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Do Credit Ratings Affect the Choice of Payment Method in M&A?

- A study on the BRIC countries -

BUSN89 – Degree Project in Corporate and Financial Management

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Abstract

Title:	Do Credit Ratings Affect the Choice of Payment Method in M&A? – A study on the BRIC countries
Course:	BUSN89, Degree Project Master level in Corporate and Financial Management, 15 ECTS
Authors:	Klevia Kumbaro and Amina Lönberg
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Key words:	Credit ratings (agencies), payment method, M&A, BRIC, emerging markets
Purpose:	The aim of this thesis is to contribute to the existing literature on the effect that credit ratings have on the payment choice in M&A transactions on the uncovered area of the BRIC countries.
Methodology:	The use and analysis of probit regression to determine whether credit ratings have an effect on payment method, inspired by Karampatsas et al. (2014).
Theoretical perspective:	The thesis follows a deductive approach. Previous literature consists of credit ratings affect on capital structure, optimal capital structure, information asymmetry and payment methods in M&A to name a few.
Empirical foundation:	The sample of the study consists of 294 announced mergers and acquisitions in the BRIC countries between the years 2000-2008.
Conclusion:	The findings of our study are not significant, thus the thesis cannot support a relationship between credit ratings and the choice of payment method. However, the study found evidence that theories, such as the free cash flow hypothesis, the pecking order theory and the market timing hypothesis hold in emerging market countries as well.

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1. Introduction

1.1 Background

Since the establishment of credit rating agencies in the 20th century the perspective on firms from investors and lenders point of view has fundamentally changed. Credit rating agencies were introduced to help stakeholders to navigate among firms by producing manuals and standards reflecting the firms' ability to meet their financial obligations. The three largest agencies; S&P, Fitch and Moody's, control roughly 95% of the market (*Credit when credit's due*, 2014). The main purpose of the credit rating agencies is to make an assessment of both firms and sovereigns, measuring their solvency and assign a credit rating that reflects their creditworthiness. Moreover, there exist different levels of credit ratings. The highest credit rating level indicates that the firm or sovereign is fully able to meet its financial obligations and is considered to be safe and stable. On the opposite side of the spectra there is the rating with the lowest value indicating poor conditions for maintaining the existing financial condition and a great risk of default (Standard and Poor's, 2016). Determining the credit ratings of a firm requires the assessment of several variables and developed countries generally have higher ratings than countries in emerging markets mainly because of the stable political and economic landscape (Borensztein et al., 2007). The establishment of credit rating agencies have increased investors' reliance on the ratings but history has shown that ratings do not always show the most accurate picture of a company. This became apparent after the global financial crisis in 2008 when credit rating agencies became more questioned and regulated, as they seemed to have failed with certain rating assessments whether intentional negligence or not.

Firms usually perform merger and acquisitions (M&A) to create synergies and value for their shareholders, which could be cost reductions, revenue enhancements or a combination of both. Moreover, an M&A could develop new expertise and diversification opportunities for the firm (Berk & DeMarzo, 2007). The financing decision of the M&A is important since it has an impact on the financial leverage and ownership structure of the firm as it affects the firm's exposure to risk and changes in tax and cash flow (Faccio & Masulis, 2005). Several previous studies confirm that the market

reacts differently depending on the payment choice, which is generally stocks, cash or a mixture of both. For example, when a firm chooses to pay with stocks, it is perceived as a negative reaction from the market because it indicates that the firm is overvalued (Travlos, 1987; He et al., 2011; Gaughan, 2015).

Previous research have confirmed that credit ratings affect the capital structure and financial policies of firms, among them Kisgen (2007, 2006), Bancel and Mittoo (2003) and Cursio and Baek (2016). According to these studies, a higher credit rating level indicates that firms have better access to financial sources and financing at a lower cost of capital. A rather unexplored research area is how credit ratings affect the choice of payment method in M&A. Karampatsas et al. (2014) investigated this relationship and found that a higher credit rating level indicates the choice of cash as payment method.

1.2 Research problem

Even though the accuracy of credit rating agencies has been questioned before, credit ratings still seem to have great influence on the financing and investment decisions of stakeholders and financial markets. Examples of these are credit ratings impact on capital structure and financial policy. Several previous studies suggest that by revealing the creditworthiness of a firm credit rating agencies mitigate information asymmetry as they disclose information to the public without revealing details that could harm the firm's competitive position (Healy & Palepu, 2001; Kisgen, 2007; Karampatsas et al., 2014). Thus, the credit rating agencies are important in financial markets to communicate a more accurate view of the firm's current state. Credit ratings effect on the firm's capital structure is a well-covered research area. Bancel and Mittoo (2003) found that credit ratings are one of the most important determinants in the choice of capital structure because an upgrade sends signals to the public about the increased state of the firm. The upgrade automatically leads to better financial sources to invest in new projects, whilst a downgrade leads to the opposite. Firms close to a downgrade therefore work hard to avoid the situation (Kisgen, 2007).

Moreover, Kisgen (2007) found that firms devote attention to credit ratings when designing their financial policy as the choice of payment method sends signals to the

public. As mentioned above, if the firm uses stocks for instance, the public reacts negatively to the announcement due to the indication of that the firm is overvalued (Travlos, 1987; He et al., 2011; Gaughan, 2015). The theory assumes that the market is aware of the significance of management's announcement to use stocks to finance a deal. As a result, when the market interprets the negative signal that management believes the firm is overvalued, the stock price of the bidder should therefore weaken upon announcement of the deal. Using cash, on the other hand, signals that a firm holds a lot of free cash flow (Jensen, 1986). Previous researchers argue that cash is preferred as payment method when the firm is correctly valued or undervalued (Chemmanur et al., 2009; Karampatsas et al., 2014).

Most of previous research about the choice of payment method in M&A cover developed countries, more specifically the US and European market. Among them, Faccio and Masulis (2005) studied the choice of payment method in European M&A where the authors found that corporate governance and debt-financing constraints affect the choice of payment method in M&A. More recently, Karampatsas et al. (2014) introduced credit ratings as new determinants of the payment method used and found that bidders in the US holding a higher credit rating level are more likely to use cash as payment method. However, they did not find a significant relationship that firms holding a credit rating are more likely to use cash as payment method than unrated firms.

There is limited research covering the choice of payment method in M&A in emerging markets. Most of the existing literature that cover the subject in emerging markets investigate stock reactions to the announcement of an M&A, among them Chi et al. (2011). Sehgal et al. (2012) added stock reactions to the choice of payment method in their research. Burns and Liebenberg (2011), on the other hand, compared emerging markets to developed markets and found that stock is a more common choice of payment method in developed markets, while a mixture of cash and stock are more common in emerging markets. However, we have not found any study covering credit ratings affect on payment method in emerging markets. Emerging market acquirers became more noticeable in the beginning of the 2000s (Gaughan, 2015). In the Goldman Sachs report titled "Building Better Economies BRICs", Jim O'Neill first presented the acronym "BRIC economies". The report highlighted the growing importance of Brazil, Russia,

India and China in the world economy and how their set of GDP was expected to rise during the forthcoming years. The popularity of the report made the acronym world known and helped inflows of foreign investments into these markets. Since the release of the report, emerging markets are often associated with the four BRIC countries. Throughout the years, further countries have been added to expand the acronym. Nonetheless, we believe that the original formation of the BRIC countries will give us a diverse and important group to investigate, as they are the largest countries in emerging markets[1]. The four countries' combined GDP account for approximately 50% of the total GDP in emerging markets during the tested period (2000-2008) and 66% of total GDP in these markets in 2015, see table 1. Moreover, these countries account for approximately 75% of emerging markets total population and accounted for 38% of all emerging markets deals between the years 2000-2008, see appendix 8.1. Therefore, by using these four economies in our study we expect to be able to fill the research gap on emerging markets with a study on credit ratings affect on the choice of payment method in M&A.

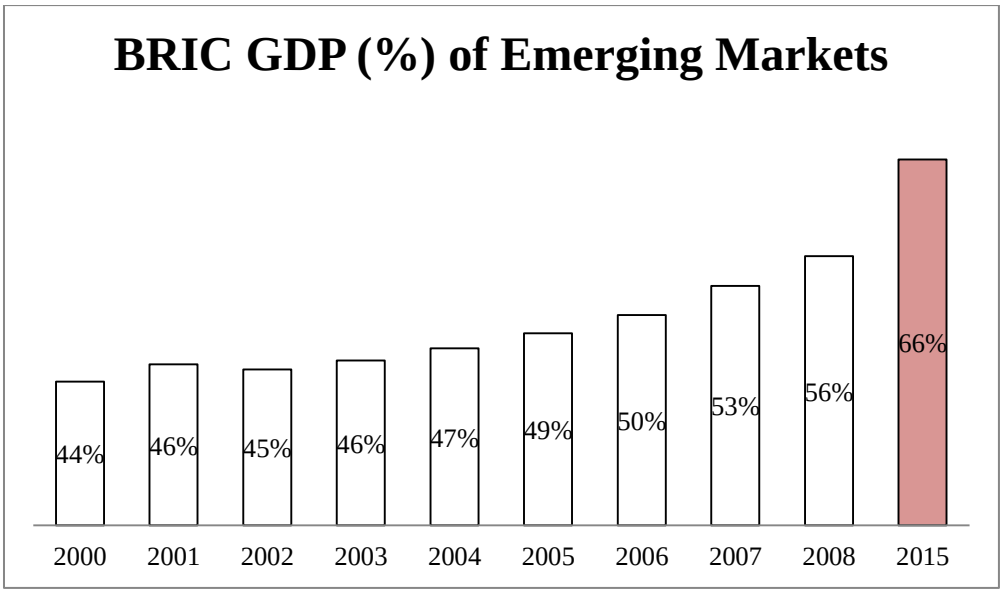

Table 1. The BRIC units' GDP percentage of total GDP for all emerging countries. The tested period 2000-2008 is illustrated in white and the most recent complete year 2015 is illustrated in red.

[1] Emerging countries are based on the MSCI Emerging Markets Index. For further information of included countries see appendix 8.1.

Emerging markets are usually more regulated and have a higher degree of information asymmetry in the financial markets compared to more developed countries (Salter, 1998). A higher degree of information asymmetry is proven by several researchers to have a significant effect on a firm's investment decision. For instance, Drobetz et al. (2009) found that firms hold less cash under such circumstances. Also, Zhu and Jog (2009) found that firms prefer to pay with stock and lower levels of cash under a higher degree of information asymmetry. Therefore, we find it interesting to investigate if these circumstances will leave us with results different from previous studies made on developed markets.

Ultimately, there is an inadequate amount of previous work available about M&A events in emerging countries and not one covering credit ratings importance when choosing payment method. Moreover, there has not been any published article specifically covering the topic credit ratings and payment method outside of the US. In addition, the only published article by Karampatsas et al. (2014) did not find a significant relationship between the existence of credit rating and the choice of payment method. Therefore, we aim to investigate this relationship further and to fill the existing research gap by providing evidence from emerging markets. The methodology and variables used in this thesis are inspired by the work of Karampatsas et al. (2014) in order to be able to perform a comparable study.

1.3 Research question

Based on our research problem we have established the following research question:

- Do credit ratings on acquirers affect the choice of payment method in M&A in the BRIC countries?

1.4 Purpose

This thesis aims to examine whether the choice of payment method is affected by credit rating existence when performing an M&A in the BRIC countries, namely Brazil, Russia, India and China. This thesis will contribute to existing research covering the choice of payment method in M&A by adding evidence from emerging markets with additional insights and perspective in this uncovered area of research.

1.5 Limitations

Due to the lack of time and limited access to databases, a number of limitations must be outlined to successfully be able to perform the study. First of all, this study covers the four largest countries and economies in the emerging markets: Brazil, Russia, India and China (Mainland). The chosen BRIC unit includes four countries from four different continents, which gives us a diverse sample including different governance systems and regulations. Secondly, a restriction on the time period we aim to investigate is made. The data collected to investigate our research question are M&A announcements gathered from the time period 1/1/2000-31/12/2008. This period is chosen partly because of the increased M&A activity in emerging markets in the beginning of the 2000s, and partly to make sure to include the complete sixth and last M&A wave (Gaughan, 2015). By including the complete sixth M&A wave in the chosen time period we will receive a more representative result as it includes all of the steps in a financial cycle. Moreover, at the beginning of the chosen time period the BRIC acronym was established and therefore the BRIC unit will be interesting to investigate as it represented, and still represents, the largest economies of emerging markets. In our chosen time period empirical evidence have proven that financial markets rely on credit rating agencies (Sy, 2009). The financial crisis is therefore excluded from our sample since the period led to scepticism from the public about the role and behaviour of the credit rating agencies. Consequently, including the financial crisis in our sample could have left the thesis with biased results. The description of data limitations is more thoroughly explained in the "Data selection criteria" chapter of this thesis.

2. Literature review and theoretical framework

2.1 Credit ratings affect on capital structure

Research has shown that many companies devote considerable attention to credit ratings when designing their financial policy. As mentioned in the introduction chapter, a higher level of credit rating can lead to direct benefits for a company's shareholders through the perks of lower cost of debt for their funding, an expansion of the pool of eligible investors and more favourable terms from other corporate stakeholders which is

reassured by the firm's implied staying power (Kisgen, 2007). Also, Tang (2009) found evidence for the relationship of an upgrade and decreased cost of borrowings. The choice of capital structure policy must be designed to fit the circumstances of the particular firm. Companies that rely on the commercial paper market or operate in industries where credit ratings are important for customer relationships will almost certainly work hard to maintain high credit ratings. However, the normal case is that firms work harder to maintain its existing credit rating, i.e. avoiding a downgrade, rather than to focus on receiving a higher rating. In another study, Kisgen (2006) found that companies close to a change in credit rating level issue less debt than companies that are not close to a change in credit rating level. The relationship is further strengthened by Cursio and Baek (2016) who explain the firms' behaviour as a consequence of that the benefits incurred from a credit upgrading do not correspond to the high costs that can occur from a downgrading. The underlying argument for the hypothesis that firms care more about a downgrading than upgrading in credit rating level can be explained by debt covenant violations and restrictions. When firms are unable to meet the requirements from debt covenants they lose their access to sources of funding and a credit downgrading could easily decrease a firm's ability to comply with debt covenants (Roberts & Sufi, 2009). However, there exist studies that show the opposite or no significant results whether firms' capital structure is affected by credit ratings or not. Among them, Kemper and Rao (2013) found that capital structure decisions are not primarily affected by credit ratings. Firms do not adjust their leverage levels to improve their credit rating and thus ratings are not perceived as an important determinant in their case.

Graham and Harvey (1999) did a comprehensive study on the practice of corporate finance. They found that in the course of keeping a strong policy regarding financial flexibility firms seem to be keen on preserving that flexibility and keep a high rating when they issue debt. Moreover, Bancel and Mittoo (2003) performed a study on the determinants of the choice of capital structure on firms. Their findings covered the European market and they discovered that more than half of the firms did not have credit ratings for their debt. Nevertheless, their study confirmed that credit ratings and target ratios are an important subject for managers and that credit ratings are perceived to be one of the most important determinants in the choice of capital structure. When choosing the right amount of debt in their firms 72 % of the managers that Bancel and Mittoo

(2003) studied confirmed that credit ratings are important or very important determinants. They found that managers primarily focused on financial flexibility, credit rating and interest tax savings when choosing debt structure in the company.

Despite its significant importance credit rating agencies have been criticized for causing the financial crisis in 2008 and lost popularity in the happening. Sy (2009) illustrates that financial markets rely on ratings and as a result this has led to great losses and illiquidity issues. The author also suggests that firms should increase capital and liquidity to be able to adhere to the systematic risk that lies in ratings. There are however benefits that are driven from credit ratings such as solving the issues of information asymmetry, which will be more deeply covered below.

2.2 Optimal capital structure

Traditional capital structure theories typically include the trade-off theory and the pecking order hypothesis. Modigliani and Miller (1958) suggest that in perfect and efficient markets, the capital structure is irrelevant. However, the traditional trade-off theory indicates that a unique optimal structure exists for a given firm. The unique optimal capital structure is the result of finding the right balance between the benefits of debt and the costs of debt. The benefits of debt usually refer to the tax-deductible interest payments and the ability to control how the manager spends free cash flow. The costs of debt, on the other hand, represent the present value of expected direct and indirect costs of bankruptcy (Kisgen, 2007).

On the contrary, Myers (1984) suggests that there is no optimal capital structure and that firms instead follow a pecking order in corporate financing. Managers prefer the least risky alternative when seeking for financing sources. In other words, the corporate financing ranges from internal financing/retained earnings, followed by debt and lastly equity. This corporate financing behaviour is the consequence of information asymmetry. The author argues that the market is under informed about the value of the project that a firm brings to the market, hence the market tends to undervalue the project and the securities issued to finance it. By using internal financing, the firm avoids the surrender

of value. Therefore, firms tend to maintain financial slack to pursue profitable projects at any time (Ogden et al., 2003).

Several studies have tested these theories against each other to see which one is dominant over the other. Along this line of theory, Lemmon and Zenger (2010) discovered that the pecking order theory exists for sources of financing which means that firms prefer to use internal cash primarily. On the other hand, when external financing is necessary, equity becomes less preferred than debt. To conclude, their study does not support the trade-off theory as their study suggests that low-levered firms that are highly profitable use internal cash for sources of financing. Among emerging markets, Tong and Green (2005) studied corporate financing decisions of the largest listed Chinese companies and found support for the pecking order hypothesis over the trade-off theory. Chen (2004) also studied Chinese companies to explore the determinants of capital structure, however the author did not find support for neither the trade-off theory nor the pecking order hypothesis. The author instead suggests that Chinese firms seem to follow a "new pecking order" in the order: retained profit, equity and long-term debt. The author argues that the results depend on the significant institutional differences and financial constraints in the banking sector in China, in comparison to Western countries, which influences firms' leverage decisions.

2.3 Asymmetric information, agency theory and signalling theory

Information asymmetry arises when management is better informed about the true value of the firm than the public. The management of a firm must be careful about what information to release in order to make sure that strategic plans are not leaked to competitors. Leaked information to competitors would hamper the firm's ability to compete and consequently reduce the firm's value (Ogden et al., 2003). According to Salter (1998), emerging markets appear to have higher information asymmetry than developed markets. Palepu et al. (2005) argue that the absence of reliable specialized intermediaries and regulatory systems, such as credit rating agencies and financial analysts are important reasons for the higher information asymmetry in emerging countries compared to more developed countries. Patel et al. (2002) investigated information asymmetry in emerging markets and found that transparency and disclosure

is significantly higher in Asian emerging markets together with South Africa compared to Latin American, Eastern European and Middle Eastern emerging markets. Moreover, in China information asymmetry is often associated with the stock market and that foreign investors receive a stock discount when investing in the Chinese stock market. According to Chakravarty et al. (1998) one common explanation is that foreign investors have an informational disadvantage relative to domestic investors, hence they receive a discount on their shares.

Several studies indicate that credit rating agencies mitigate asymmetric information. Healy and Palepu (2001) argue that credit rating agencies disclose information to the public, which alleviates information asymmetry and thus lowers the firm's cost of capital. More recently, both Kisgen (2007) and Karampatsas et al. (2014) found support for credit rating agencies ability to mitigate information asymmetry as credit ratings disclose information to the public through the creditworthiness of a company. Consequently, the public domain gains a more accurate view of the firm's current state. Moreover, Tang (2009) found that credit market information asymmetry significantly affects firms' financing and investment decisions.

Schwarcz (2002) argues that credit ratings are not as reliable as available information since they are based on the information given by the issuer and do not include the potential risk of fraudulent behaviour of the rated firm. Also, credit rating agencies' reputations matter as they work as intermediaries between the firm and the public. Another potential problem with credit rating agencies relying solely on information provided by the issuer makes it crucial that credit rating agencies treat all firms equally. Gan (2004) investigated if credit rating agencies make consistent assessments when providing ratings for firms, regardless if the issuer pays for the service or not. The author found that credit rating agencies give significantly lower ratings to unsolicited issues, i.e. issuers who do not pay for the service. The author's result also illustrates the difficulties in today's "issuer-pays" model as it creates agency conflicts in the market. Credit rating agencies, issuers and investors all contribute to this agency conflict. Before the "issuer-pays" model became a standard, another model was used called "subscriber-pays". In the latter model, investors paid the credit rating agencies a monthly fee to get access to firms' credit ratings. However, in the 1970's the credit rating agencies found new ways to

receive revenues and created the "issuer-pays" model. In other words, the conflict arises from that the issuer, and not the investors, pays the credit rating agencies. Hence, the issuer chooses credit rating agency based on the credit rating level received and whether investors will see the rating as valuable or not. Furthermore, another conflict of interest is that credit rating agencies also provide consulting services to their clients, which potentially questions how credit rating agencies can remain unbiased during such circumstances (Voorhees, 2012). Controversially, the information asymmetry that is present in the market makes an opportunity for the issuer to provide self-selected information to the credit rating agency in order to receive a rating. Therefore, credit rating agencies are not as reliable as the information available (Schwarcz, 2002).

Pagano and Volpin (2010) suggest that to mitigate these problems credit rating agencies should be paid by investors rather than issuers, i.e. go back to the "subscriber-pays" model. Furthermore, credit rating agencies should have free access to loans or securities that underlie the debt products. They also argue that if the "issuer-pays" model would retain, it should be revised and require issuers to pay an upfront fee irrespective of the rating to avoid a financial crisis like the one in 2008. Covitz and Harrison (2003) studied the conflict of interest at bond rating agencies and how it influences their actions, if they are more likely to favour issuers' interests rather than investors' interests. The authors found no empirical evidence that supports that the conflict of interest impacts the decision of the credit rating agency. Nor did they find that credit rating agencies would act in the interest of the issuer. Instead, they found proof of credit rating agencies to favour investors' interests and that credit rating agencies appear to be relatively responsive to reputation concerns. Bolton et al. (2012) suggest that upfront disclosure combined with mandatory disclosure of any rating produced by credit rating agencies can mitigate the conflict of interest.

John and Nachman (1985) discuss information asymmetry in relation to the underinvestment problem, i.e. when a firm has default-risky debt outstanding and a profitable investment opportunity that must be financed with equity if undertaken. The authors found that credit ratings reduce the levels of underinvestment. Reputation works as a signal for firm quality and hence reputation mitigates information asymmetry. This statement is in line with Akerlof's (1970) popular study about how to mitigate

information asymmetry in the market, where he uses credit markets to illustrate his points. He argues that investigating the past records or the reputation of the borrower can help screening potential borrowers more effectively. John and Nachman (1985) found that if a firm has a good reputation it would invest more and hence reduce the underinvestment problem. They also found a link between reputation and credit ratings, expressing that a firm with a good reputation has a higher credit rating level and consequently issue bonds at higher prices. Ultimately, credit ratings are a way of disclosing the quality of the firm to the market.

Signalling theory derives from information asymmetry and illustrates when two parties have different access to information. Typically, the sender must decide how to communicate that information and the receiver must decide how to interpret it (Connelly et al., 2011). Moreover, according to the signalling theory specific characteristics and actions of a firm can be interpreted as signals to the public about the current state of the firm. Credit ratings are, as mentioned above, one way of disclosing information to the public. He et al. (2011) found that a change in bond rating impacts the information asymmetry of stock trading and found support for the signalling theory. The authors argue that an upgrade sends signals to the investors about a change in the firm's financial state. The investors receive the signal and interpret it as good news and subsequently modify their outlooks of the firm's future performance. Moreover, the capital structure of a firm is also affected by information asymmetry. As previously mentioned, Drobetz et al. (2009) found results indicating that a firm holds less cash when under a higher degree of information asymmetry. Zhu and Jog (2009) found a strong relationship between information asymmetry and the size of the acquisition premium in their study of emerging market firms. The results indicate that under higher levels of information asymmetry, acquiring firms use higher levels of stock and lower levels of cash financing. The authors argue that firms pay higher premiums to access more valuable private information and as a result mitigate information asymmetry problems.

Additionally, the management's choice of payment method in an M&A can send signals to the public. Travlos (1987) found significant differences in the abnormal returns between stocks and cash offerings as payment method in a takeover. The author argues that the reason for the significant difference is that shareholders perceive stock financing

as negative information as it implies that the bidding firm is overvalued. Chemmanur et al. (2009) also found evidence supporting the signalling theory. They found that bidders are more likely to use stock payment in M&A when the firm is considered overvalued and cash offers when correctly valued. Moreover, Vermaelen and Xu (2014) found evidence for what they refer to as the market timing hypothesis, which indicates that bidders have incentive to pay with stocks when their stocks are overvalued.

2.4 Payment method in M&A

The capital structure of the company affects how it chooses to finance new projects. In line with the contribution of the pecking order theory Myers and Majluf (1984) showed results that managers have a tendency to use stock financing for investments due to information asymmetry where the managers have superior information. This is in line with choosing the less risky alternative. On the other hand, Jensen's free cash flow hypothesis indicates that firms with a lot of free cash flow, internally generated cash, would preferably choose cash as payment method in a merger and acquisition. However, there exists a risk of empire building from managers in firms with large amounts of internal cash. The empire building refers to the tendency that a firm might invest in an redundant amount of projects simply by spending money due to having free cash flow in excess (Jensen, 1986).

Faulkender and Petersen (2006) investigated how firms choose their capital structure and suggest that access to public debt markets impact the firm's capital structure. As a result, these firms have 35% more debt in their capital structure compared to firms not having access to public debt markets. The authors assert the differences between the cost of public and private debt. Harford and Uysal (2014) add to these findings and use debt ratings to specify bond market access and investigate whether access to debt markets affect investment decisions. The authors found that rated firms are more likely to perform M&A than unrated firms. Further, they found that rated firms pay higher premiums in an M&A and receive lower stock price reactions to their announcement than unrated firms. The authors conclude that the lack of access to debt markets does indeed affect a firm's investments. It also affects the quality of those investments by creating underinvestment

problems as managers have to be more selective in their investments and cannot go through with all positive NPV projects.

Faccio and Masulis (2005) studied M&A payment choices on the European market during the years 1997-2000. The authors found that corporate governance concerns and debt-financing constraints have a large impact on the bidder's payment choice and that several deal and target characteristics affect the choice of payment method in M&A. Accordingly they argue that bidder's corporate control threats discourage stock financing while financing constraints and weaker financial conditions encourage stock financing. Besides, the corporate control mechanism increases the incentives to use cash financing when the voting power ranges between 20-60 % and when the voting control is weakened. Karampatsas et al. (2014) added credit ratings to the subject to measure debt capacity and credit quality. The authors studied the US market between the years 1998-2009 and found that a bidder's holding a higher credit rating level are more likely to use cash as payment method. However, the authors found no significant relationship between credit rating existence and the use of cash in M&A.

Harford et al. (2009) performed a study on 1188 acquisitions and came up with the results that acquisitions had the ability to alter the bidders capital structure. Entering an acquisition the bidders have a target capital structure and to maintain that target level, bidders make sure to alter and adjust the financing structure of the bid. For instance, when the target level is not met due to excessive leverage, then the payment method in the acquisition is more likely to be financed through equity rather than debt. Similar results were derived from the study of Uysal (2007). The study contributed to the literature about target capital structure. However, the authors found results showing that firms with excessive leverage more likely would use debt in their offers if they even would consider performing acquisitions.

As mentioned above, the choice of payment method in M&A have been covered in several studies. However, Karampatsas et al. (2014) were the first to add the variable credit rating into their study. Even though research about the subject exists, research covering markets outside the US and European markets are rare and infrequent. Sehgal et al. (2012) investigate how M&A announcements and the choice of payment method

affect stock returns for the BRICKS (Brazil, Russia, India, China, South Korea, South Africa) countries during the period 2005-2009. The authors used an event study for the purpose and found significant pre-event returns for 5 out of 6 countries in their sample. The authors argue that the results are explained by possible leakages in the information system in emerging markets. India, South Korea and China had significantly negative post-event returns while South Africa had strong positive returns. The authors also found evidence supporting stock financed mergers are value creating, while cash financed mergers are value destroying in the short run. Chi et al. (2011) performed the first comprehensive study on M&A in China and examined bidders of 1148 M&A during the period 1998-2003. The authors found significantly positive abnormal returns before and upon M&A announcements. Furthermore, they found that the dominant payment method is cash. According to the authors, a potential explanation to the dominant usage of cash financing could be the country's share segmentation system and China Securities Regulatory Commission (CSRC); regulation on the issuance of shares, which makes it a hinder to value shares. In the study made by Burns and Liebenberg (2011) the results suggested that the method of payment generally differs no less in M&A in emerging markets from that of developed countries. However, their study did show some difference between public targets in the countries. The use of stock was more significantly used for public targets in M&A of developed countries while M&A in emerging markets were more commonly financed through a mixture of cash and equity.

2.5 Critical reflections

The previous literature and theoretical framework provide a solid basis for the understanding of the subject we aim to further investigate. Nonetheless, it is important to critically analyse their respective relevance to our thesis. First of all, the previous studies are based on different assumptions and limitations. Remarkably large parts of the research were performed in developed markets with a majority in the US and European market. It is important to take into consideration the possible differences in our results compared to more developed markets. Developed markets usually allow better access to data and allow more transparent financial markets than less developed countries. This could therefore limit the data available for our study, which could demand certain adjustments. Furthermore, the time period in which each study was performed is an

important factor in the analysis of its results. Information and technology changes substantially throughout the years and are different between more developed countries and emerging markets. Among the previous literature, only Karampatsas et al. (2014) investigate the relationship between credit ratings and the choice of payment method in an M&A. However, they investigate the US market which differs significantly from the markets we aim to study. The differences in preconditions and assumptions are important to keep in mind when analysing the outcome of our results.

To conclude, there exists a broad amount of previous published articles covering credit ratings, capital structure and payment methods in M&A. However, only one of them covers the credit ratings affect on the choice of payment method. The area is therefore relatively unexplored and in need of further research to provide evidence from other markets.

2.6 Hypotheses

Based on the theoretical framework and previous literature described above we have decided to test the following hypotheses:

Null hypothesis (H_0): Rated acquirers are not more likely than unrated acquirers to use cash as payment method in M&A.

Alternative hypothesis (H_1): Rated acquirers are more likely than unrated acquirers to use cash as payment method in M&A.

3. Data and methodology

3.1 Research approach

In order to answer our research question we will perform a quantitative study with a deductive approach. A deductive approach implicates that the research is firmly anchored in theory (Bryman & Bell, 2005). In this thesis, we apply pre-existing research and theories to analyse credit ratings implication on the choice of payment methods in M&A. We use a probit regression to test our developed hypotheses. Furthermore we use a Hausman test and a TSLS regression to test the robustness of our results. This approach is

in line with the deductive approach, which implicates the use of relevant theories in order to define research questions and hypotheses. Previous literature is thus used when testing the hypotheses after receiving the results. The hypotheses are consequently either rejected or failed to be rejected (Bryman & Bell, 2005). Furthermore, in order to answer our research question we will use purely quantifiable data. Hence, we will apply a quantitative approach with the use of EViews.

3.2 Data selection criteria

As mentioned above, this thesis applies a quantitative approach. The data sources used in a quantitative study can be either primary or secondary. Primary data is collected directly by the researcher and secondary data is collected by other than the researcher (Bryman & Bell, 2005). Our study is solely based on secondary data collected from several databases: Zephyr, Thomson Reuters Eikon, Datastream and Capital IQ. The use of secondary data is less reliable than primary data. However, Bryman and Bell (2005) argue that secondary data is often of high quality as it is usually collected from solid databases. The databases we use to collect information are well established and used both by researchers and labour within the financial industry. Additionally, we use information from different sources to complement with information to the study, hence this makes the information more solid as we do not solely rely on one database.

The purpose of this thesis is to be able to find results from emerging markets. We have chosen the four largest economies in emerging markets: Brazil, Russia, India and China (Mainland). As seen in table 1, the BRIC unit alone stands for 66 % of the GDP in emerging markets in 2015 and for approximately 50 % of the GDP in emerging markets at the time period tested. As mentioned in the introduction chapter, the report about the BRIC countries highlighted the growing importance of Brazil, Russia, India and China in the world economy and how their set of GDP was expected to rise. This report was published during our tested period and the BRIC unit alone, represented 38 % of all M&A performed by emerging markets throughout the tested period, see appendix 8.1.

The M&A activity and deal characteristics in Brazil, Russia, India and China (Mainland) are collected from Zephyr. In order to be able to compare our results to Karampatsas et

al. (2014) we perform a number of constraints based on the authors' requirements. Primarily, the data covers characteristics and variables on the acquirers whilst information on the target firms is limited due to lack of information and data. Secondly, the M&A needs to be announced and completed during the years 2000-2008. Thirdly, the deal is classified as a merger or acquisition, which means that asset sales, capital increase, joint venture, liquidations, share buyback, leverage buybacks, reverse takeovers, privatizations and management buy-out are excluded from the sample. Furthermore, the deals are domestic. This is partly to be able to get a comparable result to the US market and partly to be able to focus solely on the four markets we have chosen to study. This results in a sample of 14 936 deals.

Moreover, deal characteristics such as information about the payment method and deal value have to be available. The deal value has to be larger than 1 million USD and the acquiring firm must exceed 50 % ownership in order to gain control over the target firm. Additionally, the acquiring firm has to be listed in the country and the targets are both private and public firms. Both successful and unsuccessful M&A are included in the sample. After the outlined constraints, the sample is reduced to 508 deals.

Both rated and unrated firms are used in our sample. Credit ratings are collected from the three major rating agencies: Standard & Poor's, Moody's and Fitch, through the database Thomson Reuters Eikon. Karampatsas et al. (2014) solely study the US market and therefore use the domestic rating. Opposed to the authors we use the foreign long-term issuer rating to get a comparable rating among the four countries of interest in our sample. The firm specific details and accounting data are collected from Datastream and Capital IQ. Due to the lack of information and accounting data, the sample is finally reduced to 294 deals, 53 of these deals have rated acquirers and 241 deals have unrated acquirers. This resulted in a loss of 214 deals that could contain important information and therefore the loss could lead to biased results. The original sample of 508 deals would have given us a more accurate representation for the BRIC countries.

The country distribution of the sample is presented in table 2. The most number of deals is from China. The explanation for this could arguable be the size of the country as it is the largest economy both when it comes to both GDP growth and M&A activity. We will

study the four countries as one unit in our analysis and make conclusions for BRIC as one unit. This is because the number of rated and unrated firms in our sample differs and is uneven among the countries. To avoid uneven sample distribution we have decided not to make comparisons between the different countries but instead make a joint conclusion about the BRIC unit.

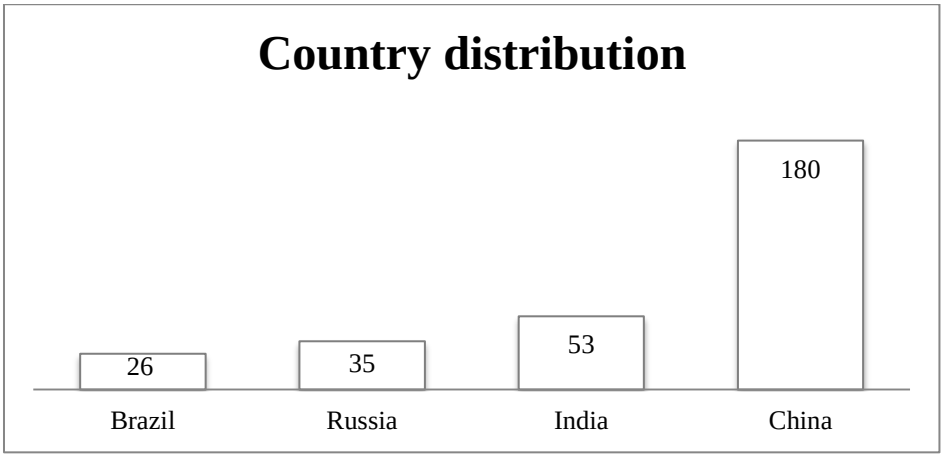

Table 2. Country distribution of the sample.

3.3 Research method and variables

To be able to investigate how credit ratings affect the choice of payment method in M&A we will try to differentiate the qualitative nature of the choice of payment by using a probit regression. The probit regression is a nonlinear model based on cumulative normal distribution and allows us to focus on the qualitative decision whether firms pay with primarily cash or stock. The regression is the cumulative distribution function for a standard normally distributed variable and effectively transforms the model to ensure that the fitted probabilities will lie between 0 and 1. The fitted regression model will therefore take an S-shape rather than a straight line (Brooks, 2008). The formula is the following:

$$F(z_i) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{z_i^2}{\sigma}\right)} \qquad (1)$$

The probit regression computes the parameters by using the maximum likelihood estimator (Karampatsas et al., 2014). In the probit regression the dependent variable is a dummy variable and as a result, our dependent variable *payment method* will take the

value of 1 for cash dominated deals and the value of 0 for stock dominated deals. We investigate the acquirer's credit rating existence relation to the choice of payment method by controlling for different firm-specific and deal-specific characteristics. Karampatsas et al. (2014) use two dependent variables in their study, *payment method* and *fraction of cash.* However, our dependent variable of interest is solely *payment method*. This adjustment had to be made due to lack of information of the correct percentage of cash used in the acquisitions. We were only able to see if the deals were cash dominated or stock dominated, i.e. if more than 50 % of the deal was paid with cash or stock respectively.

In order to explain the relationship between credit rating and choice of payment we will conduct a regression with variables inspired by Karampatsas et al. (2014). *Credit rating existence* is the main explanatory variable. It is an independent variable that is not affected by other measures and is used to explain the dependent variable (Brooks, 2008). The variable is expected to be exogenous and decided outside the model. This is a dummy variable taking the value of 1 for rated acquirers and 0 for unrated acquirers. Our sample consists of credit ratings from the three largest credit rating agencies: Standard & Poor's, Moody's and Fitch. The credit rating scale can be found in appendix 8.2.

In order to investigate the relationship between the choice of payment method in M&A and credit ratings impact, a number of firm-specific and deal-specific characteristics will be used in our regression as control variables. These are constant and explanatory variables (Brooks, 2008). The first control variable is *size*, which affect the debt capacity. It is measured as the natural logarithm of the market capitalisation four weeks prior announcement to the deal. Size affects the debt capacity of firms due to the characteristics that come with size. A smaller firm has fewer possibilities than a large diversified firm to raise debt due to being riskier and likelier to default (Karampatsas et al., 2014). Moreover, studies have shown that the characteristics of smaller firms make them more prone to using cash rather than equity for payment of acquisitions (Moeller et al., 2003).

The second control variable is *book-to-market* which is used as a proxy for growth opportunities. It is measured as the ratio of the book value of equity at the fiscal year-end

prior to the deal announcement to the market value of equity four weeks prior to the acquisition announcement. Growth opportunities are considered in terms of investment opportunities and there exists the issue of over- and underinvestment. According to Karampatsas et al. (2014) the issue of underinvestment associated with growth opportunities make firms more prone to use stock financing in order to avoid the issue. Nonetheless the authors expect the variable to correspond to a positive relationship to the use of cash.

Additionally, we will use *collateral* as a variable, which according to Faccio and Masulis (2005) is a proxy for debt capacity. The collateral, calculated in terms of tangible assets, accounts for to what extent firms can use cash financing. On the other hand, Karampatsas et al. (2014) rely on credit ratings for this proxy. Faccio and Masulis (2005) found that bidders that offer a majority of cash also have a higher percentage of collateral than bidders that pay with a majority of stocks. The variable is measured as the ratio of property, plant and equipment to the book value of total assets at the end of the fiscal year prior to the acquisition announcement. Firms with a higher ratio of tangible assets are exposed to more opportunities of financing thanks to being able to borrow more from financial institutions in terms of loans and bonds and are expected to be positively correlated to firms' debt level (Hovakimian et al., 2001).

Another variable that is included in the regression is *leverage*. It is measured as the ratio of a firm's total debt to the book value of assets in the end of the fiscal year prior acquisition announcement and accounts as another proxy for measuring debt capacity. Moreover, leverage accounts for the financial condition of the firm, however studies have shown different results on the effect of leverage on the choice of financing. Harford et al. (2009) believe in a positive relationship between leverage and cash financing, i.e. it is more probable that a firm with leverage chooses cash financing, while Faccio and Masulis (2005) predict the opposite.

Following from the pecking order theory, the fifth variable is *cash flows to assets*. The variable is defined as the ratio of EBIT plus depreciation minus total dividends divided by total assets in the end of the fiscal year before the acquisition date. Stated in the original study by Jensen (1986) and according to the free cash flow hypothesis the usage

of cash in acquisitions is more likely when managers have excessive amounts of cash in their firms. Hence, the controlling for cash flows to assets and the anticipated relationship between cash financing and the variable is positive.

The *number of analysts* that have tracked and assisted the bidding firm is the sixth variable and is supposed to control for information asymmetry. The increasing number of analysts reduces information asymmetry in the equity market (Chemmanur et al., 2009). The degree of information asymmetry is highly likely to affect the target firm in an acquisition as it might reveal the true value of the bidding firm, which might be over- or undervalued. Since previous research implicates that emerging markets have higher information asymmetry, among them Salter (1998) and Palepu et al. (2005), it is interesting to see if this variable have the same effect as in the study by Karampatsas et al. (2014).

The seventh variable is *relative size.* It is defined as the value of the transaction divided by bidder market value of equity four weeks prior to the acquisition. As the size of the transaction increases with the size of the target firm the likelihood of cash financing decreases as it becomes harder to raise cash due to the large deal size (Karampatsas et al., 2014).

Diversifying deals, which is a dummy variable taking 0 for acquisitions within the same industry, cover the eight variable. Faccio and Masulis (2005) argue that firms in unrelated industries should be more reluctant to accept stock as a payment method due to information asymmetry and primarily because of bidder's overvaluation risk. The industry is determined by matching the bidder and target industry description.

Moreover, the regression encompasses a control variable to see if the target is *private* or public. It is a dummy variable taking 1 for private targets and 0 for public targets. The variable functions as a proxy on the ownership structure of the shareholders in the target firm. According to the results from Faccio and Masulis (2005), bidders' payment method choice on private target firms is more likely to be cash. On the contrary, acquisitions of public target firms are more likely to be financed through stocks.

The tenth and final control variable presented is *run-up* and is used to measure stocks overvaluation. It is the bidder's market adjusted buy-and-hold returns over the period (-205, -6) days prior announcement. The likelihood of using stock financing generally increase when bidding firms are expected to be overvalued in comparison to their target firms. This behaviour could be explained by market timing hypothesis (Vermaelen and Xu, 2014).

Some of the variables used by Karampatsas et al. (2014) have to be excluded in our regression due to lack of data. As mentioned above, the second dependent variable *fraction of cash* is excluded from our study due to lack of data. We could only see if the M&A was stock dominated or cash dominated, i.e. paid with more than 50 % cash or more than 50 % stocks. Moreover, the control variables *interest rate spread, competition, tender* and *block ownership* are excluded in our sample due to lack of data. All of the deals covered in this thesis are friendly and therefore the variable *hostile* is excluded.

3.4 Regressions

Based on the method description above, the regression we are going to perform is the following:

- $Prob(payment\_method=1) = F(\alpha + \beta 1 credit\_rating + \beta 2 lnsize + \beta 3 book\_to\_market + \beta 4 collateral + \beta 5 leverage + \beta 7 cash\_flow\_to\_assets + \beta 8 number\_of\_analysts + \beta 9 relative\_size + \beta 10 diversifying\_deals + \beta 11 private + \beta 12 runup + \varepsilon)$

3.5 Limitations of regression

There are several limitations to take into consideration when performing a probit regression. First of all, to be able to run the regressions the explanatory variables cannot be highly correlated to each other or to the error term. If the explanatory variables are very highly correlated a problem known as multicollinearity occurs. There exist two classes of multicollinearity: perfect multicollinearity and near multicollinearity (Brooks, 2008). The first problem occurs when there is an exact relationship between two or more variables. Near multicollinearity arise when there is a non-negligible relationship between two or more variables and occurs more often when there is a small sample. The

problem does not affect R-squared in the regression output but instead often results in high standard errors among the individual coefficients (Brooks, 2008). In order to test for multicollinearity, Brooks (2008) suggests a correlation matrix for the independent variables. The author suggests that a correlation value over 0,8 can lead to multicollinearity in the model. We have performed a correlation matrix in EViews, which can be found in appendix 8.3. In our correlation matrix we did not find any correlation over 0,8 among the independent variables and therefore expect our results to be reliable.

Additionally, Huber-White heteroskedasticity is used in our regression to correct standard errors and adjust for acquire clustering due to the repeated acquirers in our sample. By using the correction, the hypothesis testing will be more careful and require additional evidence against the null hypothesis before it is rejected (Brooks, 2008). Furthermore, the existence of outliers needs to be examined and removed in order to perform a regression without disorders. Outliers do not fit in with the pattern of the rest of the data and therefore they need to be removed to avoid disturbance in the model. We did not find any extreme outliers in our sample and thus did not have to reduce our sample. Moreover, our sample size is smaller than in the study by Karampatsas et al. (2014). As a result, the outcome from a larger sample could have been different and more representative.

The greatest limitation of our study is the exclusion of the regression on the effect of credit rating level on the choice of payment method. We could not perform the regression as planned. The reason why we could not perform the regression depends on the lack of diversity in our sample. Nearly all of the rated firms in our sample use cash financing as a method of payment while solely four firms use stock payment as financing method. The results are however still interesting as the sample and distribution of choice of payment method illustrate a clear pattern of cash financing among rated firms.

3.6 Validity and reliability

Reliability measures how any measuring technique yields the consistent findings on repeated trials (Bryman & Bell, 2005). The methodology used in this thesis is inspired by Karampatsas et al. (2014) and is therefore previously tested for the purpose we aim to study. Furthermore, the data used in our study is solely secondary from well-established

databases. The data is publicly available information, which makes it more reliable and easy to access. All of the databases we use are well known and used by researchers and labour within the financial industry, therefore the data used in our sample is expected to be highly reliable for the purpose of this thesis. The M&A activity and deal characteristics are collected from Zephyr, which is well established and the most comprehensive database of M&A deals. The credit ratings are collected from Thomson Reuters Eikon, which is a database with trusted content. The accounting data is collected from Datastream and Capital IQ, also trusted databases.

Validity refers to verifying that the measurement used in the study actually measures what it aims to measure and nothing else. Validity is distinguished into internal and external validity (Bryman & Bell, 2005). To be able to draw conclusions from the findings both the internal and external validity need to be strong. The internal validity is concerned with a causal relationship between two variables, i.e. the two variables affect each other and are not affected by a third variable. We believe that the internal validity in the data and method is strong. The methodology we use to test the relationship has been used for the same purpose in previous literature. We add control variables to the regression to account for additional factors that might influence the dependent variable. External validity, on the other hand, refers to whether the results can be generalized beyond the specific study context (Bryman & Bell, 2005). In our sample this would refer to if the chosen BRIC unit is representative for other countries as well, specifically emerging markets. As mentioned earlier, we have included the four countries representing a majority of GDP in emerging markets and we therefore believe that these countries represent emerging markets well. Regulations, governance and transparency are however very different in many of emerging countries.

3.7 Endogeneity

The credit ratings are so far in the regression treated as exogenous, i.e. the decision whether to obtain a credit rating is randomly distributed among the sample firms. However, Harford and Uysal (2014) argue that companies partially decide whether to obtain a credit rating or have a higher credit rating level based on the benefits considered in comparison to the costs. Hence, the results implicates that the company decides to

obtain a credit rating based on firm-specific characteristics. As a result, there is a risk of an endogeneity problem. An endogeneity problem arises when potential unobserved variables affect both the dependent and explanatory variables, i.e. there might exist a correlation between the dependent variable and the error term. There exist two types of endogeneity issues, omitted variable problem and selection bias. The omitted variable is, as indicated by its name, an omitted variable that might have influenced the dependent variable. The self-selection, or sample selection, bias arises due to reasons affecting the credit ratings firms receive such as whether they solicit a rating or not (Brooks, 2008).

Karampatsas et al. (2014) use different instrumental variables in order to control for endogeneity problems. The instrumental variables are not correlated with the dependent variable but are still variables that affect the likelihood of bidders to hold a rating. In this thesis, we include *regulated industry, industry profitability* and *industry risk* as instrumental variables. The industry is defined based on the industry description of the bidder and the target. The *regulated industry* variable is a dummy variable taking 1 for a utility or financial firm and 0 if not. Studies have shown that firms in regulated industries are more prone to use financing from public capital markets (Karampatsas et al., 2014). Their financial choices and costs become public, their agency costs are reduced and put together these factors affect the rating they receive. The instrumental variable *industry profitability* is calculated using EBITDA to total assets in the industry group. The industry profitability needs to be controlled for as the credit market prefer players in less volatile industries that are considered safe and preferably with large and consistent cash flows (Johnson, 1997; Cantillo & Wright, 2000). To measure the impact of credit risk, the standard deviation of the industry's profitability is used and results in the variable *industry risk.* Furthermore, Karampatsas et al. (2014) use *industry fraction* as an instrumental variable. However, the instrumental variable *industry fraction* is excluded in this thesis due to lack of data.

To control for the variable credit rating existence endogeneity in our model, we will conduct a Hausman test and a two-stage least square (TSLS) regression with the instrumental variables. In both of these tests we will test the null hypothesis that it exists no endogeneity problem in the sample. The Hausman test is the reduced form of the regression. In this model, the variable *credit rating existence* is treated as the dependent

variable, followed by control variables and lastly instrumental variables. The residuals from the reduced form of the regression are then saved. The next step is to perform a structural probit regression. In this step, payment method is the dependent variable. The independent variables used in this regression are the same as in the original probit regression except for one addition variable. The additional variable is the residuals from the reduced form of the regression and these are now called residual rating. If the variable residual rating is significant then we can reject the null hypothesis.

The TSLS regression is performed in a similar way. The regression can be explained as running two OLS regressions separately (Brooks, 2008). The first step of the TSLS regression is the reduced regression. In this step, the *credit rating existence* variable is treated as the dependent variable. The control variables and the instrumental variables are treated as independent variables. The residuals from the first step are saved and used in the second step as an additional variable called residual rating. The second stage is referred to as the structural TSLS regression. In this step, the dependent variable is payment method and the independent variables are the control variables with the additional variable residual rating. If the variable residual rating is significant then we can reject the null hypothesis.

4. Empirical results

4.1 Descriptive data

Total sample

As mentioned in the "Data selection criteria" chapter the final number of observations amounted to 294 acquisitions. Out of these acquisitions, 53 covered rated bidding firms. The descriptive information on the entire sample is illustrated in table 3 and 5, 256 out of the observations were financed with a minimum of 50 % cash. The rest, 38 acquisitions, were financed mainly through stock financing. The mean and median size of the entire sample is $6,2bn and approximately 96 % of the target firms are privately held. This also suggests the reason to the lack of information on firm characteristics of the target firms that we encountered, as the access to information is limited for unlisted firms. The

median number of analysts following the bidding firms in our sample is three however; this number increases for cash financed and rated firms.

Total sample		
Total sample (N=294)		
Variable	**Mean**	**Median**
Bidder Characteristics		
% Rating Existence	18%	-
Size (in million USD)	6152	765
Leverage	0,264	0,274
Book-to-market	0,721	0,320
Collateral	0,383	0,371
Run-up	1,830	0,850
Cash flow to assets	0,007	0,084
Number of analysts	9,289	3
Deal characteristics		
Relative size	51,9	10,0
% Diversifying Deals	18%	-
% Private	96%	-

Table 3. Descriptive data of the total sample.

Cash versus stock financed deals

Out of the 256 deals that were financed with cash about 19 % possessed a credit rating. The average credit rating level of the cash financed firms in the data sample translates to a BB rating in S&P including Fitch and Ba2 in Moody's rating system. These credit rating levels correspond to speculative grades. The highest credit rating level corresponds to A- in S&P and Fitch and A3 at Moody's at investment grade. The lowest credit rating level corresponds to the speculative grade B- at S&P and Fitch including B3 at Moody's. The complete rating distribution and rating scale is illustrated in table 4. Among the 38 stock financed deals about 11 % of the bidders have credit ratings and the interval in which the credit rating levels exists is between BB+ (S&P and Fitch) and Ba1 (Moody's)

respectively BBB- (S&P and Fitch) and Baa3 (Moody's). These ratings correspond subsequently each to speculative grade and investment grade.

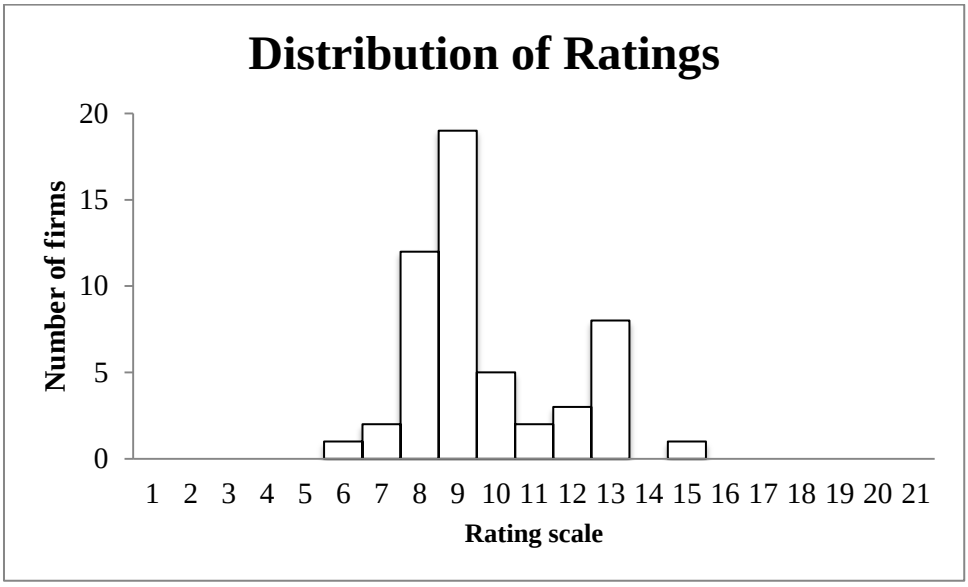

Table 4. Distribution of ratings among the firms.

The descriptive data of the sample on method of payment is presented in table 5. The average size of the firms that dominantly use cash financing is $5,8bn while the size of the firms that preferably use stock financing is $8,2bn. The book-to-market of the bidding firms varies a lot between cash financed and stock financed deals. The mean is less for cash financed deals whilst the median is approximately the same. The average size of the collateral is larger in cash financed deals rather than stock financed deals and this relationship applies to the leverage variable as well meaning that bidders in cash financed deals are more leveraged than bidders in stock financed acquisitions. Another quite expected outcome is the cash flows to assets of the firms, which seemingly is higher in cash, financed deals than stock financed. There are also a greater number of analysts following the firms using cash rather than stock as financing method. The difference in relative size is significant. Relative size, meaning the ratio between deal values to the market value of bidder, illustrates that stock financed deals seem to have higher deal values. The bidders and targets seem more likely to be in the same industry in cash financed deals rather than stock financed. Overall, the results show that the majority of the deals are made within the same industry. Solely 17 % and 23 % of the deals are made inter-industry, for cash financed and stock financed respectively. The descriptive

information also show that almost all target firms in the deals, no matter financing method, are privately held. The run-up variable is much lower in cash financed deals rather than stock financed.

Method of Payment				
	Cash (N=256)		Stock (N=38)	
Variable	**Mean**	**Median**	**Mean**	**Median**
Bidder Characteristics				
% Rating Existence	19%	-	11%	-
Size (in million USD)	5850	826	8189	619
Leverage	0,271	0,279	0,216	0,178
Book-to-market	0,655	0,321	1,163	0,300
Collateral	0,390	0,382	0,333	0,274
Run-up	0,947	0,402	7,782	5,814
Cash flows to Assets	0,086	0,089	-0,530	0,061
Number of Analysts	9,672	4	6,711	2
Deal Characteristics				
Relative Size	33,6	9,3	52,3	18,9
% Diversifying Deals	17%	-	24%	-
% Private	95%	-	97%	-

Table 5. Descriptive data of the method of payment.

With and without rating

The descriptive information of rated and unrated firms can be found in table 6. Out of the total sample of deals solely 53 biddings firms are rated, hence there are 241 unrated bidders. The rated bidders range between investment grade and speculative grade with an average of the speculative grade BB- (S&P and Fitch) and Ba3 (Moody's). The firm size is calculated as the market value of the bidding firms, of the unrated bidders is lower than the firm size of rated firms. However, the book-to-market variable differs less between rated and unrated bidders and the latter group seem to have a higher book-to-market. This means that in general, over the acquisitions made in the BRIC countries during our time frame, the market value of unrated acquirers is lower than the book value of equity. This

indicates higher growth opportunities in deals made by firms without rating. Similar to cash financed deals mentioned above rated firms have higher collateral and leverage level than firms without ratings. The median percentage of tangible assets to total assets in rated bidders is 53 % whilst the number is 34 % for unrated firms. The ratio of cash flows to assets of the firms is much higher in firms that are rated. Seemingly rated firms also have higher cash flows to assets than firms involved in cash financed acquisitions. The number of analysts is many more in rated firms rather than unrated firms.

Similar to cash financed and stock financed firms there are a significant difference in relative size between rated and unrated firms. Unrated firms have higher value on relative size meaning that these acquiring firms choose targets with greater deal value than themselves. The variable diversifying deals tells us that 89 % respectively 81 % out of the deals made by rated and unrated firms are made within the same industry. As was suggested by the entire sample most of the target firms are private. Among the rated bidders 98 % are private deals and out of the unrated bidding firms 95 % are private targets.

Most importantly the number of deals that were cash financed by rated firms is 93 %. The credit rating level varied between A- and B- in S&P and Fitch and between A3 and B3 according to Moody's scale. However, the credit rating level seems to be of no interest in the choice of payment as the majority of the deals from rated firms, no matter the credit rating level, seemingly prefer cash financing over stock financing.

	With Credit Rating		Without Credit Rating	
	With Credit Rating (N=53)		Without Credit Rating (N=241)	
Variable	**Mean**	**Median**	**Mean**	**Median**
Bidder Characteristics				
Size (in million USD)	26215	13860	1740	493
Leverage	0,301	0,310	0,255	0,251
Book-to-market	0,868	0,289	0,689	0,331
Collateral	0,504	0,532	0,356	0,343

Run-up	-0,060	0,606	2,246	1,275
Cash flows to Assets	0,149	0,157	-0,025	0,073
Number of Analysts	21,283	21	6,651	2
Deal Characteristics				
Relative Size	5,4	1,2	60,6	15,6
% Diversifying Deals	11%	-	19%	-
% Private	98%	-	95%	-
% Cash Payment	93%	-	86%	-

Table 6. Descriptive data of firms with credit ratings and without credit ratings.

4.2 Probit regression

The result of the probit regression is presented in table 7. The probit regression of the total sample did not find a significant relationship between credit rating existence and the choice of payment method. However, several of our control variables showed a significant relationship to the payment method. Relative size and the dummy variable private were significant on a 5 % significance level. Relative size has a negative impact on payment method and therefore indicates that the larger the value of the deal size is in relation to the market value of the acquirer, the more likely the acquirer is to use stock as a payment method. Also, the dummy variable private has a negative impact on the choice of payment method. This indicates that if the target is a private firm then the bidder is more likely to use stock as payment method.

Cash flows to asset and run-up are even more explanatory and are significant on a 1 % significant level. The variable cash flows to assets has a positive impact on the choice of payment method which indicates that firms holding high amounts of cash are more likely to use cash as payment method when performing an M&A. Run-up has a negative influence on the choice of payment method. This indicates that the more a firm's stock price increases in the period prior to the announcement of the M&A, the more likely the firm is to use stock as payment method.

McFadden's R-squared is 17,5 % for the regression. This is a measure of the fraction of the total variability of the results that is captured by the model. McFadden's R-squared ranges from 0 to 1 and the closer to 1 the ratio is, the more likely that the outcome would

happen (Brooks, 2008). 17,5 % is therefore considered rather low and indicates that the model does not explain the dependent variable very well. The relatively low rate could be the outcome of a small sample. However, many variables are proven to be significant on a high level, which makes the results more reliable.

Total sample			
	Probit regression		
			P-value
Constant	1,260		0,306
	(1,23)		
Rating Existence	-0,270		0,473
	(0,376)		
Ln (Size)	0,048		0,583
	(0,087)		
Book-to-market	-0,007		0,678
	(0,018)		
Collateral	0,669		0,253
	(0,585)		
Leverage	0,868		0,236
	(0,733)		
Cash Flows to Assets	0,138	***	0,001
	(0,042)		
Number of Analysts	0,005		0,716
	(0,014)		
Relative Size	-0,001	**	0,015
	(0,000)		
Diversifying Deals	-0,327		0,195
	(-1,297)		
Private Target	-0,932	**	0,015
	(0,381)		
Run-up	-0,035	***	0,001
	(0,010)		
N	294		
McFadden R-squared	0,175		

Table 7. Results from the probit regression. The symbols *, ** and * represent statistical significance at 10%, 5% and 1% levels, respectively. The standard deviations are reported in parentheses.

4.3 Endogeneity control

As mentioned in the methodology chapter, an endogeneity control must be made in order to examine whether the dependent variable solely depends on firm-specific characteristics. For the test of endogeneity control we performed a Hausman test and a TSLS regression, where we included the instrumental variables in the estimations.

The results from the Hausman test are illustrated in table 8 and 9. First of all, the results from the reduced regression show that none of the instrumental variables have any significant result and thus no impact on the *credit rating existence* variable. Secondly, in the structural probit regression, the variable residual rating does not culminate in a significant results, which indicates that we fail to reject the null hypothesis of that there exist no endogeneity problem in the model. The instrumental variables we used to test for endogeneity could therefore not explain if the variable *credit rating existence* is endogenous.

Total sample			
	Reduced regression		
			P-value
Constant	-15,050	***	0,000
	(2,549)		
Rating Existence			
Residual Rating			
Regulated Industry	-0,109		0,739
	(0,327)		
Industry Profitability	1,236		0,502
	(1,843)		
Industry Risk	3,061		0,317
	(3,062)		
Ln (Size)	0,772	***	0,000
	(0,156)		
Book-to-market	0,003		0,819
	(0,013)		
Collateral	0,693		0,358
	(0,754)		

Leverage	1,573		0,139
	(1,062)		
Cash Flows to Assets	0,050	*	0,073
	(0,028)		
Number of Analysts	0,028	**	0,031
	(0,013)		
Relative Size	-0,021	**	0,014
	(0,008)		
Diversifying Deals	0,619685		0,246
	(0,562)		
Private Target	1,454	**	0,021
	(0,631)		
Run-up	-0,041	*	0,061
	(0,022)		
N	294		
McFadden R-squared	0,64		

Table 8. Results from the reduced regression. The symbols *, ** and * represent statistical significance at 10%, 5% and 1% levels, respectively. The standard deviations are reported in parentheses.

Total sample		
	Structural probit regression	
		P-value
Constant	1,125	0,464
	(1,537)	
Rating Existence	-0,392	0,568
	(0,688)	
Residual Rating	0,198	0,835
	(0,951)	
Regulated Industry		
Industry Profitability		
Industry Risk		
Ln (Size)	0,056	0,603
	(0,108)	
Book-to-market	-0,007	0,676
	(0,018)	
Collateral	0,699	0,244
	(0,601)	
Leverage	0,894	0,213
	(0,717)	

Cash Flows to Assets	0,139	***	0,001
	(0,043)		
Number of Analysts	0,006		0,620
	(0,013)		
Relative Size	-0,001	**	0,016
	(0,000)		
Diversifying Deals	-0,323		0,203
	(0,253)		
Private Target	-0,924	**	0,016
	(0,385)		
Run-up	-0,035	***	0,001
	(0,010)		
N	294		
McFadden R-squared	0,175		

Table 9. Results from the structural probit regression. The symbols *, ** and * represent statistical significance at 10%, 5% and 1% levels, respectively. The standard deviations are reported in parentheses.

Moreover, we performed a TSLS regression to see if the null hypothesis could be rejected. The results of the TSLS regression are presented in table 10 and 11. Firstly, the reduced regression demonstrates that the instrumental variable industry profitability is significant on a 5 % significance level, which indicates that this variable affect the dependent variable *credit rating existence*. In the second stage however, the results did not provide any evidence that the variable *credit rating existence* is endogenous. The overall results are similar to the structural probit regression. Ultimately, after controlling for endogeneity bias in both of these models we did not receive any significant results, which indicates that we fail to reject the null hypothesis that there is no endogeneity problem in the sample with the instrumental variables we used.

Total sample			
	Reduced regression		
			P-value
Constant	-1,639	***	0,000
	(0,174)		
Rating Existence			
Residual Rating			

Regulated Industry	0,013		0,782
	(0,048)		
Industry Profitability	0,735	**	0,016
	(0,302)		
Industry Risk	0,591		0,130
	(0,389)		
Ln (Size)	0,098	***	0,000
	(0,012)		
Book-to-market	-0,001		0,847
	(0,004)		
Collateral	0,114		0,189
	(0,087)		
Leverage	0,170		0,121
	(0,109)		
Cash Flows to Assets	0,012		0,315
	(0,012)		
Number of Analysts	0,007	***	0,000
	(0,002)		
Relative Size	0,0000		0,829
	(0,000)		
Diversifying Deals	0,044		0,328
	(0,083)		
Private Target	0,181	**	0,029
	(0,091)		
Run-up	-0,002		0,329
	(0,002)		
N	294		
R-squared	0,48		
Adjusted R-squared	0,46		

Table 10. Results from the reduced TSLS regression. The symbols *, ** and * represent statistical significance at 10%, 5% and 1% levels, respectively. The standard deviations are reported in parentheses.

Total sample			
	Structural TSLS regression		
			P-value
Constant	1,321	**	0,033
	(0,618)		
Rating Existence	0,283		0,451
	(0,375)		
Residual Rating	-0,334		0,382
	(0,382)		
Regulated Industry			
Industry			

Profitability			
Industry Risk			
Ln (Size)	-0,028		0,486
	(0,040)		
Book-to-market	-0,002		0,726
	(0,005)		
Collateral	0,041		0,713
	(0,112)		
Leverage	0,126		0,355
	(0,136)		
Cash Flows to Assets	0,032	**	0,026
	(0,014)		
Number of Analysts	-0,001		0,742
	(0,004)		
Relative Size	0,000	***	0,000
	(0,000)		
Diversifying Deals	-0,063		0,220
	(0,051)		
Private Target	-0,112		0,318
	(0,111)		
Run-up	-0,007	***	0,002
	(0,010)		
N	294		
R-squared	0,16		
Adjusted R-squared	0,13		

Table 11. Results from the structural TSLS regression. The symbols *, ** and * represent statistical significance at 10%, 5% and 1% levels, respectively. The standard deviations are reported in parentheses.

5. Analysis

5.1 Analysis of the results

Generally our results are in line with the results of Karampatsas et al. (2014), however there are some differences that need to be considered. A possible explanation to the differences is that this thesis covers another market where the most common credit rating level of the rated acquirers is speculative grade. This is in line with literature suggesting that firms in emerging markets tend to receive lower credit ratings than firms in developed sovereigns. Credit rating agencies tend to provide firms with credit rating levels not exceeding the sovereigns' credit rating level and supposedly this is a larger issue in emerging markets where the sovereigns' receive lower ratings in general

(Borensztein et al., 2007). However, as no regression was possible to perform on the effect from credit rating level on the choice of payment, no valid analysis or conclusion can be drawn on the effect of credit rating level. Although, the sample illustrates strong numbers indicating that the most common choice of method is cash, regardless of credit rating level.

Out of the entire sample of M&A included in this thesis, 87 % were performed with cash as payment method. This is in line with the study of Chinese companies by Chi et al. (2011) where cash was also the preferred payment choice. The majority of firms in our sample are Chinese firms, which could have had an impact on the choice of cash as payment method. The dominant choice of payment method in our sample is however the opposite of Karampatsas et al. (2014) who found that the U.S. market use slightly more stock financed than cash financed deals. Emerging markets are expected to have higher information asymmetry due to lack of transparency than more developed countries (Salter, 1998; Palepu et al., 2005). Our sample statistics therefore contradict previous findings that higher information asymmetry lead to that firms hold less cash and as a result use stock financed deals under such circumstances (Drobetz et al., 2009; Zhu & Jog, 2009).

According to the descriptive information rated firms seem to be larger and more leveraged than unrated firms. This correspond to the findings of Faulkender and Petersen (2006) that rated firms have access to public bond markets and therefore have more leverage in their capital structure compared to unrated firms. Furthermore, rated firms possess more cash flows than unrated firms and rated firms almost exclusively use cash as financing method. This is in line with the theory of the Jensen's (1986) free cash flow hypothesis. Cash financed deals include bidders that are likely to have more collateral and leverage than stock financed deals which is opposite to what Faccio and Masulis (2005) found and more in line with Harford et al. (2009). Additionally, the descriptive information indicates that rated firms are more profitable but unrated firms seem to have more growth opportunities.

Unlike Karampatsas et al. (2014) we find differences in the number of analysts following firms in cash and stock financed deals. However, similar to Karampatsas et al. (2014)

rated firms are followed by more analysts than unrated firms. Moreover, rated firms have public credit worthiness thanks to the credit rating agencies, which mitigate the information asymmetry issue. The information asymmetry literature is coherent with the fact that the number of analysts following the firms is larger in cash financing firms (Zhu & Jog, 2009). Palepu et al. (2005) suggest that firms in emerging markets tend to lack financial analysts and hence have bigger issues with information asymmetry than firms in developed markets. However notably, in comparison to Karampatsas et al. (2014) this thesis presents on average a higher number of analysts.

Finally, there seems to be a trend showing that most firms are acquired within the same industry and the target firm seems to most commonly be private. This suggests that firms are more eager to invest in an area of which they are familiar to. Moreover, stock financed deals seem to include larger deal relative to the bidding firm value in comparison to cash financed deals.

In order to draw any conclusions about the indicators of the choice of payment method we need to interpret the results from the regressions. We tested the constructed hypothesis if rated firms are more likely to pay with cash in order to answer our research question whether credit ratings affect payment method in emerging markets. Similar to Karampatsas et al. (2014) we did not find any significant relationship that credit rating existence affects the choice of payment method. As a result, we fail to reject the hypothesis. Therefore, our findings do not support the previous literature that credit ratings affect the capital structure and financial policies of firms (Bancel & Mittoo, 2003; Kisgen, 2007; Cursio & Baek, 2016). Even though we cannot draw any conclusions of the credit ratings existence effect on the choice of payment method, we found other variables affecting the choice of payment method in M&A.

First of all, the variables *private* and *relative size* are significant on a 5 % significance level. Our findings indicate that if the target is a private firm then the bidder is more likely to use stock as payment method. Our result contradicts Karampatsas et al. (2014) who found that the variable private has a positive impact on the choice of payment method. The outcome also contradicts Faccio and Masulis (2005) that present cash financing as the dominantly preferred payment method for private targets. The results

could however be explained by the information asymmetry theory. The bidder has less readily available information about a private target than a public target. Consequently, the bidder faces higher information asymmetry when acquiring a private target. Our findings could therefore be explained by information asymmetry and more specifically the study by Zhu and Jog (2009) who argue that firms use higher levels of stock payment under higher levels of information asymmetry.

The variable *relative size* has a negative correlation to the dependent variable which indicates that the larger the value of the transaction in relation to the market value of the acquiring firm, the more likely the acquirer is to use stock as payment method in an M&A. Our findings are supported by Harford et al. (2009) who argue that if the size of the deal increases relative to the bidders, the likelihood of using cash is likely to decrease because it is harder for the bidding firm to raise more cash as the deal increases to very high levels. Moreover, our results are consistent with Karampatsas et al. (2014) who also found this variable negatively related to the use of cash in M&A. Our findings indicate that the relationship also holds in the BRIC countries.

The two most significant variables affecting the choice of payment method in our results are cash flows to assets and run-up. The variable cash flows to assets has a positive effect on the choice of payment method which indicates that the more cash holdings a firm has, the more likely it is to use cash as payment method. This result is in line with the pecking order theory that suggests that the more internal cash holdings the more the firm will use to invest in new investments and the firm will avoid external financing such as debt and equity. Our findings are therefore supported by several studies that found evidence for the pecking order theory in investment decisions (Myers, 1984; Lemmon & Zenger, 2010; Chen, 2004; Tong and Green, 2005). According to Myers (1984), the reason why firms maintain financial slack is to pursue profitable projects at any time and to be able to finance them. Firms prefer to avoid external financing because the public do not have the same information about the project as the firm and therefore tend to undervalue it. Moreover, our findings are supported by Jensen's (1986) free cash flow hypothesis, which indicates that managers with excessive free cash flow are more willing to use cash for their investments. Our findings therefore indicate that the pecking order theory and the free cash flow hypothesis also hold in the BRIC countries.

The variable run-up has a negative impact on the choice of payment method. This indicates that the more a firm's stock price increases in the period prior to the announcement of the M&A, the more likely the firm is to use stock as payment method. The results are supported by previous literature that support the signalling theory that firm's shares are overvalued when used as payment method in M&A (Myers & Majluf, 1984; Chemmanur et al., 2009; He et al., 2011). Our findings are evidence of that the market timing hypothesis exists also in the BRIC countries, which according to Vermaelen and Xu (2014) is the outcome of a bidder trying to time the market and take advantage of the overvalued shares by using stock as payment method in an M&A. Moreover, Karampatsas et al. (2014) found evidence supporting this behaviour in the US market.

The control variables size, collateral, book-to-market, leverage, number of analysts and diversifying deals were not significant in our study. Leverage, size, book-to-market and number of analysts were significant in the study by Karampatsas et al. (2014). The authors did however not find any significant results supporting the variables collateral and diversifying deals impact on the choice of payment method.

To conclude, we did not find any significant results supporting our main hypothesis. To answer our research question, we did not find any results indicating that credit rating existence impact the choice of payment method. However, we found several other variables affecting the payment method, where cash flows to assets and run-up turned out to be the two most significant and thereby most important determinants of payment method. Unlike Karampatsas et al. (2014) we were unable to test if the credit rating level affects the choice of payment method. The rated firms were dominated by cash financed deals and therefore we cannot draw any conclusions whether the level of credit rating affects the choice of payment method. However, it is notable that nearly all of the rated firms choose to pay with cash. Karampatsas et al. (2014) found that credit rating level has a significantly positive relationship to the use of cash. We performed a Hausman test and a TSLS regression to control for endogeneity problems in our sample. The results were not significant and we can therefore not conclude that we have an endogeneity problem in our sample. In other words, we cannot conclude that the variable *credit rating existence* is

affected by our chosen instrumental variables or the other independent variables in the regression.

5.2 Critical reflection

This thesis is inspired by the study of Karampatsas et al. (2014) who evaluated the US market. When analysing the results it is therefore important to keep in mind that emerging markets differ from developed markets. Consequently, some of the variables used in our regressions potentially need adjustments to be more accurately applicable to the BRIC countries. In line with our findings the authors did not find a relationship between credit rating existence and the choice of payment method in the US market. However, the authors found evidence of other variables affecting the choice of payment method. For example, number of analysts was highly significant in their study and was negatively associated with cash. This implies that increasing number of analysts reduce information asymmetry in the equity market. The differences in our results imply that it probably exists some differences between the levels of information asymmetry in the BRIC countries compared to the US market. The variable number of analysts possibly did not capture the effect we seek to analyse. Since previous literature have proven that information asymmetry is higher in emerging markets than in more developed countries, the variable might not accurately capture the effects we were looking for (Salter, 1998; Palepu et al., 2005). Another example is the variable book-to-market. Karampatsas et al. (2014) found the variable highly significant. We expected the variable to be significant as it is a ratio for growth opportunities and emerging markets have fast growing characteristics. This ratio might however need adjustments or be replaced with another variable to result in a more significant outcome.

The sample characteristics made it difficult to make a comparison between the four different countries in our sample. Some of the countries had more rated firms than others and the proportion of rated firms in each country would not have been representative for a comparison. We have therefore chosen to study the four countries as one unit. There are however differences in regulations, governance and transparency in the BRIC countries and a larger and more diverse sample could have resulted in a different outcome.

6. Conclusion

In this thesis we investigate whether credit rating existence affects the choice of payment method when a firm performs a merger and acquisition in the BRIC countries. The study is inspired by the work of Karampatsas et al. (2014). The aim is to contribute to already existing literature that covers the subject by investigating emerging markets and more specifically Brazil, Russia, India and China (BRIC). Hence, our results add evidence from parts of emerging markets to already existing published research that only cover developed markets.

Through the use and analysis of a probit regression, our empirical findings did not find any significant results supporting the relationship between credit rating existence and the choice of payment method. The dependent variable *payment metho*d was controlled for by using the explanatory variable *credit rating existence* and several other independent variables. Even though our findings did not show a significant result supporting credit ratings impact, other determinants proved to be important when a firm decides on the choice of payment method. *Cash flows to assets* and *run-up* turned out to be the most significant determinants of the choice of payment method. The results indicate that Jensen's free cash flow hypothesis, pecking order theory and the market timing hypothesis hold also in the BRIC countries. Moreover, the variables *relative size* and *private target* showed significant results. The results from the variables *cash flows to assets*, *run-up* and *relative size* are all supported by previous findings covering the choice of payment method in M&A. However, the variable *private targe*t showed a negative impact on the choice of payment method, which contradicts previous findings. Our results could however be explained by the higher information asymmetry a firm faces when acquiring a private target. Moreover, almost all of the rated firms in the sample use cash as payment method.

Generally, our findings are supported by previous literature and since the BRIC countries represent a majority of the GDP in emerging markets we draw the conclusion that the outcome of our study is applicable for the remaining emerging markets.

6.1 Limitations and suggestions for further studies

The aim of this thesis is to fill a research gap by contributing to existing literature with a study on the uncovered topic emerging markets. However in doing so, certain limitations and measures had to be done. All of these limitations have already been presented, such as the need to cut down the original number of sample due to lack of data and the exclusion of certain variables in comparison to the study of Karampatsas et al. (2014). The focus has been on acquiring firms as opposed to the target firms, primarily because of lack of time but also due to the difficulty to collect and obtain data from.

We believe that there are several interesting approaches that can be studied further in the same area of research field. There is a trend in cross-border M&A that investors from developed countries are increasingly investing in emerging markets. This suggests that a future approach could be to focus on acquirers from developed countries and target firms in emerging markets. On the other hand, it would also be interesting to discover if there are any differences when investors from emerging markets invest in developed countries. Moreover, including or investigating other countries from emerging markets would be an interesting development.

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7.3 Databases

S&P Capital IQ
Thomson Datastream Advanced 5.0, Thomson Financial Ltd.
Thomson Reuters Eikon, Thomson Reuters.
World Economic Outlook Database, International Monetary Fund (IMF)
Zephyr, Bureau van Dijk

7.4 Websites

MSCI's webpage: MSCI Emerging Markets Index (Online access) available at: https://www.msci.com/emerging-markets (2016-05-24)

Standard and Poor's webpage (Online access) available at: https://www.standardandpoors.com/en_US/web/guest/article/-/view/sourceId/5435305 (2016-05-27)

8. Appendix

8.1 M&A activity and BRIC population

Table 12. Countries included in the MSCI Emerging Markets Index (MSCI, 2016).

South America	Europe	Middle East and Africa	Asia	
Brazil	Czech Republic	Egypt	China	Philippines
Chile	Greece	Qatar	India	Taiwan
Colombia	Hungary	South Africa	Indonesia	Thailand
Mexico	Poland	United Arab Emirates	Korea	
Peru	Russia		Malaysia	
	Turkey			

Figure 1. The BRIC unit's population as a percentage of the total population in emerging markets. The number is an average based on the years 2000-2008 and 2015 (IMF, 2016).

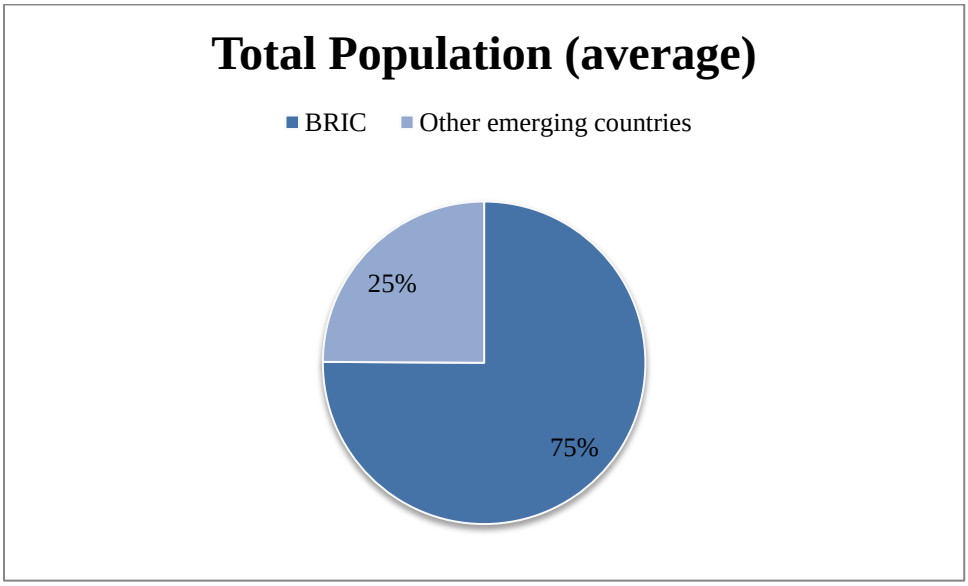
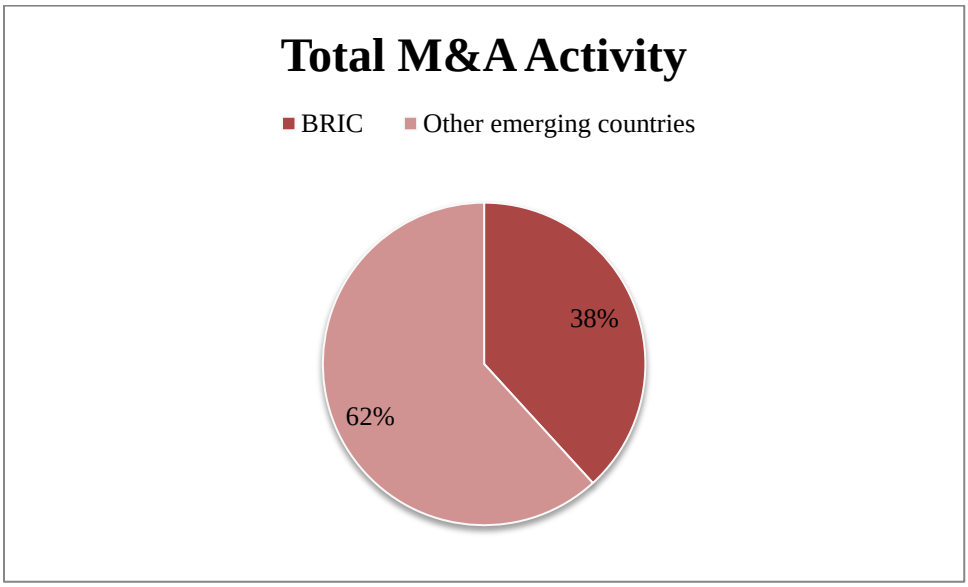


Figure 2. The BRIC unit's M&A activity as percentage of total M&A activity in emerging markets during the years 2000-2008 (IMF, 2006).



8.2 Rating scale

Table 13. Linear transformation of Standard and Poor's, Moody's and Fitch rating systems. Investment grade is represented by the numbers 12-21 and speculative grade is represented by the numbers 1-11 in the linear scale (Soares et al., 2008).

Rating Agencies			Linear
S&P	**Fitch**	**Moody's**	**Scale**
AAA	AAA	Aaa	21
AA+	AA+	Aa1	20
AA	AA	Aa2	19
AA-	AA-	Aa3	18
A+	A+	A1	17
A	A	A2	16
A-	A-	A3	15
BBB+	BBB+	Baa1	14
BBB	BBB	Baa2	13
BBB-	BBB-	Baa3	12
BB+	BB+	Ba1	11
BB	BB	Ba2	10
BB-	BB-	Ba3	9
B+	B+	B1	8
B	B	B2	7
B-	B-	B3	6
CCC+	CCC+	Caa1	5
CCC	CCC	Caa2	4
CCC-	CCC-	Caa3	3
CC	CC	Ca	
	C		2
SD	DDD	C	
D	DD		1
	D		

8.3 Correlation matrix

Table 14. Correlation matrix.

Correlation matrix											
Correlation											
t-Statistic											
Probability	**Rating existence**	**Ln (Size)**	**Book-to-market**	**Collateral**	**Leverage**	**Cash Flows to Assets**	**Number of Analysts**	**Relative Size**	**Diversifying Deals**	**Private Target**	**Run-up**
Rating existence	1.000000										

Ln (Size)	0.637948	1.000000									
	14.15601	-----									
	0.0000	-----									
Book-to-market	0.016724	0.030641	1.000000								
	0.285822	0.523841	-----								
	0.7752	0.6008	-----								
Collateral	0.253283	0.199115	-0.022039	1.000000							
	4.473984	3.472002	-0.376693	-----							
	0.0000	0.0006	0.7067	-----							
Leverage	0.101537	-0.008082	0.069844	0.416616	1.000000						
	1.744078	-0.138103	1.196416	7.831124	-----						
	0.0822	0.8903	0.2325	0.0000	-----						
Cash Flows to Assets	0.049270	-0.002362	0.010383	0.085452	0.048910	1.000000					
	0.842950	-0.040367	0.177429	1.465573	0.836768	-----					
	0.3999	0.9678	0.8593	0.1438	0.4034	-----					
Number of Analysts	0.521538	0.619821	0.038985	0.156484	-0.069983	-0.005036	1.000000				
	10.44509	13.49678	0.666688	2.707349	-1.198808	-0.086049	-----				
	0.0000	0.0000	0.5055	0.0072	0.2316	0.9315	-----				
Relative Size	-0.119550	-0.167509	-0.004185	0.027517	-0.103244	0.012527	-0.128454	1.000000			
	-2.057624	-2.903414	-0.071506	0.470394	-1.773717	0.214071	-2.213361	-----			
	0.0405	0.0040	0.9430	0.6384	0.0772	0.8306	0.0276	-----			
Diversifying Deals	-0.078245	-0.196596	0.114545	0.017960	0.113452	0.026159	-0.104178	0.015765	1.000000		
	-1.341161	-3.426302	1.970319	0.306958	1.951269	0.447150	-1.789927	0.269423	-----		
	0.1809	0.0007	0.0497	0.7591	0.0520	0.6551	0.0745	0.7878	-----		
Private Target	0.057826	-0.032533	0.017239	-0.043097	0.076008	-0.019201	-0.090886	-0.046387	0.012979	1.000000	
	0.989793	-0.556227	0.294621	-0.737126	1.302599	-0.328168	-1.559516	-0.793512	0.221808	-----	
	0.3231	0.5785	0.7685	0.4616	0.1937	0.7430	0.1200	0.4281	0.8246	-----	
Run-up	-0.091521	-0.083061	0.092839	0.105555	0.129645	-0.025922	-0.079312	0.139979	0.015246	0.018787	1.000000
	-1.570504	-1.424276	1.593313	1.813850	2.234235	-0.443098	-1.359561	2.415750	0.260554	0.321086	-----
	0.1174	0.1554	0.1122	0.0707	0.0262	0.6580	0.1750	0.0163	0.7946	0.7484	-----