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Delving into the acquisitive nature of distressed firms

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Abstract

Title:	Delving into the acquisitive nature of distressed firms
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Key words:	Financial Distress, Distressed Acquisitions, Diversification, Distressed Acquirers, Diversifying Acquisitions, Cross-border, Cross-Industry
Purpose:	After observing cases of financially distressed firms engaging in diversifying acquisitions, the motivation for this thesis was found. The purpose of this thesis is to investigate the role played by diversification through cross-border and/or cross-industry acquisition in change in financial distress of the acquirer.
Methodology:	This research is implemented through a quantitative approach utilising univariate tests followed by a cross-section OLS regression to further test the significance, both statistically and economically. The results are then analysed and discussed in the light of existing theories.
Theoretical perspectives:	This paper is intensively built upon prior research and literature on bankruptcy risk, acquisition deals and determinants of M&As. This paper also accounts for the general motivations and factors behind M&A. However, the focus of the paper remains on the distressed acquirers in order to test their rationale and expectations to involve in mergers and acquisitions in difficult times.
Empirical foundations:	This thesis uses a sample of 373 acquisition transactions from the countries of the continental Europe during the period between 2009 and 2019. to empirically test the effectiveness of diversifying acquisitions on the improvement of the financial positions of the acquirers.
Conclusion:	The empirical analysis reported in this paper displays that diversification acquisitions lead to a positive effect on the financial position of the acquirer. In other words, it implies that distressed acquirers are benefitted from the diversifying acquisitions, leading them to a better financial position. The reported results are robust to different measures of financial distress. However, the economic significance of the improvement is open to debate.

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Saiyara Naoshin Meem Mykola Shylin

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1 Introduction

This chapter gives an insight into the topic and sets a ground for the research purpose by providing a discussion on the problem. The main findings and contribution are also discussed followed by the limitations of the study. The section ends by providing an outline of the structure of the paper.

1.1 Background

Acquisitions made by firms have intrigued the interest of researchers through decades. Researchers in both economic and corporate finance have been conducting studies to understand the motivation. Acquisitions are one of the important growth strategies adopted by businesses to aid improvement of organizational performance and stay competitive. Acquisitions are thought to be more advantageous compared to businesses expanding on its own (Vazirani, 2015). Based on the desire to be acquired, acquisitions are classified as friendly or hostile.

In 2016, Softbank Group Corp, a Japanese multinational telecommunications and internet firm, announced the all-cash acquisition of the entire issue and to be issued shares of the UK-based computer chip designing company, ARM Holdings (Massoudi et al, 2016; Softbank Group Corp., 2016). This £24.3 billion deal is particularly intriguing due to the poor financial health of the acquirer, Softbank Group. During that period, Softbank had an Altman Z-score below 1.2. Additionally, the firm's credit rating dropped from BBB to a non-investment grade BB+. Another factor that made the deal more interesting is that the acquirer, Softbank, and the target, ARM Holdings, operated in different industries and the acquirer was novice to the target's industry. Softbank's top management and board believed the acquisition to be revolutionary, however, the market reacted negatively as the stock price dropped 11% post announcement. Despite being financially distressed, Softbank completed the deal paying a whopping 43.0% premium financed by its existing cash resources and a term loan arranged by Mizuho Bank Ltd. A similar case was observed in 2017 when Tesco announced a bid for Booker, a UK-based wholesaler of groceries. During that period, Tesco had an Altman Z-score around 1.5 and its credit rating dropped to below investment grade. Even though the CEO was positive that the deal would serve Tesco's recovery, the announcement was followed by revolts from investors as well as a resignation of a non-executive director.

The examples above are not extraordinary. As Zhang (2022) mentions, a lot of acquisition deals reported in the US between 2010 to 2014 consisted of financially distressed acquirers. These phenomena open room for questioning acquisition activities undertaken by distressed acquirers, in terms of diversifying versus non-diversifying acquisitions.

1.2 Problem Discussion

Prior research heavily focuses on acquisitions of distressed firms. However, theories and evidence for acquisitions performed by distressed firms are limited. According to Zhang (2022), acquisitions by distressed firms accounted for over 18% of the total $1.4 trillion acquisition value in the US for the period between 2010 and 2014. The value creations for these deals are susceptible to more debate particularly as the acquirers are facing financial distress. The rationales for undertaking M&A activities during times of distress can consist of a strategic turnaround. This implies that the acquirers can benefit from the deal if they provide corrective ways to make up for the management's ineffective strategies and/or aid them to enhance the position of the company in the competitive market. In other words, such deal can represent escape routes from the difficult position the organization is in.

Trahms et al. (2013) provide support to the intuition that companies may resort to M&A activities to alter their line of strategy in order to retrieve the financial position. However, such strategies constitute acquisitions of target firms that operate in similar business lines. This opens room for discussion of the benefits of acquiring targets that are diversifying, in terms of geography and/or industry. Lai et al. (1997) report that about 50% of struggling companies engage in M&A activities. An argument towards this move can be that distressed firms may benefit from acquisitions which aid to resolve risk by diversifying, leading to lower asset volatility and further leading to decrease in bankruptcy risk (Hubbard et al., 1999). These form plausible explanations and imply that firms in distress may benefit from such value-creating acquisitions.

On the other hand, struggling or distressed companies are expected to conserve cash and/or engage in schemes which aid in rationalizing the use of cash, acquire funds from capital markets or sell assets, and not involve in uncertain mergers and acquisitions (Hotchkiss et al., 2008). In line with the agency theory, management may undertake M&A activities for personal motives. These motives include maintenance of the compensation (Arnold, 2014) and avoidance or hindrance of bankruptcy of the firms as well as personal (Eckbo et al, 2016). This conflicts with maximization of shareholders' wealth and may lead to inefficient

empire building, followed by negative returns. Additionally, firms engaging in more debt to finance acquisitions may drag the already distressed firms into destitute.

As discussed above, previous literature does not provide unequivocal conclusions to whether it is beneficial or depleting for acquirers in financial distress to involve in acquisition activities. There is also a gap in terms of diversifying acquisitions by distressed acquirers. This paper aims to bridge this gap in the M&A literature.

1.3 Purpose and Research Question

Prior research has primarily focused on the acquisitions of distressed targets. Therefore, literature is limited when it comes to acquisitions made by distressed companies. Other than that, most of the previous studies have been conducted with global or U.S. data samples. This opens a potential to study the European acquisition deals. This paper aims to help answer if it is appropriate for distressed firms to engage in diversifying acquisitions and employs empirical analysis to test the change in distress to support it.

This research is especially fascinating since it is not well-studied in academic papers neither in Sweden nor the rest of the world. Another argument towards why this topic is interesting to explore is that the previous literature has provided ambiguous conclusions to being in financial distress and engaging in M&A activities. Lastly, the authors' fascination towards activities of financially distressed firms motivated the choice of the topic.

The purpose of this paper is to contribute to the existing scientific knowledge of distressed acquirers as well as to provide practical insights. More specifically, the paper addresses the following research question to fulfill the purpose of the study:

a. Do diversifying acquisitions impact the post financial distress of the acquirers listed in the European Stock Exchanges?

1.4 Main Findings and Contribution

This paper utilizes a sample of 373 acquisition transactions completed by distressed acquirers within the continental Europe in the time period of 2009 and 2019. From the sample, it is observed that 310 (83%) of the 373 firms engaged in diversifying acquisitions. With the help of univariate tests and a cross-section OLS regression, this study empirically tests two competing hypotheses about the influence of diversification on the financial distress position of the acquirer. The empirical analysis reported in this paper display that diversification acquisitions lead to a positive effect on the financial position of the acquirer. In other words,

it implies that distressed acquirers are benefitted from the diversifying acquisitions, leading them to a better financial position. The reported results are robust to different measures of financial distress. However, the economic significance of the improvement is open to debate.

Although the M&A literature has inspected the motivations to acquire distressed targets, empirical research on acquisitions by distressed firms is limited. Studies have been conducted on diversification acquisitions by firms. However, focused research on diversifying acquisitions by distressed acquirers is scant. This study contributes to the limited literature on distressed acquirers. By shedding light on the acquisition activities of the distressed firms, this paper expands the literature from the predominantly US to the European economies. Furthermore, this research can aid in building further theories relating to distressed acquirer and their acquisition activities.

1.5 Limitations

The reliability of the results and conclusions can be influenced by some limitations in the paper. Firstly, in order to determine financial distress numerous different proxies could be used, namely, Distance to Default, Altman Z-score, and Interest Coverage Ratio (ICR), etc. Due to time constraints and information unavailability, only Altman Z-scores and ICR were used to classify distress. Hence, the classification of the sample may also be hindered. Secondly, the study only focuses on acquisitions made by European acquirers and not global. This may weaken the application of the results to other parts of the world on accounts of differences in aspects like corporate governance and legislation concerning capital structure for different countries. Thirdly, only publicly listed acquiring companies and completed deals are used in this paper. This can result in a selection bias in the sample and missing observations which can impair the accuracy of the results. Lastly, a small sample was utilized in the study due to limited availability of data. This may hamper the reliability of the results.

1.6 Thesis Outline

The remainder of the paper are organized as follows. Chapter 2 presents relevant theoretical and empirical literature. Chapter 3 summarizes the theoretical and empirical literature and presents the formulated hypotheses. Chapter 4 provides the empirical methodology, followed by Chapter 5 which provides the description of the data. Chapter 6 reports the empirical results, the findings and discussion. Lastly, Chapter 7 presents a brief conclusion.

2 Theoretical Framework

This chapter of the paper introduces the review of the theoretical and empirical developments related to corporate acquisition which aids to form the theoretical framework to answer our research question. First, the traditional theories relating to M&A activities are presented, followed by theories concerning financially distressed firms and acquisitions. Lastly, the empirical literature has been presented.

2.1 Traditional Theories of Mergers and Acquisitions

2.1.1 Efficiency Theory and Synergies

In M&A literature, the efficiency theory originates from the idea of synergy. Synergy results from the combination and coordination of the superior operations of the firms and disposal of redundant operations (Lin et al., 2013). The synergy also results in a higher market value of the combined firms than the summation of their individual market values. However, according to Modigliani-Miller (MM) model, the market values should be equal, irrespective of whether the firms are combined or separate. The MM model assumes a perfect capital market and absence of corporate taxes. Due to these improbable assumptions, this phenomenon is not observed in the valuation of acquisitions.

In acquisitions, synergies can be gained through several means. Restructuring of the firm post-acquisition by more efficient and effective allocation of resources, removal of unfit management as well as redundant and/or loss-making operations can positively impact market value. According to Leigh et al. (1978), the post-acquisition positive impacts are generated through better management practices and superior utilization of existing assets. Next, synergy effects are also resulted from operational and financial economies of scale through M&A (Brealey et al., 2001). The combined firms enjoy lower marginal cost of debt and improved debt capacities (Lin et al, 2013). Lastly, shifts in company culture post-acquisition are also a source of synergy. Stallworthy et al. (1988) mentioned that bringing changes in the company culture could be a motive for mergers and acquisitions. In other words, firms can also be intrigued to engage in M&A activities to bring a better corporate culture.

2.1.2 Agency Theory

A popular debated topic in the M&A literature is the agency theory. It is a multi-faceted hypothesis which primarily includes empire-building, compensation, and career concerns. For senior executives, corporate growth may translate to social prominence, enhance prestige and

political power (Jensen, 1989). These may influence managers to increase company size which may not be associated with wealth maximization of the shareholders. Jenter et al. (2015) report that executive officials of targets have a tendency to accept bids when nearing retirement.

In cases of distressed acquirers, there is an increased likelihood of such conflict of interests or agency costs. Management may engage in M&A activities in order to gain personal benefits. Jensen (1986) questioned the extent of benefit the shareholders will achieve when managers decide to take part in areas without prior experience. The synergies may be bounded in such deals and may be directed towards expanding the business size. Although these aid in reducing bankruptcy risk, such strategies particularly benefit the management. Pryshchepa et al. (2013) postulate that distressed firms appear to involve in dubious M&As, leading to future bankruptcies, which is also harmonious with the agency theory. As per Graham et al. (2015), CEOs are the cardinal decision-makers in crucial investment decisions like M&As. Thus, in case of distressed firms, it would not be surprising if executives put their personal concerns, e.g., career, first and participate in M&As to circumvent personal bankruptcy expenses.

2.1.3 Free Cash Flow Hypothesis

This theory is closely related to the agency theory. Jensen (1986) asserts that management is hesitant to distribute free cash flow to the investors mainly due to the fact that it can significantly impact the resources under their control and not contribute to improve their own wealth. On the contrary, managements' remuneration may be tied to the growth of the business. Thus, managers can prefer to use the free cash flow for M&A activities. Besides this, holding free cash flow can also be injurious to the business' health. Jensen (1986) reported that firms can become attractive targets if they hold substantial free cash flow. Potentially distressed firms may prefer targets with good liquidity in order to relax their financial burden. Through an economic lens, there must be a balance and bankruptcy costs should equal the marginal benefits that the management can achieve through these activities. (Lin et al., 2013).

2.2 Financial Distress and M&A

2.2.1 Diversification

Even though there are several ways in which firms can recover from financial distress, diversifying hypothesis indicates that acquisitions can lead to diversifying benefits for the

distressed firms. Distressed firms can benefit from diversifying acquisitions in several ways. Diversifying acquisitions smoothen cash flow streams (Levy et al., 1970). Levy (1970) terms this as 'conglomerate effect' where profits improve by combining with independent or negatively correlated income sources which aid in levelling out cash flows. This regulation of cash flow streams, induced by the combination, produces an apparent economic gain even in lack of synergies and economies of scale (Levy et al, 1970). Levy et al. (1970) also mention that stabilization through diversification effect does not guarantee risk diversification beyond what was conceivable before the merger or acquisition. In addition to these, diversifying acquisitions bring reductions in asset volatility as well as decrease bankruptcy risk (Zhang, 2022; Lewellen, 1971). Lewellen (1971) talks about how combined corporations have improved ability to meet the lender's cash-inadequacy tests or debt service criteria which are realized through financial synergy released by the combination. He asserts that uncorrelated acquisitions aid in enhancing bankruptcy risk and thence increase debt capacity due to coinsurance effect. Moreover, acquisitions can assist in prevention of unwelcomed liquidation of promising firms due to short-term financial distress (Lewellen, 1971). This argument is further completed by Leland (2007). According to Leland (2007), in diversifying acquisitions financial synergies are substantial when firms have unidentical operations. He further discusses that merged firms have higher optimal leverage ratio. Diversifying acquisitions also allow distressed firms to make positive NPV investments which can be difficult to do on their own due to agency costs (Fluck et al. 1999).

2.1.2 Risk Shifting

Risk shifting incentivizes financially distressed firms to invest in risky projects. Risk shifting motivations conduce the relationship between investment and volatility. Stakeholders in distressed firms benefit from high risk, thus, increased volatility may make way for the respective firms to rip value creation by investing in risky projects (Eisdorfer, 2008). Due to agency costs, financial distress and investment risk can share a positive relationship (Jensen, 1976). In acquisitions, firms engage with companies beyond their scope. Although acquisitions can aid in diversification of the companies' operations, they can be a wager in the alien business environment (Zhang, 2022). To summarize, risk shifting hypothesis postulates that firms in financial distress can engage in acquisitions of unrelated firms as a speculative investment strategy and take exorbitant risks at the expense of the creditors.

2.1.3 Turnaround Strategies

M&A activities are referred to as turnaround strategies in the management literature (Iyer et al., 2008). In cases where firms have used up all internal investment opportunities or lack growth opportunities can involve in M&A activities. Such firms use acquisitions as a turnaround strategy. McCardle et al. (1994) show that lack of investment opportunities and acquisitions share a positive correlation.

2.1.4 Signalling Theory

Due to information asymmetry, there is a gap in the knowledge of a firm between insiders and other stakeholders. Signalling theory suggests that firms often rely on different signals to communicate and influence their stakeholders, inclusive of the potential investors who know fairly little. Distressed firms can benefit from the signalling theory, aiming for positive announcement results. However, empirical evidence on announcement effects is inconclusive.

2.3 Empirical Findings

According to Franks et al. (1988), UK acquisitions did not produce any significant abnormal returns for the acquirers. In 2000, Eckbo et al. also found similar results in their research on Canadian firms. Moreover, Mulherin et al. (2000) established slight negative, but again insignificant return of -0.37% from their sample of 138 bidders across a 9-year study in the US. To add more, Walker (2000) got negative abnormal return of -0.84% when investigating US deals during the period 1980 to 1996 but still lacked statistical significance. Additionally, Moeller et a. (2005) found marginally negative announcement returns for US acquirers. Campa et al. (2004) reported zero abnormal returns for the acquirers when analyzing European mergers and acquisitions. On the other hand, Bradley et al. (1998) reported significant returns of 0.97% in their study of US mergers and acquisitions, comprising a sample of 161 deals between 1963 to 1984. Similar results were reported by Goergen et al. (2004). In their analysis of 228 European M&A deals between 1993 and 2000, they published evidence for announcement returns of 0.7% which was statistically significant.

On another note, Healy et al. (1992) postulate that higher improvements in cashflows have been observed in deals between firms with related products compared to unrelated firms when they studied 50 M&A deals between industrial companies listed in US stock market from 1979 to 1983. Doukas et al. (2001) studied 101 Swedish acquirers and reported that diversifying acquisitions results in more agency costs and hamper operating efficiencies

which exceed the diversification benefits. Their findings corroborate that diversification does not create value. When Delcoure et al. (2006) analyzed a sample of 144 US M&A deals between the period of 1980 and 2000, they found positive cumulative average returns for deals between firms sharing same industries which were significant at 5% level. They found evidence that the relatedness of the firms plays a dominant role in the acquirers' returns. To add more, Goergen et al. (2004) posit that domestic mergers and acquisitions had more wealth effects compared to cross-border deals in their study of 187 large intra Europe M&A deals. This is contrary to foreign direct investment theories which propose that foreign bidders should be able to benefit from the imperfections in factor and capital markets and hence, produce higher gains. Martynova et al. (2006) found that businesses that made deals with firms within the core industry has positive abnormal returns of 0.63% around the announcement whereas the announcement of diversification resulted in 0.36% returns in the European takeover market. Lastly, in line with the diversification hypothesis, Gormley et al. (2011) provide empirical evidence that failing bidders have a higher chance of acquiring an unrelated target.

3 Hypothesis Development

This chapter summarizes the aforementioned theories and helps to formulate the hypotheses to help answer the research question.

3.1 Hypothesis 1

Acquisitions, according to past research, can help businesses manage financial hardship, both inside and outside of bankruptcy. This suggests that involving in acquisitions can be a worthwhile alternative to bankruptcy.

According to Zhang (2022), acquirers in financial distress are expected to diversify cash flow exposure and reduce asset volatility by combining with diversified targets. Even though earlier research claims that diversifying depletes value and results in conglomerate discount, recent papers assert that it reduces bankruptcy risks and results in significant financial synergies (Zhang, 2022; Hubbard et al., 1999). In addition, diversification geared at exploiting growth choices rather than exercising available options, according to the analysis, adds value (de Andrés et al., 2017). Diversification may also benefit financially distressed bidders by mitigating information asymmetry and potential mispricing (Monk, 2017). Diversification may also be useful in terms of the labour market. Fulghieri et al. (2011), for

example, suggest that, despite the benefits of market power, mergers between firms in similar product markets may reduce employees' incentives to innovate. Workers in diversified organizations gain abilities that translate across many lines of business, allowing them to redeploy labour in response to shifting possibilities (Tate et al., 2015) For acquirers with a high default risk, these gains are likely to be substantial.

To sum up, these statements imply that distressed bidders should involve in acquiring targets with synergies, value-enhancing as well as diversifying, which can make way for positive announcement and long-term returns. This leads to the formation of the first hypothesis, stated below:

H1: Diversifying acquisitions have a positive impact on the financial position of distressed acquirers.

3.2 Hypothesis 2

In contrast, there are several grounds which imply that acquisitions by distressed acquirers may deplete value. Numerous studies have reported unsatisfactory performance of M&A activities by distressed firms. The hubris theory proposes that overconfidence of bidders may lead them to over-valuation of the target or the probable synergies and could end up in higher premiums (Roll's, 1986). This is especially relevant for acquirers with strong historical performance. However, distressed firms have a poor track record, it is assumed that hubris issues are not driving M&A decisions. Despite this, agency issues are especially pertinent in their bids.

As discussed already, empire building, compensations and career concerns are relevant in the context of distressed acquirers. Enhancing social prestige through corporate expansion can be lucrative to executives. Thus, this incentivizes executives to engage in deals for expansion of the business which may be beyond the value maximization of the shareholders' wealth. These cause the severity of agency problems to increase for distressed firms.

To summarize, arguments relating to the agency theories indicate that firms with financial distress may involve in acquisitions generally in efforts to increase size of the business and in order to protect the interests of the management. As per this, the following contesting hypothesis is formed:

H2: Diversifying acquisitions have a negative impact on the financial position of distressed acquirers.

4 Methodology

This chapter provides a description of the scientific approach followed by the econometric methodology and in-depth descriptions of the variables used.

4.1 Introduction and Scientific Approach

This research design uses a deductive theory and quantitative methodology to investigate the relationship between financial distress and diversification through acquisitions. Firstly, this paper compares and assesses relevant theoretical and empirical studies within the field of mergers & acquisitions and financial distress. Next, with the help of conclusions from existing literature the understanding of how to observe the effect of diversification on financial distress, measured by the percentage change in Altman Z-scores. The hypotheses were deduced by examination of research papers and their conclusion, which revealed a potential linkage between the observed variables.

This empirical analysis begins by grouping the dataset into two groups, diversifying and non-diversifying. The two groups are then divided into four sub-samples: cross-border, domestic, same industry, and different industry. Based on previous literature, it is assumed that firms having Altman Z-scores less than 1.9 are classified as distressed. The paper first provides descriptive statistics and matrix correlation of the dependent, explanatory and control variables used in this research. Next, it compares differences in means in the two sub-samples for the entire period with the help of simple univariate tests. It is then followed by a multivariate analysis using cross-section ordinary least squares (OLS) regression.

4.2 Statistical Tests

4.2.1 Heteroskedasticity

To test the presence of heteroskedasticity, or in other words, to check if there is not a constant variance between the error term and the explanatory variables, which can cause the OLS-standard errors to be incorrect, White tests were conducted. To tackle the presence of heteroskedasticity, cluster robust standard errors will be used with the OLS models.

4.2.2 Endogeneity

To deal with potential endogeneity issues and increase the likeness of the deals, this paper only includes observations for deals within independent firms. In other words, deals are omitted if acquirers are the management or employees, as well as subsidiaries. Furthermore,

deals within different or special regulatory bodies and different reporting regulations such as financial institutions, utilities sector and government bodies are excluded from the sample.

4.3 Multivariate tests

Even though the study examines the performance of the combined entities single year pre and one year post completion of the acquisition, time series data is not used. Moreover, the data is transformed into a cross-sectional data set. The performance of the acquisition and its impact on distress is examined in terms of percentage change in Alman-Z scores, hence eliminating the requirement of panel data analysis. Furthermore, another argument towards not employing panel data analysis is that the sample size is small, stemming from data unavailability. This makes panel data analysis inappropriate. To add more, panel data analysis would require a higher number of observations of deals and a longer post-deal completion investigation. Nonetheless, neither increasing the data sample nor extending the time horizon were possible. The short time period and limited degrees of freedom make the panel data regression impractical (Baltagi, 1995). It is assumed that performance changes measured two years post completion of the transaction shares weak connections with the deal. Thus, panel data regression was deemed as an unsuitable approach for this study, which could lead to unreliable results.

To examine the research hypothesis, a cross section Ordinary Least Square (OLS) regression is formulated on the account of the nature of the data.

$$Change_{Altman} = \beta_0 + \beta_1 CrossBorder + \beta_2 Industry + \beta_2 \log(acqsize) + \beta_3 \log(targetsize) + \beta_3 ROA_{acq} + \beta_3 FinLev_{acq} + \beta_3 InvestmentIntensity_{acq} + \beta_3 PaymentMethod + \varepsilon$$

4.3.1 Variable description

Dependent Variable:

Change in Altman Z-score:

For the measurement of the change in financial position of the acquirers, Altman Z-scores are utilised. Altman Z-scores is a popular accounting-based measure of bankruptcy risk. In this study, percentage change in Altman Z-scores pre and post the acquisition was used as a dependent variable, which was calculated using the following formula:

$$\% \, Change = \frac{Altman \, Z_{postacquisition} - Altman \, Z_{preacquisition}}{Altman \, Z_{preacquisition}}$$

The pre value represents the Altman Z-score one year prior to the acquisition. The post value represents the Altman Z-score one year after the year of acquisition. The accounting-based measure was preferred to market-based measures as they capture the actual realized performance. Along with that, they can explore probable synergies for the long term. The detailed description of calculating the Altman Z-scores is provided in the following chapter.

Explanatory Variables:

As this paper aims to examine the impact of diversifying acquisitions, both cross-border and industrial, thus the following dummy variables are utilized.

CrossBorder:

This variable represents a dummy variable which equals 1 if the acquirer's country is different from target's country and 0 otherwise.

Industry:

This variable represents a dummy variable which equals 1 if the acquirer's industry is from target's industry and 0 otherwise. The classification for industrial diversification is discussed later in Chapter 5.

Control Variables:

Following previous literature, three sets of control variables are employed in the analysis. The first control set includes the acquirer characteristics. The second set includes the target characteristics and lastly, the third set of controls consists of the deal characteristics.

Firm size of the Acquirer:

The firm size of the acquirer is computed as the natural logarithm of the firm's total assets.

Financial Leverage:

The financial leverage is the ratio of total debt to shareholder's equity of the acquirer. Total debt includes all interest-bearing and capitalized lease obligations. Shareholder's equity reports the total preferred stock and common stock. Financial Leverage is commonly used in the research in order to control for capital structure of the firm.

Investment intensity:

The investment intensity is calculated by dividing the capital expenditure of the acquiring firm by its total assets.

Return on Assets (ROA):

The return on assets is the ratio of net income and the total assets of the acquirer.

Target Size:

Due to unavailability of target firms' data, the target's size is proxied by deal value. The natural logarithm of the deal value will be calculated and employed in the study. It is a useful measure to examine the effect of the post-acquisition position of the acquirer.

Method of Payment:

In order to control for the method of payment, which is an important aspect of the deal characteristics, three dummy variables were used.

Equity:

This represents dummy variable which equals 1 if the acquirer uses stock to pay for the deal and 0 otherwise.

Cash:

This represents dummy variable which equals 1 if the acquirer uses cash to pay for the deal and 0 otherwise.

Debt:

This represents dummy variable which equals 1 if the acquirer arranges debt to pay for the deal and 0 otherwise.

4.4 Robustness tests

In order to test for robustness, alternative measure of distress, i.e., Interest Coverage Ratio, will be utilized. Moreover, robust standard errors and clustered robust standard errors will be employed in the estimation of the regression model.

5 Data and Sample Description

This chapter presents the explanation about the sample universe. The chapter begins by introducing the sources of data, followed by a detailed definition of financial distress and final sample. The chapter concludes with summary statistics and correlation analysis.

5.1 Source of Data and Criteria

This paper uses data from two main sources. For the purpose of the research of the paper, Zephyr database was chosen as a source for Mergers & Acquisitions transactions to produce a base of a total list of transactions and acquirers for a particular period of time within a specific region for further development and investigations.

The sampling of data was targeting a geography of Europe, including Baltic States, Eastern Europe, Nordic States, Western Europe and the whole European Union. The dataset was supposed to exclude all financial, utility and government organizations due to their specificity. Thus, pursuing a more reliable and meaningful dataset with a higher degree of reliability to the whole corporate sector, the study does not concentrate only on a specific and separate industry, but rather aims to conduct a study on all industries with an exception of differently operated and regulated financial, utilities and government sectors.

Transactions were set to be an acquisition type deal, to be completed and fit in a specific timeframe, which was chosen to be 11 years of observations from 2009 to 2019, in such way not capturing a peak of global financial crisis period, even though it is possible that some of the sample companies were in some way affected by lagging effects of the mentioned crisis. In addition, for deals of 2019, there could be an influence of the Covid-19 crisis which impacted performance of the firms in 2020.

The next filter for our transactions sample was the stake acquired: percentage of final stake had to be over 50% of the target shareholdings. In other words, an acquirer has a minority or nil equity stake in a target and reaches a minimum of 50% post-acquisition, becoming a majority shareholder. Furthermore, transactions with acquirers which are not listed were dropped. Deals that are worth less than 1% of an acquirer were excluded due to a focus on economically important acquisitions only.

Zephyr database also provides ISIN numbers for both acquirers and targets, which are then used for further detailed financial and other information gathering from other sources, namely Thomson Reuters Eikon (Eikon).

After producing the dataset using above mentioned criteria from Zephyr, a detailed information on each acquirer and target of the sample of transactions was required to be gathered. The financials data were collected using Eikon database, on a financial year basis, so that the financial year preceding a transaction completion date is described as year -1, a financial year, during which the transaction was finalized, is described as year 0 and lastly, the financial year after the completion of the deal is described as +1.

5.2 Classifications for Distressed and Non-Distressed Acquirers

After a dataset collection, acquirers are split into distressed and non-distressed. First of all, in order to sort acquisitions by ones that were done by distressed acquirers versus transactions of non-distressed buyers, the chosen distress measure – Altman Z-score, needed to be calculated. Several prior studies (Ohlson, 1980; Altman, 1968; Beaver, 1966) were defining distressed organizations in terms of bankruptcy, default, or insolvency. Two well-known proxies used in the literature to account for financial distress are Altman Z-score and Interest Coverage Ratio. As this paper aims to measure company's distance to default by Altman Z-score – a measure of bankruptcy risks based on a set of accounting ratios, the calculations followed the original formula introduced by Edward Altman in 1968:

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$, where

X_1 is a ratio of working capital to firm's total assets;

X_2 is a ratio of retained earnings to total assets;

X_3 is a ratio of operating profit to total assets;

X_4 is a ratio of market value of equity (which was calculated using a multiplication of a share price and a number of total shares outstanding of an acquirer) to a book value of total liabilities;

X_5 is a ratio of turnover to total assets.

Together with the above-mentioned companies' financials, for the following analysis, Net income, Interest Coverage Ratio (ICR), Return on Assets (ROA) ratio, Financial leverage ratio, and Capital Expenditures of acquirers were gathered from Eikon database.

5.3 Excluded observations

Several observations were excluded from the sample, because they were considered outliers as the calculated Altman Z-score amounted to unreasonably high or low values or due to a lack of data for the particular period in time, Altman Z-score could not be calculated and therefore the transaction needed to be filtered out.

5.4 Final Sample

The sample was filtered by transactions conducted by distressed acquirers, i.e. the companies with an Altman Z-score lower than 1.9 in a year prior to an acquisition. After filtering out extremely low and high values and transactions with missing values, it yielded a list of 373 acquisitions from the total of 4,019 produced by Zephyr database. For the regression analysis, the final sample of distressed acquirers amounted to 159 transactions by STATA for further investigation.

On a different note, it was observed that most of the distressed acquirers acquired unlisted or private targets. As a result, it was not possible to collect data for the target firms.

5.5 Summary Statistics and Correlation Table

An acquisition was characterized as industrially diversified in a case when its acquirer and target are operating in different industries, i.e. their two-digit SIC codes do not match. An approach of only considering one-digit SIC code due to its higher degree of inaccuracy and simplification as an assumption that there are only 10 industries to consider in the entire economy. Using the two-code digit is found in several prior research for the classification of general economic characteristics used in further investigation (Doukas et al, 2001). Moreover, according to Clarke (1989), utilization of the three- or four- digit codes SIC does not lead to a significant increase in a degree of similarity among the desired companies. Implementing this approach in this paper, 50.67% of the acquisitions were conducted within the same industry and 49.33% of the transactions were the ones that are defined as cross-industry diversifying ones.

The next categorization was conducted by an acquisition companies' base country. Unlike industry classification, an approach of classifying a transaction as cross-border or domestic is simple and straightforward: a headquarters country of an acquirer should be same of such where a target operates for the acquisition to be classified as domestic, and, on the contrary,

transactions where a target is based in a different country versus acquirer are considered cross-border.

Table 2 displays the sample classified into four sub-samples. As seen in the table, 310 (83%) of the 373 distressed firms participated in diversifying acquisitions. Furthermore, 123 (32%) partook in both cross-border and industrial diversification. This observation leads to further analysis of the effect of diversifying acquisitions on the financial distress.

Before interpreting the main proxies and characteristics of the deals separated by an industry type or a country of origin, it is worth mentioning the results of the whole sample (Table 3 &4). A mean of a percentage change in Altman Z-score was 4.52%, which means that on average, from a total sample of distressed acquirer, companies experienced a 4.52% growth in Altman Z-score post-acquisition, i.e., increasing their distance to default. A standard deviation was at a level of 0.54%, comprising 11.95% of the mean.

From the other side, a change in ROA was at a level of 69.13% for the sample, which means that the ratio significantly drops after the acquisition, showing that such ratio of the operating performance negatively suffers from an acquisition and deviates by 4.83% from a mean. Being a ratio of net income to total assets, it may be concluded that consolidated financials of the merged note a higher increase in total assets as a result of the transaction, than a positive effect on net income. Return on Assets ratio itself shows a mean of 0.98% prior to an acquisition with a standard deviation of 0.071%.

A financial leverage for the companies was oscillated at a level of 32.91% with a standard deviation of 0.18%. An investment intensity of the companies in average is 3.62% with a quite low deviation of 0.036%. The total assets amount of acquirers is very dispersed, with a mean of €20,568m and a standard deviation of €49,160m, being 2.4 times of an average amount. The deal value was €255m with a deviation of €619m.

Now, moving forward to an analysis of the above-mentioned indicators by industry (Table 3). It can be seen from the table that there is a significant difference between the change in distance to default measured by Altman Z-score for acquirer conducting a transaction with companies that operate within the same industry versus the diversifying ones. A change in Altman Z-score is only positive for diversifying acquirers and amounted to 10.28% of a growth in a year post-acquisition. From the other hand, on average, acquirers looking for a target within the same industry, denote worse financial stand measured by Altman Z-score in a year post-acquisition with a negative change in a value of -1.08%. The standard deviation in

both cases is similar and amounts to 0.54 and 0.55 for diversifying and same industry respectively.

A result in a mean for change in ROA shows an opposite output: it is diversifying acquirers that suffer from a worse financial performance in a year post-acquisition more than the ones dealing in a same industry with -119.68% and -18.30% respectively. Return on Assets ratio is higher for acquirer conducting a transaction cross-industry versus the same industry and the whole sample. The same industry's ROA was at a level of 0.88% with a deviation of 0.07 and different industry's ROA was 1.07% with a deviation of 0.08%.

It is notable that the distressed companies conducting their acquisitions within their own industries have higher financial leverage: 36.62% versus 29.09% for diversifying ones.

Investment intensity was 22% higher for acquirers in same industry classification (3.96%) than cross-industry buyers with 3.25% intensity. A standard deviation was at a similar level for both and amounted to 0.04% and 0.03% respectively.

It is worth mentioning that on average total assets amount for companies in same industry column is almost ½ of an amount of total assets for diversifying acquirers. €13,620m vs €27,704m. On the contrary, such acquirers from the same industry of their targets spend €270m on a transaction, which is 13% higher than a deal amount of diversifying acquirers of €239m.

From Table 4, it can be observed that the change in Altman Z-score is higher for cross-border transactions acquirers (5.21% vs 3.14%). The change in ROA also shows a negative change after an acquisition of -114.96% for domestic and -47.82% for cross-border acquisitions. An ROA ratio itself is on average higher for acquirer of the transactions done domestically, i.e. 1.39% versus 0.78%.

Domestic acquirers are usually more indebted than cross-border ones and their level of an investment intensity is also higher and equals to 4.07% versus 3.39% for cross-border transactions companies.

In line with the expectations, cross-border acquirer generally is bigger in size and require higher capital for the deal. It can be observed from the Table 4 that the amount of domestic acquirers' assets is €10,567m comparing to almost 2.5 times higher cross-border acquirers assets of €25,548m. Cross-border transactions on average require €337m whereas domestic ones are at a level of €90m on average.

Table 5 reports the cross-sectional Pearson's correlation matrix between the variables used in this study. The dependent variable Change in Altman Z-score displays a weak correlation with the variables. Change in Altman Z-score exhibits a very weak positive correlation with cross-border. Industry shares a significant positive relation with change in Altman Z-score. Financial Leverage may contribute to the financial distress of the firms; thus, the negative relation was expected. Investment intensity is also negatively associated with a change in Altman-Z, suggesting leniency and rationalizing on capital expenditure. The variable CrossBorder has statistically significant associations with the variables. The positive relation with deals implies that firms need to pay more for cross-border deals.

6 Empirical Analysis

This chapter reports the empirical findings of the effects of diversification on financial distress. First, a univariate analysis is done. Next, the results of the multivariate regressions are presented. Lastly, the model limitations are discussed.

6.1 Univariate tests

This paper begins the empirical analysis with simple univariate tests. The post-acquisition performance and change in distress between the firms based on industrial diversification and cross-border diversification. Table 6 and 7 report the results of the differences in means, which is tested with a t-test. A deal is classified as industrial diversification if the two-digit SIC codes, as explained earlier, of the acquirers and target don't match. A deal is classified as cross-border diversification if the acquirer and target firms are headquartered in different countries. As per this classification, 184 deals were defined as industrial diversification and 249 deals were defined as cross-border diversification.

As reported in Table 6, firms engaging in industrial diversification have a significant difference in means of change in Altman Z-scores. Firms involving in industrial diversification have experienced an increase of positive 10.27%, while firms which did not engage in industrial diversification resulted a decrease of -1.08%. The difference in means of change in Altman Z-scores is statistically significant at a level of 5%. This is in line with the idea that uncorrelated income streams may aid in recovery of the financial position. It can be further observed that industrial diversification resulted in a drop of 119.7% in ROA while the firms not involved in one experienced a 18.3% drop. This difference in means is significant at a 5% level. This result is interesting as it is contrary to the above argument. A reason behind this can be that after combining, the total assets size of the combined firms is high, whereas

the income has not been able to match it. The mean deal values of the two groups are close and the difference is not significant as well. The investment intensity, measured by the ratio of capital expenditure and total assets, has a difference in means with statistical significance at 5% level. It is observed that firms pursuing industrial diversification are investing at a lower rate. This is also interesting and can be investigated in future research.

On the other hand, as presented in Table 7, firms acquiring targets from a different country experienced 3.14% increase in the Altman Z-scores and those not involving in one resulted a 5.21% increase. However, cross-border diversification has not resulted in any statistically significant difference. When comparing the means by cross-border diversification, it is found that mean change in ROA of firms engaging in cross-border diversification have experienced a drop of 47.82%. This is significantly less than ones engaging in domestic acquisitions. Furthermore, it is observed that the mean deal values of the two groups are highly statistically significantly different. The acquiring firms are paying significantly higher for foreign targets. Again, the investment intensity is higher for firms involving in domestic acquisitions, which is significant at 5% level.

6.2 Multivariate Analysis

6.2.1 Impact of Cross-Border and Industrial diversification on Financial Distress

After finding significant differences in means in change in Altman Z-scores, the relation between percentage change in Altman Z-scores and diversification is measured by employing a cross-sectional OLS regression. As high discrepancy was observed, the variables were winsorized at the 1^{st} and 99^{th} percentile before regressing them. Table 8 represents the regression results for models A, B and C. According to the White Test (not tabulated), the initial model (not reported) suffered from heteroskedasticity. This implied that the standard errors and the statistical significance were no longer valid. To control for this, robust standard errors were used and later clustered robust standard errors. Model A reports the regression results using robust standard errors. Model B reports the robust standard errors clustered at industry levels and includes industry effects and year effects. Model C presents the robust standard errors, again clustered at industry levels, including industry effects, year effects and country effects.

According to Model A, the explanatory variable CrossBorder has a coefficient of 0.11. This means that firms which involved in cross-border acquisitions have experienced 0.11 points change in Altman Z-scores higher than the remaining. This effect is statistically significant at

10% level. In terms of economic significance, the coefficient of 0.11 together with the combined mean change in Altman Z-scores is 2.43% higher in firms which acquired foreign targets. However, the economical worth of this effect is unsure and open to debate. Next, the explanatory variable, Industry, has a coefficient of 0.14, which is marginally statistically significant. This coefficient suggests that firms engaging in industrial diversification experienced 0.14 points higher change in Altman Z-scores. In combination with the mean of the whole sample, firms with industrial diversification have about 3% higher change in Altman-Z. For the control variables, it is observed that Financial Leverage, Investment Intensity, Log of acquirers' total assets, and Equity have statistically significant results. Financial Leverage has a positive coefficient, which is moderately significant, indicating change in Altman Z-score and financial leverage share a positive relation. In contrast, investment intensity and log of acquirers' total assets have negative coefficient, both marginally significant. A similar phenomenon was observed in differences in means test for investment intensity. Another important aspect of acquisition deals is the method of payment. The coefficient of the variable Equity is 0.24, with a statistical significance at 10% level. This means that bidders paying in equity also have resulted in a higher positive change in Altman Z-scores.

As observed in Model B, the addition of the new variables, industry and year effects, resulted in slight changes in the coefficients of the explanatory as well as the control variables. The statistical significance of the coefficients has altered as well. The coefficient of CrossBorder increased to 0.21, suggesting an increased change of Altman Z-scores. The statistical significance of the coefficient improved and is now significant at a 5% level. Through the lens of economic significance, together with the sample average, change in Altman Z-scores is 4.64% more in distressed acquirers who engaged in cross-border diversification. On the other hand, the coefficient of the variable Industry slightly dropped to 0.10 and lost statistical significance. Moreover, the coefficient for ROA grew to 2.28 and was statistically significant at 10%. This indicates that 2.28 points higher change is resulted. The financial leverage shares a stronger positive association, which has high statistical significance. In addition, the coefficient for Equity indicates a stronger positive relation.

Lastly, the introduction of additional country variables has resulted slight adjustments to the coefficients. It is observed that the coefficient for CrossBorder has further increased to 0.28, significant at 5% statistical level. This asserts a stronger positive relation with the change in Altman Z-scores. The explanatory variable, Industry, holds the positive relation, however,

has become slightly weaker. An important control variable Equity holds the positive relationship, but the statistical significance enhanced to 5%.

In all of the three models, it is observed that the variables Investment Intensity, Log of total assets of the acquirer and log of target size share a negative relation. The economic value of the coefficients is, however, open to debate. Furthermore, it can be noticed that using cash as a payment method results in negative impact on the Altman Z-scores. In contrast, using debt as a mode of payment shares a positive effect on the Altman Z-scores. This indicates a positive impact on the financial distress.

6.3 Model Limitations, Validity and Robustness

Despite including several improvements to base model in order to ensure validity and robustness of the results, there still might be flaws in the analysis. Firstly, for the choice of defining distress, other alternatives, i.e., Distance to defaults, could be employed. Another important factor was to include the target characteristics as control variables. However, this was not possible as most distressed acquirers acquired targets which are not listed or private. Due to this, no information was found for the target firms. The deal values for the observations were also missing from Zephyr's Database. This led to a huge loss of observations which could not be used by the statistical software STATA.

The internal validity of the analysis could be considered as all data utilized in the study were collected from reliable databases. Even though this study can be replicated for different regions and time period, however, due to different economic, financial and/or cultural backgrounds may affect the external validity or the generalizability of the conclusions.

As for the robustness of the results, several additional tests, using different measure of distress was employed. The models yielded similar results, thus are not tabulated.

7 Analysis and Discussion

This chapter discusses the empirical findings considering the theories presented earlier, followed by the acceptance or rejection of the hypotheses.

As already discussed above, acquisitions can provide several synergies. Distressed acquirers can benefit from financial synergies from acquisitions. These include lower marginal cost of debt and improved debt capacities (Lin et al., 2013). Another way of benefitting from acquisitions is to bring good changes to the corporate culture of the firm (Stallworthy et al.,

1988). Lin et al. (2013) mention that distressed firms may prefer to acquire target with good liquidity, keeping the balance between bankruptcy costs and marginal benefits.

The regression results reported in the previous chapter confirm that both cross-border and industrial diversification have a positive impact on the financial position of the acquirer, proxied by the change in Altman Z-scores. The coefficients retained their signs even after the introduction of industry, year, and country effects. However, slight changes were observed in the magnitudes of the coefficients. In particular, the coefficient of CrossBorder continued to be stronger and more significant. Goergen et al. (2004) suggest that according to foreign direct investment theories, foreign acquirers should be able to generate increased gains by benefitting from the imperfections in factor and capital markets. The reported results are also in line with Zhang (2022). According to Zhang (2022), diversifying acquisitions tend to reduce asset volatility and also leads to decrease in bankruptcy risk.

In line with the univariate analysis, the regression results indicate that distressed acquirers have strong preference to engage in diversifying acquisition. From the final sample, it can be observed that majority of the distressed acquirers engaged in diversifying acquisitions. This is harmonious to the findings of Gormley et al (2011). The rationales behind such acquisition are assumed to be exiting a distressed industry, to enhance financial position by reducing bankruptcy risks and generate financial synergies (Hubbarb et al, 1999; Zhang, 2022). The results are also compatible with Lewellen's (1971) coinsurance effect. He posits that uncorrelatedness of the acquirer and target increases debt capacity, which shows improved ability to meet creditors' cash inadequacy tests or in other words, improved debt servicing through the financial synergies generated. Furthermore, the regression results are also consistent with the argument where Lewellen (1971) proposes that acquisitions provide support to prevent unwelcomed bankruptcy due to short-term financial crisis. Zhang (2022) mentions that distressed firms should diversify cash flow by combining with diversified target and lower chances of bankruptcy, which is also congruous to the findings of this paper.

However, the results are in disagreement with Delcoure et al. (2006). He found positive returns for acquisitions among firms with same industries. This paper finds that firms participating in non-diversifying acquisitions resulted in lower improvements in terms of financial position.

On a different note, a mention-worthy observation was noticed in the summary statistics and univariate tests regarding the Return on Assets, i.e., the operational efficiency. It was seen

that the operation efficiency of the firms suffered from severe depletion after the deal completion, irrespective of diversification. This finding is harmonious with Doukas et al. (2001) where they found evidence of reduced operating efficiencies stemming from agency issues.

To summarize, this paper finds support for the hypothesis that diversifying acquisitions have a positive impact on the financial position of distressed acquirers. The results are statistically significant at 5%, therefore leading to the acceptance of the first hypothesis. On the contrary, the findings are inconsistent with the contending hypothesis which indicates negative effects of diversification on financial distress, leading to the rejection of the second hypothesis.

8 Conclusion

This chapter provides the summary and conclusion of the entire paper. Lastly opportunities for future research are discussed.

This paper examines the impact of diversifying acquisitions on the financial position of distressed acquirers. This topic was motivated by the observation of financially struggling firms involving in diversifying acquisitions. The paper uses a sample of 373 observations from continental Europe from the period between 2009 and 2019. The empirical analysis was done with the help of univariate tests and further complemented by a multivariate OLS regression. Based on previous literature, two contending hypotheses were formed. The first one hypothesizes that diversification has a positive impact on the financial distress, measured by changes in Altman Z-scores pre- and post-acquisition. The second one hypothesized diversification negatively affects the financial position. The results of the univariate analysis as well as the regression analysis provide evidence in favor of the first hypothesis. Thus, the second hypothesis was rejected.

In terms of contribution, this paper expanded the analysis on distressed acquirers from the predominantly US to the European economies. The findings of the paper contribute a small yet essential piece to the academic research for distressed acquirers. This paper has created additional support to a few papers. Furthermore, this study can help in building further theories relating to distressed acquirers and their acquisition activities.

This paper is limited to acquirers' perspective. Due to unavailability of information, targets' perspective was not examined. This paper was also impaired by limited set of observations as many of the deals had missing information. Moreover, time constraints and data

unavailability led to classification of distressed firms only by Altman Z-scores and Interest Coverage Rate (ICR). This study also uses transactions done by European firms, not global. This may limit the application of the conclusion to European parts and may weaken the application to the other parts of the world due to changes in governance and culture. Lastly, a small sample was utilized in the study due to limited availability of data. This may hamper the reliability of the results.

For future research, the study could include other variables that measure levels of distress. Other target specific and deal specific control variables could be included in the models to check whether the results hold. Moreover, further research can focus on the limitations of the paper, considering use of proxies, sample criteria and collection techniques as well as avoidance of selection bias problem and missing observations. Aside from that, an intriguing trend was observed for the Return on Assets in the post-acquisition period. The summary statistics revealed that there was substantial drop in ROA in all observations of the sample. This indicates the acquisition activity had a depleting effect on the operating performance, irrespective of diversifying or not. This could form an interesting aspect to investigate.

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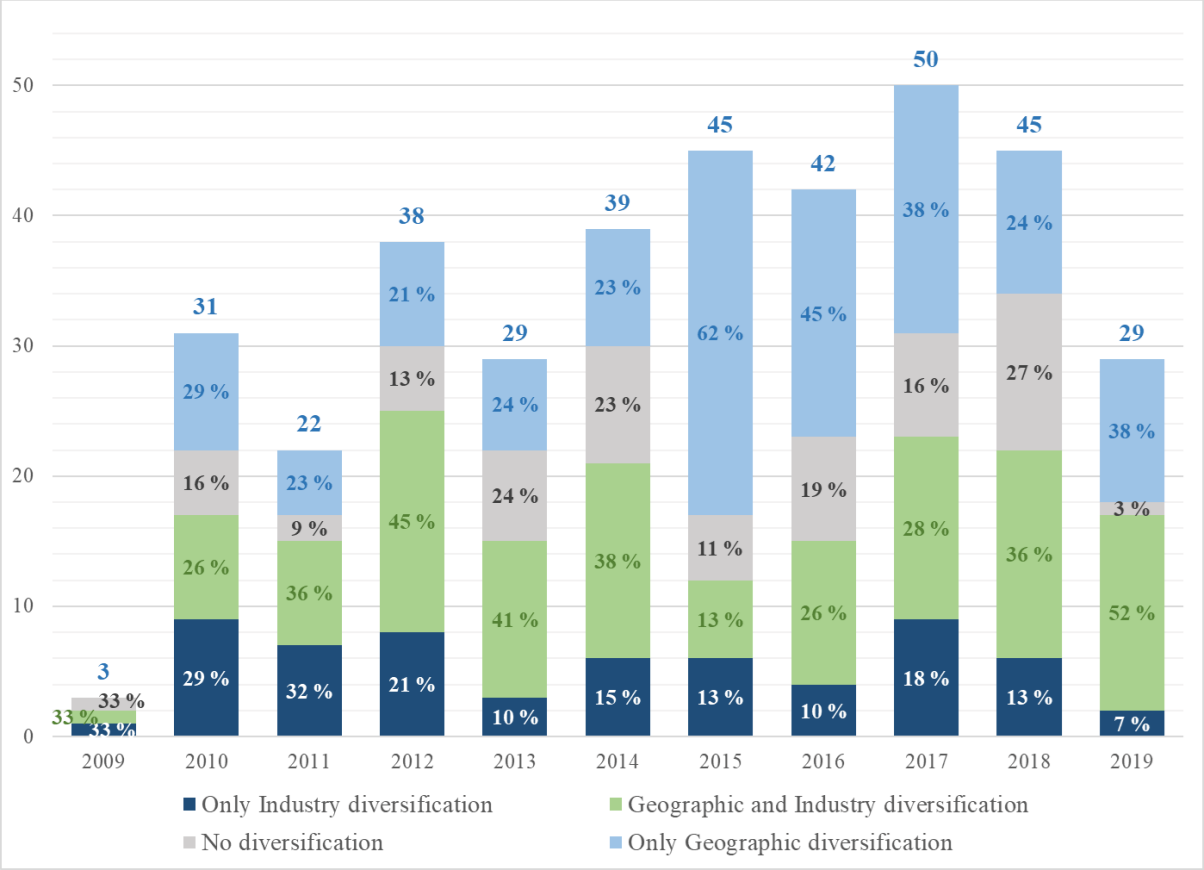
Tables and Figures

Figure 1: Year-wise sample distribution classified into four sub-samples



Source: Own tabulation using data from Zephyr and Eikon.

Table 1: Variable Description and the sources of data.

Dependent Variable	Description	Source/Origin
Change in Altman-Z scores	The percentage change in Altman Z scores one year prior and one year post the acquisition.	Own Calculation using accounting information from Eikon.
Explanatory Variables		
CrossBorder	This variable represents dummy variable which equals 1 if the acquirer's country is different from target's country and 0 otherwise	Zephyr
Industry	This variable represents dummy variable which equals 1 if the acquirer's industry is from target's industry and 0 otherwise.	Zephyr
Control Variables		
Firm Size_Acquirer	The firm size of the acquirer is computed as the natural logarithm of the firm's total assets.	Eikon
Financial Leverage	The financial leverage is the ratio of total debt to shareholder's equity of the acquirer. Total debt includes all interest bearing and capitalized lease obligations. Shareholder's equity reports the total preferred stock and common stock.	Eikon
Return on Assets	The return on assets is the ratio of net income and the total assets of the acquirer.	Eikon
Investment Intensity	The investment intensity is calculated by dividing the capital expenditure of the acquiring firm by its total assets.	Own Calculation using accounting information from Eikon.
Target Size	The target's size is proxied by deal value. The natural logarithm of the deal value will be calculated and employed in the study. It is a useful measure to examine the effect of the post-acquisition position of the acquirer.	Zephyr
Equity	This represents dummy variable which equals 1 if the acquirer uses stock to pay for the deal and 0 otherwise.	Zephyr
Cash	This represents dummy variable which equals 1 if the acquirer uses cash to pay for the deal and 0 otherwise.	Zephyr
Debt	This represents dummy variable which equals 1 if the acquirer arranges debt to pay for the deal and 0 otherwise.	Zephyr

Table 2: The final sample categorized in four sub-samples.

	Cross-Border	Domestic	Total
Different Industry	123	61	184
Same Industry	126	63	189
Total	249	124	373

Source: Own tabulation

Table 3: Summary statistics based on classification of cross-industry diversification.

	Combined		Different Industry		Same Industry	
	Mean	SD	Mean	SD	Mean	SD
% Change in Altman Z-score	4.52	0.54	10.28	0.54	-1.08	0.55
% Change in ROA	-69.13	4.83	-119.68	5.35	-18.30	4.19
% ROA	0.98	0.071	1.07	0.08	0.88	0.07
% Financial Leverage	32.91	0.18	29.09	0.17	36.62	0.18
% Investment Intensity	3.62	0.036	3.25	0.03	3.96	0.04
Total Assets (Acquirer) €m	20568.32	49160.04	27704.46	56142.59	13620.97	40192.96
Deal Value €m	255.42	618.66	239.34	640.58	270.22	601.15

Source: Accounting Information from Eikon database, calculation done in statistical software STATA

Table 4: Summary statistics based on classification of geographic diversification.

	Combined		Cross-Border		Domestic	
	Mean	SD	Mean	SD	Mean	SD
% Change in Altman Z-score	4.52	0.54	5.21	0.54	3.14	0.56
% Change in ROA	-69.13	4.83	-47.82	4.91	-114.96	4.65
% ROA	0.98	0.071	0.78	0.08	1.39	0.06
% Financial Leverage	32.91	0.18	31.27	0.17	36.28	0.19
% Investment Intensity	3.62	0.036	3.39	0.03	4.07	0.04
Total Assets (Acquirer) €m	20568.32	49160.04	25548.50	54584.74	10567.8	33920.57
Deal Value €m	255.42	618.66	336.50	726.37	90.32	225.07

Source: Accounting Information from Eikon database, calculation done in statistical software STATA

Table 5: Pearson's correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Change in Altman-Z	1.000							
(2) CrossBorder	0.018	1.000						
(3) Industry	0.104**	0.002	1.000					
(4) ROA	0.243***	-0.041	0.013	1.000				
(5) FinLev	-0.023	-0.132**	-0.211***	-0.079	1.000			
(6) Investment Intensity	-0.045	-0.089*	-0.099*	-0.100*	0.152***	1.000		
(7) tassts	-0.061	0.144***	0.143***	0.085	-0.042	0.080	1.000	
(8) DealValue	-0.026	0.188**	-0.025	0.025	0.104	0.125	0.350***	1.000

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

Source: Accounting Information from Eikon database, calculation done in statistical software STATA

Table 6: Difference in means based on classification of cross-industry diversification with statistical significance tested with t-test.

	Combined	Different Industry	Same Industry	Difference
N	373	184	189	
% Change in Altman Z-score	4.52%	10.27%	-1.08%	-11.36%**
% Change in ROA	-69.13%	-119.97%	-18.30%	101.38%**
Deal Value €m	255.42	239.34	270.22	30.88
% Investment Intensity	3.62%	3.25%	3.96%	0.71%**

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

Source: Accounting Information from Eikon database, calculation done in statistical software STATA

Table 7: Difference in means based on classification of cross-border diversification with statistical significance tested with t-test.

	Combined	Cross-Border	Domestic	Difference
N	373	249	124	
% Change in Altman Z-score	4.52%	5.21%	3.14%	2.07%
% Change in ROA	-69.13%	-47.82%	-114.19	66.38%*
Deal Value €m	255.42	336.50	90.32	246.18***
% Investment Intensity	3.62%	3.39%	4.07%	-0.068%**

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

Source: Accounting Information from Eikon database, calculation done in statistical software STATA

Table 8: Regression results of the OLS models.

	(A) Change in Altman Z-score	(B) Change in Altman Z-score	(C) Change in Altman Z-score
Cross Border	0.11*	0.21**	0.28**
	(0.0818)	(0.1228)	(0.1563)
Industry	0.14*	0.10	0.08
	(0.0877)	(0.1019)	(0.1123)
ROA	1.62	2.28*	1.87*
	(1.4997)	(1.4429)	(1.3537)
Financial Leverage	0.50**	0.79***	0.79*
	(0.3033)	(0.2835)	(0.3826)
Investment Intensity	-0.92*	-1.15	-0.39
	(0.6841)	(1.4679)	(1.4363)
Log(Acquirer's Firm Size)	-0.04*	-0.02	-0.03
	(0.0298)	(0.0348)	(0.0432)
Log(Target Size)	-0.02	-0.04**	-0.03
	(0.0213)	(0.0199)	(0.0256)
Equity	0.24*	0.33*	0.33**
	(0.1662)	(0.2015	(0.1555)
Cash	-0.07	-0.09	-0.12
	(0.0937)	(0.0866)	(0.0901)
Debt	0.11	0.14	0.14
	(0.0909)	(0.1315)	(0.1358)
Constant	0.12	0.07	0.08
	(0.2716)	(0.4101)	(0.6284)
Industry Effects	No	Yes	Yes
Year Effects	No	Yes	Yes
Country Effects	No	No	Yes
N	159	159	159
R-squared	0.1070	0.2544	0.3539
Robust standard errors in parentheses			
**** p<0.01, ** p<0.05, * p<0.1*			
Winsorized at the 1st and 99th percentile			
Source: Accounting Information from Eikon database, calculation done in statistical software STATA			