Master thesis

Short-term effect of acquiring a financially distressed firm

By Ysette Wolvers, 388035
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Supervisor: Ying Gan
Erasmus University of Rotterdam
School of Economics
Master Accounting, Auditing & Control

Abstract

Using 445 firm observations in the US for the period of 1990-2016, the firm performance after acquiring a financially distressed firm on the short-term is measured. The firm performance is measured based on the accounting and stock market performance. The accounting performance is based on 445 firm observations and measured by the ROA one year after the merge. The stock market performance is based on 175 firm observations and measured by the CAR six months after the merge. I find that there is no short-term effect after acquiring a distressed firm. This is the result of the independent variable, distress, which is insignificant for both the accounting performance and the stock market performance. For this reason there cannot be told what the influence is of the variable distress on the firm performance. Furthermore, this research investigated the different firm and deal characteristics which influences the firm performance. The variables influencing the accounting performance are the method of payment, total assets, return on equity, leverage and the book-to-market ratio. The variables influencing the stock-market performance are the relative size of the target and the book-to-market ratio.

Keywords: M&A; financially distressed ; accounting performance ; stock market performance ; firm performance; return on assets ; cumulative abnormal return

Contents

1. introduction

In 2008 the financial markets were in the middle of a credit crisis which had a big impact on the economy as a whole (Campello, Graham, & Harvey, 2009). A lot of firms got into financial troubles which leads to an increase in firms which were distressed. When a firm is distressed, the firm has trouble to pay their debts. there are a several options to take before the firm must declare bankruptcy. One solution is to voluntarily restructure its operations. Other solutions are reorganization, dissolution, a merger of the operations with those of an acquirer or to sell all the assets to an acquirer (Clark & Ofek, 1994). Through the years mergers and acquisitions (M&As) are still gaining more popularity which reach the question whether these M&As have a positive impact on the performance of the acquirer firm. Based on the theory, acquiring a distressed firm will have a positive impact on the performance. Acquiring a distressed firm can lead to synergy advantages. Synergies arise from an overlap in activities between the target and the acquirer firm which leads to economies of scope. Other advantages are gaining monopoly power and access to a lower price when acquiring a distressed firm (Bruton, Oviatt, & White). However, there are also some problems linked to M&As, like the agency conflict, loss of value after empire building and loss of value as a result of hubris of managerial acts (Aktas, bodt & Roll, 2005). The return for the acquiring firms depends partly on the size, method of paying, market-to-book ratio, and the type of target (Petmezas, 2008). This means that there are different returns possible after acquiring a distressed firm. However, still there is an increase in M&As, which means that there should be some advantages of acquiring a distressed firm.

M&As is one of the most discussed in the economic science. More and more managers and investors are interested in this topic by the increasing number of M&As. Empirical research found some inconsistencies in the return after acquiring a distressed firm. The firm performance can be divided in the stock market and accounting performance. The stock market performance is focused on the increase in shareholder wealth and the accounting performance is focused on the increase in the operating performance by integrating the target firm the right way which will increase the return on assets. There are different conclusions based on the short-term and the long-term. Healy et al.(1992) forms the basis for all the researches. They examined the post-acquisition performance based on the accounting performance and found that there is a

significant improvement in the asset productivity. Compared to their industry the cash flow did increase. Kruse et al. (2002) is focused on the long-term operating performance in Japan. They found also a positive operating performance, however this was insignificant. Clark et al. (1994) are focused on acquiring distressed firms. By looking at 38 takeovers, the performance measures conclude that bidders are unsuccessful in acquiring a distressed firm. This is the opposite of the result of Healy et al.(1992) and kruse et al.(2002). Two explanations can be given for that. First this difference can be the result of focusing on distressed firms only. The other reason could be that they implemented more firm and deal characteristics like: post-merge leverage, relative size and management expertise (Clark& Ofek, 1994). Based on this information, it is clear that there is some inconsistencies in the accounting performance.

There are also some inconsistencies between the stock market performance, which mostly is focused on the period around the announcement and the abnormal returns on the long run. Wansley et al. (1983) focused on the influence of the mode of the acquisition and the method of payment on the abnormal returns on the days around the announcement. They found that paying with cash is increasing the abnormal return on the short term. The increase in the abnormal returns around the announcement is confirmed by healy et al. (1994). However, when the focus is on the long-run a decrease in the abnormal return is found. Loughran et al. (1997) and Moeller et al. (2003) investigated the period of 3-5 years after the M&A and found a negative long-run abnormal return. The difference between the short- and long-term can be explained by the fact that investors cannot predict the influence of the M&A. Clark et al. (1994) investigated the long-run abnormal return for firms after acquiring distressed firms. He concluded that acquiring firms are unsuccessful in making the M&A profitable on the long-run.

Based on the prior researches there are some inconsistencies in the accounting and stock market performance. However, acquisitions of firms which are distressed increased in the last 20 years. For this reason there need to be some advantages linked to the acquisition of distressed firms. It is interesting to get more insight information about the performance of the acquirer firm after acquiring a distressed firm which leads to the following research question:

RQ: Is there a short-term effect of acquiring a financially distressed firm?

This master thesis is focusing on investigating whether the findings of previous research of Clark et al. (1994) about the accounting and stock market performance for acquirers after acquiring distressed firms is consistent. The focus for the accounting performance will be on one year after the merge and for the stock market performance for six months after the merge with a time span of M&As between 1990 and 2014. This research will give more insight in the short term accounting and stock market performance. The previous literature give limited information about the performance of acquiring firms after acquiring distressed firms. The accounting performance is mostly focused on the variables which have influence on the accounting performance after acquiring a distressed firm instead of focusing on the total performance. The stock market performance is mostly focused on the days around the announcement or the long-term. Furthermore this research is mostly not focusing on distressed firms. This research will give more insight in the total performance, which combines the accounting and stock market performance, for distressed firms. This is useful, because the last years there is an increase in the firms which were acquired while they were distressed. An additional incentive for this thesis is the investigation of different deal and firm characteristics which have an influence on the accounting and firm performance. Most papers only investigate the variables which probably have any influence on the performance instead of the real performance. Furthermore, the researches that investigate the performance do not take into account all the firm and deal characteristics that have influence. By combining the most used variables in previous literature and the best performance meausures this research will give more insight. There is a lot of uncertainty around the acquiring distressed firms. For the managers and investors it is good to know what the influence is on the short term after the acquisition to make sure if they have to invest or acquire the distressed firm.

The findings imply that there is no short-term effect on the firm performance after acquiring a financially distressed firm. As a result of an insignificant independent variable, distress, no conclusion can be made whether a distressed target firm has a positive or a negative influence on the firm performance. However, there cannot be concluded if the firm performance is increasing compared to a control firm which not acquired a target firm. The main drivers that influence the accounting performance positive are the method of payment, increase in assets

and increase in the return on equity. The main drivers that influence the accounting performance negative are leverage and the book-to-market ratio. The stock market performance is found to have a significant intercept which is positive. The main drivers influencing the stock market performance are only significant on a 10% interval. The increase in assets influences the stock market performance positively while the book-to-market ratio influences the performance negatively. Overall there the no short-term effect after acquiring a financially distressed firm.

This thesis is followed up by a literature review. This discusses the theory needed to answer the research question. The third chapter includes the theory and hypothesis development which includes the discussion of the results of previous literature. The fourth chapter includes the methodology and data collection. This chapter also includes a description of the variables used and the final regression model. The last part of chapter four gives the descriptive statistics. Chapter five gives the results that are found in the sample. The thesis will end with a conclusion, limitation and some ideas for future research.

2. Literature review

This chapter presents the important theory that is needed for the further understanding of the acquisition of distressed firms. The theory will be supported by literature that is already written about the subject. This chapter will start with a description of distressed firms and how to find out which firms are distressed. The literature review will continue with an explanation of mergers and acquisitions (M&As), which is used to save distressed firms. The last part of the chapter will focus on the different performance measures of acquisitions of distressed firms.

2.1 Distressed firms

In the literature there are a lot of different ways for firms to get in trouble, which could lead to bankruptcy. Not all firms who are in trouble have to declare bankruptcy. Depending on the reason why the firm is in trouble, they can decide to restructure in order to survive. Distressed firms reduce the face value of debt. However, there are different forms of distressed firms, which have a different impact on the level of debt reduction (Lemmon, Ma, & Tashjian, 2009). First of all there are financial distressed firms. These firms have difficulties to repay debts because the cash-flow is insolvent. These firms have financial illiquidity, which means that they miss or delays the payments of debt. Furthermore they could have reached the urgency loan limit. This means that the firm no longer has access to funds (Lemmon, Ma,& Tashjian, 2009). Financial distress still means the company is economically viable whereby the assets still have the highest value. These companies still have a going-concern surplus and dismantling these firms is not in the best interest of the investors and the company itself. Based on the research of Crystal and Mokal (2006), 79% of financially distressed firms succeed to emerge from bankruptcy through reorganizing (Crystal & Mokal, 2006). Firms with financial difficulties have different options to take in order to get the business back on track. The firm can voluntarily restructure its operations, restructure the operations and financial claims under the protection of bankruptcy court or Merge their operations with those of an acquirer (Clark & Ofek, 1994).

The other form is economic distress. Economic distressed firms are firms that have low and negative operating profitability. It is questionable if they have a going concern value in the absence of leverage. Their business models mostly have fundamental problems, which have to be solved (Lemmon, Ma, & Tashjian, 2009). The business is not viable any more. It is important

that the firm takes action, because if the assets remain in the firm for too long, the value of the assets will lose their value. Based on the research of Crystal & Mokal (2006) 63% of the economically distressed firms will be either be acquired or liquidated. This shows that for firms that are economically distressed the best option is to re-sell the market value of assets or shares to an acquirer (Crystal & Mokal, 2006).

There are different ways how to see which firms are distressed. In a research from Bruton et al. (1994) they focused on two measures: the simultaneous decline in net income and in return on investment. Net income focuses on the annual income after taxes before extraordinary items, normalized to the annual growth. Return on investment is the annual income after taxes before extraordinary items divided by invested capital. Distressed firms simultaneously suffer from a decline in their net income and return on investment. However, the decline in net income and return on investment are not fully reliable. The decline could also be explained by changes in the industry and environment. To control for this they also focused on the business press and journals (Bruton, Oviatt, & White,1994).

Clark and Ofek (1994) used many different measures to decide if a firm is distressed. One of the most important factors based on this paper is the actively seeking of an acquirer to rescue the firm. When firms are actively seeking for an acquirer to take over the company it means that it will not take a long time before they will go bankrupt. These firms are not able to get funds anymore which leads to the acquisition as the only way out in order to survive (Clark, & Ofek, 1994).

The Altman Z-score is the output of a credit-strength test to measure the likelihood of bankruptcy. The Z-score is based on five different financial ratios which are focused on the profitability, leverage, liquidity, solvency and activity to predict the degree of being insolvent. When a firm is close to 1.8 the firm is distressed and probably headed for bankruptcy. When a firm has a score of around 3 this means that the firm is in a healthy position. This score can be used to decide how a firm is doing and if it is financially distressed. Looking to the economic crisis in 2007 when many firms were distressed, the average score was 1.81, indicating a high possibility of bankruptcy (Altman, 1977).

2.2 Mergers & acquisitions

Mergers and acquisitions continue to be a highly popular form of corporate development. Even in the financial crisis, the number of acquisitions in the world increased exponentially. However, only 56% of the acquisitions was successful and almost 70% of the target firms depart in five years after the completion of the merge (Cartwright & Schoenberg, 2006).

Based on a research of Parnes (2009) a merge is based on two firms who create a new entity. In an acquisition the acquirer purchases the shares or assets of the acquired firm. It represent an investment in a target firm to create economic values. The acquired firm will become a subsidiary of the former. For an acquisition to take place there are some credit conditions needed. First of all, the distressed target firm should be able to find an acquirer without spending too much resources. Second, and acquirer should be well-credited so that the acquisition is not in danger. Last of all the acquisition should grand a distressed firm with gains (Parnes, 2009).

Parnes elaborates different motives for firms to acquire distressed firms. There are two kind of acquisitions which are linked to the different motives. The first kind of acquisition is the strategic acquisition which is an integration between the acquirer and the target firm which both benefits these two parties (parnes, 2009). The strategic acquisition is linked to the value creation for shareholders. Overall, acquisitions seems to generate wealth increases for all the shareholders. One motive for an acquisition is Synergy advantages which can be achieved when there are similarities between the acquiring firm and the target firms' business levels (Harrison et al., 1991). Synergy can arise in different forms. Synergy advantages arise from economies of scale or scope which happens when there is a lot of overlap between the activities, markets and products of two products (Sudarsanam, holl & Salami, 1996). A second possibility is through gaining monopoly power when firms are horizontally or vertically related. Combining the firms will increase the power on the market (Bruton, Oviatt & White, 1994). Another motive for acquiring a target firm has to do with the non-strategic acquisition, which is only beneficial for the target firm who enjoys a higher asset valuation. The nonstrategic acquisition evolves when managers handle in their own self-interest at the expense of the shareholders, like job-security and empire-building motives (Parnes, 2009).

The last motive for acquiring a distressed firm instead of a healthy firm is the price you have to pay for it. Financially distressed firms are often forced to sell their assets to another firm at fire-

sale prices. These prices are lower than the price they will normally get. Fire-sale prices are necessary because of the inability to find buyers (Gilson, 1997). Fear of liquidation at distressed prices may induce shareholders and managers to sell their assets to acquirers against a bargain price (Shrieves & Stevens, 1979). Another reason for lower prices for distressed firms is a result of more investigation. When a firm is distressed, the acquirer invest more time in finding the hidden problems in the organization and finding ways to let the merger succeed. This way of investigation lowers the risk of overpricing. When paying a lower price for your acquisition you are able to make the target more profitable compared to healthy firms. Acquirers need less resources to let the acquisition succeed (Bruton et al., 1994).

So, the acquisition of poorly performing firms is attractive for firms as a means of expanding the market power, reducing costs for production, improving the management of the distressed assets and the low price paid for the acquisitions which leads to the ability to make the target more profitable.

M&As are also linked to some problems. First problem has to do with the agency conflict which could lead to a loss of value of a merger or acquisition. The management in their own interest and not to maximize the value of the shareholders to satisfy their own ambitions. Managers have more information about the firm which they can use against the shareholders (Parnes, 2009).

Another loss in the value of the acquisition is due to managers who are focused on building an empire whereby the quality of an acquisition doesn't matter. The manager is only focused on acquiring as many firms as possible with the funds he can get and is not looking if these target firms are profitable for the value of the firm. This could lead to a negative value after the acquisition. Empire building will result in higher gains for the managers, such as higher salaries (Martynova & Renneboog, 2008). Cartwright and Schoenberg (2006) found that almost 26% of the acquisition were done by the manager for their own utility rather than the shareholder interest.

A last form of loss in the value of the acquisition is linked to the hubris of managerial acts. Hubris is seen as the overconfidence of the manager or CEO. When managers are overestimating the value of the M&As and the synergy advantages this leads to overpayment. Overpayment is bad

for the firm because it will be much harder to make the target firm profitable again which will lead to more failures of acquisitions (Aktas, Bodt & Roll, 2005).

2.3 Post-acquisition performance

There is a continued popularity for mergers and acquisitions, which is a reflection of the widespread belief among managers that acquisition is a good way for achieving growth and diversification objectives. This leads to an expectation that the post-acquisition performance will be positive. However, according to different studies there is a high failure rate for the firms that acquire target firms. The different reasons for acquisitions can influence the results on the performance of the acquisition. The strategic and non-strategic acquisitions have a different impact on the post-acquisition performance (Datta, 1991). There are different measures to find out what the effects of acquisitions are on the performance of the acquiring firm.

First post-acquisition measure is focused on the integration of the acquired firm in the acquiring firm. These measures are focused on the firm's strategy and performance. There are different factors which could have an impact on the firm performance, like characteristics of the industry, the firm's position relative to competitors, quality of resources and firm size. All these variables are influencing the quality of the acquisition and the way the acquired firm is integrated in the acquiring firm. To measure the firm performance the return on assets (ROA) is mostly used. This measure is used for firm-level performance (Hansen & Wernerfelt, 1989). Return on Assets is recommended as the preferred accounting-based measure in post-acquisition, because it has less bias than other accounting-based measures, like Return on equity (Harrison et al., 1991).

When the focus is on a strategic acquisition, the acquisition could increase the wealth for the shareholders. The expected increase in the wealth for the shareholders and the real wealth increase for shareholders have to be seen in the market reaction. When there is a higher gains for the shareholder after combining the operations of two firms, this has to be seen in a higher share premium. This higher share premium will increase the abnormal share return. The abnormal returns provide an insight into the expectations about firm's value and the future performance after the merger (Clark & Ofek, 1994). Dutta and Jog (2009) measure the long-run stock return performance based on the Event-time approach Buy-and-hold control firm returns

because it precisely measures the experience of the investors. Barber & Lyon (1997) investigated the difference between the cumulative abnormal return (CAR) and the buy-and-hold return(BHAR). most researches use the CAR, but this paper has concluded that the BHAR is a better measure for the stock return. Most researchers use the CAR and BHAR for the same aspects, but this research showed that these two can be used to solve different problems. The difference between the CAR and BHAR can mostly be explained by the fact that the CAR ignore compounding. When the market is more volatile that the returns on the market index, this can affect the CAR in a positive way (Barber & Lyon, 1997).

Harrison et al. (1991) concluded that the long-run cumulative abnormal return is a good measure but should not be used exclusively in measuring the performance of acquisitions. Abnormal returns to acquiring firms is only possible when there are unique and valuable synergistic cash flows. The market doesn't expect an accurate reaction to news when there is both asymmetric information and private synergy involved. To investigate what the post-acquisition performance is of an acquiring firm after acquiring a target firm it is useful to use both an accounting-based measure, like ROA, and a market-based measure, like CAR (Harrisson et al., 1991).

3. Theory and hypotheses development

Previous literature did research to the influence of mergers and acquisitions on the firm performance. Firm performance can be divided, as mentioned before, in the stock market performance and the accounting performance. The existent empirical studies show some inconsistencies in the results in both the accounting performance and the stock market performance. *Table 1* provides an overview of the studies performed on the accounting performance and stock market performance after M&As.

3.1 Accounting performance

Different studies investigated the influence of an M&A on the accounting performance of an acquirer. The research of Healy et al. (1992) forms the basis for further research conducted on the accounting performance. They examine the post-acquisition performance for the 50 largest U.S. mergers between 1979 and 1984 based on the cash flow measure. Focusing on the short-term, this research concluded that there is a significant improvement in the asset productivity compared to their industry. In this research different control variable are used: method of payment, industry and size. The increase in the asset productivity is stronger when the target firm is dealing in the same business. Heron et al. (2002) and Powel et al. (2005) took the results of Healy et al. (1992) into consideration and did more research in a later time span. They investigated a sample between 1985-1997 on the short-term. Heron et al. (2002) was focused on the relation between the method of payment and the operating performance. They found that there is a higher operating performance after acquiring a firm compared to their industry. However, the method of payment doesn't have any influence. This is in line with the findings of Healy et al. (1992). Powel et al. (2005) investigated this in the UK and find a modest improvement in the operating performance after controlling for size and industry. Taking all the information together there can be concluded that there is a positive operating performance on the short-term.

Focusing on the long-term, the conclusion differs. Kruse et al. (2002) investigated the long-term operating performance after acquiring a firm in Japan. They found that there is a positive but insignificant operating performance. Martynova et al. (2006) also investigated the long-term profitability after a takeover in Continental Europe or the UK. The acquiring firm is outperforming

the peer firms in the industry. However, the combined firm decreases significantly after the M&A. After controlling for the size, industry and pre-event performance this decrease is insignificant. Martynova et al. (2006) included more control variables: method of payment, scope, friendly offer, leverage and relative size. Friendly offers seems to have a positive impact on the operating performance and the method of payment a negative impact on the operating performance. Acquisitions of relative size leads to a better profitability, whereas a smaller target compared to the acquisition will lead to a decline in this profitability.

However, these researches are focused on acquiring any firm. In this research the focus will be on the acquisition of a distressed firm. Most studies which are focusing on distressed firms are however focusing on the variables which influence the operating performance. Only Clark et al. (1994) is found as a clear overview of the influence of acquiring a distressed firm on the operating performance. Clark et al. (1994) investigated 38 takeovers between 1981 and 1988 in US of distressed firms and find that the acquiring firm is unable to successfully restructure the target. This is negatively related to the premium which is paid. Leverage is negatively influencing the operating performance whereas the relative size had a positive influence on the operating performance. This research is focused on three years after the merge. Bruton et al. (2005) investigated which variables predict the operating performance after acquiring a distressed firm. They included the firm and deal characteristics: prior acquisition experience, relatedness, and relative size. They found that there is a strong support for all these variables on the operating performance. Acquiring a distressed firm requires other procedures than acquiring a healthy firm and vice versa. Tacit knowledge about the target and how to integrate the target into your firm is really important. Clark et al. (1994) concluded that most of the mergers with distressed firms are unsuccessful after implementing more industry factors.

However most of the previous literature on the short-term find a positive or insignificant negative accounting performance, these studies are focused on acquisitions in general. These firms didn't implement the control variables which have an impact on the accounting performance for acquirers after acquiring distressed firms. Acquisitions of distressed firms have a higher risk than acquisitions of healthy firms due to the uncertainty of being able to make the target profitable again. Only Clark et al. (1994) is focused on the post-acquisition performance of distressed firms.

This paper found a negative long-term accounting performance after implementing all the control give a negative accounting performance after implementing the control variables which have an influence on the post-acquisition performance. Mostly based on the research of Clark et al. (1994) a decrease in the accounting performance of an acquiring firm after acquiring a distressed firm is expected.

H1: acquiring a distressed firm has a negative influence on the accounting performance.

3.2 Stock market performance

The synergistic benefits of an M&A for the firm are readily apparent, like economic of scales. However, the benefits of an M&A for the shareholders is less clear (Wansley, Lane & Yang, 1983). These unclear benefits result in a growing concern about the price that has been paid for M&As and the future performance of the firm. This leads to the inability for shareholders to value the firm and to rapidly interpret the consequences of major transactions when M&As are announced which will have an impact on the abnormal returns of the firm (André, Koolin & L'Her, 2004).
As a result of this concern among the financial economists there has been done a lot of research to the stock market performance of a firm after M&As. In the second part of *table 1* there is an overview of studies regarding the abnormal returns after M&As.

Studies focusing on the days around the announcement give a positive abnormal return. Wansley et al. (1983) focused on the influence of the mode of acquisition and the method of payment on abnormal returns. They find a significant difference in abnormal returns based on the method of payment from 40 days prior to the merger announcement. When the acquisition is paid with cash, there is a positive abnormal return of 36% which is almost twice the number based on acquisitions paid with securities. This difference can be attributed to the change in tax effect, regulatory requirements and the increasing popularity of cash mergers. Healy et al. (1992) took also the influence on the stock market into account. After looking at five days prior to the announcement until the day the target firm get delisted they concluded that there was a high positive abnormal return from mergers.
Loughran et al. (1997) and Moeller et al. (2003) focused on the long-run abnormal return. Loughran et al. (1997) focused on the influence of the mode of acquisition and the method of

payment for five years after the M&A. they found that there is a negative long-run abnormal return of 16%. This confirms the theory before that shareholders cannot predict the impact of an M&A which can explain the difference between the days after the announcement and the long-term. Moeller et al. (2003) included more deal characteristics than Loughran et al. (1997), these are: size of the target firm, public or private firm, premium paid, days to completion and what kind of deal it was. The more firm and deal characteristics are implemented in the regression model, the better the output shows the real abnormal return. Moeller et al. (2003) measures the long-run performance based on the calendar-time approach. This leads also to a negative long-run abnormal return.

Dutta et al. (2009) is focused on the buy-and-hold abnormal return (BHAR) and the cumulative abnormal return (CAR) for measuring the post-acquisition performance. They were interested in Canadian firms in the time span of 1993-2002 by using both the event-time approach and the calendar-time approach to analyze the long-term post-acquisition performance. They found no significant decrease in the abnormal returns for Canadian firms on the long term.

However, Research based on BHARs in the US conclude that there is still a significant negative abnormal return, which is contradicting with the research done in Canada. The first year there is an insignificant abnormal return, but this will change into a significant abnormal return for a two-year period (Titan, Todose & Titan, 2011). Two reasons for this difference can be indicated. The first reason for the differences can be based on the firm and deal characteristics implemented in the model. Titan et al. (2011) only focused on the characteristics: firm size, method of payment and cross-border deals. The second reason could be that there is a difference between the reaction of shareholders in Canada and the US. However, the information above already concluded that firm and deal characteristics will have an impact on the abnormal return in the long-term.

Clark et al. (1994) also investigated the stock return performance after acquiring a distressed firm after three years. They found that there is a poor stock return for three years after the M&A. However, this research concluded that much of the poor performance is the result of industry factors. However, the negative performance after one year are significant and negative.

This research will focus on 6 months after the M&A, which can be seen as a short-term. This is not that much investigated, because most of the researches are focused on the period around the announcement or on the long-run, which is around the three years or longer. Based on the literature above, it is expected that there will be a negative abnormal return after six months, due to the inability of the investors to find out what the effect will be for the future. Furthermore CAR will be used as the measure, because of the access of information. The results will be compared to Clark et al. (1994), because this research also focused on the acquisition of distressed firms. Because all the researches focusing on the stock market performance after the M&A is completed give a negative return, the hypothesis will be as follows:

H2: Acquiring a financial distressed firm has a negative impact on the stock market performance of the acquiring firm.

4. Data and Methodology

In this paragraph first the data selection and elimination process will be described. After that the regression methodology will be discussed, including the different variables used in the regression and the five assumption of a regression model.

4.1 Data

The research will be conducted in companies in the US that have performed an M&A over a distressed firm. This research will use acquiring firms from the US to be able to compare the conclusion of this research with other papers conducted in the US. Furthermore this will give an opportunity to compare the results with the research of Dutta et al. (2009) to see what the influence is of the use of a different methodological issue and more deal characteristics.

The data that will be used is one year prior to the acquisition and one year after the acquisition. Based on the difference, we will be able to determine with some certainty the performance of an acquirer after acquiring a distressed firm in the short term. The data that will be obtained for M&As will be from 1990-2016. This time span is long enough for collecting enough data for doing the research. This time span also increases the short term papers, because these are mostly focusing on a few days prior and a few days after the M&A.

In order to test the significance of the ROA and abnormal returns after acquiring distressed firm, I will collect data of all M&A transactions conducted in the US. The data is collected from the *Thomson one* database with the criteria of a minimum deal value of US$ 1 million, having 50% or more of the shares after conducting the M&A and that it contains public firms. The criteria of US$ 1 million is chosen to generate a sufficient significant influence on the ROA and stock prices. This leads to a sample of 18.561 firms. Then the data is cleaned up to make it useful for the analysis. Some observations are dropped because of the lack of a unique identifier to collect data from other databases. Furthermore, I need to generate variables to measure if a firm is financially distressed which leads to a drop in observations as well. This leads to a final sample from Thomson one of 3153 firms. However, to include some control variables, information from COMUSTAT needs to be collected. To link the information from COMPUSTAT with the information in Thomson one, only 1117 firms were left. After preparing all the information in

STATA to do the regression, a sample of 445 firms were left, of which 338 are healthy firms and 107 are financially distressed firms. For measuring the stock market performance, information is collected from CRSP. This data has to be linked to the data used for measuring the accounting performance. As result of the merge, the final sample for the stock market performance is 175 firms of which 50 are distressed. Table 2 illustrates the data selection and elimination process.

Table 2: Data selection and elimination process

VARIABLES	All
Export from Thomson one	44474
Have a CUSIP identifier	19841
Have data to measure financial distress	5394
Have accounting data	1117
Have accounting data	446
Have stock price data	175

4.2 Regression methodology

In this research the ordinary least squares (OLS) regressions will be used to measure the relation between the ROA and the acquisition of distressed firms and the CAR and the acquisition of distressed firms with respect to certain firm and deal characteristics. The most common research method for seeing the value creation after an event is to focus on an event study. An event study measures the impact of an event on the value of the firm. The best way to indicate what the influence has been of acquiring a distressed firm is to make a difference-in-difference regression. A comparison has to be made with a firm, which is comparable and did not acquire a distressed firm. However, because of the access to a small sample a difference-in-difference analysis is not possible. For this reason this aspect is skipped. This makes it not possible to tell something about the increase or decrease of the ROA and CAR after acquiring a distressed firm compared to the industry.

The dependent variables will be the return on assets (ROA) and the cumulative abnormal return (CAR). The independent variable is a dummy variable, which indicates a one when a firm is

distressed. Furthermore some deal- and firm characteristics are implemented to minimize the risk of omitted variable bias. The first dataset will comprise all acquisitions in the US between 1990-2016. The second dataset will consist of a sub-regression focused on specific acquisitions in the US to get a more detailed look of the reason why firms are distressed and what the effect of these distressed firms are on the ROA and CAR. Table 3 gives an overview of all variables used in the OLS regression.

4.2.1 The dependent variable

4.2.1.1 Accounting performance

The *post-acquisition performance* will be measured in terms of the *return on assets* (ROA). As mentioned before, the ROA is preferred as a measure because it is less biased compared to other measures, like ROE. Furthermore, the ROA can be used to predict the long-term financial strength of a firm. The effect of M&As on the accounting performance will be measured by using the ratio of earnings before interest, tax and depreciation(EBITD) divided by the book value of total assets (Anderson & Reeb, 2003). The ROA will be measured for one year after the merge to prevent the risk of having a too small sample. The advantage of using the book value compared to the market value is that it is less sensitive to changes in market expectations of firm performance (Clark & Ofek, 1994). The information for measuring the ROA is collected from COMPUSTAT based on the unique CUSIP code per acquiring firm.

4.2.1.2 Stock market performance

The *post-acquisition performance* for the stock market performance will be measured based on the *Cumulative abnormal return(CAR).* As explained before, CAR is used as a measure of firm performance to see whether or not the M&A is value increasing or decreasing over time. The validity concern has to be taken into account when forming a conclusion based on the CAR. The validity depends on whether there is enough information to make accurately forecasts about the future effects on the stock prices (Clark & Ofek, 1994).

In this paper the focus will be on the monthly return over time. This will be measured for 6 months after the M&A. First the abnormal return will be measured based on the following formula (Barber & Lyon, 1997):

$$AR_{it} = R_{it} - E(R_{it})$$

R_{it} is the monthly simple return in month t on the sample firm and $E(R_{it})$ is defined as the expected return for the sample firm in month t. The expected value is based on a benchmark, which differs per research. The choice of the benchmark will influence the post-event returns. In this research, the expected return is based on the *value-weighted return.* Based on the research of Fama (1998) the *value-weighted return* is a more accurate anomaly and captures the total wealth effects by investors better. For this reason *value-weighted return* is giving a better perspective. The information for measuring the abnormal return and the *value-weighted return* will be collected from CRSP. For the simple return in month t the variable *ret* is used.

The abnormal return in month t will be cumulated across τ periods. This will give us the CAR:

$$CAR_{it} = \sum_{t=1}^{\tau} AR_{it}$$

4.2.2 Independent variable

Distressed firms is the independent variable in this study. As mentioned in the literature review, there are different ways of identifying which firm is distressed. In this research, the focus will be on the financially distressed firms, which is measured by the *Altman Z-score.* This output is a credit-strength test to measure the likelihood of bankruptcy. A score of 1.8 or lower means that the firm is distressed and probably heading for bankruptcy. If the firm has a score around 3, the firm is healthy. The *Altman Z-score* will be measured based on the following formula:

$$Z = 1.2\frac{Working\ capital}{Total\ assets} + 1.4\frac{Retained\ earnings}{Total\ assets} + 3.3\frac{EBIT}{Total\ assets} + 0.6\frac{Market\ value\ equity}{Book\ value\ tot.Liabilitites} + 1\frac{Sales}{Total\ assets}$$

The information to measure all these variables is collected from THOMSON one. Only the - retained earnings is collected from COMPUSTAT. Based on the *Z-score,* a new variable (DISTRESS)

is created which gives a value of one when a firm is distressed. The non-distressed firms will be equal to 0.

4.2.3.Control variables.

Post-acquisition performance is influenced by a number of firm and deal characteristics. For these variables we need to include a control variable. In *table 1* different variables are mentioned that are used in various researches to the performance of M&As. The variables that are used most often in the previous researches will be combined in this research to create a more overall view of the influences of these variables.

4.2.3.1 Deal characteristics

4.2.3.1.1 Method of payment

There are three ways of paying your M&A: cash, securities, and a mix of both. The return on the acquisition should be greater when an M&A is paid with cash than for M&As that utilize securities for payment. This is the result of tax effects, which leads to a higher premium for cash. As shown in *table 1* this is confirmed in the previous literature. Securities always leads to a decrease in the performance of a firm, whereas cash increases the performance. For this reason it is necessary to control for this method. This control variable (METH_PAY) will indicate two numbers; cash = 1 , no cash= 0.

4.2.3.1.2 relatedness target and overpayment

Bruton et al. (1994) investigated the influence of relatedness between the industry of the target and acquiring firm on the performance. Acquirers sometimes pay too much for an acquisition, because they underestimate the costs of employing the potential synergies of the combination which leads to negative performance of the M&A. Acquiring a related target leads to different benefits. The acquirer have knowledge about the target which leads to the ability to investigate better the hidden problems, the opportunities to synergy benefits and the actions to take in order to make the distressed target profitable again. All these benefits lead to a more carefully conceived and executed acquisition compared to other acquisitions. Because of this advantage, a dummy variable (RELATED) will be included with the value of one when the target is related to the business of the acquirer. A target is related when at least 70% of the firms revenues is related

to the business of the acquirer that was related by product, market or production process (Bruton et al., 1994). This information will be collected from the THOMSON ONE database.

4.2.3.1.3 relative size target

Prior researches have shown that a target firm should be large enough, relative to the size of an acquirer, to get the attention of management. Announcement of acquisitions with a relative higher size leads to a more positive reaction from the investors when measuring the value of the firm. However, the size of the target doesn't need to be too big, because the acquiring firm needs to have enough slack to help the target firm. Based on the research of Bruton et al.(1994) the smaller the size of the target is, the poorer the performing. The relative size (REL_SIZE) will be measured as ratio of the acquired firm's revenue divided by the revenue of the acquiring firm. This information will be collected from COMPUSTAT (Bruton et al. 1994).

4.2.3.1.4Cross-border deals

Cross-border acquisitions are expected to outperform the domestic acquisitions due to the benefits the acquirer and target take of imperfections in the international capital and product markets and by internalizing the R&D capabilities of target companies. However, cross-border deals also have to deal with culture and regulatory differences, which could lead to difficulties in managing the acquisition process, which could lead to failures. Because of the positive and negative impact of cross-border deals on the post-acquisition performance, it is important to implement a control variable. Cross-border deals (CROSS_DEALS) will get a one and non-cross border deals will get a 0 (Martynova et al.,2006). This information is collected from THOMSON ONE.

4.2.3.2 Firm variables

To make sure that the performance is not influenced by other factors, some firm variables will be included in the model. Some variables used in the regression model are potentially correlated to both the dependent and independent variable, which can influence the results. If these control variables are not implemented in the model, there is a possibility for omitted variable bias. For this reason it is best to include as much control variables as possible to minimize this possibility.

4.2.3.2.1 Firm size

The size of the firm influences the operating and stock market performance of the firm (Moeller et al., 2004). Larger firms have more market power which leads to a more stable level of earnings. When raising additional funds for acquiring a distressed firm, larger firms will have lower fluctuations in their costs than smaller firms. The prediction is that larger firms will have a higher operating and stock market performance after a merge and are less likely to be financial distressed (Theodossiou, Kahya, Saidi & Phillippatos, 1996). The proxies that are used for the firm size are the logarithm of assets (LOG_ASSETS) and the sales revenues (FIRMSIZE). Because total assets is influenced by using different reporting strategies per firm, sales revenues is also used as a measure for firm size (Mitton, 2002).

4.2.3.2.2 Leverage

Leverage (LEVERAGE) is measured by dividing total debt by total equity. Financial leverage involves commitments in the form of interest and principal payments. The higher the leverage ratio, the higher the risk for financial failure. On the other hand, higher financial leverage is expected to have a negative influence on the performance of the acquiring firm. When the firm has a higher leverage, an acquisition will increase the debt ratio even more, resulting in a reduction of the market value (Theodossiou et al., 1996). This leads to an expectation of a negative influence of the leverage on the accounting and stock market performance of the acquiring firm.

4.2.3.2.3 Firm Growth

Based on previous researches, the firm's growth is expected to be negatively related to distress. The higher the sales growth, the better the performance of your firm and the less risk of failure. However, the sales growth is positively correlated with the accounting and stock market performance of the acquiring firm. When the firm grows fast, the opportunity to succeed in acquiring a distressed firm and make it profitable again is bigger, because of more money which is available. The proxy used for firm growth is the real sales growth (Theodossiou et al., 1996).

4.2.3.2.4 Profitability

The profit generated by a firm's operations provides funds for the future to invest in distressed firms. Larger firms mostly have a higher profit. Because of this, the probability of making a distressed firm profitable after an M&A is higher for a larger firm. Furthermore, there is a

negative relationship between profitability and financial distress. This means that the factor distressed firms, mostly contains small firms. The proxy used to measure the profitability is the *return on equity* (ROE). ROE is measured by dividing the net income by shareholders equity. So the expectation is that the higher the ROE, the more profitable is the firm, so the higher the accounting and stock market performance of the firm.

4.2.3.2.5 sensitivity

Fama & French (1993) studied the role of firm value on the average stock returns. Larger firms have a more stable value, which leads to a more stable stock market performance. This makes it easier for investors to examine what the return for their shares will be, which leads to a lower abnormal return. Furthermore, a firm that is less sensitive to changes in the market will have a smaller change for failure. This means that the sensitivity is influencing the stock prices and thereby the dependent variable. The proxy used for measuring the sensitivity is the *book-to-market ratio* (B_M) which is measured by the total book value of a firm divided by the total market value of the firm (Fama & French, 1993). The expected influence of this variable is that the higher the book value of the firm compared to the market value, the more sensitive the firm is, so the lower the accounting and stock market performance will be. The closer the *book-to-market ratio* is to 0 the more stable the firm is, because the book value of the firm is closer to the market value. This gives investors more certainty about the future of the firm.

4.2.3.2.6 Firm value

When a firm is undervalued this firm have a bigger change to fail, because the fair value is lower than the book value. This means that these firms will be attractive for acquiring firms, because they will be cheap to acquire. As an overvalued firm, which has a ratio higher than 1, indicates that the firm is doing good and have a smaller change of failure. Larger firms have a bigger change of having an overvalue, because they are less sensitive to changes after asking for more funds. When a small firm asks for more funds, this will have a high impact on the value of the firm. The expectation is that the higher the value of the firm, the higher the accounting performance and stock market performance. The proxy used for measuring the firm value is

*tobin's q (*TOB) which is estimated by dividing the market value of equity by the total assets (Moeller et al., 2004).

Table 3: overview variables

Variable	Description
Dependent variable	
ROA *(Return on assets)*	This is the average of the acquirer's enterprise value one year after the acquisition.
CAR *(cumulative abnormal return)*	This is the difference between the monthly simple return of the sample firm minus the expected return. This is cumulated for six months after the merge.
Independent variable	
DISTESS *(Distressed firms)*	This variable indicates which variables are distressed, based on the Altman Z-score. distressed = 1 , not distressed= 0
Control variables	
MET_PAY (method of payment)	This variable indicates how the M&A is financed: by cash, securities or a mix of both. Cash = 1 , securities or mix = 0
RELAT (relatedness of the business target and acquirer)	This variable measures the relatedness of the business of the target compared to the business of the acquirer. Yes = 1 , No = 0
REL_SIZE (relative size of target to acquirer	This variable measures the relative size of the target compared to the size of the acquirer.
CROSS_DEAL (Cross-border deal)	This variable indicates which acquisitions are cross-border deals. Cross-border deals = 1 , domestic deals = 0
LOG_ASSETS (logarithm of assets)	The logarithm of assets to avoid skewness. Used as a form of firm size.
LEVERAGE (leverage)	This variable measures the total debt compared to the total equity.
SalesGrowth (sales growth)	This variable indicates the change in sales.
ROE (Return on equity)	This variable measures the net income compared to the shareholders equity. This is a measure for profitability.
FIRMSIZE (Firm size)	This variable indicates the total revenue for the acquiring firm.
TOB (Tobin's q)	This variable measures the market value of the firm compared to the total assets. This shows the difference between the physical value and the replacement value of the firm.
B_M (Book-to-market ratio)	This variable measures the value of the firm by comparing the book value of the firm with its market value.

4.3 ROA and CAR regression model

After discussing all the variables that will be used in the OLS regression model, the formula can be assembled . This formula is based on the dependent, independent and control variables. Two models are used, for each hypothesis one model. The only difference between the two models is the dependent variable.

The OLS regression model for hypothesis 1 is:

$$ROA = \alpha + \beta_1 DISTRESS + \beta_2 METH\_PAY + \beta_3 RELAT + \beta_4 CROSS\_DEAL + \beta_5 REL\_SIZE + \beta_6 LOG\_ASSETS + \beta_7 LEVERAGE + \beta_8 SalesGrowth + \beta_9 ROE + \beta_{10} FIRMSIZE + B_{11} TOB + B_{12} B\_M + \varepsilon$$

The OLS regression model for hypothesis two is :

$$CAR = \alpha + \beta_1 DISTRESS + \beta_2 METH\_PAY + \beta_3 RELAT + \beta_4 CROSS\_DEAL + \beta_5 REL\_SIZE + \beta_6 LOG\_ASSETS + \beta_7 LEVERAGE + \beta_8 SalesGrowth + \beta_9 ROE + \beta_{10} FIRMSIZE + B_{11} TOB + B_{12} B\_M + \varepsilon$$

In which α is the intercept,ε the error term, β_1 the variable representing the independent variable and β_2 till β_{12} are the control variables.

4.4 Testing the assumptions of regression methodology

Regression models rely upon some standard assumptions regarding the distribution of the data. If one of these five assumptions is not correct, the result of your regression model could be biased and the results are not reliable anymore. In this section the different assumptions of a regression analysis will be discussed. If there are violations, there will be explanations on how to treat these.

4.4.1 normality

Normality tests are used to determine whether the dataset is well modeled following a normal distribution. It is an important assumption, because the conclusions are based on the assumption that the error term is normally distributed. To check for normality the focus will be on the skewness of all the variables used in the regression model. If the skewness of a variable is higher than 2 or lower than -2, the conclusion can be made that the variable is not normally distributed and need to be corrected. After checking for the skewness a histogram will be plotted to check if the variable is normally distributed. If the sample is not normally distributed it is necessary to delete the outliers. This will be done by winsorizing the data. With winzorizing, the 1% and 99% of the additional outliers are bringing down to make sure that the values are within the normal distribution. This is the case with some variables, like ROA, ROE and FIRMSIZE.

4.4.2 Exogeneity

With exogeneity the focus is on the correlation between the independent variable and the error term. This is an important assumption, to minimize the possibility for omitted variable bias. It is important that the independent variable is not correlated with the dependent variable and that the value is generated outside the regression model. If the independent variable is correlated with the error term, there is an endogeneity problem, which means that the OLS regression will provide inaccurate estimates. The correlation between the variables is checked with the correlation matrix, see table 4 in the appendix. Based on these correlation matrixes the conclusion can be made that all the variables are correlated with each other. This is a good sign; otherwise the control variable would not have any influence and would not be implemented in the model. However, a correlation which is too high, around 0.75, could be a problem. In these matrixes no problem is found.

4.4.3 Homoscedasticity

When there is heteroscedasticity this causes problems with the regression analysis and the significance test. Heteroscedasticity refers to data which is unequal scattered around the linear regression line. Mostly, homoscedasticity is not a problem. However, having some heteroscedasticity can change the results which can make it less reliable. To test for heteroscedasticity the Breusch-Pagan-Godrey test is used. In the case of ROA, there is a heteroscedasticity problem which needs to be solved. For solving this problem, the robust standard errors are used to create a more trustworthy result.

4.4.4 serial correlation

Serial correlation exist when the error term over the observations are correlated with each other. As a result of serial correlation, the error term of one period is affecting the error term in another period. To find out if there is no serial correlation the Breusch-Godfrey LM test is done. To correct for this serial correlation, the robust standard error is used for the ROA to correct for this.

4.4.5 multicollinearity

Multicollinearity exists when the independent variables are depending on each other. When two independent variables are determining each other, there is a redundant variable. This can be checked again by looking at VIF in STATA. The VIF is valid when the output is below 5. When

focusing on the ROA, there was a VIF of 9 for the firm size and LOG_ASSETS. This could be explained by the fact that both variables explain the size of the firm. For this reason the FIRMSIZE is taken out of the regression. After deleting the variable, all the VIFS are lower than 5. In hypothesis 2 there is the same problem, so also in this regression FIRMSIZE will be taken out.

4.5 Descriptive statistics

4.5.1 Sample

The sample description for hypothesis 1 and 2 is shown in table 5. The sample description is based on the sample which is used in the researches. This means that a lot of deals which were completed in the years 1990-2014 are deleted from the sample. However, Still there is a kind of pattern in the number of deals and distressed firms in the sample for the ROA and CAR. There is an increase in the acquisition of distressed firms in the years 1999/2000 and 2008. These two periods are linked to the crises. In 1998, a financial crisis started in Asia, which had an impact on the US as well. The financial crisis became a global crisis. This could be an explanation for the increase in the amount of distressed firms which were acquired. The same explanation could be given for the increase in the acquisition of distressed around 2008. In 2007/2008 there was again a global financial crisis which hurts the firms in US. In the beginning years, 1991 till 1998, almost no firms were acquired because they were distressed. This could be explained by a good economy. After the first economic crisis, the acquisition of distressed firms lowered, but always stayed.

Table 5: Distribution of Sample

	Number of deals (ROA)	Distressed	Number of deals (CAR)	Distressed
1991	5	0	1	0
1992	9	1	4	0
1993	3	0	1	0
1994	9	2	5	1
1995	14	4	6	2
1996	10	3	3	0
1997	18	2	6	0
1998	18	2	3	0
1999	38	12	19	7
2000	40	11	13	3
2001	29	7	13	1
2002	21	6	8	3
2003	20	7	13	6

2004	29	7	11	4
2005	21	4	9	2
2006	19	3	4	1
2007	31	4	10	1
2008	21	12	14	7
2009	10	3	4	1
2010	21	4	13	4
2011	10	0	6	0
2012	17	5	7	3
2013	16	3	5	2
2014	20	5	8	2
TOTAL	**449**	**143**	**186**	**50**

Table 6 shows the M&As per industry. This is interesting to get any information in which industry there was more trouble and to indicate in which industry the most firms were distressed in the time span 1990-2014. The most firms which were acquired was in the high technology industry. 29% of this industry is acquired by another firm. However, based on the percentage of firms which were distressed, the finance sector has the highest percentage, 67%. However, most of the acquisitions in the financial sector are deleted from the sample because of missing information. Only three firms are incorporated in the sample, which means that this result is not fully reliable. 44% of the firms in the energy sector was acquired as result of financial distress. Furthermore, the most distressed acquisitions were in the consumer product services, telecom, and media sector. Even when the high technology sector has the most M&As in the time span of 1990-2014, it has only 25% of the firms which were acquired as a result of financial distress. Based on this information the conclusion can be made that the finance and energy industries has the most troubles.

Table 6: M&As per industry

Macro code	Freq.	Percent.	Distressed	Percent. distressed
CPS	39	8.76%	12	30.8%
ENERGY	36	8.09%	16	44.4%
FINANCE	3	0.67%	2	66.7%
HEALTH	62	13.93%	11	17.7%
HT	129	29%	33	25.6%
IND	49	11.01%	9	18.4%
MATERIALS	31	6.97%	4	12.9%
MEDIA	22	4.94%	7	31.8%
REALEST	3	0.67%	0	0%

RETAIL	22	4.94%	3	13.6%
STAPLES	25	5.62%	2	8%
TELECOM	24	5.39%	8	33,3%
Total	**445**		**107**	

After indicating how many firms were distressed and in which industry it is also interesting to indicate what the reason could be why the firms get into financial trouble. This is investigated based on the elements of the Altman Z-score. Table 7 indicates the values of the different elements for healthy firms and distressed firms. Based on the t-test the difference between healthy and distressed firms is tested. The t-test concludes that all the differences are significant. This table shows that the biggest difference between healthy and distressed firms is within X2 and X3. X2 measures the retained earnings compared to the total assets. X2 shows the profitability compared to the total assets. The profitability is too low for distressed firms compared to healthy firms. This is one of the biggest reason why the firm is got into financial problems. Another issue for distressed firms is the EBIT compared to the total assets. X3 is also a measure for profitability and productivity of the firm. Based on these two elements, the conclusion can be made that the reason why most firms are getting financial problems is because of the decrease in profitability compared to the total assets.

Table 7:difference means per element Z-score

Variable	Mean DISTRESS=0	Mean DISTRESS=1	Difference (%)	T-test diff.
X1	0.31	0.19	-38.7%***	0.00
X2	2.41	-3.53	-246,5%***	0.00
X3	0.05	-0.07	-240%***	0.00
X4	9.14	4.00	-56,2%***	0.00
X5	1.18	0.89	-24.6%***	0.00

4.5.2 Variables

In table 8 there is an overview of the median and mean of the ROA from three years before the merge to three years after the merge. The ROA is calculated the same way as in the regression, by dividing the EBITD by total assets. The ROA is measured for the performance of the bidder firm. The table shows that the overall ROA was increasing in the years before the merge. However, in the first year after the merge there is a decrease in the ROA of more than 20%. This decrease could be solved in the future. However, in the three years after the merge the ROA is

still 15% lower than before the merge. This could indicate that the performance of acquiring firms after acquiring distressed firms are declining in the post-merger period.

Table 8: ROA performance

Year relative to merger	Firm median	Rel change	Mean	Rel change	N
-3	0.093	-	0.087	-	401
-2	0.092	-1,08%	0.085	-2.30%	428
-1	0.099	+7,61%	0.088	+3.53%	450
0	0.078	-21,21%	0.067	-23,86%	466
1	0.079	+1,28%	0.061	-8,96%	445
2	0.078	-1,28%	0.062	+1,64%	411
3	0.079	+1,28%	0.072	+16,13%	374

In the overview of table 9 the change in the abnormal returns after the M&A is shown. Before the M&A, when it was announced , there was a big increase in the abnormal returns. This may indicate that investors expect that the M&A will have a positive effect on the performance of the acquiring firm. However, after the M&A there is a decrease in the abnormal returns, which gets bigger over time. This may indicate that the investors were too optimistic and that shareholders and the acquiring firms fare poorly in the period after the M&A. However, this can be influenced by industry factors, which I didn't take into account.

Table 9:Stock Return Performance

Month relative to merger	Firm median	Rel change	Mean	Rel change
-2	0.004	-	0.005	-
-1	0.009	125%	0.012	140%
0	0.003	-66,67%	0.009	-25%
1	-0.005	-266,67%	0.002	-77,78%
2	0.000	+100%	-0.004	-300%

Table 10 shows the mean for the dependent and control variables, based on the independent variable DISTRESS. It shows the difference between the mean of acquiring a healthy firm compared to a distressed firm. As expected, the means for almost every variable is higher for healthy firms compared to distressed firms. A healthy firm is already profitable, so the acquiring firm doesn't need to invest a lot of money in making the target firm profitable again. It only have

to make sure that the target firm is incorporated into the acquiring firm the right way. This conclusion can be made for either the ROA and the CAR. By doing the t-test the differences between the healthy and distressed firms are compared to see if these differences are significant. The stars in table 10 indicates that the difference is significant on a 10%, 5% or 1% level. This shows that acquiring healthy firms are more profitable when paid with cash compared to distressed firms. Furthermore, the increase in the assets is higher after acquiring distressed firms which is linked to an increase in the firm size.

Table 10: descriptive statistics variables

ROA					**CAR**			
Variables	Healthy firm mean	Distressed firm mean	Difference means	T-test diff.	Healthy firm mean	Distressed firm mean	Difference Mean	T-test diff.
Dependent								
CAR	-	-			-0.01	0.04		
ROA	0.06	0.06			-	-		
Control								
METH_PAY	0.38	0.26	0.12**	0.03	0.38	0.28	0.10	0.23
CROSS_DEAL	0.13	0.08	0.05	0.29	0.15	0.06	0.09	0.11
RELATED	0.15	0.11	0.04	0.18	0.15	0.14	0.01	0.90
REL_SIZE	0.91	0.90	0.01	0.78	0.93	0.89	0.04	0.67
LOG_ASSETS	7.83	7.20	0.63***	0.00	7.7	7.20	0.50*	0.10
LEVERAGE	0.28	0.27	0.01	0.72	0.27	0.25	0.02	0.40
B_M	0.49	0.55	-0.06	0.22	1.25	0.57	0.68	0.34
TOB	1.27	1.13	0.14	0.23	1.24	1.13	0.11	0.48
SalesGrowth	0.72	0.69	0.03	0.83	0.64	0.62	0.02	0.89
FIRMSIZE	7.60	6.79	0.81***	0.00	7.53	6.65	0.88***	0.01
ROE	0.07	0.06	0.01	0.61	0.07	0.06	0.01	0.43

*=10% **= 5% ***=1%

5. results

This section will describe the result on the ROA and CAR for an acquiring firm after acquiring a distressed firm. If results are significant, there are three different significant levels in order to explain the relationship between the ROA and the independent and control variables. A p-value with a significance level of 1% indicates that the coefficient is highly significant, 5% indicates a minimum level of significance and a p-value of 10% indicates a weak level of significance.

5.1 ROA

This section will describe the result on the ROA of an acquiring firm after acquiring a distressed firm. The hypotheses that is discussed in this part is the following;

H1: acquiring a distressed firm has a negative influence on the accounting performance.

Table 11 shows the regression Analysis when only the independent variable is included to measure the ROA. This table shows that the ROA, after acquiring a distressed firm, is positive for both the healthy firm and the distressed firm. This means that the accounting performance for an acquiring firm is positive. The T-test is used to see if the difference in the ROA between acquiring healthy firms and distressed firms is significant. The t-test shows that the difference between the healthy and distressed firm of 0.017 is significant on a 5% level. This means that acquiring a healthy firm is more profitable than acquiring a distressed firm. However, the difference is small.

Table 11: Regression ROA by DISTRESS

Group	Obs	Mean ROA	P-value, diff>0
0	329	0.074	
1	107	0.057	
Difference		0.017	0.028**

**=5% level

In table 12 the regression analysis is shown. The ROA starts with the value of the intercept, which is 0.03. this means that without any control variables and independent variables the ROA would be positive. The values will change after interpreting the other variables. The independent variable, DISTRESS, is the most important in this research. However, this variable is insignificant. This means that acquiring a distressed firm will not have any influence on the ROA. However,

table 11 shows that the difference between acquiring a healthy firm and a distressed firm is significant, but this is without all the control variables. Based on the control variables, it doesn't matter for the ROA if a firm is distressed or healthy. This is the opposite of the expectations. This could be explained by the fact that acquiring a distressed firm is a solution for the distressed firm to get healthy again. An acquiring firm mostly have the same reason for acquiring a healthy firm as for acquiring a distressed firm. A lot of procedures for acquiring a healthy or a distressed firm are the same. There are some advantages and disadvantages linked to acquiring a distressed firm. Advantages could be the lower price and a disadvantage could be that it may be hard to make the firm profitable again. When pointing out the advantages and disadvantages this could lead to a balance, which means that there is no difference between acquiring a distressed or a healthy firm. This could be the explanation for the insignificant variable DISTRESS.

Also insignificant are the variables: relatedness, relative size, sales growth and tobin's q. This means that these variables doesn't have any influence on the ROA. The sales growth and Tobin's q are not used before in other researches. However, the relatedness and relative size are used before in researches. Bruton et al. (1994) also didn't find a significant influence of the relative size on the operating performance. However, most researches did find a significant positive influence of the relatedness on the ROA. This is different in this research.

The ROA is influenced by some significant variables. First of all, the method of payment is significant on a 1% level. When the M&A is paid with cash the ROA will increase with a value of 0.03. This is in line with the expectations. Also in line with the expectation is the increase in the ROA when the total assets of a firm increase. When the total assets of a firm increases, the ROA will increase with 0.01. This is on a 1% significance level. A higher leverage leads to a decrease in the ROA for 0.11. This is in line with the expectations. The other two variables, B_M and ROE, are also in line with the expectations. The ROE influences the ROA positively on a 1% level. The increase is 0.37. A higher B_M decreases the ROA with a value of 0.05.

The R-squared is 56%. This means that this model fitted the regression line very closely. 56% of the ROA are explained by this model.

Overall, based on the results given above H1 is rejected. This means that there is no negative influence of acquiring a distressed firm on the accounting performance. The independent

variable DISTRESS is insignificant, which means that it doesn't have influence on the accounting performance. Based on table 11, the expectation is that there would be a positive ROA for both acquiring a healthy and a distressed firm.

Table 12: Regression analysis ROA.

VARIABLES	ROA
DISTRESS	0.0145
	(0.00894)
METH_PAYMENT	0.0305***
	(0.0108)
RELATED	0.00208
	(0.00964)
CROSS_DEAL	-.00001
	(0.00907)
REL_SIZE	-0.0123
	(0.0273)
LOG_ASSETS	0.0114***
	(0.00288)
LEVERAGE	-0.109***
	(0.0359)
SalesGrowth	0.00109
	(0.00298)
ROE	0.363***
	(0.0360)
TOB	-0.000557
	(0.0113)
B_M	-0.0514***
	(0.0170)
Constant	0.0364
	(0.0519)
Observations	445
R-squared	0.563

*** p<0.01, ** p<0.05, * p<0.1

5.2 CAR

In this section the results for the impact of acquiring a distressed firm on the CAR is discussed. The hypotheses discussed in the section is the following:

H2: Acquiring a financial distressed firm has a negative impact on the stock market performance of the acquiring firm.

In table 13 the difference between the mean of the CAR after acquiring a healthy firm and a distressed firm is shown. The CAR for healthy firms is negative while the CAR after acquiring distressed firms is positive. However, this difference is tested with a t-test to see if the difference is significant. Based on the t-test this difference is not significant. So, there should be no differences between acquiring a healthy and a distressed firm on the CAR.

Table 13: Regression CAR, by DISTRESS

Groups	Obs	Mean	P-value Diff>0
0	136	-0.01	
1	50	0.05	
Difference		-0.05	0.880

Table 14 shows the regression analysis of the CAR based on the independent variable and control variables. The intercept is positive with a value of 1.62. This means that the CAR, before correcting for all the control variables, is positive. The independent variable is not significant, which is in line with table 13. There is no difference in the CAR after acquiring a distressed firm compared to acquiring a healthy firm. This is against the expectations. Researches which investigated a few days after the announcement day found a positive effect, while the researches based on the long-term found a negative influence on the stock price. The period in this research, six months after the acquisition, could be the turning point. Shareholders are optimistic when an acquiring firm announce an acquisition of a distress firm because they expect a positive impact on the performance. However, after some time they notice that they were too optimistic and they revise the stock price to the same level as acquiring a healthy firm. This means that they noticed that acquiring a distressed frim doesn't have more benefits compared to acquiring a

healthy firm, and vice versa. This can be linked to the low abnormal return in table 13 which shows that there is a small difference between the expected return and the real return. This could explain why the variable DISTRESS doesn't have any influence on the CAR after six months.

Furthermore research is done for finding out which firm and deal characteristics have an influence on the CAR. The most variables implemented in the model are insignificant. The method of payment, relative size and cross-border deals are not in line with prior researches. Based on Wansley et al. (1983), André et al. (2004) and Dutta et al. (2004) these variables influences the CAR. The method of payment influences the CAR positively when paid with cash. The relative size and cross-border deal influenced the CAR negatively. However, in this research these variables doesn't have a significant influence.

The variables which have a small significant influence on the CAR are the related size and the book-to-market ratio. Based on the expectations of the related size this could be both positive as negative. In this research the relative size of the target compared to the acquiring firm is negative for a value of 0.2 on a 10% significance level. This means that when the target firm gets bigger compared to the acquiring firm, this will have a negative impact on the CAR. Investors think that it will be harder to make the target firm profitable again. This is in line with the research of Dutta et al. (2009) who also found a negative influence of the relative size of the target. The book-to-market ratio has also a negative influence on the car for a value of -0.2. When the book value is higher than the market value the value of the firm decreases. This will have an impact on the return of the company and finally will lower the CAR. This is also in line with the expectations, based on the research of Fama et al. (1993)

The R-squared of the regression model is 24% which means that 24% of the CAR is explained by this model. This is not that high. This can lead to a biased explanation of CAR. There have to be taken into mind that the CAR is influenced by much more variables than used in this model.

Overall, hypothesis 2 is rejected. Distress doesn't have a negative impact on the stock market performance. Based on table 13, the conclusion can be made that the CAR is positive and that there is no significant difference between the CAR of a healthy firm and a distressed firm. The variable DISTRESS is also insignificant, which means that is doesn't have influence on the CAR.

Table 14: Regression analysis CAR

VARIABLES	CAR
DISTRESS	0.0535
	(0.0500)
METH_PAYMENT	-0.0675
	(0.0594)
RELATED	0.0263
	(0.0657)
CROSS_DEAL	0.00468
	(0.0703)
REL_SIZE	-0.197*
	(0.106)
LOG_ASSETS	0.0124
	(0.0137)
LEVERAGE	0.112
	(0.172)
SalesGrowth	0.0100
	(0.0176)
ROE	0.420
	(0.324)
B_M	-0.178*
	(0.0902)
TOB	-0.0261
	(0.0336)
Constant	1.623**
	(0.670)
Observations	175
R-squared	0.241

*** p<0.01, ** p<0.05, * p<0.1

6. Sensitivity analysis

By using the regression model it is important that the model fits the least squares and to make sure that the results of the regression model is not sensitive to other factors. The measure of the different variables can have an influence on the regression model.

In this research financial destress is defined by the Altman Z-score. When a firm has a score of 1.81 or lower, the firm is mentioned as financial distressed. However, previous literature has various definitions of financial distress. Some expect financial distress when there is a negative net income (Anderson & Reeb, 2003). Furthermore, Altman came up with a revised model of the Altman z-score. The revised model substitutes the book value of equity for the market value of equity. As a result, all the coefficients will change. This leads to a new Z-score model (Altman, 2000). As a result of the different measures, a sensitivity analysis of the results need to be made against the alternative definition.

Table 15 shows the result of the estimation of the regression model based on the two alternative definitions of financial distress. Only the independent variable is included to save space. Using either the negative net income and the revised Altman z-score, the effect of DISTRESS on the ROA is not significant, which is consistent with the other results. In table 15 only the independent variable is included to save space. However, As a result of DISTRESS which is insignificant for ROA and CAR, the main result is not sensitive to the definition of financial distress.

Table 15: sensitivity analysis

Panal A: Sensitive analysis ROA		
	Effect on Dependent variable	**P-value**
Revised Z-score	-0.002	0.789
Decrease net income	-0.009	0.173
Panel B: sensitive analysis CAR		
Revised Z-score	0.064	0.140
Decrease net income	-0.067	0.166

7. conclusion

The aim of this thesis was to investigate whether the acquisition of a distressed firm has a short-term effect on the firm performance. Theory about M&As of distressed firms expect a positive firm performance, based on the synergy advantages and the lower price that need to be paid for the target firm. However, Prior literature was inconsistent on this point. The accounting performance on the short-term, which is based on acquiring healthy firms, is found to be positive (healy et al., 1992). However, the long-term performance is found to be negative. When focusing on acquiring distressed firms, the long-term performance is found to be negative as well (Clark & Ofek, 1994). The stock market performance is found to be positive the days around the announcement. However, the long-term abnormal returns are found to be negative (Clark & Ofek, 1994; Dutta et al., 2009). The effect of acquiring a distressed firm on the stock market performance on the long-term is also found to be negative. On the short-term, the effect is unknown (Clark & Ofek, 1994). Expected is, based on the prior literature, that there will be a negative firm performance after acquiring a distressed firm on the short-term. Using a sample of 445 acquisitions in the US for the accounting performance and 175 firms for the stock market performance, the firm performance is measured for the period between 1990 and 2016 based on the acquisitions between 1990-2014. The accounting performance is measured by the ROA one year after the merge and the stock market performance is measured by the CAR six months after the merge.

5.1 Summary results

The first hypothesis investigated whether the acquisition of distressed firms have a negative impact on the accounting performance. This hypothesis is rejected. The independent variable DISTRESS is insignificant, which means that it doesn't have influence on the ROA and therefore there are no differences between acquiring distressed or healthy firms. There are advantages and disadvantages of acquiring a distressed firm compared to acquiring a healthy firm. When these two are outweighing each other, there is no difference between the accounting performance of a healthy or distressed firm. This could be an explanation for the fact that distress doesn't have any influence on the accounting performance. Based on mean of the ROA, the expectation is that the ROA will be positive, for both acquiring a distressed and a healthy firm.

There is also investigated which firm and deal characteristics are influencing the ROA. Based on the regression model the variables which have influence on the ROA are: Method of payment, total assets, return on equity, leverage and book-to-market ratio. The method of payment, total assets and return on equity have a positive influence on the ROA. When the acquisition is paid with cash there is a positive tax effect which leads to a higher premium. This will increase the ROA. When there are more assets in the firm there are more resources to make the target firm profitable again, the same for the return on equity. The higher the total assets and return on equity the better the target firm can be integrated to make it profitable again. Leverage and book-to-market ratio are influencing the ROA negatively. When the leverage is higher, the firm has to pay more interest and principal payments, which will lower the ROA. When the book-to-market ratio is higher, the book value is higher which means the firm is less profitable. All these variables are in line with the expectations.

The second hypotheses investigated the short-term effect on the stock market performance after acquiring a distressed firm by measuring the CAR. Based on the multivariate analyses, the independent variable doesn't have any influence on the CAR. this means that there is no difference in the CAR after acquiring a distressed or a healthy firm. Based on prior literature, the abnormal returns are positive a few days around the announcement. Investors are mostly positive when an acquisition is announced, whether the firm is healthy or distressed. Based on prior literature, investors get optimistic when the firm is distressed, because of the lower price that needs to be paid for the target. For investors it is difficult to estimate what the influence will be of acquiring a distressed firm. This is easier for healthy firm. Through the months investors realize that they were too optimistic and are lowering the stock price, which leads to a lower abnormal return. The abnormal return for healthier firms are mostly lower, because it is easier for the investors to make proper assumptions. By dropping the stock price after a few months, the difference between the CAR after acquiring a distressed or a healthy firm will be close to zero. This could be an explanation for the fact that the variable DISTRESS doesn't have an influence on the stock market performance.

Only two control variables are influencing the CAR: Relative size and book-to-market ratio, both negatively. When the target firm is getting bigger it will be more difficult to make it profitable

again. When the book-to-market ratio is increasing, the firm is more sensitive which will influencing the investors and indirectly the stock prices. This leads to a decrease in the CAR.

Taking all the information together, there cannot be told what the short-term effect is after acquiring a distressed firm. This is the result of the variable DISTRESS which is insignificant in both the hypotheses. Based on this information, there should be no difference in the firm performance between acquiring a distressed or a healthy firm on the short-term. The variables which are influencing the firm performance are: method of payment, total assets, return on equity, leverage, book-to-market ratio and relative size.

By knowing this, a firm can decide whether they want to acquire a distressed firm. However, no answer can be given on whether this method is a good method for saving a distressed firm to make it profitable again. Furthermore, this research cannot say something about the firm performance compared to the other industry. It only shows that the firm performance after acquiring a distressed firm is not depending on whether a firm is distressed or not and which firm and deal characteristics are influencing the firm performance.

5.2 Limitations and future research

The biggest obstacle in this research is the access to information about the sample. As a result of the implementation of a lot of firm and deal characteristics and the use of the Altman Z-score, a lot of information was needed. In order to do so, a lot of observations are dropped which leads to a small sample. The sample for the stock market performance is even smaller. This made it impossible to do a good difference-in-difference analysis. By not making the difference-in-difference analysis, the results are less strong. Because of the drop in observation it is possible that there are some insignificant results which would not be insignificant with a bigger sample. Future research can focus on another method for measuring which firm is distressed. This would increase the number of observations. Furthermore, by collecting the sample, the financial sector is taken out of the sample because there was not enough information available which was needed. However, the crisis in 2008 had a big impact on the financial sector. For this reason it would be better and more reliable by taking the financial sector also into consideration. This would also have a big impact on the sample. For taking the financial sector into consideration,

more information need to be collected from other sources. In this research, there was no time to do that. Furthermore, there is only focused on public targets. It would also be good to focus on the difference between the public and private targets. This would also increase the sample with observations. When there is a bigger sample, the difference-in-difference analysis can be used which will give a better result.

Another limitation in this paper is the focus on one country, namely the US. The financial crisis was active in the whole world. It would be interesting to focus in the research on both the US and Europe, to increase the sample and to compare different countries. Then a comparison is possible between the different reasons why a firm got distressed.

As a measure for the stock market performance the CAR is used. However, based on the paper of Barber et al. (1997) there is a validity concern. Sometimes not enough information is available, which leads to a more volatile CAR. This means that this is not the most reliable measure for measuring the stock market performance. A solution for future research is to measure the stock market performance based on the buy-and-hold return (BHAR). Barber et al. (1997) concluded in their paper that this is a more reliable measure for the stock market performance compared to the CAR. however, for the BHAR also control firms were needed. For this reason the CAR was chosen in this research to make it more easier to calculate the stock market performance based on the small sample.

In this paper there is only focused on measuring the firm performance after acquiring a distressed firm. However, there cannot be made a conclusion if acquiring a distressed firm is a good alternative for a company to grow. In future research it is good to compare different alternatives for an acquiring firm to grow. Based on the different alternatives a conclusion can be made about what the best method is to increase the firm performance on the short-term. Another idea for future research is to include the performance of the target firm as well. This could give an overview on whether the acquisition has a positive impact on the firm performance of the target firm. By measuring this, a good overview can be given of whether the acquisition is positive for the acquiring firm as well as for the target firm.

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10. Appendix

Table 1: overview previous literature

Paper	Sample & data source	Purpose paper	dependent variable	independent variable	method + result
operating performance					
Agawa, Jaffe & Mandelekr (1992)	937 mergers, 227 offers. 1955-1987. CRSP, wall street journal index.	Analysis of the post-merger performance of acquiring firms after adjusting for firm size.	* Stock's abnormal performance. * RATS	* Conglomerate * months after completion	* Stockholders experience is statistically significant--> wealth loss of 10%. * Underperformance worse for non-conglomerate than conglomerate mergers.
Bruton, Oviatt & White (1994)	* 51 acquisitions distressed firms * 46 acquisitions not distressed firms. * 817 firms acquired * 1979-1987 Compustat	* Predictig factor that lead to a success of acquisition. H1: related acquisitions of distressed firms perform better than unrelated acquisition. H2: prior experience is postively associated. H3: ratio firm size has association with performance	* Acquisition performance, seven point scale.	* Prior acquisition experience (+) * Business relatedness (related +) * Relative size of target and acquirer (no effect)	* Regression analysis *Related acquisitions of distressed firms perform better than unrelated. * Prior experience + * Tacit knowledge about business and how to negotiate is one key factor to success.
Clark & Ofek (1994)	38 takeovers US distressed firms 1981-1988	Evaluating post-merger performance of the combined bidder and target firm. Studies the effectiveness of mergers in restructuring distressed firms	*EBITD to revenues	* Size of premium bidder * Post-merger leverage * Targe size relative to bidder size * Method of paying * Financial distress * Industry silimarity * Management expertise	Operating performance declines over three years following M&As. * Logit regression * Bidder are unable to succesfully restructure target * Industry-adjusted performance is better --> post-merger performance is driven by industry factors * Size premium bidder (-/-) * Higher leverage (-/-) * Lower the size of the target (+) * Poor equity return
Dickerson, Gibson & tsakalatos (1997)	Large panel of UK firms over a long period of time. Cambridge/DTI databank.	Investigating the impact of acquisition on company performance using a large panel of UK-quoted companies	*Profitability pre taxes and based on net assets	* Size * Debt	Acquisitions have a detrimental impact on company performance and company growth yields a lower rate of return than growth through internal investment. *Size relative to the firms is important *Debt has a negative influence on profitability *Significant decline in acquirer's ROA
Healy, Palepu & Ruback (1992)	1979-1984. 50 largers U.S. Mergers CRSP database and wall street journal index.	examine post-acquisition performance for US	* pre-taxes operating cash flow *Returns on assets	* Method of payment * Industry * Size	Merged firms shows significant improvements in asset productivity relative to their industries, leading to higher operating cash flow returns. *Strong form firms with highly overlapping businesses. *Strong positive relation between post-merger *Increases in operating cash flows and abnormal returns at merger announements.
Heron & Lie (2002)	1985-1997. 859 acquisitions. Source is SDC mergers and acquisitions database. US	Investigate the relation between the method of payment in acquisitions, earnings management, and operating performance	* Operating income scaled by sales.	* method of payment * Industry * Size	No difference in the pre-acquisition discretionary accruals or post-acquisition changes in operating performance. Improvements in operating performance subsequent to acquisitions are significantly greater when firms with higher market-to-book ratios acquire firms with low market-to-book ratios and when the target belongs in the same industry.
King, datton, Daily & Covin (2003)	Journals/reports. 93 reports checked	Cumulative findings of published research on post-acquisition performance	*abnormal return *RPE *ROE *ROS	* Conglomerate firm * related firm * method of paying * prior aquisition experience	*Meta-analyses * Abnormal return only positive on day 0--> acquisition synergies for acquiring firms is negative. * Only conglomerate firms is significant. * No evidence for a positive stock market performance.
Kruse, Park, Park & Suzuki (2002)	Tokyo 1969-1992. 46 M&As.	Examine the long-run operating performance following mergers of manufacturing firms traded on the Tokyo stock exchange.	Pre-tax cash flows	* Industry * Size	Long term operating performance following the mergers is positive but insignificant. There is a positive abnormal return in bidder firms. acquisitions of poorly performing firms are less likely to succeed.
Sirower & O`byrne (1998)	acquisitions of NYSEAR AMEX 1979-1990. Data corporation database CRSP	Develop and illstrate method for forecasting post-acquisition performance	* Operating performance * EVA	* Short term reaction to announcement by shareholder. * five year excess return	* Examined stock market's response to announcements of acquisitions. * Developed the benchmark EVA which is directly related to performance.
Martynova, Oosting & Renneboog (2006)	155 european M&As from 1997-2001	Investigate the long-term profitability of corporate takeovers of which both the acquiring and target companies are from Europe.	operating performance: * EBTDA	* Means of payment * Geographical scope * Industry relatedness * Hostile vs friendly * Tender offers vs negotiated deals * Domestic vs cross-border transactions * Relative size of the target firm	* Post-merger profitability of the combined firm is not significantly different from the aggregate performance of the bidding and target firm prior to the merger. --> no improvement in performance. * M&As do not generate poor performance the post-acquisition performance significantly varies across M&As with different characteristics * No difference in operating performance of industry-related and diversifying takeovers and desla that involve different means of payment. * Decrease becomes *insignificant* after they control for the industry, size and pre-event performance which suggests that the decrease have to do with changes which is unrelated to takeovers.
Powell & Stark (2005)	1985-1993. 113 M&As in the UK	Measuring the performance of a takeover based on a different model.	Pre-tax cash flows and pure cash flows	* Industry * Size * Pre-event performance	Takeovers in the UK result in modest improvements in operating performance.
abnormal returns					
Moeller et al. (2003)	12023 acquisitions by public firms from 1980-2001. Acquisitions announcements which are successful and result in a completed transaction (CRSP).	Estimate the shareholder gains from acquisitions	* BHAR * Calendar-time portfolio formation	* Acquiring-firm size to firm * Deal characteristics: days to completion, cash in payment, equity in payment, pure cash deals, hostile deals, tender offer, conglomerate deals	* Cash = positive; equity =negative * private=positive; public = negative * -16.02% significant abnormal return over three years

Dutta & Jog (2009)	1300 M&A events in 1993-2002. based from SDC Thomson Financial database.	Investigate the long-term stock return performance of Canadian acquiring firms in the post-event period	* Event-time: buy-and-hold abnormal returns (BHAR) in order to examine the long-term performance of acquiring firms. * Calendar-time portfolio approach: Fama-french 3-factor methodolohy.	* Mode of acquitition (no sig) * Target type (No sig) * Related or unrelated target (no sig) * Payment type (stock -) * Growth of value acquirer (no sig) * Board independence * Leve lof managerial ownership (+) * Relative size of the deals. (-)	Did **not find negative abnormal long-term** abnormal stock market returns nor they find a negative long-term operating performance in the post-acquisition periods for the acquirer following an acquisition.
Agrawal, Jaffe & Mandelker (1992)	937 mergers & 277 tender offers from 1955-1987. NYSE/AMEX firms	937 mergers and 227 tender offers. CRSP and Wall street journal index	* Stock-abnormal performance * Return across time and adjustment for firm size.	* Tender offer or merger.	Stockholders of the acquiring firms suffer statistically significant wealth loss of about 10% over the five years following the merger completion. -10.26% **significant abnormal return** for mergers in 60 months. **No significant abnormal return** for tender offers.
(André, Kooli & L'Her, 2004)	267 Canadian mergers and acquisitions that take place between 1980 and 2000. Data from the SDC.	Investigate the long-run performance of Canadian acquirers. Focus on two issues: the magnitude and reliability of abnormal returns and the possible explanation of the long-term behavior of M&A firms.	* Calandar-time approaches	* Extrapolation * Method-of-payment * Cross-border deals	*S**ignificantly underperform** over the three-year post-event period. This is significant with the extrapolation and the method-of-payment. Glamour acquirers underperform relative to value acquirers and financed by equity is underperformed relative to cash transactions. The cross-border deals also perform poorly in the long run. ***No significant abnormal return** once cross-sectional dependence is taken into consideration.
Franks, Harris & Titman (1191)	399 U.S. takeovers consummated in 1975-1984. NYSE/AMEX acquisitions	Providing a more comprehensive analysis of postmerger performance	* Risk-adjusted returns using the tools developed to study the performance of managed portfolios. * cross-sectional analysis in event time.	*Relative size *Medium of exchange	**No statistically significant abnormal performance** for the overall sample of bidders both for the event-time and the calendar-time approach
Wansley, Lane & Yang (1983)	203 firms who are between 1970-1978, listed in the Federal Trade Commission large merger series and have available daily returns on the CRSP.	Test whether there are differences in the return after controllng for both payment method and merger type.	* Abnormal return	* Method of payment * Merger type	*The returns to seller shareholders are larger in horizontal or vertical mergers than in conglomerate mergers. *Significant differences in abnormal returns do appear to exist when the mergers are compared with payment method. *Cash leads to almost twice the abnormal return compared to securities payment.
Loughran & Vijh (1997)	947 NYSE/AMEX/NASDAQ firms	looking to the relationship between the postacquisition returns and the mode of acquisition and form of payment.	* Abnormal returns measured as the difference between the five-year holding period returns of sample stocks and matching stocks. --> buy and hold abnormal return	* Type of acquisition * Method of payment	There is a -15.9% abnormal return for mergers in 60 months and no significant abnormal return for tender offers.

Table 4: correlation matrix

ROA:

	ROA	METH_PAYMENT	CROSS_DEAL	RELATED	REL_SIZE	LOG_ASSETS	LEVERAGE	B_M	TOB	SalesGrowth	FIRMSIZE	ROE
ROA	1.00											
METH_PAYMENT	0.12	1.00										
	(0.00)											
CROSS_DEAL	0.03	0.16	1.00									
	(0.00)	(0.00)										
RELATED	0.03	-0.06	0.18	1.00								
	(0.04)	(0.00)	(0.00)									
REL_SIZE	-0.04	-0.40	-0.01	0.14	1.00							
	(0.00)	(0.00)	(0.68)	(0.00)								
LOG_ASSETS	0.35	0.08	0.12	0.07	-0.23	1.00						
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)							
LEVERAGE	0.02	0.08	0.05	0.06	0.04	0.18	1.00					
	(0.00)	(0.01)	(0.01)	(0.00)	(0.56)	(0.00)						
B_M	-0.10	-0.05	-0.01	-0.00	0.01	-0.08	-0.06	1.00				
	(0.00)	(0.00)	(0.02)	(0.17)	(0.00)	(0.00)	(0.00)					
TOB	0.04	-0.04	-0.02	0.01	-0.04	-0.12	-0.38	-0.49	1.00			
	(0.00)	(0.00)	(0.94)	(0.04)	(0.00)	(0.00)	(0.00)	(0.00)				
SalesGrowth	0.03	0.15	0.02	-0.06	-0.11	0.09	-0.00	-0.04	0.03	1.00		
	(0.80)	(0.22)	(0.43)	(0.86)	(0.88)	(0.00)	(0.02)	(0.09)	(0.00)			
FIRMSIZE	0.45	0.17	0.12	0.07	-0.18	0.94	0.14	-0.08	-0.15	0.08	1.00	
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		
ROE	0.64	0.06	0.01	0.04	0.06	0.28	0.22	0.14	-0.18	-0.02	0.32	1.00
	(0.00)	(0.00)	(0.57)	(0.00)	(0.00)	(0.00)	(0.00)	(0.42)	(0.00)	(0.28)	(0.00)	

CAR:

	(1) CAR	DISTRESS2	METH_PAYMENT	CROSS_DEAL	RELATED	REL_SIZE	LOG_ASSETS	LEVERAGE	B_M	TOB	SalesGrowth	FIRMSIZE	ROE
CAR	1.00												
DISTRESS2	0.09 (0.24)	1.00											
METH_PAYMENT	-0.03 (0.65)	-0.09 (0.23)	1.00										
CROSS_DEAL	-0.04 (0.54)	-0.12 (0.11)	0.24 (0.00)	1.00									
RELATED	0.10 (0.18)	-0.01 (0.90)	-0.01 (0.85)	0.26 (0.00)	1.00								
REL_SIZE	0.05 (0.49)	-0.03 (0.67)	-0.38 (0.00)	-0.11 (0.13)	0.2 (0.00)	1.00							
LOG_ASSETS	0.16 (0.03)	-0.12 (0.10)	0.06 (0.41)	0.05 (0.52)	0.03 (0.70)	-0.24 (0.00)	1.00						
LEVERAGE	0.07 (0.34)	-0.06 (0.40)	0.11 (0.13)	-0.09 (0.24)	0.10 (0.18)	0.02 (0.75)	0.21 (0.00)	1.00					
B_M	-0.16 (0.03)	0.07 (0.34)	-0.12 (0.10)	0.00 (0.98)	0.03 (0.70)	0.04 (0.58)	-0.12 (0.12)	-0.03 (0.70)	1.00				
TOB	0.11 (0.14)	-0.05 (0.49)	0.03 (0.66)	0.08 (0.31)	0.06 (0.41)	0.01 (0.91)	-0.06 (0.44)	-0.38 (0.00)	-0.52 (0.00)	1.00			
SalesGrowth	0.05 (0.47)	-0.01 (0.89)	0.05 (0.49)	-0.06 (0.44)	-0.10 (0.18)	-0.08 (0.25)	0.15 (0.04)	-0.03 (0.65)	-0.07 (0.31)	0.10 (0.18)	1.00		
FIRMSIZE	0.13 (0.07)	-0.20 (0.01)	0.09 (0.20)	0.06 (0.44)	0.01 (0.89)	-0.22 (0.00)	0.94 (0.00)	0.18 (0.01)	-0.14 (0.06)	-0.08 (0.29)	0.12 (0.10)	1.00	
ROE	0.02 (0.84)	-0.06 (0.43)	0.16 (0.04)	0.03 (0.72)	0.02 (0.75)	-0.11 (0.14)	0.28 (0.00)	0.31 (0.00)	0.23 (0.00)	-0.26 (0.00)	-0.09 (0.24)	0.38 (0.00)	1.00

p-values in parentheses