohr an Langohr (2010, p. 23) list several ratings from leading authorities like: 'a credit rating reflects a rating agencies opinion (...) of the creditworthiness of a particular company, security or obligation' or according to the European Commission, 'Credit rating agencies issue opinions on the creditworthiness of an issuer or financial instrument'. Credit ratings play an important role by gathering and valuing relevant information and allocating them to investors, issuer and regulators which helps them to make proper decisions (De Haan & Amtenbrink, 2011, p. 1). Ratings are important for sovereigns and corporations because they have an effect on the accessibility of funding and investor attraction. Good ratings usually mean that the rated market participant is less exposed to financial distress and capable of meeting their debt payments. Similar it holds for securities. The higher the rating, the higher is the probability of meeting payment obligations, interest and principal payments for bonds. In other words, the lower the ratings are, the higher the default probability becomes. For regulators, ratings play an essential role because ratings are considered when, capital requirements are calculated (De Haan & Amtenbrink, 2011, p. 1).

The above described actions of credit ratings can be named as information services, monitoring services, reducing information cost and mitigate information asymmetry (De Haan & Amtenbrink, 2011, p. 1; White, 2010, p. 212). This shows the importance of credit ratings. In fact, Kisgen (2006) describes in his research, that 57.1% of executives consider credit ratings as the second highest concerns when it comes to the choice of an appropriate amount of debt (Kisgen, 2006, p. 1035).

Credit ratings agencies evaluate the credit quality of debt issuers and securities based on relative default probabilities and develop a credit rating reflecting their evaluation (Frost, 2007, p. 472). Currently there are around 150 Credit Rating Agencies operating globally and nationally, divided by industries, geographic and other markets in over 100 countries (Frost, 2007, p. 472; De Haan & Amtenbrink, 2011, p.3; Langohr & Langohr, 2010, p.23). The most powerful rating agencies with a cumulative market share of 95% are clearly Moody's, Standard and Poor's and Fitch Rating with 40%, 40% and 15% market share each (White, 2010, p. 216). Each of them has ratings outstanding on ten of trillions of dollars and consists of offices in six continents (White, 2010, p. 216). The rating agencies use a table of letter and figures to visualize the given ratings. These tables differ slightly from each other because every rating agency has their own method. Standard and Poor's use for example: AAA as the highest and D as the lowest rating (De Haan & Amtenbrink, 2011, p. 4). Additionally, the rating agencies divide between 'Investment-grade' and 'Speculative-grade' ratings. The steps in between each rating level is called 'notch'.

The rating process of the three most important rating agencies consists of analyzing business risk and financial risk (Frost, 2007, 473). The ratings themselves only refer to the credit risk; market risk and liquidity are not covered (De Haan & Amtenbrink, 2011, p. 3). Even though, the ratings agencies follow a similar approach, Al-Sakka and
Gwilym (2009) provide evidence that disagreements on sovereign ratings are very common. They explain this occurrence with poor political and economical stability and high volatilities (Al-Sakka and Gwilym, 2009, p. 157). Beyond that, De Haan and Amtenbrink (2011) argue, that the discrepancy between the ratings occur because of the use of different methodologies, like variables and weights and disagreements regarding high-yield rated issuers (De Haan & Amtenbrink, 2011, p. 5).

3.3.1 POTENTIAL CONFLICTS OF INTEREST

"The United States can destroy you by dropping bombs and rating agencies can destroy you by downgrading your bonds" (Friedman, 1999, p.40).

The major Credit Rating Agencies have been criticized over the last decade due to the contribution to the sub-prime crisis by giving investment-grade ratings to bonds backed by default likely mortgages (Strier, 2008, p. 533) and other ongoing financial scandals, e.g. Enron. In other words, the relations between CRAs and clients might create a conflict of interest, because rating agencies might conduct favorable assessments for the solicited ratings rather than for the unsolicited ratings. This could cause conflicts of interest because CRA are preferred by the issuer and paid by them.

This pictures the broad discussion regarding the conflicts of interests throughout the scientific research. Due to the important role CRA play as intermediaries between Investors and Issuer, their influence has an impact on capital accessibility, choices of payment of financial transactions and more (Gan, 2004, p.2).

Unsolicited ratings, which are ratings without an explicit rating order from the issuer, which means the CRA does not receive any payment, tend to be a half notch lower than solicited ratings, according to Gan (2004). In his study, examining the different outcomes between solicited and unsolicited ratings, he finds out that there is no clear evidence on unfavorable ratings. The difference is explained by a better information asymmetry because companies offer a better and deeper insight than those whose have unsolicited ratings (Gan, 2004, p. 27).

Covitz and Harrison (2003) conducted an examination on factors influencing actions of CRAs. These factors are based on financial incentives, and the incentive to build and protect their reputation and ensuring the independence and objectivism (Covitz & Harrison, 2003, p.2). In their research paper, the authors test the actions of the CRA in relation to the issuer interest, the so called "conflict of interest hypothesis" and in relation to the investors interest, the so called "reputation hypothesis" (Covitz and Harrison, 2003, p. 2). According to Covitz and Harrison (2003) the agencies themselves argue, that their reputation is the most important asset they have and that they are able to manage their potential conflicts of interest untying the compensation from the revenue. This in fact, leads to less pressure and less competition.

As a result, Covitz and Harrison (2003) find no clear evidence on the conflict of interest hypothesis but evidence on that CRA have a greater concern regarding their reputation and interests on investors.

Strier (2008) identifies three main conflicts of interest CRA face when they value issuer and issuances. Like Covitz and Harrison (2003), Stier (2008) identifies the main issue as the issuer payment for the rating agencies. In addition, the "lucrative consulting
"arrangements" and "the incentive to give high ratings" and the reluctance in downgrading are identified as potential conflict sources (Strier, 2008, p. 537). By working with the client beyond rating processes, CRA build up a long term relationship with their clients and fulfill a broad spectrum of services for them which increases the conflict of interest. Further, from the CRAs perspective, inaccurate ratings lead to reluctance in adjustments (Strier, 2008, p. 538).

Another important aspect of the possible conflict of interest is the problem Schwarzc (2002) investigates - the lack of regulation. Because CRA are private and have been unregulated over the previous year and still face a lack of regulations, Schwarzc (2002) focuses on the issues related to the lack of regulation. The author comes to the conclusion that proper regulations indeed can improve the efficiency by mitigating CRA misbehavior and strengthen the performance because reputation is deeply rooted with performance (Schwarz, 2002, p. 2). This is in line with Covitz and Harisson (2003) who found out in their investigation, that CRA rather are concerned about their reputation and investors.

Smith and Walter (2001) also investigate the potential for conflicts in the CRA business and argue that conflicts of interest seem to be inherent due to their business model. This business model, as described above, heavily relies on issuers paying for the rating of their obligations (Smith & Walter, 2001). In their research, Smith and Walter, identify the main problem as their colleagues did before - agencies that rate their clients for a fee and this is their main source of revenue (Smith & Walter, 2001, p. 2). Another, problem which Smith and Walter (2001) identify is the difference between the big US rating agencies and smaller, local agencies. Here it is questionable if the small agencies have the same standards and manage their conflicts in a proper way as the major agencies claim to do. Small agencies are often part of financial institutions which might have influence on the rating process (Smith & Walter, 2001, p. 22). Additionally, the authors summarize further potential conflicts which can occur. These mainly occur within the rating process at the initial contact between the two parties, and at further stages (Smith & Walter, 2001, p. 32).

There is clear evidence that agency conflicts such as information asymmetry could make investment decisions inefficient (Tang, 2009, p. 325). This primarily happens, because information asymmetry creates financial constraints (Karampatsas et. al., 2014, p. 1).

About how information asymmetry is influencing the choice of payment of mergers and acquisitions, Chemmanur, Paeglis and Simonyan (2009) have conducted a research investigating different hypotheses. They find empirical evidence that information asymmetry plays an important role in the choice of payment. From the acquirer's point of view, they tend to pay their M&A transactions with equities due to a subjective overvaluation of their own entity based on internal information, while cash acquirers tend to be correctly valued. In addition they find out that, as greater the information asymmetry in terms of valuing the target is, the greater the likelihood of cash payment (Chemmanur et al., 2009, p. 541). Chemmanur et al. (2009) use the number of analysts as a proxy for the degree of information asymmetry whereas a higher number of analysts are an indicator of less information asymmetry and vice versa.

There are several attempts to mitigate the potential conflicts of interest and the information asymmetry which may arise for CRA primarily by trying to increase the underlying regulations for these institutions. On the one hand, the attempt of mitigation
appears on an internal level, where the CRA try to be efficient and try to neutralize possible problems by separating their compensation scheme from the revenue (Covitz & Harrison, 2003, p., Han et al., 2012, p. 851; Frost, 2007, p. 479; Strier, 2008, p. 536). Beyond that, CRA are subject to extended regulations supervised by the Securities and Exchange Commission (SEC). Here CRA are obligated to provide information to ensure credibility and how conflicts are managed (Strier, 2008, p. 540).

### 3.4 CAPITAL STRUCTURE

One of the company’s major challenges is to find the optimal capital structure. It is an interesting field in the context of our study because it tries to explain how companies should finance themselves. In the context of M&A it plays a particular role due to the choice of payment and the impact on the capital structure. The capital structure theory attempts to explain the mix of securities and financing sources used by companies to invest in real assets (Myers, 2001). It is not only the question about whether the company should finance itself with debt or equity, but moreover the different kinds of debt. This is because they have different costs, durations and access-difficulties. Those decisions are made in general by chief financial officers (CFO’s) and are based on various criteria. One of the important influencing factors is, as we highlighted before, the credit rating. The aim is to find the particular structure combination that maximizes company’s overall market value (Myers, 2001, p. 89).

Two different theories have been established to explain the capital structure decisions of a company; Pecking order theory, which suggests that managers follows a pecking order in the financing decision and the Trade-Off Theory, which emphasizes the independence of a firms market value from capital structure. Regardless of that, Modigliani and Miller proofed in 1958 that the choice of financing has no material effects on the value of the company or its cost of capital, assuming perfect and frictionless capital markets (Modigliani & Miller, 1958). Although the logic of Modigliani and Miller has been widely accepted, it’s clearly that financing can matter (Myers, 2001). The reason for that is when taxes, information asymmetry and agency costs are included. Perfect markets do not exist and taxes and wrong capital structure decisions can lead a company to bankruptcy.

### 3.4.1 TRADE-OFF THEORY

In contrast to the pecking order theory, managers follow a company-unique target debt-ratio, without prioritizing the internal funding. Increasing the debt of a company leads to a higher default probability but on the other hand to a deductible interest tax shield. The trade-off says that companies should ‘borrow up to the point where the marginal value of tax shields on additional debt is just offset by the increase in the present value of possible costs of financial distress’ (Myers, 2001, p. 89). The firms debt-equity decision are referred as the trade-off theory and deals also with the controversy about the valuation of interest rate tax-shields and which financial problems are the most threatening (Baker and Gerald, 2011, p. 171). The trade-off theory recognizes a target debt ratio, which varies from firm to firm and industry to industry. A company with a high amount of safe, taxable income and tangible assets can stem a higher debt ratio, whereas an unprofitable company with volatile and intangible assets should rely more
on equity financing (Baker and Gerald, 2011, p. 132). Moreover the costs of adjusting to the optimal structure are a reason why companies are delayed to establish the optimal capital structure. The trade-off theory explains the differences in capital structure in many industries. While high-tech growth companies with mostly intangible assets survive with little debt, companies with a high stake of tangible assets, like the airline industry, rely on a higher amount of debt in their capital structure decisions. But the trade-off theory fails at explaining why most profitable companies generally borrow the least and are all equity financed (Baker and Gerald, 2011, p. 174). With the highest credit rating possible, they could save millions of USD through the generated tax shield. Another reason why companies are deviating from the trade-off theory is the different conditions to enter the capital market for companies. As Kisgen (2006) found out, credit ratings are influencing the capital structure of a company while determining the cost of capital. To sum up, credit ratings and the trade-off theory are both influencing a company’s capital structure decisions. The trade-off theory explains the controversy between the increasing tax shield and the increasing cost of debt, but fails at explaining why most of the profitable companies are rejecting any debt, and credit ratings influencing indirectly the access to the capital markets. Beside the Trade-Off theory other researchers have identified significant correlations between factors like size of the company, market to book ratio etc., like the study of Rajan and Zingales (1995), in which they conducted a study about the main factors which affects company’s capital structure.

3.4.2 PECKING ORDER THEORY

Myers introduced in 1984 the pecking order theory and found that managers follow a specific order when choosing the financing source. The pecking order between internal and external funding and between new issues of debt and equity is affected by asymmetric information, caused by the fact that managers know more about the business operations than investors. The pecking order states that managers first prioritize internal funding, reinvested earnings primarily, while keeping the dividend policy stable (Myers, 2001, p. 92). If internal funds are not enough to cover the required capital expenditures, the safest security will be chosen first; that is issuing new debt before lastly new equity will be issued (Myers, 2001, p. 91). When the cost of financial distress through high debt capacity becomes large enough, the company is choosing equity as a last financing channel. The cost of issuing new equity has been confirmed by several studies including Asquith and Mullins (1986). They showed that the average price of the stock fell by 3 percent after the announcement. The price drop at announcement can be even higher when the information asymmetry is large.

Issuing new equity will signalize an overvalued stock, which makes it harder to sell. As long as issuing debt is an open source, any attempt to issue new equity will trigger a skeptical attitude by investors towards the equity. Therefore only in the case of when debt becomes too expensive, for example with a dangerously high debt ratio, managers will turn to the stock market for financing (Myers, 2001, p. 92). The pecking order theory explains why the majority of external financing is coming from debt and why profitable companies borrow less. And it is not related to a specific target debt ratio, but more because profitable firms have more internal financing sources to invest. As
previous studied tested before, more about that later, less profitable firms are in need of higher external financing sources, therefore have a higher debt ratio.

3.5 CHOICE OF PAYMENT IN MERGERS AND ACQUISITIONS

Prior literature has dealt to an extensive level with the payment methods and the choice of payments in mergers & acquisitions. Alshwer et al. (2011) investigate the relationship between financial constraints firms, which are firms with higher frictions, and the payment method of merger & acquisition transactions with a time horizon of 1985 - 2007. They state, that the payment choice is primarily driven by relative benefits and the cost caused by issuances (Alshwer et al, 2011, p. 5). According to Alshwer et al. (2011) financial constraint firms face significant higher cost to raise external funds, which has an effect on ones choice of payments. In their studies, the authors identify that firms facing higher cost and burdens to raise capital are likely to use less cash and more likely to use stock as a payment method for mergers and acquisitions even though those firms usually hold more cash (Alshwer et al, 2011, p. 1). Additionally, they conclude that paying with cash compared to stock payments is cheaper for constraint firms because of they avoid the cost of frictions associated with stock payment. Credit Ratings as an indicator of the ability to meet its obligations, also is a sort of constraint. In this context is would be interesting and useful to test how Germany companies chose to pay their transactions and if the results are in line with prior researches.

Faccio and Masulis (2005) conducted a research concerning the choice of payment method in European mergers & acquisitions for a shorter period of four years. Compared to Karampatsas et al. this is interesting because of the European differentiation in several factors compared to the US market. The Authors set their focus primarily on the trade-off between the buyers corporate control threats, which demotivates the use of stocks and financial constrains which motivate the use of stocks (Faccio and Masulis, 2005, p. 32). Due to the large difference in ownership structures and corporate governance, they find significant differences in comparison to the US market. Particularly, if the bidders corporate control power is moderate and if the bidders voting control is in danger they tend to use cash financing for M&A transactions (Faccio and Masulis, 2005, p. 32) Furthermore they find, that when bidders have advantageous access to bank borrowings, which is likely to be in Germany, cash financing prevails (Faccio and Masulis, 2005, p. 32). Franks et al. (1988) focus on the means of payment for large acquisitions in the UK and the US over a time horizon of thirty years. In their study, the authors focus on the influence of taxations and information asymmetries on the payment methods and compare their results within the two chosen countries. The Authors do not find sufficient evidence that their tested variables have a significant effect on the choice of payment (Franks et al., 1988, p. 961). Yet, recent studies have found out that information asymmetry has a effect on the choice of payment (Karampatsas et al, 2014, p.2; Sundarsanam & Mahate, 2003, p. 305)

Additionally, Franks et al. (1988) test the pre-acquisition effect on wealth related to the payment choice. They find that cash offers provide higher wealth to shareholders and stock payment abnormal losses at the time of the announcement. Other influential factors on the choice of payment are whether the target is properly valued and how the bidder performed and if the payment method creates value. Sundarsanam & Mahate (2003) examined those variables. They find that high valued bidders with high growth
prefer to use equities and low growth firms tend to use cash financing (Sundarsanam & Mahate, 2003, p. 301). They argue that the choice of payment can be seen as a signal and that it depends on the level of information asymmetry explained by the theory that the side having better information only agrees on the payment methods brings the biggest advantage to them (Sundarsanam & Mahate, 2003, p. 306).


Karampatsas et al (2014) found in their US based study about the relationship between credit ratings and the choice of payment that bidders with a higher level of credit rating tend to finance their transactions cash due to the lower financial constraints and therefore easier and cheaper access to the funding sources.

As far as we know there only have been a very few studies about the above mentioned relationship and no examination of the German market in comparison to the US market. Therefore it is risky to make forecasts, also because of the significant differences between those two markets.

### 3.6 HYPOTHESIS

Based on our theoretical research and in order to answer our research question we have developed following hypothesis. Initially, as discussed in the previous chapters, we think that credit ratings mitigate financial constraints and therefore provide easier access to funding sources. In this context:

**H1: Acquirers in the German M&A market holding a credit rating are more likely to pay their investment in cash compared to acquirers without a credit rating.**

Additionally, we expect bidders with a higher credit rating to have a easier access to lending sources. Because credit ratings present the ability of a firm to meet its obligations and higher ratings represent a higher probability of meeting the issuer’s obligations, borrowing cost decrease with a higher rating, which in turn encourages borrowings and cash funding.

**H2: Acquirers in the German M&A market holding a high credit rating are more likely to pay their investment in cash compared to acquirers with a low credit rating.**
4. PRACTICAL METHODOLOGY

4.1 METHODOLOGY

Our primary goal is to examine the effect of credit ratings on the choice of payment for mergers & acquisitions in the German market. Then we will compare our results with the result from the study of Karampatsas et al. (2014) with evidence from the US market. In order to achieve reliable and comparable data we will base our study on the methodology of Karampatsas.

The underlying theory we described and analyzed in the above mentioned sections are in line with the theory used by previous studies from Faccio and Masulis (2005), investigating the choice of payment without the effect of credit ratings in Europe and Karampatsas et al. (2014) who included credit ratings as a main factor into their studies for the US market.

As we think that the European market is too diverse in order to make generalizations to all the countries, we only focus on the German market representing the biggest economy in Europe in terms of GDP.

To make our results as comparable as possible we use some of the same testing variables as Karampatsas et al (2014). Yet, due to restrictions in the accessibility of databases we are unable to use all the data which have been used. Our small sample size might affect the results of our study of not delivering representative results. To compensate the lack of data, we aim to add own, new data into our research. With these additional variables we try to include unique German market habits, like the stronger ownership concentration, into the consideration of which payment method is appropriate. Credit Ratings also play a major role in our study. As described in our previous sections, we think Credit Ratings and Credit Rating Agencies are in a progress within the German market and become more important. As Germany tends to represent a country where normal loans as financing methods prevail rather than capital market funding sources, we think it will be interesting to investigate the effect of credit ratings as this can be barriers or reduce barriers within the funding access process.

4.2 DATA COLLECTION METHODS

In general there are two main types of data; primary and secondary data. Primary data is data which has to be initially collected by the researcher in order to conduct an analysis. These types of quantitative data are usually gathered together by using questionnaires or conducting interview. Thus, it is obviously that this form of data collection is very time and cost intense and mostly only suited to researchers with sufficient time and funds (Bryman & Bell, 2011, p. 312). Secondary data in contradiction is data which already has been imposed by previous researchers and usually consists of quantitative data. Using secondary data has numerous advantages for our research purpose. First, it saves time and cost as it would be impossible to impose new data within the short time frame we face. Second, these datasets usually are high-quality data (Bryman & Bell, 2011, p. 314).

For our purpose we solely use secondary data in order to get relevant data necessary to test our hypothesis. Thus, if secondary data is lacking, we might complete the samples by adding individual primary data.
4.3 QUANTITATIVE DATA COLLECTION

In dependence on Karampatsas et al. (2014) we have tried to collect our data as similar as possible, even though it was clear that we would not have access to all the databases they have used in their studies. We used several databases and tried to apply similar requirements and variable characteristics to be as precisely and comparable as possible. As we want to examine the payment method for merger and acquisitions on relationship to the bidder’s credit rating, we initially tried to gather merger and acquisition deals in Germany. For this purpose we used the database Zephyr. Zephyr is the world’s biggest database covering M&A deals, IPOs, venture capital transactions and rumors about the markets.

In our research we downloaded a sample of German domestic acquisitions over a period of twelve years, in detail from January 1998 to December 2009. This time frame is in the line of Karampatsas et al. (2014) and allows us to include the same economical event and M&A waves as they did. This is important in order to have the same economical background to mitigate other external influencing factors which might falsify the comparison. Our sample consists of successful deals and unsuccessful deals, whereas successful deals are deals which have been executed and unsuccessful deals, which are announced by not executed. In additions, we demand our samples to have non-missing transaction value and the payment methods. Deals which do not fulfill our criteria will be excluded from our population. Following the above mentioned restrictions, we started initially with 20.696 samples and excluded 17.163 through these criteria.

Further, we require that our bidder samples are listed. This criterion is important because listed firms have to meet disclosure requirements. Therefore the data accessibility is ensured and we have better access to the required data. Targets should be listed or private. Setting the criteria as above mentioned, our initial sample included 3533 samples. From this initial sample we removed characteristics which do not play a role for us and would falsify our samples. We removed all deals which are classified as repurchases, liquidations, restructuring, divestitures, leverage buyouts, reverse takeovers, privatizations and bankruptcy takeovers. This reduced our sample by 1649 deals to 1884 deals.

In order to catch a noticeable transfer of control, we demand that acquirer should only own 10% or less of the target before the deal and minimum 50% of the target shares after the execution. This criterion reduces our sample size to 210 deals.

Further, we exclude all deals which do not reach the deal size threshold of USD 1 million to mitigate noise in the analysis. Deals below USD 1 million may create noise in terms of using more cash as a payment method. As we discussed above there is strong relationship between German banks and corporations. Hence, for small amounts, corporations may rather pay by uncomplicated borrowings than offering stocks and issuing new stocks. This final criterion leads to a sample size of 125 deals.

From these final 125 samples, the database only provides us with 50 samples free of charge. Due to this circumstance we use 50 samples selected by the above mentioned criteria. Even though the samples are randomly selected, the sample is rather small and may not be representable for the whole market. The downside of this relatively small sample is that high deviations might influence the outcome. Further, having a rather smaller sample may increase abnormality regarding the operating business sector of the observations. Banks, for example, have a very high leverage compared to industry companies. This might affect our outcome.
Gathering information about the Credit Ratings, we use Standard & Poor's Ratings Services. We think Standard & Poor's (S&P) Credit Ratings is most suitable for this purpose because it has the highest market share and therefore covers a broader collection of samples. For those samples without credit ratings from S&P we have chosen to use the equivalent rating from Moody's. Even though, they may have sometimes different ratings on sovereigns, long term issuer credit ratings usually are equivalent within the agencies. The ratings represent the long-term domestic issuer credit ratings one month prior the acquisition. Ours sample consists of 28 rated companies and 22 unrated. The highest rating represented in our sample is AA+ and the lowest is B-. For our study, the most important is the rating existence and the rating level. Following the line of Karampatsas et al. (2014) rating existence will take the value of 1 if a rating is available and 0 if not.

To cover the rating level the rating scheme of S&P is used. In this scheme a higher rating corresponds to a higher number. For the analysis the alphabetic nature of the rating levels have to be transformed into the numerical classifications. The recent literature suggests two main methods. The most common methods are the linear transformation (Cantor & Packer, 1996, P.42; Eliasson, 2002, p.5) and the logistic transformation (Eliasson, 2002, p.5). The linear transformation assigns a number to each rating in the scale from 1-21. It is the same amount of ratings available, because it assumes that the distance between the following ratings will be the same e.g. BB+ is 11 and BBB- 12 and BB- is 9 and so on (Eliasson, 2002, p.5). The logistic or non-linear transformation assumes a different scale. The distance between the ratings in the ends of the alphabetic characters is smaller than the distance in the middle part. Since the rating levels are equally divided, and there is no weighted separation between the different categories, we use the linear transformation. For our purpose we assign the numbers to the ratings to the literature. This means, the higher the rating, the higher the number.
4.4 VARIABLES DEFINITIONS

4.4.1 DEPENDING VARIABLE

In their studies, Karampatsas et al (2014) use two dependent variables in order to investigate the relationship between credit ratings and the choice of payments in mergers & acquisitions transactions.

Our dependent variable is defined as the method of payment. Using a Generalized Linear Model (GLM) Logit Regression and a Probit regression, this variable will be a dummy variable taking the value of 1 for transactions with cash funding over 50% and the value of 0 for transactions funded with more than 50% stocks. Overall conduct four regressions, logit and probit model based, to examine if we find significant correlations within our chosen variable.

4.4.2 INDEPENDENT VARIABLES

To investigate the relationship of credit ratings on the choice of payment, we defined to independent variables in order to explain the depending variables. Credit Rating Existence and Credit Rating Level as described above.

First, we will investigate if the pure existence of a credit rating has an effect on the choice of payment. Therefore we will distinguish between samples which carry a rating and samples without ratings. As the variable credit rating existence is a dummy variable it will either have the value of 0 for non-rating samples or 1, respectively.
Further, as described above in the linear transformation of credit ratings into numbers, the variable credit rating level will consist of number in the range of 1 for D rated acquirer firms and 21 for the highest possible rating, which is AAA.

### 4.4.3 SUPPORTING VARIABLES

**Market Value:**
As we could see there are plenty of influencing factors which might play a role in determining the choice of payment for mergers & acquisitions. Karampatsas et al (2014) use the bidder’s size as a proxy for financial strength and as an indicator for a less default probability. This is return leads to an easier access to capital market funding sources and enables additional funding. An additional way of measuring the market value can be done by using the market capitalization of a firm. This figure is often easier to access and can give an easy and comparable view in a bidders value.

**Relative Size:**
The relative size is defined as the bidders market value divided by the target market value prior the acquisition. This variable is important to test the hypothesis that using cash as a funding source will decrease by the target size relative to the acquirer. This could happen due to the constraints which occur when raising a very large amount of cash (Karampatsas et al., 2014, p. 11). Harford et al. (2009) use this variable to account for the effect that using cash decreases with an increase in target size.

**Blockholder Ownership:**
Stock issuance causes dilution which can decrease ownership control and power. To avoid this, managers tend to prefer other funding sources rather than equity. Large block shareholders prefer cash over equity for funding investments to avoid the loss of control (Karampatsas et al., 2014, p. 9). Additionally, block shareholders can help to control managers and have huge power towards the management. Especially in Germany, where the shareholder structure differs substantially from the US shareholder structure, we expect a different outcome. Blockholder ownership as a variable measures the aggregates blocks of shareholder who own at least 5 % (Karampatsas et al. 2014, p. 10). Further, Faccio and Masulis (2005) find in their studies that there is a higher risk of creating blockholders with stock payment. This accounts specially for large deal size.

**Industry Effect:**
Faccio and Masulis (2005) find evidence that sellers in deals with unrelated industries prefer cash as the payment method rather than stocks. The authors argue that sellers are less familiar with the industries risk and therefore more reluctant because bidders stock may be overvalued. To recognize this effect in our studies we follow Karampatsas et al. (2014) and use the variable Industry Effect as a dummy variable with 0 for a intra-industry acquisitions and 1 for inter-industry acquisitions.

**Leverage:**
Financial leverage is a proxy for the financial condition of a firm. This supporting variable is calculated as the ratio between total debt and the book value of total assets. The effect of this variable on the choice of payment is controversial. Faccio and Masulis (2005) initially find out that acquires with a high leverage ratio rather use stock
financing than cash due to the financial constraints which are associated with issuing debt. In contradiction to Faccio and Masulis (2005), Harford et al. (2009) come to the conclusion that there is a positive relationship between these variable (Harford et al., 2009, p. 13) which is also in line with Karampatsas et al. (2014) findings.

**Free Cash Flow to Assets:**
This variable is associated with the underlying theory of the above mentioned pecking order. By using internal funding source first, then debt and then equity funding managers follow a funding hierarchy (Myers, 1984). This implies that, following this hierarchy means cash would be the first choice of payment. Free cash flow is a measurement of financial performance and determined as the cash a company is able to generate reduced by the cash needed for other funding operations. The variable cash flow to asset is defined as income plus depreciation minus dividends divided by the firm’s book value of total assets (Karampatsas et al. 2014, p. 10).

**Number of Analysts:**
As described in the above mentioned sections information asymmetries play a significant role in the process of determining the payment method. From the acquirer’s point of view, they tend to pay their M&A transactions with equities due to a subjective overvaluation of their own entity based on internal information, while cash acquirers tend to be correctly valued. In addition they find out that, as greater the information asymmetry in terms of valuing the target is, the greater the likelihood of cash payment (Chemmanur et al., 2009, p. 541). Further Chemmanur et al. (2009) suggest the number of analysts as a proxy of information asymmetry. The variable number of analysts is the number of analysts who cover a firm. For those firms where we cannot find any relevant data, we assume there is no coverage.

**Market to Book Ratio:**
The market to book ratio is defined as the market equity value prior the transaction announcement divided by the book value. This variable is set as a proxy for growth opportunities. Karampatsas et al. (2014) find that there is a positive relationship between growth opportunities and cash payments. This perception has also been confirmed earlier La Bruslerie (2013).

### 4.5 ANALYSIS METHODS

In order to analyze the association between credit ratings and the choice of payment in merger & acquisition transactions we defined one dependent variable. This dependent variable is payment method. When defining this variable we were geared to the dependent variable from Karampatsas et al. (2014). To obtain a recent analysis for this variable we have decided to use a Generalized Linear Model (GML) Logit Regression. Additionally, to get further insights on the choice of payment, we will run a Probit Regression. In this context out variable can be 1 for funding beyond 50% cash and 0 for funding beyond 50% stocks.

To summarize our analysis; we will conduct four regression in total using the Logit and Probit Model.
A regression analysis in general offers numerous advantages. Regression analysis is in general simple to perform, easy to interpret, available and scientifically accepted, which makes them a useful tool. For our purposes we have use the described techniques because they are eligible for dummy-variables and variables within the interval 0 and 1.

4.5.1 REGRESSION TECHNIQUES

The GLM logit regression test whether two variables are related to each other based on the cumulative logistic probability distribution and is described as:

\[ F'(s) = \frac{e^s}{1 + e^s} \]

Whereas \( s \) is the equivalent to \( \beta X \) representing the multiplication of the independent variables and supporting variables with:

\[ pX = [\beta_0, \beta_1, \beta_2, \ldots, \beta_M] \begin{bmatrix} 1 \\ X_1 \\ X_2 \\ \vdots \\ X_M \end{bmatrix} = \beta_0 + \sum_{m=1}^{M} \beta_m X_m \]

As the model is non-linear, it means that one unit increase in the regressors, will not match as a change for \( s \).

To distinguish the qualitative character of the choice of payment we use the probit regression. It is beside the logit regression a popular model for tests where dummy variable is an explanatory variable. The difference between the GLM logit regression and the probit regression is that probit is based on the cumulative normal distribution and is defined as:

\[ F'(s) = \int_{-\infty}^{s} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}t^2} dt \]

In this context our dependent variable will be assigned with the value 1 for deals financed with more than 50% cash and with 0 for deals paid with more than 50% stock.

4.5.2 REGRESSION LIMITATIONS

As we described before the GLM logit and the probit model are common methods to test for dummy variables as dependent variables. To construct a reliable model there are still some assumptions and limitations that must be fulfilled. Both models are like other varieties of regression models sensitive to extremely high correlation among the independent variable. We tested our variables before conducting the regression analysis and could find correlations. To test for this we conducted a linear regression model with the Pearson correlation coefficient. Beside the sensitivity, the existence of outliers must be considered in the regression. In our sample we did not found any outlier, hence we
did not remove any sample which could distort our results. Finally, it has also to be considered that our sample size is much less compared to the sample of the study of Karampatsas et al. (2014). This is based firstly on the lower deal activity in Germany compared to U.S., and also because of the missing access to larger databases. This might have an effect on the correlation levels, the impact of outliers, a high volatility and lastly on the result by a lower correlation level than in the reality.

4.6 VALIDITY AND RELIABILITY

Validity and reliability are key essentials in a scientific paper. The data analyzed and used has to be general and reliable. Reliability is characterized as whether the results are repeatable. In other words, the data, information, techniques and concepts have to be consistent (Bryman & Bell, 2011, p.41).

Reliability can be subdivided to internal and external reliability. Internal reliability refers to the consistency of the variables tested whereas external reliability refers to data sources. We can assume with confidence that our internal tested variables are reliable as we have set up our methodology closely to Karampatsas et al. (2014) in order to make reliable comparisons easier. In this context we test the variables which have been tested before in a different environment and expect different outcomes. The external reliability should be given as well. When collecting the relevant data we have a free-trial account of Zephyr. Zephyr is the world's biggest provider of mergers & acquisition deals. Professionals as well as researchers access this database for relevant data. We see these sources as accurate reliable. Nevertheless not all needed data was covered by Zephyr. For Credit Ratings we used free accounts from Standard and Poor's and Moody's which we expect to be good sources, as those agencies are well-known. Yet, due to restricted access, we had a unique access Bloomberg where we could retrieve the missing ratings. Further data was retrieved from Thomson Reuters Datastream and also added manual from annual reports. Because we have put high efforts in using reliable data, we assume to meet these criteria.

In addition, the validity refers to whether or not the measure of the concept really measures the concept. Validity can be subdivided into measurement validity, internal validity and external validity (Bryman & Bell, 2011, p.42). Measurement validity reflects if the used variable really reflect and influence the purpose they are chosen for, whereas internal validity refers to internal causality and external validity is associated with whether the result can be generalized beyond the research field (Bryman & Bell, 2011, p.43).

Referring to our research paper, we assume to meet these requirements. Measurement validity because we have applied the methodology of Karampatsas et al. (2014) where they have already proven that there is a relationship between the defined variables. This also holds for the causality. If external validity is existing is questionable. The study could be applicable to other countries as well. Since Germany is very distinguishing to the US difficulties in the generalization may occur. By using past data which will not change over time, the study would be repeatable which strengthens our validity.
4.7 ENDOGENEITY

Endogeneity can be defined as the correlation between explanatory variables and the error term in a regression (Roberts and Whited, 2013). It is probably one of the most important discussed fields in empirical finance. It explains and measures the reliability of biased and inconsistent parameter estimations. The combination of ensuring endogeneity and the limited available information available for researchers, especially for students, raises the importance of the question how to deal with it in corporate finance.

Because of our comparing part in our study with Karampatsas et al., (2014) we conducted the same regression endogeneity test to ensure a higher comparability. Hence due to our much smaller database, we assume a lower level of endogeneity.

We choose the study of Karampatsas because of its high importance for the research in the M&A sector and its topicality. The author is well-known and has published several studies in related fields. We rely on his work additionally after a careful assessment of the paper and our discussion.

5. DATA ANALYSIS

5.1 DESCRIPTIVE SAMPLES STATISTICS

Figure 3 pictures the entire sample and the sample split into the payment methods. The payments methods are characterized into paying the acquisitions with more than 50% cash and paying them with more than 50% stocks.

From the overall sample 34 acquirers paid their investment in cash and 16 acquirers used stock payment for their acquisition. The overall mean deal value is EUR 1.3 Billion. The total assets of the acquirer were approximately around EUR 17 Billion and the total mean market value priced at EUR 13.8 Billion. 28 observations (55%) are holding a rating with an average rating level 14 which is according to the linear transformation method a BBB+. In contradiction to this 22 observations (45%) do not hold a credit rating. The mean target size has a value of EUR 820 Million.

Taking the industry effect into account, from the overall observation, 71% of the transactions are made within the same industry. The mean debt ratio of the acquirer is 32.41% with a cash flow to assets ratio of 14%. The average free cash flow as a measurement of measuring the ability of generating internal funds is in mean EUR 1.6 Billion. Blockholder ownership in the overall sample is noted with 38% and the mean number of analysts as a proxy for information asymmetry is 14.
Figure 4: Mean Descriptive Statistics divided into Cash Deals and Stock Deals

<table>
<thead>
<tr>
<th></th>
<th>Total Sampling</th>
<th>Cash Deals</th>
<th>Stock Deals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>50</td>
<td>34</td>
<td>16</td>
</tr>
<tr>
<td>Credit Rating Existence</td>
<td>55%</td>
<td>66%</td>
<td>31%</td>
</tr>
<tr>
<td>Deal Value (in € mil.)</td>
<td>1,305</td>
<td>1,681</td>
<td>0,566</td>
</tr>
<tr>
<td>Bidder Market Value (in € mil.)</td>
<td>13,861</td>
<td>19,497</td>
<td>2,238</td>
</tr>
<tr>
<td>Target Market Value (in € mil.)</td>
<td>0,820</td>
<td>0,376</td>
<td>1,783</td>
</tr>
<tr>
<td>Relative Size</td>
<td>16,9</td>
<td>52,0</td>
<td>1,25</td>
</tr>
<tr>
<td>Industry Effect</td>
<td>71%</td>
<td>67%</td>
<td>81%</td>
</tr>
<tr>
<td>Leverage</td>
<td>32,4%</td>
<td>35,7%</td>
<td>24,8%</td>
</tr>
<tr>
<td>Market-to-book ratio</td>
<td>2,67</td>
<td>3,22</td>
<td>1,34</td>
</tr>
<tr>
<td>Cash flow-to-assets ratio</td>
<td>13,7%</td>
<td>17,2%</td>
<td>1,5%</td>
</tr>
<tr>
<td>Number of Analysts</td>
<td>14,4</td>
<td>19,2</td>
<td>4,75</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>37,9%</td>
<td>39,6%</td>
<td>34,4%</td>
</tr>
</tbody>
</table>

Figure 4 distinguishes between the two different payment methods, cash deals and stock deals.

The rating existence in cash-dominated deals is significantly higher with 66% than for bidders financing their acquisitions with stocks, which only is 31%. These 66% holding a rating had an average rating level of 15 which is an equivalent, according to the linear transformation, to an investment grade rating of A-. This is one notch higher than the average entire rating level.

The average deal value also differs significantly within these two payment methods. Whereas in cash-dominated deals the average deals value is EUR 1.7 Billion, stock-preferred acquirer pay in average EUR 566 Million. Additionally, the mean size in terms of market capitalization for cash deals outweighs the stocks deals significantly. Whereas the average acquirer size is EUR 19 Billion for cash offers, the average stock offer acquirer is lower with EUR 2.2 Billion. This implies that the relative market capitalization between bidder and target are for cash-dominated deals 52 times bigger whereas in stock-dominated deals, the bidders are in average 1.3 times bigger. This can be explained in the bigger targets present in the stock-dominated deals. The average target size in terms of market capitalization is EUR 1.8 Billion, compared to the cash dominated targets which have an average market capitalization of EUR 367 Million. In return the average total assets for stock-preferred bidders is significantly higher with and mean of EUR 23 Billion compared to the cash preferred bidders having a mean of EUR 14 Billion.

Bidders in cash-dominated deals have relative higher leverage (35,7%) but also a higher Cash flow to asset ratio (17,2%) than the non-cash-dominated deals which have a average leverage of (24,8%) and (1,5%) respectively. In this context it is interesting that the average free cash flow for stock-dominated deals is negative, which means, in average the population is not able to generate sufficient internal funds to fund their
acquisitions and therefore tend to pay in stocks. This is in line with the pecking order theory. Furthermore, 67% of the cash-dominated deals where made within the same industry. In contrast, the stock-dominated deals come up with 81% deals within the same industry.

Further, the market-to-book ratio is in cash-dominated deals significantly higher with a ratio of 3.2 than in acquisition paid by more than 50% stocks with a ratio of 1.3. This agrees to the growth opportunities theory which states a positive relationship between cash-deals and growth opportunities.

On the subject of blockholder ownership, we find that cash-dominated deals have relatively more concentrated ownership with an average of 39.6% compared to the stock-dominated deals with an ownership concentration of 34.4%. This is also in line with the corporate control theory.

Lastly, the number of analyst in cash-dominated deal is three times higher than prevailing in stock-dominated deals with 19 and 5 analysts. This is in line with the findings of Chemmanur et al. (2009). He states that a higher information asymmetry measured by the number of analyst as a proxy encourages cash payments.

Table 4 shows the main descriptive statistics for bidders holding a credit rating and for bidders who do not hold a credit rating. From the entire sample 28 observations hold a credit rating and 22 observations are not rated. From the 28 rated observations 79% are cash-dominated and 21% are stock-dominated. This gives us a initial confirmation on the theory that rated firms are more likely to use cash than non-rated firms. In contradiction, for the unrated bidders there is equal distribution of 50% for the cash-dominated and for the stock-dominated acquisitions.

Those bidders who hold a credit rating have an average deal value of EUR 2.2 Billion, whereas the unrated bidders deal volume is significantly less with an average of EUR 186 Million. In addition, rated bidders are significantly bigger in terms of total assets and in terms of market capitalization. The average relative market capitalization between bidders and target is 5 times higher for rated firms a 0.25 times higher for unrated firms. The average total assets for rated bidders are EUR 30 Billion whereas the unrated bidders have mean total assets of EUR 611 Million.

The average rating level in terms of the linear transformation is 14 which equivalents a average bidder investment grade rating of BBB+. Taking the industry effect into account, we find that 77% of the non rated firms made deals within the same industry, whereas the rated firms made 67% inter-industry deals. Moreover, firms who hold a rating tend to have higher leverage (38%) compared to (24%) and in average a higher free cash flow.

Regarding the number of analysts as a proxy for transparency, rated bidders have an average of 20 analysts whereas non-rated bidders consist of an average coverage of 7 analysts. Looking at the market to book ratio and the cash flow to asset ratio, unrated bidders have a higher mean compared to rated bidders. The blockholder ownership is similar for both variables. The rated acquires hold a relative ownership of 39.7% and the non-rated have a concentrated average ownership of 35.6%.
What we can find from the descriptive statistics sample is that firms involved in cash deals are more likely to hold a credit rating than firms involved in stock-deals. Additionally, we can assume that firms involved in cash-deals have higher growth opportunities, higher leverage and a higher cash flow than firms involved in stock deals. Stock deal firms, tend to acquire higher valued targets and are more likely to acquire within the same industry. When separating our sample between rating existence and non rating existence we find that rated firms execute deals with far larger values and are in general bigger in terms of market value. Additionally, we find that rated companies have a larger coverage and a higher leverage than non- rating firms. Finally, we can also summarize that non-rated firms have a higher cash-flow ratio and a higher market-to-book-ratio.

5.2 EMPIRICAL RESULTS

The following tables show the result of the regression analysis we have conducted; two GLM logit regressions and two probit regressions to find the correlations between the chosen variables and to what extent these might influence the decisions. First we included the whole sample in our regression analysis to examine if rating existence has a significant influence on the choice of payment. After that we try to find out if a higher rating increases the probability of cash payment. The next section presents the results of the regression analysis.
5.2.1 CREDIT RATING EXISTENCE AND METHOD OF PAYMENT

Figure 6: Regression on the Payment Method and Rating Existence

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logit Regression Coefficients</th>
<th>Probit Regression Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating Existence</td>
<td>1.526**</td>
<td>0.926**</td>
</tr>
<tr>
<td></td>
<td>(0.652)</td>
<td>(0.358)</td>
</tr>
<tr>
<td>Deal Size</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.006</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Market to Book</td>
<td>0.191</td>
<td>0.104</td>
</tr>
<tr>
<td></td>
<td>(0.215)</td>
<td>(0.112)</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>3.102</td>
<td>1.916</td>
</tr>
<tr>
<td></td>
<td>(4.024)</td>
<td>(2.531)</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>16.238*</td>
<td>8.242*</td>
</tr>
<tr>
<td></td>
<td>(8.689)</td>
<td>(4.495)</td>
</tr>
<tr>
<td>Number of Analyst</td>
<td>0.137**</td>
<td>0.082**</td>
</tr>
<tr>
<td></td>
<td>(0.056)</td>
<td>(0.032)</td>
</tr>
<tr>
<td>Relative Size</td>
<td>0.006</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Industry Effect</td>
<td>-0.729</td>
<td>0.436</td>
</tr>
<tr>
<td></td>
<td>(0.738)</td>
<td>(0.433)</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.156</td>
<td>0.569</td>
</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.

Figure 6 presents the results for the regression analysis taking the entire sample into account with the first variable credit rating existence. Appendix 9.3 shows the significance. The mid panel pictures the result for the Logit regression and the right panel pictures the results for the probit regression.

We find that the rating existence has in both models a significant correlation at a 5% confidence level. This implies that firms who hold a credit rating in general are more likely to pay their acquisitions in cash rather than in stock. Both tests picture a positive correlation between the rating existence and the choice of payment. Yet, rating existence is not the only significant variable on the choice of payment.

The variable cashflow-to-assets, which represent the ration between the income and the book value of total assets, have in both regressions a strong positive correlation. This correlation is significant at the 10% confidence level. This confirms the pecking order theory in terms of, that companies which are capable of generating internal funds will use them rather than issuing debt or equity. In this context we can assume, that companies with higher cashflow-to-asset ratio prefer to pay their acquisitions in cash.

In addition, we find that the number of analyst as a proxy for information asymmetry is in both regression methods associated with a positive correlation. This correlation is significant at a 5% confidence level. This may indicate that information asymmetry plays a major role in the choice of payment. Deals which are more transparent and
where bidders have more insights are more likely to be paid in cash than deals which are opaque. The probit model only shows positive correlations between the tested variables whereas the logit model states a negative correlation between the industry effect and the payment method. This would mean that acquisitions within the same industry would be paid in stocks and between different industries cash. This correlation is not significant; therefore we are not able to make relevant assumptions. Also deal size, leverage and market-to-book value, blockholder ownership, relative size has no significance in our analysis. Therefore we can assume that most of our variables have no significance for the choice of payment. Within the logit model our $R^2$ is comparatively to our probit model small. This indicates that the probit model is a better model for our purpose. In our comparing study the reverse is the case; the $R^2$ values in the logit model are lower and in the probit model higher.

5.2.2 CREDIT RATING LEVEL AND METHOD OF PAYMENT

Figure 7: Regression on the Payment Method and Credit Rating Level

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logit Regression Coefficients</th>
<th>Probit Regression Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating Level</td>
<td>0.369** (0.164)</td>
<td>0.214** (0.091)</td>
</tr>
<tr>
<td>Deal Size</td>
<td>0.001 (0.001)</td>
<td>0.001 (0.001)</td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.13 (0.22)</td>
<td>-0.006 (0.012)</td>
</tr>
<tr>
<td>Market to Book</td>
<td>0.91 (0.751)</td>
<td>0.494 (0.401)</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>5.633 (4.642)</td>
<td>3.573 (2.872)</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>37.316 (28.084)</td>
<td>18.24 (8.057)</td>
</tr>
<tr>
<td>Number of Analysts</td>
<td>0.567 (0.391)</td>
<td>0.321 (0.223)</td>
</tr>
<tr>
<td>Relative Size</td>
<td>0.637 (1.029)</td>
<td>0.368 (0.572)</td>
</tr>
<tr>
<td>Industry Effect</td>
<td>-20.247 (13397)</td>
<td>-3.777 (26.896)</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.358</td>
<td>0.563</td>
</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.

Figure 7 presents the result for the regression analysis taking only the observations into account which hold a credit rating. Appendix 9.4 shows the significance. Previously, we have shown that most of the variables have no significant correlation between holding a credit rating and the choice of payment. Now we try to examine until what extent the rating levels influence the cash payment. In the mid-panel we present the result for our
logit model regression. Our main variable, the payment method, in association with the level of credit ratings has a significant correlation at the 5% confidence level. This confirms our initial estimation that a higher credit rating level stimulates cash payments in merger & acquisition transactions. The same result can be found for our probit model regression. Although the coefficient is slightly lower in the probit model, the correlation is significant at a 5% level. This result indicates that the more higher the rating level, the more likely cash payment.

Unfortunately, there are only two significant findings within our test. That is either because of our sample amount or the difference between the German and the US market. The variables leverage and Industry have a negative correlation, although without a noticeable significance. The negative correlation with the variable leverage may be associated in terms of that higher rating level holder may have less debt. The variables deal size, market-to-book ratio, blockholder ownership, cashflow-to-assets, number of analysts, relative size and industry effect have no significant association on the level of rating. The pseudo $R^2$ is higher for our probit model which assumes a better match for the analysis.

In summary we can identify differences between the two groups, which are obviously due to the different characters of the independent variables. We could confirm our initial assumption that the credit rating existence has a significant effect on the choice of payment. In particular, companies which hold a rating are more likely to pay cash. The strongest influencing variables are cashflow-to-asset-ratio and number of analysts. The cashflow-to-asset ratio as a proxy for growth opportunities confirms the underlying theory. The same holds for the variable number of analyst as a proxy of information asymmetry. Deals with higher transparency are more likely to paid in cash.

### 5.2.3 ENDOGENEITY TESTS

In order to test for endogeneity, we applied two different econometric methodologies; the Bivariate Probit model and the Control Function approach. The Bivariate Probit model estimates the selection and structural equations by using the Maximum Likelihood Estimation (MLE). MLE estimations are more efficient when it comes to error terms on selection and structural equations than classic two-stage procedures by having a bivariate normal distribution (An and Chan, 2008).

Alternatively we used as a control function approach the Two Stage Least Squares (2SLS) instrument to calculate the endogenous regressors as a function of instruments and uses errors as an additional regressor in the structural mode. In the case of the independent variable rating level we differ from Karampatsas et al. (2014) by using the same endogeneity test we used for the rating existence due to our missing capability to conduct a Two Stage Conditional Maximum Likelihood method of Newey (1987). The null hypothesis of endogeneity has to be rejected if the coefficient of the included error is not statistically significant.

All of our tested variables resulted in a high level of insignificance. This can be due to the small sample size and the high volatility of single data or due to the exogenous character of the dependent variables from the beginning. As we can see the 2SLS model gave higher insignificance levels than the logit or probit models used in our analysis. Only the rating existence could proof a relatively lower significance level compared to
the rest of the results. Since most of our variables were not significant in the previous models, our assumption that the test will deliver high insignificance levels has been confirmed. It is not surprising that also the R² results are lower in the 2SLS model than in our previous model after the low level of significance.

The results do not support any of our hypotheses due to low significance level. Motivated by our assumption that this is caused by our low sample size, we use for our analysis our results from previous models. We still think that there is a significance relationship regardless the failure of the endogeneity test. The significance can be seen in Appendix 9.5.

Figure 8 shows the results of our test for rating existence and rating level.

Figure 8: Endogeneity Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients Total Sample</th>
<th>Coefficients Rated Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating Existence</td>
<td>0.484 (0.232)</td>
<td>0.003 (0.163)</td>
</tr>
<tr>
<td>Rating Level</td>
<td>0.58 (0.147)</td>
<td>0.003 (0.163)</td>
</tr>
<tr>
<td>Deal Size</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.011 (0.018)</td>
<td>-0.009 (0.0041)</td>
</tr>
<tr>
<td>Market to Book</td>
<td>-0.126 (0.319)</td>
<td>1.003 (8.978)</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>8.384 (9.005)</td>
<td>-5.129 (21.416)</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>-0.618 (4.682)</td>
<td>-7.716 (38.169)</td>
</tr>
<tr>
<td>Number of Analysts</td>
<td>0.008 (0.3)</td>
<td>-0.054 (0.257)</td>
</tr>
<tr>
<td>Relative Size</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Industry Effect</td>
<td>0.904 (1.099)</td>
<td>0.009 (0.517)</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.03 (0.256)</td>
<td></td>
</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.

5.3 ANALYSIS LIMITATIONS

During our analysis we faced various limitations which might affect the result of our study which should be considered. First, we expect the macro-economical circumstances which occurred during our chosen horizon to influence mergers & acquisitions and the choice of payment. In particular, the dotcom bubble burst in 2000
and the credit crisis in 2008 had huge impacts on the financial markets and rating agencies in terms of restructuring and intense regulations application. Further to be mentioned is the limited access to databases which made it time intense for us to gather all relevant data. This could have influenced our data sample and therefore the outcomes. We have chosen our sample randomly from a database with a limited trial account within the predefined time horizon from 1999 - 2009. This time has been chosen because we tried to mitigate as much as deviations as possible in order to simplify the comparison, but also to catch the emerged merger & acquisition waves. These waves might also have an effect on the payment method. Not all necessary data was provided which forced us to gather the missing data manually and from other databases. In order to make appropriate analysis and comparison with the research paper from Karampatsas et al. (2014) it would be an advantage if access to the same sources of databases would be available. This would ensure a more consistent analysis. Also the diversified industries within the samples have to be taken into account. We did not make any restrictions in the industry sector or firm size. These two parameters are very likely to influence the outcome. For financial institutions there are different leverage aspects to be considered than for industrial institutions. Compared to Karampatsas et al. (2014) we were not able to take the same control variables into account due to the lack of sources.

When testing the endogeneity, Karampatsas et al. (2014 used for testing the variable credit rating level a Two Stage Maximum Likelihood method of Newey (1987). To test our variables for endogeneity we used the Two Stage Least Square (2SLS) model, where the coefficients were not significant and the null hypothesis of endogeneity cannot be rejected.

6. ANALYSIS

Motivated by our research question we conducted an analysis in order to find if credit ratings have a significant influence on the choice of payment in mergers & acquisitions, in particular for the German market and if we find important differences which hold for the German market. By studying the underlying theory we found different relevant theories on which we developed most of our variables and our result may be in line with.

Researchers agree on, that the payment method influences the takeover, the subsequent performance of the bidders firm and the return of the shareholders (Travlos, 1987, p. 943; Eckbo & Langohr, 1989, p. 1; Sundarsanam & Mahate, 2003, p. 306; Renneboog & Martynova, 2006, p. 11). The only question is how and to what extent, which we want to examine now.

From the overall sample 68% acquirer paid their investment in cash and 32% acquirer used stock payment for their acquisition. The rating existence in cash-dominated deals is significant higher with 66% than for bidders financing their acquisitions with stocks, which only is 31%. These 66% holding a rating had an average rating level of 15 which is an equivalent, according to the linear transformation, to an investment grade rating of A-. A rating of A- can be interpreted as a 'Strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances'. This means that the firm’s probability default seems to be low and the
borrowers are capable of paying back their borrowings. Graham and Harvey (2001) found out that credit ratings play the second most important role when it comes to capital structure through the determination of access to funds in the capital market. As a result of higher rating firms have easier access to funding, which is shown in the leverage ratio. Numerous studies already emphasized the lower cost of debt when a firm has a high credit rating, which leads to an increased debt capacity (Billett, Hribar and Liu 2011).

In our results we can find that firms holding a rating have a higher leverage. These findings are in line with Faulkender and Peterson (2006) who found that for public traded firms, where rating agencies officiate as information intermediaries, the credit constraints are less but still exist. Here is assumable that those firms have higher leverage because they have easier access to funding sources (Faulkender and Peterson, 2006).

In addition, Karampatsas et al. (2014) draw a positive relationship between ratings and cash ratios, which is also in line with our results, which show that the cash-dominated deals consist of rating holding bidders. Harford et al. (2009) also come to the conclusion that there is a positive relationship between these variables.

In contradiction to our findings are Uysals (2011) results, which say that companies with a higher leverage ratio tend to acquire less and avoid cash-payments. Facio and Masulis (2005) find out that acquires with a high leverage ratio rather use stock financing than cash due to the financial constraints which are associated with issuing debt.

Bidders in cash-dominated deals have a higher Cash Flow to Asset ratio of 17.17% than the non-cash-dominated deals, which have a ratio of 1.5%. The Cash Flow to Asset ratio is a proxy for the pecking order theory from Myers (1984) which states that a company uses internal funds before debt and external equity. In our results we find that firms preferring cash-deals have a higher cashflow ratio which means that these firms are better capable of generating internal funds than firms paying with equity. This leads to a natural and good way of accessing cash and paying their investments in cash.

Further we find that the market-to-book ratio is in cash-dominated deals significantly higher 3.2 than in acquisition paid by more than 50% stocks with a ration of 1.3. Martin (1996) finds in his study that firms with high growth opportunities, which means a low ratio, rather prefer stock funding over cash funding for their acquisitions. In our study we can confirm that theory.

Cash-dominated bidders are also higher in terms of value and involved in bigger deals. These findings are controversial. Sundarsanam and Mahate (2003) found in their research that high valued firms prefer stocks over cash as a payment. They find that high valued bidders with high growth prefer to use equities and low growth firms tend to use cash financing (Sundarsanam & Mahate, 2003, p. 301). They argue that the choice of payment can be seen as a signal and that it depends on the level of information asymmetry explained by the theory that the side having better information only agrees on the payment methods brings the biggest advantage to them (Sundarsanam & Mahate, 2003, p. 306).

Further, we find that cash-dominated deals have relatively more concentrated ownership with an average of 39.6% compared to the stock-dominated deals with an ownership concentration of 34.4%, the same hold for firms holding a credit rating compared to those who are not rated.
These results are in line with the recent finding of Faccio and Masulis (2005) who find significant differences between Europe and the US. Particularly, if the bidders corporate control power is moderate and if the bidders voting control is in danger they tend to use cash financing for M&A transactions (Faccio and Masulis, 2005, p. 32). Furthermore they find, that when bidders have advantageous access to bank borrowings, which is likely to be in Germany, cash financing prevails (Faccio and Masulis, 2005, p. 32). Also confirmed by Köke (1999) finds that corporations in the Anglo-Saxon countries consist of a broad ownership structure whereas in Europe the shareholder concentration is determined by a few large shareholders. As we expected larger ownership blocks and cross-ownership structures prevail in Germany which is in line with our results. Amihud et al (1990) also has the same findings stating, that a bigger ownership fraction increases cash financing. This is also in line with the corporate control theory stating that shareholders prefer cash rather and stocks because issuing new stocks dilutes their shares and increases the risk of losing control.

Lastly, the number of analyst in cash-dominated deal is three times higher than prevailing in stock-dominated deals with 19 and 5 analyst and 20 versus 7 for firms holding a rating, respectively which means that it seems like to be less opacity in cash-dominated deals and firms which are holding a rating.

The number of analysts present the degree of information asymmetry and the more analyst cover a company the less should be the information asymmetry.

There is clear evidence that agency conflicts such as information asymmetry could make investment decisions inefficient (Tang, 2009, p. 325; Karampatsas et al, 2014, p.2; Sundarssanam & Mahate, 2003, p. 305). This primarily happens, because information asymmetry creates financial constraints (Karampatsas et. al., 2014, p. 1). Chemmanur et al (2009) find that bidders tend to pay their acquisitions with equities due to a subjective overvaluation of their own entity based on internal information, while cash acquirers tend to be correctly valued which means the greater the information asymmetry in terms of valuing the target is, the greater the likelihood of cash payment (Chemmanur et al., 2009, p. 541). This finding is not in line with our findings. Also Franks et al. (1988) not find sufficient evidence that their information asymmetry has a significant effect on the choice of payment (Franks et al, 1988, p. 961).

Our regression analysis is based on the two regression models we have described before to identify correlations between the use of cash in acquisitions in the German market and several control variables. Based on our sample and on our regression analysis, we could find evidence for a strong relation between the existence of ratings and cash payments. In other words, companies having a rating existence are more than likely to use cash for their investments than companies without a rating in the German market. Hereby we support the Pecking Order Theory in which companies are more motivated to use debt for their investment before choosing the relatively more expensive equity. This is also due to the fact that rated companies find it easier to finance easier and cheaper in the debt market than unrated firms.

The regression analysis showed also a positive relationship within a 5% confidence level for the rating level and deals financed with cash, supporting and finding evidence for our second hypothesis. Moreover, we find a positive correlation in both, the probit and the logit regression, for Market-to-Book ratio, Cash Flow to Assets, Blockholder Ownership and Number of Analysts with the use of cash. In our analysis the highest
correlation for the choice of payment in cash can be found with our control variable Cash Flow to Assets with a significance level of 10%. Hereby we find further support for the Pecking-Order-Theory, which claims that companies firstly use internal sources for their acquisitions.

We find low correlation for Leverage, which is surprising us, because it is contradicting with previous studies and controverting with our main finding that the rating existence and the level of rating is increasing the likelihood of using cash for financing investments. It can be a result of our small sample or due to the different market system in Germany compared to the US market. It is possible that German companies do not emphasize their target capital structure for investment decisions contrasting with the US market.

Also for relative size and the deal size we find no relationship and a negative relation for industry effects, which points that inter-industry acquisitions are more likely to be financed with cash than acquisitions within the same industry. This might be the case because companies in the same industry have a higher tolerance for equity payments due to the better understanding of the business.

Our study approach was motivated partly by the study of Karampatsas et al. (2014) in terms of comparing our analysis on the German market with the findings on the US market. After our analysis we will now dedicate our focus on the comparison of our regression analysis findings with the results of Karampatsas et al., which will be referred from now an as the comparing study.

As we expected, our findings are partly in line and partly contradicting with our comparing study. Hence, it was surprising that we found a high positive correlation between the mere rating existence and the use of cash as a payment method. Karampatsas et al. (2014) proved a low correlation for that, leading to the conclusion that there is no correlation in the US transaction market between the existence of credit rating and increased debt capacity. We assume that the differences are a result of the combination between the weaker capital market in Germany compared to the US and therefore the increasing importance of ratings. It is possible that rated companies in Germany have a relatively bigger advantage in raising debt compared to unrated firms than it is the case in US, but we can’t proof this assumption.

Beside our different result for rating existence, we could show a high and significant correlation between rating level and the use of cash, which is in line with Karampatsas et al. (2014) and other previous studies. Further, most of the control variables in the comparing study showed a positive relationship with the cash consideration, except relative size and number of analysts. Some of our control variables, like market-to-book ratio and blockholder ownership, are in line with that. Especially the explanatory variable Cash Flow-to-assets has the highest correlation on the 10% significance level with the choice of payment. This has also almost the highest correlation in the comparing study. Contradicting to Karampatsas et al. (2014) we found also a positive correlation for the number of analysts and therefore not corroborating past literature. It can mean that higher information asymmetry in Germany leads to a higher use of equities.
We found some differences in the control variables which has no correlation. One of our main differences beside the effect of rating existence is the effect of leverage. It was surprising that we could not find a correlation between leverage and the choice of payment, which is disagreeing with most of the past similar studies. Further, we did not find a correlation for relative size and deal size, which was negative and very low in the comparing study, respectively.

Lastly, we are in line with our comparing study when it comes to the industry effect; acquisitions in diversifying industries. We found a negative correlation between choice of payment and industry effect, which means that inter-industry acquisitions are more than likely to be paid in cash than with stocks, which is in line with Karampatsas et al. (2014).

7. CONCLUSION

The purpose of this paper is to examine whether the existence of credit ratings and the level of rating has an impact on the choice of payment in the German merger and acquisition market. Previous studies found evidence for the relationship between the credit rating level and the use of cash on the US market. Karampatsas et al. (2014) found a significant relationship for this correlation. Motivated by his study, we aim to outline main differences and similarities between the German and the US. Our motivation is also driven by the differences in regulatory systems, market conditions and ownership constellations between those two markets. We assumed to find differences and supporting evidence for theoretical and practical contributions.

Our hypotheses has been confirmed by our regression analyses, we find a significant and positive relationship for both explanatory variables credit rating existence and credit rating level. Hence, our endogeneity showed insignificance for all of our variables. We assume that this is based on our small sample size and the huge volatility.

For our empirical analysis we used different econometric approaches to investigate the relationship. We found some vital differences and some similarities compared to the findings on the US market. One of the main differences is that we find a positive correlation for the rating existence and the use of cash. Surprisingly and contradicting to previous studies, we could not find any correlation between the leverage of a company and the choice of payment. This is also contradicting to our finding that rated companies use more cash financed by debt, and therefore should have an increased leverage. This might also be due to our low sample size.

We contribute with our thesis an insight for the merger & acquisition realm by highlighting among other studies the indirect impact credit ratings on the choice of payments. We find out similarities and differences regarding the payment method for acquisitions between Germany and US. Hereby we contribute especially for international investors and shareholders between those two markets important evidence for the different payment conditions and relationships with the credit rating agencies. Further we provide theoretical contribution by outlining the relationships between the payment method and the different explanatory variables. We find evidence for the pecking order theory by showing that companies with a high cashflow have also a higher cash amount in their investments.
Our aim of study does not embrace the cause of the differences. Different results may be based on the different market conditions, ownership concentrations and regulatory systems or the combination of them. This, together with an identical study but with a larger sample size, can be a gap for further studies. Especially in the background of our finding that the mere existence of credit ratings increases the likelihood of cash payments in Germany compared with the US.

Our sample includes a small sample and our time horizon is based on our comparing study. A similar study with a larger scale and a different or longer time period could deliver different and interesting results. Especially in the background of previous discussed merger waves, choosing a specific time horizon including both, over- and undervalued markets can show different correlations. It would be interesting as well to include markets from developing countries or with a different political system in the analysis and comparison.
8. REFERENCE LIST


Langohr, Herwig M.; Langohr, Patricia T. (2008): The rating agencies and their credit ratings: what they are, how they work and why they are relevant, 2008, John Wiley & Sons, Ltd. UK.


9. APPENDIX

9.1 TABLE OF CORRELATION

<table>
<thead>
<tr>
<th>Correlation Significance Covariance</th>
<th>Method of Payment</th>
<th>Fraction of Cash</th>
<th>Rating Level</th>
<th>Deal Value</th>
<th>Leverage</th>
<th>Market to Book</th>
<th>Blockholder Ownership</th>
<th>Cashflow to Asset</th>
<th>Number of Analysts</th>
<th>Relative size</th>
<th>Industry Effect</th>
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<td>Fraction of Cash</td>
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<tr>
<td>Rating Level</td>
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<tr>
<td>Value</td>
<td>0.506**</td>
<td>0.567**</td>
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<td>Deal Value</td>
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<td>0.002</td>
<td>0.752</td>
<td>0.875</td>
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<tr>
<td>Leverage</td>
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<td>-0.025</td>
<td>0.986</td>
<td>0.903</td>
<td>0.527</td>
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<td>1.357183</td>
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<td>Blockholder Ownership</td>
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<td>0.335</td>
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<td>-0.307</td>
<td>0.081</td>
<td>-0.181</td>
<td>0.285</td>
<td>0.223</td>
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<tr>
<td>Cashflow to Assets</td>
<td>0.216</td>
<td>0.287</td>
<td>0.067</td>
<td>0.031</td>
<td>0.803</td>
<td>0.617</td>
<td>0.303</td>
<td>0.533</td>
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<tr>
<td>Number of Analysts</td>
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<td>0.005</td>
<td>-0.134</td>
<td>-0.207</td>
<td>0.294</td>
<td>-1.317</td>
<td>-0.021</td>
<td>0.008</td>
<td>0.015</td>
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<tr>
<td>Relative Size</td>
<td>0.726**</td>
<td>0.768**</td>
<td>0.571**</td>
<td>0.082</td>
<td>0.112</td>
<td>0.241</td>
<td>0.200</td>
<td>0.525</td>
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<tr>
<td>Industry Effect</td>
<td>0.314</td>
<td>0.600</td>
<td>0.060</td>
<td>0.000</td>
<td>0.116</td>
<td>0.131</td>
<td>0.052</td>
<td>0.303</td>
<td>0.533</td>
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</table>

9.2 RATING DISTRIBUTION

![Rating Distribution Graph](image-url)
9.3 REGRESSION ON THE PAYMENT METHOD AND RATING EXISTENCE

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logit Regression Coefficients</th>
<th>P-Value</th>
<th>Probit Regression Coefficients</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating Existence</td>
<td>1.526** (0.652)</td>
<td>0.019</td>
<td>0.926** (0.358)</td>
<td>0.017</td>
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<td>Deal Size</td>
<td>0.001 (0.001)</td>
<td>0.295</td>
<td>0.001 (0.001)</td>
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<tr>
<td>Leverage</td>
<td>0.006 (0.016)</td>
<td>0.698</td>
<td>0.003 (0.009)</td>
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</tr>
<tr>
<td>Market to Book</td>
<td>0.191 (0.215)</td>
<td>0.376</td>
<td>0.104 (0.112)</td>
<td>0.351</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>3.102 (4.024)</td>
<td>0.441</td>
<td>1.916 (2.531)</td>
<td>0.449</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>16.238* (8.689)</td>
<td>0.062</td>
<td>8.242* (4.495)</td>
<td>0.067</td>
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<tr>
<td>Number of Analyst</td>
<td>0.137** (0.056)</td>
<td>0.015</td>
<td>0.082** (0.032)</td>
<td>0.011</td>
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<tr>
<td>Relative Size</td>
<td>0.006 (0.021)</td>
<td>0.762</td>
<td>0.004 (0.013)</td>
<td>0.782</td>
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<tr>
<td>Industry Effect</td>
<td>-0.729 (0.738)</td>
<td>0.323</td>
<td>0.436 (0.433)</td>
<td>0.313</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.156</td>
<td>0.156</td>
<td>0.569</td>
<td>0.313</td>
</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.
### 9.4 Regression on the Payment Method and Rating Level

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logit Regression Coefficients</th>
<th>P-Value</th>
<th>Probit Regression Coefficients</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating Level</td>
<td>0.369** (0.164)</td>
<td>0.024</td>
<td>0.214** (0.091)</td>
<td>0.019</td>
</tr>
<tr>
<td>Deal Size</td>
<td>0.001 (0.001)</td>
<td>0.985</td>
<td>0.001 (0.001)</td>
<td>0.985</td>
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<tr>
<td>Leverage</td>
<td>-0.13 (0.22)</td>
<td>0.563</td>
<td>-0.006 (0.012)</td>
<td>0.6</td>
</tr>
<tr>
<td>Market to Book</td>
<td>0.91 (0.751)</td>
<td>0.226</td>
<td>0.494 (0.401)</td>
<td>0.218</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>5.633 (4.642)</td>
<td>0.225</td>
<td>3.573 (2.872)</td>
<td>0.213</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>37.316 (28.084)</td>
<td>0.184</td>
<td>18.24 (8.057)</td>
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</tr>
<tr>
<td>Number of Analysts</td>
<td>0.567 (0.391)</td>
<td>0.148</td>
<td>0.321 (0.223)</td>
<td>0.15</td>
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<tr>
<td>Relative Size</td>
<td>0.637 (1.029)</td>
<td>0.536</td>
<td>0.365 (0.572)</td>
<td>0.52</td>
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<tr>
<td>Industry Effect</td>
<td>-20.247 (13397)</td>
<td>0.999</td>
<td>-3.777 (26.896)</td>
<td>0.888</td>
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<tr>
<td>Pseudo R²</td>
<td>0.358</td>
<td></td>
<td>0.563</td>
<td></td>
</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.
9.5 ENDOGENETIY

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients Total Sample</th>
<th>P-Value</th>
<th>Coefficients Rated Sample</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating Existence</td>
<td>0.484 (0.232)</td>
<td>0.229</td>
<td>0.003 (0.163)</td>
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</tr>
<tr>
<td>Rating Level</td>
<td>0.58 (0.147)</td>
<td>0.697</td>
<td>0.003 (0.163)</td>
<td>0.986</td>
</tr>
<tr>
<td>Deal Size</td>
<td>0 (0)</td>
<td>0.243</td>
<td>0 (0)</td>
<td>0.986</td>
</tr>
<tr>
<td>Leverage</td>
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<td>0.53</td>
<td>-0.009 (0.0041)</td>
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</tr>
<tr>
<td>Market to Book</td>
<td>-0.126 (0.319)</td>
<td>0.695</td>
<td>1.003 (8.978)</td>
<td>0.912</td>
</tr>
<tr>
<td>Blockholder Ownership</td>
<td>8.384 (9.005)</td>
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<td>-5.129 (21.416)</td>
<td>0.816</td>
</tr>
<tr>
<td>Cashflow to Assets</td>
<td>-0.618 (4.682)</td>
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<td>-7.716 (38.169)</td>
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</tr>
<tr>
<td>Number of Analysts</td>
<td>0.008 (0.3)</td>
<td>0.781</td>
<td>-0.054 (0.257)</td>
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<td>Relative Size</td>
<td>0 (0)</td>
<td>0.885</td>
<td>0 (0)</td>
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<tr>
<td>Industry Effect</td>
<td>0.904 (1.099)</td>
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<td>0.009 (0.517)</td>
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<tr>
<td>Pseudo R²</td>
<td>0.03</td>
<td>0.256</td>
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</tr>
</tbody>
</table>

The symbols ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. The first number is the correlation coefficient and the number in brackets is the standard error.