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An Analysis of M&A Activity in the European SME Market and Value Drivers of Post-Merger Performance

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Abstract

This thesis investigates the impacts pre-merger characteristics play in long-term post-merger performance from a sample of small and medium sized enterprises whom conducted M&A activity within the European Union between the time period of 2011-2013. Using data collected, a quantitative analysis was performed to measure the impact of six separate factors on post-merger performance analyzing the abnormal ROA through the inclusion of pre-merger performance as a control variable. Overall, our results concluded that SMEs behave differently when engaging in M&A than their larger counterparts. Our analysis found that both previous M&A experience and cross-border transactions negatively impact performance, whilst we found no empirical evidence to support firm size, liquidity or cross-industry mergers to have a significant impact on long-term post-merger performance.

Keywords: Mergers and Acquisitions; SMEs; M&A Performance; Europe; M&A Success Factors

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1 Introduction

While media attention mainly focuses on high-value, high-profile company takeovers, the entire merger and acquisition (M&A) industry gained significant importance in the global market for corporate control over the last several decades. The Global M&A Review 2019 Report from the Bureau van Dijk states a total of 98,181 deals with a compounded deal volume of USD 4.6 trillion during 2019. Despite this being the lowest deal volume since 2013, it is still the seventh highest ever on record, with deal volumes of over USD 6 trillion during previous years, exceeding record highs from before the 2007/08 financial crisis by hundreds of billions of USD and with deals worth more than the GDP of small countries (Bureau van Dijk, 2019; Renneboog & Vansteenkiste, 2019).

A growing number in deals also means that more companies undergo this extraordinary event of acquiring or being acquired. This is a major step in a firm's lifecycle and has severe impact on its operations and activities (Renneboog & Vansteenkiste, 2019). However, many studies on M&A success find that company acquisitions tend to destroy value instead of creating wealth (e.g., Cartwright & Schoenberg, 2006; King et al., 2004), with failure rates between 70 and up to 90 percent of all transactions (Christensen et al., 2011). Mergers are often viewed as failed when they are unable to improve performance in terms of efficiency or reduce the market value of the company. The complexity and practical importance of this topic has attracted many researchers from differing fields to investigate reasons for success, failure and how the mechanisms of M&A transactions work.

Different schools of literature covering various angles of M&A have been established and explanations for success, such as the degree of integration and strategic fit were described (e.g., Bauer & Matzler, 2014). Furthermore, the subject of how to measure M&A success and M&A performance using various measures like abnormal stock returns, performance ratios or subjective assessments by key personnel involved in the deal is discussed heavily in recent literature with advantages and disadvantages for all of them. While, comparisons between different dependent and independent variables which impact M&A have been made (e.g., Renneboog & Vansteenkiste, 2019), the list of studies on this could be continued indefinitely, including research on the differences between acquirer and target such as culture, country and industry or experience in M&A. However, clear answers are hard to obtain. And even

whilst researchers from other fields, such as cultural and psychological studies, start tackling this topic, research remains very focused on certain aspects within those fields of study, where as a holistic view on this complex and risky process is taken very seldomly (Cartwright & Schoenberg, 2006).

Even after decades of research, large portions of the studies conducted are mostly dedicated to M&A deals of large, publicly listed companies in the US and UK and very little attention is paid to small and medium sized enterprises (SMEs), or outside these geographical areas (Cartwright & Schoenberg, 2006; McCarthy & Dolfsma, 2013; Weitzel & McCarthy, 2011). Jansen (2008 cited in Bauer et al., 2018) states that transactions conducted by European SMEs contribute to a large portion of overall deals but for the most part, are still ignored in research. This is regardless of the fact that according to the European Commission SMEs account for 99.8 percent of all enterprises and for 66.6 percent of employment in the European Union (EU) outside of the financial business sector in 2018 (European Commission, 2019). The most obvious reason for the lack of research on SMEs appears to be a lack of reliable data (McCarthy & Dolfsma, 2013). Private companies are not publicly quoted and as most of the research draws on financial and market studies, reliable numbers are hard to obtain, especially when trying to evaluate post-merger performance (Cartwright & Schoenberg, 2006; Weitzel & McCarthy, 2011). Therefore, it remains unknown if the same rationales and theories apply to SMEs in the M&A market even though they make up a large part of the transactions (Weitzel & McCarthy, 2011).

In this paper we aim to close the long held gap in research by laying special focus on this important part of the economy. Particular attention is paid to the M&A activity of private, small and medium sized enterprises in the EU countries. We argue that due to severe differences in aspects such as the environment of SMEs, their capital and ownership structure, their size or flatter hierarchies and the accessibility of data for SMEs, these variables have to be adapted for private, small and medium sized enterprises. We propose ways of measuring the impact on and outcome of M&A performance suitable for that purpose.

Additionally to the main task of finding appropriate ways to measure SME M&A performance, the motivations for why M&A activity occurs in this economic sector needs to be revised, too. Underlying merger theory on why mergers occur is also based primarily on large public entities (Weitzel & McCarthy, 2011), and many of the assumptions regarding the motivations behind

M&A transactions may not apply to SMEs. Overall the focus of this paper lays on adapting measurements of M&A success to SMEs and conducting an empirical study to find out how these factors influence post-merger performance.

The following research question is formulated in order to tackle the main problems stated above:

How is post-merger M&A performance of SME acquirers in Europe influenced by selected success factors?

We will analyze existing evidence on merger theory and SMEs using previously conducted studies and literature. By doing so we attempt to adapt and link SMEs and M&A by taking the special features of the organizational, cultural and economic structure of SMEs into account and propose new ways of looking at merger events and their differences to large corporations in this subsector of the economy. Additionally, the databases Orbis and Zephyr are used to gather data on mergers and acquisitions of SMEs between 2011 and 2013 in Europe to evaluate M&A performance. Success factors are defined and tested on performance measures with the aim to identify company variables with significant effect on takeover outcomes.

We found that due to different characteristics within the firm structures noticeable differences between SMEs and larger companies exist which affect the applicability of current M&A literature to smaller privately held companies. Firstly, M&A loss theories do not play a significant role for SMEs as agency problems often do not apply while on the other hand, efficiency theories and the personal attachment of the SME owners should be paid more attention to. Secondly, our empirical research found that a high correlation between pre-merger performance and post-merger M&A performance exists. Furthermore, we find that previous acquisition experience consistently has a negative effect on the M&A performance while size and cultural distance are insignificant. Cross-industry mergers, cross-border mergers and the credit risk of the acquiring company do not provide enough evidence to make definite conclusions about their effects on M&A performance.

This paper will contribute to existing literature in several different ways. Firstly, we will give a holistic overview over current important M&A theories and translate these into the framework of small and medium sized enterprises. This will close a gap in existing literature and increase the understanding of the reasoning behind these differences in the M&A market

of small and large companies. Secondly, closely related to the theory, our empirical approach expands the knowledge of measurable, accessible and practical factors which impact M&A performance. As mentioned before, many studies focus on large companies and we therefore propose variables suited for smaller enterprises. Furthermore, this way of statistical measuring is easier to reproduce and less subjective than management surveys which are often used in practice (e.g. Bauer & Matzler, 2014; Trichterborn et al., 2016). Thirdly, the focus on the countries of the European Union will enhance the understanding of the huge M&A market outside the US which has often been neglected in previous studies.

The remaining structure of the paper is as follows. In chapter two, a theoretical background of M&A and SMEs is presented by reviewing the most important literature on both topics. The main hypothesis are formulated by drawing conclusions from previous research of large firms and applied to SMEs. Chapter three provides an overview of data collection and a description of the variables used in our analysis. Subsequently, chapter four explains the methodology followed by our conclusions in chapter five. A discussion about findings, implications and limitations of the study will follow in chapter six. Chapter seven will conclude the paper.

2 Literature and Hypotheses

2.1 Mergers & Acquisitions

In order to give the reader an overview and basic understanding of the principles of M&A transactions, the following will provide background theory and the history of M&A while also describing the typical process and motivations behind mergers and acquisitions.

2.1.1 M&A Background and Definition

M&A transactions provide a crucial opportunity for firms to expand through external growth and allow for corporate development (Bauer & Matzler, 2014). Whilst the term M&A is used to explain two firms joining together with the integration of ones assets into the other, mergers and acquisitions do slightly differ. An M&A deal is considered a merger when the two parties are in agreement on the acquisition. Contrary to this, an acquisition typically refers to when one party takes over another without the agreement of the other firm's management

through a hostile takeover. Whilst these two methods are applicable to public firms, SMEs cannot be acquired through hostile means such as a shareholder takeover bid, and therefore can only occur through a merger.

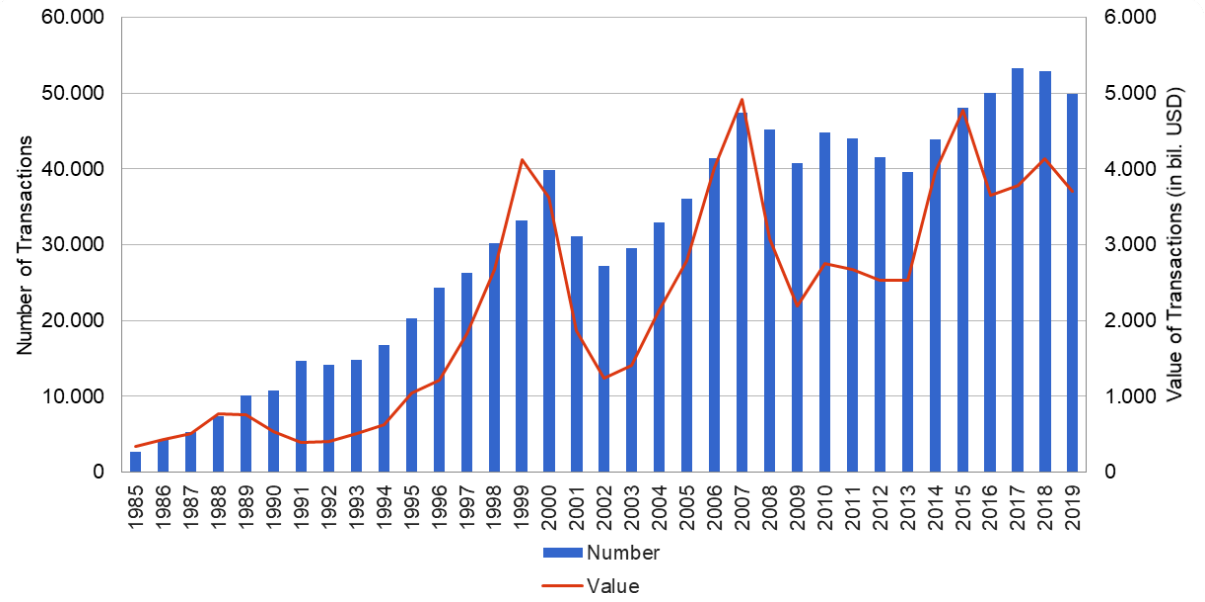
After differentiating between the types of transaction, it is also important to identify the various directions that mergers can occur in. Generally, there are three types of mergers which are: vertical, horizontal and diversified (also known as conglomerate). Amburgey and Miner (1992) define a vertical merger as an acquisition along the supply chain, being either a customer or supplier, a horizontal merger as an acquisition of a firm at the same production level in the supply chain and a diversified merger as one involving a target unrelated to the acquirer's main business.

Whilst the motives behind M&A are intended to be value creating (Bower, 2001; Calipha, Tarba & Brock, 2010; McCarthy & Dolfsma, 2013), the success rate of M&A transactions is debated in literature. Some studies conclude that the failure rate is around 45-60% (Calipha, Tarba & Brock, 2010; Schoenberg, 2006) and others claim that this figure is as high as 90% (Christensen et al., 2011) with success being measured in cumulated abnormal returns, managers and experts assessments and divestment data. Meglio & Risberg (2011) explain this discrepancy as resulting from the different measures of performance that studies use when researching M&A, thus highlighting the importance of a more consistent method.

2.1.2 M&A Waves

The phenomenon of M&A waves refers to periods that exhibit vigorous amounts of merger activity followed by periods of significantly lower levels (McCarthy & Dolfsma, 2013). Since the 1890's, there have been six discernible waves with a potential seventh wave occurring currently starting after the global financial crisis (Martynova & Renneboog, 2008; McCarthy & Dolfsma, 2013) which can be observed by the increasing deal volumes in figure 1. Whilst these events originated in the US, by the third wave it had expanded to include most of the western world, and from the fifth wave onwards, have been considered global events.

Figure 1. Global M&A Transactions from 1985 to 2019



Source: IMMA Analysis; imma-institute.org

Whilst consecutive waves appear to have a larger volume of deals with increasing deal values, each wave is unique in terms of motive and pattern. Despite this, literature highlights four common characteristics that are shared by each wave (Martynova & Renneboog, 2008; McCarthy & Dolfsma, 2013). Firstly, they highlight the importance of the economic climate, beginning in periods of economic recovery following a significant economic event such as a recession or a wartime period. The second is that waves coincide with low interest rates that result in expanding credit lines and strong stock markets. Similarly, every wave has ended with the collapse of the stock market. Thirdly, waves are generally preceded by large-scale forms of shock. Examples from previous waves have included rapid technological advances, supply chain shocks, globalization and deregulation of financial markets. The final common factor, mainly experienced in recent waves is that mergers occur more frequently during changes in regulation (e.g. anti-trust restrictions).

2.1.3 M&A Process

The M&A process can be separated into two key phases. The first being pre-merger which is the period that occurs before the firms are merged together and involves identification, due diligence and the negotiation. The post-merger phase begins when management has declared that the firms have been combined and the merger is complete (Appelbaum et al., 2000).

The first step of the pre-merger phase is to identify with whom the company will merge (Schweiger & Weber, 1989). This can be done through the assistance of an investment bank or a M&A firm, or through direct contact with the firm itself. This is an important step, and the target/partner will be dependent upon the acquirer's goals. Target aspects to consider here will involve aspects such as location, industry and firm size. The second stage involves due diligence. A number of aspects to consider during this phase include: associated risks, potential opportunities, legal options and inspections of firm financials (Caiazza & Volpe, 2015; Schweiger & Weber, 1989). After due diligence has been completed, the deal must be negotiated (Caiazza & Volpe, 2015). Depending on the type of M&A, this can involve negotiating the M&A transaction or placing a take-over bid in the event of an acquisition. SMEs will handle this phase differently to large firms for several reasons. Firstly, as SMEs are privately owned, this will exclusively involve price negotiations with the owner as hostile take-overs are not possible. In publicly traded firms, pricing can be calculated based on the value of the firm's shares and financial data, however in regards to SMEs, this will be harder to calculate due to lack of public financial information.

Once the M&A deal has been completed, the integration period between the two firms begins. This is a very complicated process and involves many different aspects. Firstly, there is the physical integration of departments as well as restructuring of duplicate functions, which involves the integration of employees and systems (Schweiger & Weber, 1989). Other characteristics that have to be considered include organisation culture as well national culture in the case of cross-border transactions (Caiazza & Volpe, 2015). The duration of the integration period is debated in literature, however studies have found that it can take up to 3-5 years for synergies to be fully recognized (Angwin, 2004; Ellis, Reus & Lamont, 2009).

2.1.4 Motives Behind M&A Transactions

From the acquirer's perspective, there are several reasons for buying another company. Through an extensive literature review Cox (2006) found that M&A activity can be motivated by various kinds of synergies, tax considerations or for reasons of diversification. An increase in market power, a more efficient management or a undervaluation of the target firm can also be factors for a lucrative investment (Cox, 2006). Besides that, instead of just relying on organic growth, M&As pose an opportunity for entry into new markets, reach new customers,

build a better product portfolio, reduce supplier risk and realize cross-selling in a much faster way (Renneboog & Vansteenkiste, 2019).

As previously discussed, there are three directions a merger may take: vertical, horizontal or diversified. This direction is dependent upon the acquiring firm's motivations for expected value creation and are further discussed below.

Vertical

There are several motives that may lead to firms integrating along the supply chain. These include securing resources or distribution channels, economies of integration and whilst not generally being a main motivational factor, it is also possible to achieve cost synergies.

Depending on the merger being an upstream or downstream integration, this allows firms to either secure a foothold in distribution, or ensure the availability of resources (D'Aveni & Ravencraft, 1994). If the firm mergers with a current or potential distributor, this can provide a secure method of allowing the firm to sell its products in the market. If the firm mergers with a supplier, this provides security in acquiring key resources (Calipha, Tarba & Brock, 2010; D'Aveni & Ravencraft, 1994).

Another key motivation for a vertical merger is the potential for economies of integration (D'Aveni & Ravencraft, 1994). The key to economies of integration is that firms are able to obtain resources through in-company transfers, and thus are able to avoid market transaction costs were they to buy them from normal supplier.

Whilst generally a secondary motivation for a vertical merger, it is possible to achieve cost synergies. These relate to the sharing of key skills and knowledge between firms (Calipha, Tarba & Brock, 2010; Goold & Campbell, 1998), as well as the potential to share overhead costs such as warehousing and head office expenses (D'Aveni & Ravencraft, 1994).

Horizontal

The motivations behind a horizontal merger include: cost synergies, sharing of technical knowledge or as a method of external growth.

The merging of similar firms can provide synergies through several different ways. It allows firms to exploit economies of scale from suppliers (McCarthy & Dolfsma, 2013), the pooling

together of assets (Goold & Campbell, 1998) such as factories, plants and machinery whilst also providing knowledge such as technical processes.

There are several different motives for firm's using M&A as a source of external growth. Firstly, mergers can be used as a method to subdue rivals (Calipha, Tarba & Brock, 2010), allowing the firm to control a larger market share (Gopinath, 2003; Singh & Montgomery, 1987). Furthermore, it can also be used a method of entry into new markets (Bower, 2001; Calipha, Tarba & Brock, 2010), whether this be domestic or used for entry into international markets. Additionally, it can also be used to develop additional products, provide access to technical knowledge or processes (Calipha, Tarba & Brock, 2010) or in some cases as a substitute for firm R&D (Bower, 2001).

Diversified (Conglomerate)

Two key motives for a diversified merger include entering new markets and self-interest. It is common for mature industries to become saturated, making further growth difficult. When this occurs, firms can use M&A as a method for entering into differing industries (Bower, 2001) as a method of expansion and further growth.

The second motive for a diversified M&A is managers acting out of self-interest in an attempt at 'empire building'. Empire building refers to when a CEO is solely invested in the expansion of their firm (McCarthy & Dolfsma, 2013), which usually results in a large number of unrelated acquisitions (Gaughan, 2004). Whilst this often has the opposite effect of creating value (Gaughan, 2004; McCarthy & Dolfsma, 2013), it is usually driven by the desire for power and prestige (Shleifer & Vishny, 1989). These M&A motives will be adapted to the case of SMEs in the following subsection.

2.2 Small and Medium-Sized Companies

The importance of SMEs in the EU cannot be underestimated. They account for over 99% of all companies registered in the EU and provide labor for two thirds of the European workforce. Additionally, they generate more than half of the value added to the EU economy and drive innovation and entrepreneurship with high R&D intensity (European Commission, 2019). However, their involvement in M&A is lacking significant research and may differ to large

companies (Weitzel & McCarthy, 2011). In the following sections we will define who SMEs are, where they differ to large corporations are and how their M&A activity is expected to perform.

2.2.1 General Definition

First, a proper definition of which firms classify as a SME has to be established. The EU Commission (2019) defines three thresholds in terms of total assets, turnover and number of employees to categorize companies into four different sizes. For the purpose of this paper all companies with less than 250 employees, less than EUR 50 million in revenue and less than EUR 43 million in assets classify as a SME, while any other company above those thresholds is classified as a large company. However, this categorization is only valid for the EU and the definitions may differ across the world. In the US for example small and medium sized companies have less than 500 employees, whereas large firms have more than 500 employees (McCarthy & Dolfsma, 2013).

2.2.2 SMEs and M&A

In order to evaluate the M&A activity and performance of small companies an understanding about the differences in terms of risk and return, liquidity, access to capital, liabilities and management behavior has to be established. Furthermore, current M&A theory, which is mainly based around findings for public companies, has to be adapted for smaller businesses, which to the author's best knowledge has only been done by Weitzel and McCarthy (2011) and partially by Mellen and Evans (2010).

A study by Weitzel and McCarthy (2011) concluded three main differences in M&A activity between small and large enterprises. Firstly, SMEs who acquire seem to be more dependent on M&A as an external growth tool than their larger counterparts. Secondly, SMEs are more flexible in withdrawing from deals which may turn unprofitable. Lastly, SMEs tend to rely more upon equity financing rather than debt. A potential consequence of this conclusion is that the financial pecking order theory mat not be as relevant for smaller companies (Weitzel & McCarthy, 2011) as it is public firms.

To understand the reasoning behind these differencing in acquiring companies, Weitzel and McCarthy (2011) divide the M&A literature into two main streams of research, namely value

creating theories and value destroying theories. Value creating theories state that mergers happen because synergies in terms of economies of scale or market power can be lifted and thus create value (Chatterjee, 1986 cited in Weitzel & McCarthy, 2011) or that more efficient management teams replace the underperforming management to take action on profitable opportunities (Weston et al., 2003). In the context of SMEs, these three motives gain or lose relevance. Creating operative synergies in term of economies of scales and scope remains highly relevant (Weitzel & McCarthy, 2011) as private entities often face competitive factors, such as a lack of marketing and advertising capacity, low purchasing and negotiation power, undiversified vendor and supplier relations and reliance or limited distribution capacity (Mellen & Evans, 2010a). Most of these issues can be improved by a combination of two SMEs and are beneficial for both the acquirer and the seller (Weitzel & McCarthy, 2011). This also accounts for a lack of internal control, the ability to develop technology and protect intellectual property and comply to regulatory or environmental issues (Mellen & Evans, 2010a), as it becomes more efficient to dedicate resources specifically to these tasks in a larger, combined company.

The motive of gaining market power is only of secondary importance in M&A in current literature and is also only of medium relevence for SMEs (Weitzel & McCarthy, 2011), despite geographical expansion and product diversification being two of the most common motives in this area for mergers (McCarthy & Dolfsma, 2013). The benefits of an increasing market share and a decrease in customer concentration will only create wealth for SMEs up to a certain extent. It is argued, that when SMEs reach a certain size and market power foreign competition and possibly much larger peers will come into play as competitors and offset these effects (McCarthy & Dolfsma, 2013). In terms of new management teams, theory of corporate control only has low to medium applicability for SMEs as a M&A motive (Weitzel & McCarthy, 2011). Firstly, hostile takeovers, which are a widely used tool to replace underperforming management (Weitzel & McCarthy, 2011) are not possible for privately held companies as the owners are often also the managers of SMEs and only their consent makes a takeover possible. Secondly, Weitzel and McCarthy (2011) argue that managers who offer the highest value to owners in public companies will take over control of the company which is not reasonable for private companies for the same reasons as stated above.

On the other hand, value destroying theories are considering wealth losses due to informational constraints or principal-agent constraints (Weitzel & McCarthy, 2011). Again, two main strings of thought dominate this research. First, informational constraints bind the management's rationality and lead to mistakes during the M&A process and secondly, self-serving managers may have their personal interests in mind, instead of the company's (Weitzel & McCarthy, 2011). Within the bounded rationality theory, managerial hubris theory states that even managers with good intentions are over-confident or over-estimate their abilities which often leads to over-paying in acquisitions and increases the likelihood of failure (Roll, 1986), whereas the theory of managerial discretion by Jensen (1986) claims that excess cash flows induce unprofitable takeovers. This excess liquidity not needed for day-to-day operations leads managers to take action more quickly on strategic decisions and often leads to poor acquisitions if there are no other optimal investment opportunities (Martynova & Renneboog, 2008). Both of these problems are only of medium relevance to SMEs. Either managers of SMEs are the owners or the interests of both parties are closer aligned than in large corporations. This is due to flatter hierarchies and easier communication between owners and management (Weitzel & McCarthy, 2011). Moeller, Schlingemann and Stulz (2004) examined that even though the management of SMEs are as likely to make mistakes due to bounded rationality as large firms, once they realize their mistakes they are more likely to withdraw from a bad deal, decreasing the number of unprofitable deals.

On the other hand, agency problems are found to play only a minor role in SMEs (Weitzel & McCarthy, 2011). Managerial entrenchment and empire building mainly serve the managers to keep and enhance their position within the company (Shleifer & Vishny, 1989 cited in Weitzel & McCarthy, 2011), extract wealth and power or gain reputation. These problems arise from competition, separation of ownership and control and information asymmetries (McCarthy & Dolfsma, 2013). In the case of owner-managers, agency costs are not applicable and even if a principal-agent structure is in place, SMEs are more transparent, less complex and have flatter hierarchies, which leads to less opportunities for self-interested managers to take advantage (Weitzel & McCarthy, 2011). The following table gives an overview of the discussed theories and their applicability to SMEs following Weitzel and McCarthy (2011).

Table 1. SME Merger Motives for Acquirers

Outcome	How?	Theory	Link	Relevance to SMEs
Gains	Net gain through operative synergies	Efficiency	Synergy	High
	Wealth transfer from customers	Market Power		Medium
	Net gains through managerial synergies	Corporate control		Low - Medium
Losses	Net losses through overpaying by overconfident managers	Hubris	Bounded rationality	Medium
	Net losses due to valuation mistakes due to information constraints	Managerial discretion		Medium
	Net losses as managers make acquisition to reinforce job position	Entrenchment	Agency	Low
	Net losses as managers make acquisitions to increase firm size	Empire building		Low

Besides adjusting existing theories to SMEs, new merger motives arise due to their unique corporate structure. Thus, it is also important to understand the motives of target companies for selling the business. Mellen and Evans (2010) cite two main reasons for private company owners to sell. Most frequently, a lack of successor to take over the business leaves the current owner with the only choice to sell. Secondly, demand for their products or services rises in such quantity that in order to obtain resources to satisfy that demand, owners take new investors on board or sell the company. Investors acquiring private companies should be well aware of their own goals, the reasons for the owner to sell and the risk involved to make a profitable investment. SME owners are often emotionally attached to their company as they may have built it for years and sometimes even decades. Therefore, it is common they may still want to keep a stake in the company or exit completely but stay employed (Mellen & Evans, 2010b). Additionally, financial gain may not be their only goal but rather they want

assurance that employees are retained and the company is able to exist and grow in the future under a new owner. Their company is most likely their biggest, riskiest and most illiquid investment in their wealth portfolio, therefore diversification and financial security are common reasons for sales (Mellen & Evans, 2010b). Further reasons could be personal issues such as age, health problems or family pressure and declining performance or strategic disadvantages which cannot be overcome as a standalone business (Mellen & Evans, 2010b). Buyers may use some of these points to gain a negotiation advantage and enhance their own competitive position in the market, overcome drawbacks of being a SME in terms of economies of scale or just to diversify their portfolio. However, some risks linked to SMEs must be considered. Key employees and the owners connection can play a vital role in the firm's business model and the retainment of knowledge (Mellen & Evans, 2010b). Furthermore, access to new capital is harder for smaller firms which may impact future investments and shares in SMEs are very illiquid and often only a majority stake holds real value in a company as decision making becomes more important (Mellen & Evans, 2010b). Most of those factors are unique to private companies and can be of importance when it comes to a successful M&A transaction. As this topic is not researched very well and data is scarce, it holds potential for future research.

The following section will describe how SMEs take part in M&A and in what ways success and its factors can be measured.

2.3 Factors and Performance Measures

This research paper provides a critical analysis of factors involved in the pre-merger phase of merger and acquisitions and their contribution in determining post-merger success for SMEs based in the European Union.

Previous research involves a myriad of different variables that impact post-merger success or integration (e.g. Calipha, Tarba & Brock, 2010; Cox, 2006; Epstein, 2005; Ramaswamy & Waegelein, 2003). For example Epstein (2004, 2005) highlights seven determinants which are especially important for merger success, and five factors for better post-merger integrations which he illustrates using a prominent case study. Weber (1996) examines cultural differences as a potentially important factor in M&A transactions, while Trichterborn et al. (2016) link

organizational learning processes to the outcome of such transactions. This paper identifies and evaluates six key factors that have been well documented in previous research as having an influential impact on post-merger performance (Calipha, Tarba & Brock, 2010; Cox, 2006; Epstein, 2005; Ramaswamy & Waegelein, 2003).

Whilst these factors have been determined to be of importance to public acquiring firms when undertaking M&A, they are all applicable and measurable in the case of SMEs and this thesis will investigate their implications.

- Cross-border and cultural distance between acquiring and target firms
- Time between announcement date of the merger and the completion
- Credit risk of the acquiring firm
- Previous M&A experience of the acquiring firm
- Firm Size
- Similarity in industry integration between acquiring and target firms

It is important to note that due to the scarcity of literature regarding M&A determinants in SMEs, the following discussion of each variable is largely based upon previous analysis regarding publicly traded firms, with the analysis in the following sections providing insight into these holding true for SMEs.

The following sections will evaluate relevant literature on each of these factors to hypothesis the impact each factor will incur when applied to SMEs engaging in M&A.

2.3.1 Cross-Border and Cultural Distance in M&A Performance

In recent years, there has been strong growth in cross-border mergers and acquisitions as firms seek to expand their growth into new markets (Zenner et al., 2008). An important aspect to be considered when firms integrate across borders is the difference in national culture. It is thoroughly researched that differences in language barriers, behaviours, beliefs and social constructs (Kaasa, Vadi & Varblane, 2015) lead to differing organisational and administrative practices, employee expectations and varying corporate mechanisms (Kogut & Singh, 1988). The comparison of these aspects is known as cultural distance and is measured through the differences of cultural norms and values.

Whilst research concludes that cultural distance can play a significant impact on post-merger performance, the results on the impact are decidedly conflicting (Brock, 2005; Teerikangas & Very, 2006). In some studies, it is concluded that mergers involving similar cultures are more successful (Bauer & Matzler, 2014), which is supported by similar findings whereby cultural clashes and poor cultural fit is a leading cause for cross-border M&A failure (Lodorfos & Boateng, 2006). The leading cause behind this is the failure to integrate differences, leading to confusion and distress between parties (Stahl & Voigt, 2004). In contradiction to this, it has also been suggested that a large cultural distance can lead to value creation through increased innovation and the differing perspectives this provides (Chakrabarti, Gupta-Mukherjee & Jayaraman, 2009; Stahl & Voigt, 2008).

Whilst there has been strong debate on estimating cultural distance (Teerikangas & Very, 2006), four key dimensions: individualism-collectivism, uncertainty avoidance, masculinity-femineity and power distance developed by Hofstede (1980) are generally agreed upon. However, this has been highly criticised in more recent literature (Drogendijk & Holm, 2012), with a key issue being that these measures were developed based around a small sample and cannot be representative of an entire culture (Chiang, 2005). As such, this paper will be using the more comprehensive index detailed in Kaasa, Vadi & Varblane (2014) to measure cultural distance between firms which is built upon the original four cultural dimensions (Hofstede, 1980).

Whilst literature expresses that a larger cultural distance can be beneficial when successfully integrated, SMEs are more restricted due limited resources and may struggle with the post-merger integration of cultural distances. Therefore, we hypothesize that a larger cultural distance between the acquirer and target will negatively impact post-merger performance in SMEs.

H1: A larger cultural distance between the acquirer and target will negatively impact post-merger performance in SMEs.

2.3.2 Time Between Announcement and Completion of Deal

There has been a lack of research into the time taken between an M&A announcement and the completion of the deal and its impact on post-merger integration, which has been highlighted as a topic for future research (Dikova, Sahib & Van Witteloostuijn, 2010).

An issue with a prolonged deal process for the acquirer is that it will lead to increased expenses whilst also distracting management from other perspective opportunities where their attention may be better focused (Dikova, Sahib & Van Witteloostuijn, 2010; Hitt et al., 1996). This can lead to greater overall cost and worse post-merger performance. Poor communication during the closing period can also be damaging to the acquisition process (Angwin D., 2001) as it may lead to uncertainty and allow rumours to thrive amongst employees (Gomes et al., 2007) which may have an impact on the post-merger integration period.

Due to the limited resources of SMEs, ongoing expenses could cause problems especially when compiled with employee uncertainty leading to the conclusion that a longer period would negatively affect post-merger performance.

However, whilst initially wishing to test the impact this had on post-merger performance, the available data in regards to SMEs was unavailable. Unlike public companies, whom must declare this information to the market, it is less publicised for SMEs and therefore could not be used as a factor in the performance measurement of this thesis.

2.3.3 Credit Risk

Despite being observed to impact post-merger performance (Billett, King & Mauer, 2004), there appears to be a gap in previous literature that takes into consideration the impact of the acquiring firm's credit risk when evaluating post-merger performance.

In publicly traded firms, it has been observed that firms with excess cash and low levels of debt are more likely to engage in M&A activity (Kayo et al., 2010; Park, 2003), with Jensen (1986) finding that these firms are more likely to enter into less beneficial mergers, relating this to empire building and management hubris.

Unlike publicly traded firms who have the option of using stock as payment, SMEs must use cash to finance M&A activity. Whilst McCarthy & Dolfsma (2013) found that SMEs were more likely to use existing capital to finance M&A activity, in the case that funding is provided

through the utilisation of debt, this can lead to an increased bankruptcy risk for the firm (Ghosh & Jain, 2000), with a higher risk being associated with firms that were already higher leveraged pre-merger. This is further supported by Furfine & Rosen (2009) who concluded that on average, firms who engage in M&A are more likely to default.

As previously discussed, SMEs are not likely to be impacted by empire building or hubris, and therefore, it is likely SMEs which are highly leveraged pre-merger will exhibit a higher risk of default or experience financial difficulties caused by credit repayments post-merger. Therefore, we hypothesise that SMEs with a lower credit risk will perform better than firms with a highly leveraged capital structure.

H2: SMEs with a lower credit risk will perform better than those with higher pre-merger leverage.

2.3.4 Previous M&A Experience of the Acquiring Firm

Whilst the effect of previous M&A experience has been researched, there are conflicting views on how this can impact the post-merger success of the acquiring firm. Some research does conclude that subsequent mergers are more likely to be successful (Al-Laham, Schweizer & Amburgey, 2010; Trichterborn, Knyphausen-Aufseß & Schweizer, 2016b; Vermeulen & Barkema, 2001). Having previous M&A experience can lead to the acquisition of key skills that can then be utilised in further M&A activity (Barkema & Schijven, 2008). These skills are learnt from past experience which allows management to understand the reasons behind their previous success and failures and incorporate this into future mergers.

Whilst experience can be valuable and integrated with future deals, it is important to highlight that success is much more probable when future mergers are similar to those previously conducted (Al-Laham, Schweizer & Amburgey, 2010; Vermeulen & Barkema, 2001).

The issue that may be faced when applying learned M&A skills is that they can easily be applied incorrectly. When previous experience is applied to a future merger that is perceived as similar, however is actually different, and therefore incorrectly applied, creating a negative transfer of skills (Finkelstein & Haleblian, 2002). In turn, this may lead to weaker post-merger performance.

Other studies have concluded that in some instances, instead of learning, it can lead to hubris in management (Aktas, de Bodt & Roll, 2009; Hietala, Kaplan & Robinson, 2003; Malmendier & Tate, 2008). In some cases, this leads to overpaying in premiums, or an overestimation in expected synergies the merger will create (Hietala, Kaplan & Robinson, 2003). It can also lead to the overestimation of ability to integrate the firms together in the post-merger phase (Malmendier & Tate, 2008).

Whilst the impacts of hubris in management has been largely observed in public companies, some research shows this to be irrelevant to SMEs (McCarthy & Dolfsma, 2013).

Currently, literature is divided on the impact of prior experience, the lacking evidence in support of hubris combined with SMEs being more likely to merge with similar firms leans towards prior experience having a positive effect on post-merger success. Therefore, we hypothesise that previous M&A experience will have a positive impact on post-merger performance for SMEs.

H3: Previous M&A experience will have a positive impact on post-merger performance for SMEs.

2.3.5 Firm Size

Previous research highlights the importance that relative size between the acquirer and target firms when conducting M&A activity may have on its impact post-merger success (Gomes et al., 2007). Many studies have concluded that similarity in firm size between parties is more likely to lead to a successful integration post-merger (Chung, Singh & Lee, 2000; Moeller, Schlingemann & Stulz, 2004). This conclusion has been supported by Ramaswamy and Waegelein (2003), who found that acquiring a relatively small firm often leads to integration being overlooked by management, as well as difficulties with post-merger integration when the target was relatively large.

Whilst relatively larger target firms are likely to have a greater impact on abnormal returns due to virtue of size (Asquith, 1983), one of the largest empirical studies into this relationship, (Moeller, Schlingemann & Stulz, 2004) found positive results for small firms when merging with small targets. However, Moeller, Schlingemann and Stulz (2004) also concluded that smaller firms perform better than larger firms when conducting M&A activities overall. A

potential cause for why smaller firms merging leads to better performance than their larger counterparts is the perceived hostility that may occur when large firms are targeting relatively small firms (Tuch & O'Sullivan, 2007) or the logistical difficulties involved in merging two large firms.

Previous research has shown the positive impact when firms of similar sizes merge, while other research has also concluded that generally smaller firm's outperform larger firms who conduct M&A, this paper will investigate if these conclusions hold true for SMEs. Therefore, we firstly hypothesise that a smaller relative size between the acquiring and target firm will have a positive impact on post-merger success, and secondly that smaller SMEs will outperform larger SMEs in post-merger performance.

H4a: A similar relative size between the acquiring and target firm will have a positive impact on post-merger success for SMEs.

H4b: Smaller SMEs will outperform larger SMEs in post-merger performance.

2.3.6 Similarity in Industry Between Acquiring and Target Firms

An important motive for firms that undertake M&A activities is the following improvements that can be achieved through generated synergies (Tuch & O'Sullivan, 2007). When mergers occur between firms in a similar industry, these improvements are related to greater economies of scale and an increase in market power, whilst unrelated industries are expected to occur through financial and administrative synergies (Singh & Montgomery, 1987). In theory, related firms that merge are more likely to produce higher returns post-merger as they have the skills and related resources to operate and successfully integrate the target firm (Rhodes-Kropf & Robinson, 2008).

The positive transfer of skills between related industries resulting in positive post-merger success through ease of integration is supported in prior research by Finkelstein & Haleblian (2002). Whilst most studies compare industry relatedness through comparison of standardized industrial comparison codes (Renneboog & Vansteenkiste, 2019), these results have been supported using textual based product description comparison methods (Hoberg & Phillips, 2010), which also concluded superior long-term performance in industrially related mergers.

In contrast, previous research has also reached the conclusion that there is no evidence to support post-merger success regardless if the acquirer is diversifying or merging with a target in a similar industry (Martynova, Oosting & Renneboog, 2007). Further still, it can also be found that diversifying can lead to strong post-merger success (Ghosh, 2001; Kruse et al., 2003).

Whilst previous studies have been largely focused on publicly listed companies, this thesis will investigate the impact that industry similarity between the acquiring and target firm plays in post-merger performance in SMEs.

Whilst previous studies have been largely focused on publicly listed companies, they have largely concluded that industry similarity is either positive or insignificant. As SMEs have less resources than large companies, this may lead to difficulty managing a diversified firm and will likely have greater success when merging within a related industry. Therefore, we hypothesise that SMES engaging in cross-industry mergers will suffer from a lower post-merger performance.

H5: SMEs that engage in cross-industry mergers will suffer a lower post-merger performance.

2.3.7 Pre-Merger Performance

The subject of how the operating performance before a M&A event of companies, and of SMEs in particular, affects the post-merger outcome has not yet been very well researched. Many researchers have either compared pre-merger and post-merger performance but not examined on how one influences the other or if overperforming companies which tend to have higher excess cash flows are more likely to participate in the market for corporate control and acquire other companies (Cox, 2006). The ones who did examine the effect of pre-merger performance report mixed results.

Ghosh (2001) argues that studies which found improvements in operating performance pre-merger do so because most companies undergo acquisitions after a period of superior performance, therefore directly linking pre-merger and post-merger performance in theory. However, Ghosh (2011) also states that no empirical evidence could be found in his data that operating performance improves following acquisitions. In contrast, a study of companies involved in M&A in Japan found a strong correlation between pre-merger and post-merger

performance, where improvements in post-merger performance could be observed (Kruse et al., 2007).

In addition, the authors of this paper argue that a stronger pre-merger performance provides more available resources for a swift takeover and integration and thus does not negatively impact the existing business significantly. Including pre-merger ROA in the regression will function as a proxy for performance before the merger event. This will function as a control not very unlike to an event study, where pre-merger ROA is a term for the expected normal returns and the other variables function as potential determinants for abnormal excess returns.

2.3.8 Measuring M&A Performance

As previously discussed, SMEs are more probable to pull out of a bad deal than large corporations and thus face a higher probability of a successful transaction than larger companies (Weitzel & McCarthy, 2011). However, the way of measuring M&A success and performance is a widely discussed topic without definite answers in current research. Some examples of how performance measures can be categorized include financial or non-financial measures (Meglio & Risberg, 2011), accounting measures, market measures and subjective measures (Das & Kapil, 2012). As organizational performance lacks a universal definition and different researchers take different approaches Das and Kapil (2012) found 46 unique measures for M&A performance in their literature review, which are mostly implemented as the dependent variable and take the acquiring firm as a unit of measurement (Meglio & Risberg, 2011).

Subjective measures include, amongst others, effects on learning, quality and quantity of innovation, analysts' view of the acquisition or subjective assessments of the acquisition by the management (Das & Kapil, 2012). These measures are able to capture additional information, which cannot be obtained from quantitative data if linked to the acquirers merger motives and is a justifiable source if other data is scarce (Das & Kapil, 2012). However, explanations for M&A performance are often derived from surveys (Meglio & Risberg, 2011) or perceptual elements and are hard to quantify, not generalizable and possibly biased (Das & Kapil, 2012). As a survey is out of scope of this paper and other qualitative data is mostly

unavailable for SMEs, subjective measures, in this instance, were not considered a practical measure of M&A performance.

Market-related measures reflect the market value of the company or the systematic risk the company faces and is often calculated using event studies focusing on short-term returns (Das & Kapil, 2012; Meglio & Risberg, 2011). Performance can be evaluated by measurements such as Jensen's Alpha, market beta or by calculating CAR and CAAR (Meglio & Risberg, 2011). Their advantage lays in forward looking measurements, representation of discounted cash flows and a more efficient inclusion of intangible assets (Das & Kapil, 2012). Drawbacks, on the other hand, are that long-term strategic goals are not well covered by short-term market measures and isolating the effects of the transaction due to a factor overlap will make it hard to investigate long-term M&A performance (Das & Kapil, 2012). More importantly, these measures are only applicable for public companies (Meglio & Risberg, 2011) which makes it impossible to use them in the case of SMEs.

Finally, accounting based measures use data from financial statements to measure M&A performance. They are commonly divided into the three categories: ratios, growth and cash flows (Thanos & Papadakis, 2012). Ratios often represent profits and are mostly measured in return on assets (ROA), return on sales (ROS), return on equity (ROE) or return on investment (ROI). Examples of growth measures include sales or asset growth, while cash flow measures focus on changes in operating cash flows (Meglio & Risberg, 2011; Thanos & Papadakis, 2012). Accounting-based measures are the most widely used performance measures in research due to their easy accessibility and interpretation. Nonetheless, they are only backwards looking with low comparability during turbulent economic times (Das & Kapil, 2012). Additional drawbacks are that they do not incorporate non-financial performance and make it hard to capture the isolated acquisition event as they are firm-level measures and depend on the quality of reporting and different accounting standards (Thanos & Papadakis, 2012). Despite this, the authors still decided to use an accounting based measure for this paper for several reasons. Firstly, it can be argued that due to the size and corporate structure of SMEs, it is possible to capture the acquisition effect on a firm size level therefore, isolating the transaction is not as important for SMEs as for large companies. As all acquirers from the dataset are based in Europe, the quality of reporting is ensured by European standards and differences in accounting are less severe compared to companies in the U.S. or China.

Furthermore, Thanos and Papadakis (2012) state several advantages of accounting-based measures. Firstly, both actual and realized performance is reported in the financial statements and therefore is measurable. Secondly, a combination of accounting based measures gives insights into several aspects of performance like rentability, efficiency and effectiveness. Thirdly, realized synergies will be reflected in accounting improvements in the long-term. ROA is widely used as a performance measure in M&A literature as it suffers from less potential bias than other types of ratio like ROE or ROS (Meeks & Meeks, 1981 cited in Thanos & Papadakis, 2012). When adjusting ROA for industry effects it becomes a good measure controlling for differences in firm size and industry, correlating to many other measurements of profitability (Weber, 1996).

Overall, ROA appears to capture a large part of these effects and due to data availability, providing the most promising option for performance measures in the case of SMEs. The process of obtaining the data and calculating the respective variables will be explained in the subsequent chapter.

3 Data

The following section describes the process of data collection and gives an overview over the final sample used for our analysis. We explain different sources and filters used in order to obtain a representative sample and furthermore present the way our individual dependent and independent variables are measured.

3.1 Sample and Data Collection

As stated in the previous section we aim to test the relationship between our dependent and independent variables. Mainly, the objective of the empirical section is to find out how cultural distance, credit risk, M&A experience, relative size, absolute size, industry relatedness and pre-merger performance affect post-merger M&A performance. In order to do so, company mergers and acquisitions between 2011 and 2013 in the EU were analyzed. The time span was set for three years as we expect different macroeconomic influences to affect the data. First, the world just came out of the global financial crisis and second, in the EU the debt crisis started having an impact on many southern European countries. As data was only available

from 2010 onwards and data for five years post-merger and one year pre-merger was required, this was the optimal time-period for the purposes of this paper

Data was collected using two complementary databases, Zephyr and Orbis. Both contain financial information for private companies and are provided by the Bureau van Dijk (BvD). Orbis is one of the largest and most detailed financial databases for private firms, whilst Zephyr contains data on M&A transactions, IPOs, venture capital deals and other relevant information. First, all transactions between 2011 and 2013 were filtered out in Zephyr before linking this initial database to information available in Orbis. Following restrictions were imposed on the initial search:

- Acquirer is located in the EU
- Target is located globally
- Deal type Merger or Acquisition
- Final stake the acquirer held of target 100%
- Target and acquirer not publicly listed

This was done for every year individually, resulting in 6404 companies involved in M&A in 2011, 7299 in 2012 and 7067 in 2013. No restrictions were imposed regarding deal or firm size in this step as we found that Zephyr does not contain the right financial data to do so and subsequently filters out too many companies resulting in an unsuitable sample size. It was decided to only include companies that acquired 100% of the stake in the target in order to be able to evaluate the full effect of the acquisition on the acquirer.

In the second step, the BvD identification numbers from the first step in Zephyr were put into Orbis to obtain the financial data on all of the companies. During this step, further restrictions regarding the firm size were imposed. The focus of this study lies on SMEs and their M&A activity. Another reason for why SMEs in Europe are analyzed is that the European Commission has very precise guidelines on when companies are small or medium sized. The company's turnover must not exceed EUR 50 million a year, its assets must be below EUR 43 million and it must have less than 250 employees. Those exact features were used to filter out the companies of interest to us in Orbis, resulting in 900 companies with financial data available 2011, 1606 in 2012 and 2212 in 2013 and a total of 4718. As expected, a clear upwards trend in the amount of companies conducting M&A can be seen. This could be

attributed to two features. Firstly, a new M&A cycle or wave beginning in general or secondly, M&A becoming more important for SMEs.

All the data was then exported to Excel, merged with the Zephyr data, sighted and sorted. In order to conduct the statistical analysis on the acquiring company for the year of the acquisition, the data for the five consecutive years post-merger was required. Furthermore, data of the target company of the year of the acquisition had to be available. The measurement of the variables will be explained in the next subsection. Some companies had missing data points required for the dependent or explanatory variable. Additionally, by sighting the data we manually excluded the holding companies of large, international corporations (e.g. Ikea), which initially fit the search criteria but do not serve the purpose of this study. A final sample size of 3314 deals was obtained. The exact method of statistical analysis involved in this paper is explained in chapter 4.

3.2 Variable Measurement

3.2.1 Dependent Variable

This thesis uses a singular dependent variable to represent the post-merger success for the transaction. As previously discussed, due to SMEs not being publicly traded and limited availability of data, the accounting-based measurement of ROA will be used. The choice of ROA has been strongly supported in literature, being used in up to 50% of previous accounting-based studies (Thanos & Papadakis, 2012). The reasoning behind the popularity of ROA as a measurement is that it is less sensitive to bias due to leverage or bargaining power that may occur post-merger (Desai, Kroll & Wright, 2005; Harrison et al., 1991; Papadakis & Thanos, 2010). To calculate ROA, we have taken the average of five years post-merger, with each year being adjusted for industry averages to account for any industry wide phenomenon. The industry classification was done using the first two digits of the acquiring firm's SIC code. ROA has been calculated as profits divided by average assets. Average assets were used as the year end values are not representative for the entire year and were calculated by taking the average of the current and the previous year assets (Thanos & Papadakis, 2012). ROA was calculated for every year and the industry average from each year was subtracted from it. After that the average was taken for 5 years after the merger in order to accurately measure

post-merger success. The industry average was calculated by the authors, due to a lack of reliable information, by taking a random sample of 10,000 SME companies for each industry sector from Orbis and calculating the average ROA for each year using the same method as for the sample.

In order to create a benchmark whereby a merger can be determined as a success, we will compare this post-merger performance with firm performance pre-merger. Whilst this pre-merger period varies amongst researchers, ranging from one year to five years (Desai, Kroll & Wright, 2005; Harrison et al., 1991; Papadakis & Thanos, 2010), we will compare it with the ROA of one year prior to the merger due to data availability, using the same method as calculating post-merger ROA.

3.2.2 Independent Variables

There are seven independent variables that need to be taken into consideration; cultural distance/cross-border, current ratio, previous M&A experience, relative size, absolute size, cross industry and pre-merger performance.

Cultural Distance and Cross-border

To measure the cultural distance between SME's in cross-border mergers, we have used the matrix supplied by Kaasa, Vadi & Varblane (2014). This matrix is the result of a multi-dimensional approach comprised of power distance, individualism-collectivism, uncertainty avoidance and masculinity-femineity between different countries. The resulting value implies the level of cultural difference experience between two companies with origins in different geographical locations. Whilst a higher value represents a higher level of cultural difference a value of zero is the result of a domestic transaction.

Due to our cultural distance matrix being restricted to countries within the EU, we will also include a cross-border variable to capture possible post-merger impact from mergers that occur with a target firm outside of this region. To measure whether the transaction is cross-border, we will use dummy variables, with 0 meaning a domestic transaction and 1 representing a cross-border merger.

Time Undertaken to Complete M&A Deal

The time undertaken to complete the M&A deal is the number of days between public announcement and the completion of the transaction between the two firms. This was estimated by calculating the number of days between those two events. In the sample data from Zephyr, many SMEs ignore this step and simply announce the signing and completion of the deal on the same day. In other cases, the completion date is assumed and is simply set at two years from the announcement date. Therefore, no reliable data could be extracted from the database to make sufficient conclusions and this variable could not be used in the regression model.

Credit Risk of Acquiring Firm

To measure the credit risk of the acquiring firm we have utilised at the current ratio. Whilst we originally intended to use more reliable methods of measuring a firms credit risk. Due to data availability, we were restricted to using the acquiring firm's current ratio. The current ratio is a measure of the firm's ability to meet their short-term financial obligations using assets that can be easily liquidated. The current ratio has been calculated by current assets divided by current liabilities of the acquiring firm in the year prior to the acquisition.

$$Current\ Ratio = \frac{Current\ Assets_{T-1}}{Current\ Liabilities_{T-1}} \qquad (1)$$

Previous M&A Experience

Previous M&A experience refers to when the acquiring SME has previously undergone a merger or acquisitions before this current acquisition with information being acquired from the database Zephyr. This was measured counting the number of previous acquisitions made within the most recent five years prior to the year of the current deal. Companies without any recent transactions were allocated a zero.

Relative Size

The relative size is used to measure the size of the target firm in comparison to the acquirer. To measure this, we have taken the total sales of the target firm, divided by the total sales of the acquirer in the year before the acquisition, subtracting one from this ratio and taking the absolute value of this as our result. This was done in order to test for a relative size difference between the acquirer and target, regardless if the target is smaller or bigger than the acquirer.

This variable produces positive numbers for relatively smaller and larger target companies, taking values of zero if both companies are the same size, values between zero and one for smaller target firms and values from zero upwards for larger target firms.

Absolute Size

The absolute size is used to measure the size of the acquiring firm. This was calculated by taking the log of the acquiring firms total sales represented by thousands of Euro, in the year prior to the merger taking place.

$$Absolute\ Size = log(Total\ Sales_{T-1}) \qquad (2)$$

Cross-Industry

Industry similarity between the acquiring and target SME's was determined by differentiating between mergers where both parties were in the same primary industry and those that were differing. The classification of primary industries follows the US SIC code system, a commonly used industry identification method. To determine if the firms were in a similar industry, we compared the first two digits of the firms SIC code, which is common in literature (Renneboog & Vansteenkiste, 2019). Following this, we used dummy variables, with a 0 representing a merger within the same industry and 1 representing a cross-industry merger. It is important to highlight that this method evaluates a merger as being a horizontal or a diversified merger. The author's reasoning behind this is that when using two-digit SIC codes, it is very difficult to accurately measure vertical integration.

Pre-Merger Performance

Due to the data being limited from 2010 onwards, in order to ensure comparability between differing years we have calculated the pre-merger performance as profits divided by average assets which is then adjusted for industry average in the year prior to the merger. Average assets were used as the year end values are not representative for the entire year and were calculated by taking the average of the current and the previous year assets (Thanos & Papadakis, 2012).

$$Pre - Merger\ ROA = \left(\frac{Profits_{T-1}}{Average\ Assets_{T-1}}\right) - Industry\ Average_{T-1} \qquad (3)$$

4 Methodology

As the background theory of the research question regarding M&A and SMEs was analyzed, respective literature was discussed and gaps in knowledge in the current studies were identified in previous chapters, now various statistical tests are performed on the gathered data in order to test the hypotheses. In the following section the data analysis and statistical methods implemented in this paper will be described.

This paper follows one of two major approaches to study M&A performance. While in financial literature often event studies are applied, we compare pre- and post-merger performance with an outcome study and match the results against an industry base (Tichy, 2001 cited in Das & Kapil, 2012). In order to test the hypotheses stated in the previous chapter we implement an OLS (Ordinary Least squares) regression model. A linear regression is used to examine the extent to which the independent variables explain the variation in the dependent variable. To ensure the reliability of the regression model the data is tested for normality, homoscedasticity and correlation. The following formula states the relation between the dependent and the explanatory variables:

$$PostROA_i = \beta 0 + \beta_1 CrossBorder_i + \beta_2 CurRat_i + \beta_3 AcqExp_i \quad (4)$$

$$+\beta_4 RelSize_i + \beta_5 AbsSize_i + \beta_6 CrossInd_i + \beta_7 PreROA_i$$

$$+\sum_{\kappa=1}^{K} \gamma_\kappa Ind_\kappa + \sum_{t=2011}^{2013} \delta_t AcqYear_{t,i} + \sum_{c=1}^{C} \theta_c Country_c + \varepsilon_i$$

The dependent factor, post-merger ROA is adjusted for the industry average. β_0 is representative of the intercept of the regression line where β_1 to β_7 represent the coefficients of the independent variables. The error term is described by ε. Additionally, several control variables are added to the regressions. The control variables implemented in this regression account for the year the deal occurred and both the industry and country of the acquiring firm.

Due to different levels of data available for each variable this paper will implement several regressions on different data sets. The main regression is stated above and will test for all independent variables with 690 observations between 2011 and 2013. Furthermore, in order

to include more data points, a second regression excludes relative size and the current ratio as explanatory variables, resulting in 3313 observations from 2011 to 2013. To test if the results are consistent over the 3 year time period, both regression specifications are also applied to every single year individually. For each regression model, we also assume two different variations. Firstly, we include pre-merger ROA. This allows the coefficients to explain the variation in excess ROA. As a comparison, we also exclude pre-merger ROA to evaluate the impact of factors on ROA as a whole. All regressions are run in excel using the *Real Statistics Resource Pack.*

In order to reach a close to normal and symmetric distribution of the regression residuals for unbiased coefficient estimators, the residuals were plotted for every regression and extraordinary outliers were removed. We removed these outliers rather than winsorizing them as only very few observations caused those outliers with different variables being the cause and winsorizing at even only a 1% level would have resulted in distorting the data more than necessary. In addition to that, relative size was winsorized at the top ten percent level, as massive outliers existed which also under an economical perspective were unrealistic or which did not serve the purpose of this study. Whilst this may appear to be an extreme winsorization, our first method to solve this was to implement the log of relative size, however this did not have a desired effect.

One of the most important OLS assumptions is homoscedasticity, which implies that the variance of the error terms of the regression is constant and therefore unrelated to any predictor or any linear combination of predictors (Hayes & Cai, 2007). A violation of this assumption, called heteroscedasticity, leads to unbiased but inefficient coefficient estimators and incorrect standard errors and p-values. The regressions used for this paper exhibited heteroscedasticity. To correct for this we used heteroscedastic-consistent robust standard errors (HCSE). More precisely, as proposed and described by Hayes and Cai (2007) the standard error estimator known as HC3 was implemented.

5 Results

The following section will present the data and the results in two parts. Firstly, the descriptive statistics will give an overview of the variables and takes a closer look at correlation and

multicollinearity. Secondly, the results from the different regression specifications are presented and used to test the hypotheses stated previously.

5.1 Descriptive Statistics

As two data samples with different explanatory variables and different amounts of observations were run table 2 presents the descriptive statistics of all independent variables with less observations while table 3 shows the means, standard deviations and correlations of the dataset with substantially more observations but excluding *relative size* and *current ratio*. As a first indicator of how representative the datasets are, we will have a look at the pre-merger excess ROA which is expected to be zero and therefore to be in line with industry peers. The average one year pre-merger ROA is slightly positive with a mean of 0.63% for all variables (table 2) and has a slightly negative mean of -0.84% for all observations available (table 3). As both deviations from zero are below one percent we can conclude that our data is representative for European SMEs.

Table 2. Descriptive statistics all variables: means, standard deviation and correlations

Variable	Mean	SD	Correlations								VIF
			1.	2.	3.	4.	5.	6.	7.	8.	
1. Post-merger excess ROA	-0.0074	0.1207	1,0000								
2. Cross-industry	0.3145	0.4647	-0,0388	1.0000							1,0231
3. Acquisition experience	0.3333	0.8530	-0,0280	0.0354	1.0000						1,0181
4. Relative size	0.7797	0.2524	0,0366	0.0970	0.0550	1,0000					1,0330
5. Current ratio	2.6417	6.3367	0,1460	0.0961	-0.0659	0,0524	1.0000				1,0793
6. Cross-boarder	0.0783	0.2688	-0,0260	0.0002	0.0063	-0,0529	0.0579	1.0000			1,0207
7. Absolute size (log)	3.7103	0.6783	0,0285	-0.0548	0.1083	0,0752	-0.2234	0.0804	1.0000		1,0966
8. 1 year pre-merger excess ROA	0.0063	0.1657	0,4372	-0.0302	0.0080	0,0893	0.0398	-0.0509	0.1014	1.0000	1,0260

Table 3. Descriptive statistics most datapoints: means, standard deviation and correlations

Variable	Mean	SD	Correlations						VIF
			1.	2.	3.	4.	5.	6.	
1. Post-merger excess ROA	-0.0200	0.1183	1.0000						
2. cross-industry	0.3445	0.4753	-0.0157	1.0000					1.0047
3. Acquisition experience	0.2078	0.8520	-0.0116	-0.0204	1.0000				1.0205
4. Cross-border	0.0477	0.2131	-0.0288	-0.0281	0.0235	1.0000			1.0159
5. Absolute size	3.5275	0.7486	0.0533	-0.0640	0.1407	0.1219	1.0000		1.0508
6. 1 year pre-merger excess ROA	-0.0084	0.1400	0.4169	-0.0137	0.0048	0.0325	0.1107	1.0000	1.0130

In order to check the data for multicollinearity, we use two approaches to look at the data. Firstly, a visual inspection of the bivariate correlations between variables shows that none of the correlations in both models are particularly high, which is often regarded as any correlation above 0.80. Furthermore, the VIF (Variance Inflation Factor) was calculated, which is a standard tool to detect multicollinearity. The standard cut-off level for the VIF in empirical research ranges from 2.5 in more conservatives studies up to 10 in most relevant papers (Field, 2013). However, as table 2 shows the highest VIF does not exceed 1.1, which is far from both cut-off levels and we can therefore conclude that multicollinearity is not an issue with our variables.

For the analysis of the individual variables, we primarily look at the dataset with the larger number of observations available, changing to the specification including all variables where needed.

P*ost-merger ROA* in excess of the industry average, which is our dependent variable, has a negative mean in both samples which means on average the companies in the sample underperformed compared to their peers after the acquisition took place. This conclusion can be underpinned by another result. As one can see in table 4, of 3,313 acquisitions only 41.8% were successful which is defined as any increase in post-merger ROA compared to pre-merger ROA.

Regarding *cross-industry*, a mean of 0.3445 shows that around one third of all deals were conducted by acquirers of an industry different to the respective target. As shown in table 4 companies of the services and manufacturing industries together made up for over one half of all deals in our sample, while at the same time they also seem less likely to acquire business unrelated to theirs. Besides that, a slight negative correlation of -0.0157 exists between post-merger ROA and cross-industry acquisitions, indicating lower performance for deals between unrelated businesses.

Acquisition experience has a mean of 0.2078 and a standard deviation of 0.8502 acquisitions per company but as some companies have acquired more than one target in the five years prior, only around one in nine firms in the sample have acquisition experience (table 4), meaning SMEs are not particularly experienced in M&A.

For *cross-border* transactions, there is a mean of 0.0477 with only 158 deals performed across national borders. This indicates that SMEs prefer to acquirer targets close to their main location and in known legal and economical environments. In the sample used for this paper a large portion of acquirers are Spanish, followed by Finland, Great Britain and Sweden. All in all, 13 EU countries were represented on the acquirer side and targets of 29 different countries worldwide were purchased. Besides, there is a slightly negative correlation of -0.0288 between cross-border deals and post-merger ROA.

Pre-merger ROA has a mean close to zero in both specifications giving a good indication that the sample used for the analysis is representative. As expected it shows a high positive correlation with post-merger ROA.

Table 4. Measure of frequency: count, percentage and frequency

	Deals	cross-industry	Acquisition experience	Cross-boarder
Total number	3,314	1,142	396	158
In percent of total	41.8% (successful deals)	34.1%	11.9%	4.7%
Of which				
Services	899	22,6%	14,7%	
Manufacturing	839	34,3%	11,1%	
Finance, Insurance and Real Estate	463	32,6%	8,9%	
Wholesale Trade	394	39,6%	12,7%	
Transportation and Public Utilities	247	26,7%	14,6%	
Retail Trade	221	34,8%	11,3%	
Construction	178	48,9%	5,1%	
Primary sector	45	48,9%	13,3%	
Mining	22	45,5%	13,6%	
Public Administration	6	50,0%	16,7%	

The *relative size* distance between acquirer and target was 78% with a standard deviation of 0.25. With a positive correlation of 0.037 with post-merger ROA one can say that a bigger size difference between acquirer and target has a positive effect on post-merger performance, while at the same time it has to be noted that most target companies were smaller than the acquirer.

This leads us to the *absolute size* of the acquirer, which was introduced to complement *relative size* in order to examine if firm size has an impact on performance. It is positively correlated with post-merger performance and *relative size.*

Lastly, *current ratio* was used to measure credit risk and liquidity of the acquirer. On average, acquiring firms had 2.64 times more current assets than current liabilities, meaning that in general SMEs had all their current liabilities covered well and are relatively liquid. However, a standard deviation of 6.34 indicates a high dispersion in the sample. *Current ratio* shows a higher correlation of 0.146 with post-merger ROA than the other independent variables do.

5.2 Regression Analysis

To perform an in-depth analysis of all variables, we used two linear regression models corrected for heteroscedasticity containing data from 2011-2013. To further evaluate the

strength of the independent variables we further ran each model on a yearly basis with the results display in Appendix (tables A1 to A8). Additionally, the model containing pre-merger ROA measures the impact on excess returns, whilst we also ran each model excluding this variable to evaluate the overall impact on performance. The results from the heteroscedasticity-consistent regression MD (most data points) Model, containing the most data points are displayed in table 5 whilst the results from AV (all variables) Model, containing all variables are displayed in table 6.

When using an OLS regression, there are two important aspects that must be interpreted before looking at the estimated coefficients. These are the fit and significance of the model. The fit of the model is denominate by the R2 value of the model, representing the strength of the relationship between the dependent and independent variables by measuring the variation in post-merger ROA that is explained by the coefficients in each model. The significance of the model is evaluated using the corresponding F-statistic and p-value for the overall model, where if the p-value is less than the corresponding F-statistic, the coefficients are significantly different from zero.

The MD Model contains the largest dataset with reduced variables and aims to test the abnormal excess post-merger ROA caused by the five independent variables: cross-border, acquisition experience, absolute size, cross-industry and pre-merger ROA, with the MD Model B excluding pre-merger ROA from the regression, measuring only the excess post-merger ROA.

$$MD\ Model:$$

$$PostROA_{\ i} = \beta 0 + \beta_1 CrossBorder_i + \beta_2 AcqExp_i + \beta_3 AbsSize_i \qquad (5)$$

$$+\beta_4 CrossInd_i + \beta_5 PreROA_i + \sum_{\kappa=1}^{K} \gamma_\kappa Ind_\kappa + \sum_{t=2011}^{2013} \delta_t AcqYear_{t,i}$$

$$+ \sum_{c=1}^{C} \theta_c Country_c + \varepsilon_i$$

$$MD\ Model\ B:$$

$$PostROA_{\ i} = \beta 0 + \beta_1 CrossBorder_i + \beta_2 AcqExp_i + \beta_3 AbsSize_i \qquad (6)$$

$$+\beta_4 CrossInd_i + \sum_{\kappa=1}^{K} \gamma_\kappa Ind_\kappa + \sum_{t=2011}^{2013} \delta_t AcqYear_{t,i}$$

$$+ \sum_{c=1}^{C} \theta_c Country_c + \varepsilon_i$$

Table 5. Regression results from the MD Model and the MD Model B

	MD Model				MD Model B		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.073	0.016			0.033	0.178	
Cross-Border	-0.029*	0.016			-0.025	0.017	
Experience	-0.004**	0.002			-0.006***	0.002	
Abs. Size	0.002	0.003			0.008**	0.003	
Cross-Industry	-0.007	0.004			-0.007	0.004	
PreROA	0.239***	0.035					
Fixed Effects							
Year Dummy							
Industry Dummy							
Country Dummy							
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.166	23.309	0.000	3314	0.031	3.843	0.000

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

As can be seen in Table 5, the MD Model has an R2 value of 0.1657, meaning the independent variables explain 16.57% with the corresponding F-statistic showing significance at a level of 5%. Whilst this model is not a perfect fit, this is to be expected as there are many factors that could impact a firm's ROA, however the model is significant allowing the coefficient results to be analysed. As the firm's pre-merger ROA has been included in the regression as a control variable, this allows our other variables to explain abnormal excess ROA.

As expected, when pre-merger ROA is removed in the MD B Model, the fit of the model is reduced to 3.06%, however is still significant at a level of 5%.

The AV Model contains a smaller subset of data to analyse the impact of further variables and aims to test the dependency between post-merger ROA and seven independent variables: cross-border, current ratio, acquisition experience, relative size, absolute size, cross-industry and pre-merger ROA, with the AVB Model excluding pre-merger ROA.

$$AV\ Model:$$

$$PostROA_i = \beta 0 + \beta_1 CrossBorder_i + \beta_2 CurRat_i + \beta_3 AcqExp_i \qquad (7)$$
$$+\beta_4 RelSize_i + \beta_5 AbsSize_i + \beta_6 CrossInd_i + \beta_7 PreROA_i$$
$$+\sum_{\kappa=1}^{K} \gamma_\kappa Ind_\kappa + \sum_{t=2011}^{2013} \delta_t AcqYear_{t,i} + \sum_{c=1}^{C} \theta_c Country_c + \varepsilon_i$$

$$AV\ Model\ B:$$

$$PostROA_i = \beta 0 + \beta_1 CrossBorder_i + \beta_2 CurRat_i + \beta_3 AcqExp_i \qquad (8)$$
$$+\beta_4 RelSize_i + \beta_5 AbsSize_i + \beta_6 CrossInd_i$$
$$+\sum_{\kappa=1}^{K} \gamma_\kappa Ind_\kappa + \sum_{t=2011}^{2013} \delta_t AcqYear_{t,i} + \sum_{c=1}^{C} \theta_c Country_c + \varepsilon_i$$

Table 6. Regression results from the AV Model and AV Model B

	AV Model				AV Model B		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.157	3.669			0.103	20.379	
Cross-Border	-0.008	0.024			-0.018	0.027	
Credit Risk	0.003	0.002			0.004	0.003	
Experience	-0.003	0.005			-0.003	0.005	
Relative Size	-0.006	0.019			-0.001	0.000	
Abs. Size	-0.012	0.013			-0.01	0.014	
Cross-Industry	-0.015	0.010			-0.017	0.011	
PreROA	0.313***	0.053					
Fixed Effects							
Year Dummy							
Industry Dummy							
Country Dummy							
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.231	6.825	0.000	690	0.064	1.612	0.025

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

As can be seen in Table 6, the AV Model has an R2 value of 0.2345, meaning the fit of the model is 23.45% and significant at the 5% level. As expected, adding more variables to the model allows a better explanation for the variance in post-merger ROA.

Similarly to the MD Model , the AV Model B has a much weaker R2 value of 6.39% but is also significant at the 5% level.

H1: A larger cultural distance between the acquirer and target will negatively impact post-merger performance in SMEs

The models were originally ran using cultural distance as a measure, however this proved to be insignificantly different from zero as can be seen in table A1 and A5 in the Appendix , with a potential cause resulting from our sample size only observing 158 cross-border transactions, lacking evidence to make a conclusion on our hypothesis. To increase the sample size, we replaced cultural distance with a cross-border dummy. This incorporated cross-border transactions for EU countries that were excluded in the cultural distance matrix, as well as countries outside of the EU. This variable then becames significant at the 10% level in the MD

Model, showing that a cross-border transaction will have a negative impact of 0.8% on abnormal excess returns. With significance in our model containing the most data points and the coefficient being consistently negative in other models, this result provides support for our hypothesis.

H2: SMEs with a lower credit risk will perform better than those with higher pre-merger leverage

Credit risk is significant at the 10% level in the 2012 AV Model as seen in Appendix A7 and 5% in the 2011 AV Model as seen in Appendix A6, whilst being slightly outside the 10% significance level in several others. It is also consistently positive in the other regressions, indicating that lower leveraged firms pre-merger perform better post-merger. However, as in the two main regressions the results are not significantly different from zero there is insufficient evidence to make a conclusion for *H3.*

H3: Previous M&A experience will have a positive impact on post-merger performance for SMEs

In the MD Model experience is significant at the 5% level with a previous acquisition having a negative impact of 0.4% on post-merger performance and in MDB Model is significant at the 1% level having a negative impact of 0.06% per previous acquisition. Contrarily, in the AV Model experience becomes insignificant. Whilst experience is only significant in the MD Models, it constantly displays a negative albeit small coefficient in both models, providing sufficient evidence that previous experience negatively impacts post-merger performance for SMEs, contradicting our hypothesis.

H4a: A smaller relative size between the acquiring and target firm will have a positive impact on post-merger success for SMEs

Relative size was excluded from the MD Model due to the reduction this caused in sample size. In the AV Model relative size is insignificant. Whilst a constant negative value through all years does support that a larger relative size difference between acquirer and target firm has a negative impact on post-merger performance, there is insufficient evidence to support our hypothesis that firms with smaller relative size will have a stronger post-merger performance.

H4b: Smaller SMEs will outperform larger SMEs in post-merger performance

The absolute size of the acquiring firm is insignificant in both the MD and AV Models. However, when looking at the MD Model B, it becomes significant at a 5% level, as well as in the 2011 AV Model at the 10% level as can be seen in Appendix A2. Interestingly, in the MD model B the coefficient is positive, whilst it is negative in the AV Model. Potential reasoning for this is that in the MD Model, we have a large sample of micro firms, which tend to underperform and hence the positive coefficient, contradicting our hypothesis that smaller firms would exhibit better performance. In the 2011 AV model, many of these micro firms are excluded, leaving a negative result supporting small firms do perform better than larger ones. This suggests there is a non-linear relationship regarding absolute size. However, overall there is still a lacking support of evidence to demonstrate that absolute size can significant impact excess post-merger performance.

H5: SMEs that engage in cross-industry mergers will suffer a lower post-merger performance
Cross Industry is significant at a level of 10% in the 2012 MD Model and the 2013 AV Model as can be seen in Appendix A3 and A8 respectively. The negative impact on the abnormal excess ROA ranges from 1-2%. However, it is insignificant in the overall MD and AV Models. Overall, there is insufficient evidence to support our hypothesis that a cross-industry merger will a negative impact on post-merger performance.

6 Discussion

6.1 Findings

The objective of this thesis was to evaluate the impact of pre-merger factors on the post-merger performance of SMEs whilst comparing the results with literature on large firms. As can be observed, the results indicate that there are differences between the two, with each of the factors discussed below.

Firstly, this thesis attempted to evaluate the impact cultural distance and cross-border transactions have on SME M&A performance . Whilst previous studies have been largely conducted on public firms, the results from this field of research have been very conflicted (Brock, 2005; Teerikangas & Very, 2006). However, the results from this thesis are in line with studies conducted by Bauer and Matzler (2014) and Lodorfos and Boateng (2006) and

conclude that a cross-border transaction will negatively impact post-merger performance. Interestingly, cultural distance was not significant, however substituting this for cross-border was found to be significant. A potential cause for this is that out of our sample size we only had 158 cross-border transactions, with our cultural distance matrix missing further data points still. Another potential cause for this is that the cultural distance between European countries is relatively small, however a larger sample size including more cross-border transactions would be required to validate this. This is important to highlight as it demonstrates that SMEs are far more likely to engage in domestic M&A than their larger counterparts. The resulting conclusion from this is that SMEs will perform better following domestic M&A versus cross-border M&A, however it must be remembered that only a small portion of our sample did engage in cross-border activity.

Whilst not significant in all models, and therefore lacking conclusive evidence, in years where credit risk was found to be significant, our results show that SMEs with lower leverage demonstrate stronger post-merger performance than those with higher leverage. Our results disagree with Furfine and Rosen (2009) who found firms who engage in M&A are, on average more likely to default or experience financial difficulties. This may support McCarthy et al. (2013) who found that SMEs are more likely to rely on equity than debt to engage in M&A. This leaves firms with a lower credit risk the capacity to increase their leverage without putting the firm at financial risk in order to assist with the post-merger period which may not be an option for firms that are already highly leveraged. This is in contrast with larger publicly traded firms, where Jensen (1986) found firms that have excess cash and unused debt facilities often engage in less successful M&As.

Thirdly, SMEs having previous M&A experience negatively impacts post-merger performance. This means that SMEs conducting M&A for the first time, will actually outperform firms who have previous experience. Whilst the impact of previous experience is another debated topic in literature and this being an unexpected observation, these results are consistent with Hietala, Kaplan and Robinson (2003) and Malmendier and Tate (2008) who reached a similar conclusion for larger firms. With our performance measurement being ROA, this shows that SMEs who rely upon M&A as a form of external growth, are actually losing firm efficiency. One conclusion that may be reached from this is SMEs may potentially be seeking growth rather than profitability. Another potential reason is that SMEs lack the resources to properly learn

from previous experience, or are potentially applying these experiences incorrectly (Finkelstein & Haleblian, 2002).

Fourthly, our results show that relative size between the acquirer and target SMEs is an irrelevant factor in post-merger performance. This disagrees with studies conducted by Chung, Singh and Lee (2000) and Moeller, Schlingemann and Stulz (2004). It is important to note however that these studies were conducted on larger firms. Therefore it is possible that relative size may be more important to larger firms as they struggle with the post-merger integration phase, however as SMEs are all within a smaller size bracket it therefore becomes irrelevant.

Whilst previous studies have concluded that smaller firms tend to outperform their larger counterparts (Tuch & O'Sullivan, 2007), this has only been examined in large public firms, our results from the larger sample size contradict this. However, it is supported in our smaller sample. This is due to the larger sample including a larger proportion of micro firms, which tended to underperform. This suggests a non-linear relationship where micro firms perform poorly following M&A activity, with small firms outperforming both micro and larger firms. Therefore, it is important to highlight that when evaluating SMEs, which are on a much smaller scale, the general consensus from M&A literature does not hold.

Lastly, whilst there was lack of consistency in our results regarding the impact of cross-industry mergers, where it was found to be significant, results showed that cross-industry mergers result in negative post-merger performance. Whilst previous research into this area has shown differing results in large firms, Martynova and Renneboog (2008) concluded that there was no difference in firms who completed merger transactions with targets in similar or diversified industries. However, our results showing that cross-industry has a negative impact on performance were consistent with studies conducted by Hoberg and Phillips (2010) and Renneboog and Vansteenkiste (2019). These conflicting results provided inconclusive evidence for our hypothesis and add to the conflicting results in literature, highlighting an area for future research.

6.2 Implications

The implications of this thesis have a threefold contribution to the theoretical aspects of mergers and acquisitions. As previously discussed, there is a lack of research investigating whether studies conducted into large firms whom engage in M&A activity is also applicable to SMEs. The results from this study support the scarce literature attempting to fill this gap, concluding that there are important differences between SMEs and large firms (Bauer & Matzler, 2014; McCarthy & Dolfsma, 2013). Whilst research into this field is preliminary, our results conclude that further research is required to investigate the extent of these differences.

Secondly, the data sample was collected between the periods of 2011-2013. At this point in time, most literature focuses on earlier time periods. As this period shows signs of the beginning of the 7th merger wave (McCarthy & Dolfsma, 2013), this is a time period that is yet to receive substantial research. As our research has contradictions with research conducted during previous merger waves, this highlights the importance for future research into investigating the unique characteristics of this time period.

Lastly, Epstein (2005) highlights the pre-merger phase as being one of the least researched topics in M&A literature. This paper focuses on pre-merger characteristics, with significant results relating to the post-merger performance of SMEs conducting M&As. Therefore, this study assists to further develop understanding how this phase can impact long-term performance following a merger. Furthermore, our results show that pre-merger factors significantly impact post-merger performance and their importance cannot be neglected during M&A.

Whilst this thesis contributes to theoretical aspects of M&A, it also has implications in a practical sense. These results may provide reference to mangers of SMEs within the EU of contributing factors that may impact post-merger performance. In particular, they should be cautious of the negative impact that previous M&A experience may have, and the potential this may have for firms that rely upon M&A as continual source of external growth.

6.3 Limitations

For the purpose of providing a full picture of the analysis conducted in this paper several limitations have to be kept in mind. The focus of the paper lays on SMEs and their M&A activity

in Europe of which every part of those selection criteria inherit drawbacks and limit the ability of making generalizable conclusions.

despite SMEs being some of the most active companies in the EU, they are far less regulated than bigger and publicly listed companies. This combined with a very concentrated ownership structure and low media attention often leads to a lack of transparent business structures and decision making processes, where researchers fully depend on the gratitude of SME business owners to disclose financial data or insights of any kind. Similarly to this, the database Orbis which is used in this paper, uses public records of companies so on the upside, there is no selection bias and the database is extensive but on the downside not all necessary information is disclosed and therefore leaving many aspects cannot be researched.

In general, data availability and consistency is a big issue related to SMEs. As market data is not existent for private companies and accounting based data is scarce, many performance measures could not be applied and explanatory variables could not be implemented due to this creating an insufficient sample size. Accumulating primary data through surveys and questionnaires was out of scope for this paper so only the available financial data from Orbis could be used, which only contains data starting from 2010 resulting in two further limitations for this study. Firstly, as performance is such a broadly defined, complicated concept including several dimensions, researchers suggest to use more than one way of measuring it by combining several measures in order to capture as many different features of performance as possible (Papadakis & Thanos, 2010; Weber, 1996). Secondly, even after adjusting ROA for industry averages, within the European Union reporting standards differ between countries and financial reports are subject to some manipulation and adaptions by the companies depending on the financial, legal and tax targets they want to reach. This makes the ROA of different firms in different countries somewhat less comparable.

The fact that countries within the EU show different economic development and that macroeconomic factors have a major influence on post-merger performance is another main limitation of this study. It is extremely difficult to isolate macroeconomic influences on individual companies in different countries and even if it would be possible to capture a large portion of factors impacting performance, every company is subject to macroeconomic impacts it cannot control. In the case of this paper, two main macroeconomic effects are suspected to influence the deals observed between 2011 and 2013. On one hand, the

economy was recovering from global financial crisis, starting a new merger wave and picking up speed and growth, likely having positive impacts for M&A. On the other hand, in southern European countries the Euro debt crisis started, impacting major economies like Spain. In this paper none of these events was accounted for and their influence remains open for further research.

Finally, limitations regarding sampling and regressions exist. Companies were selected on the condition that they were involved in M&A but no control group with companies not taking part in acquisitions exist. To control for this issue, the average industry performance was deducted from the performance of the observed companies, however a direct comparison between companies engaging M&As and companies that do not is not possible. In addition to this, little research has been conducted in the subject of SMEs and M&A leaving high probabilities of explanatory factors existing, which may explain M&A performance better but have not yet been discovered or used in a proper way.

Additionally, one has to consider that the results are specific to how different variables were measured in this paper. Data for pre-merger ROA was only available from 2010 onwards, therefore consistent averages to compare with post-merger ROA could not be calculated for every year. Our measurement of cultural distance is based upon the cultural matrix constructed in Kaasa, Vadi & Varblane (2014), and whilst is one of the most comprehensive European based cultural matrixes this is a strongly debated area of research and thus using a different measurement may provide differing results.

7 Conclusion

In conclusion, our study investigating pre-merger determinants of success has concluded that SMEs have different reactions to certain variables than their large counterparts when undertaking M&A activity. The importance of this conclusion is that prior researches focuses on large firms and these results highlight key distinctions between these and SMEs. With the increasing number of SMEs engaging in M&A activity, it is important to continue investigating factors that impact SME performance. Furthermore, as many of our variables appeared to have an insignificant impact on returns, it is possible that there are still unknown variables that may contribute to M&A success as proposed by King et al. (2004).

An important note is that these factors were evaluated against post-merger ROA. Literature is highly debated upon measuring success (Meglio & Risberg, 2011). In order to validate these results, further research must be conducted with differing performance measures, as well as in differing geographical settings.

When comparing excess post-merger ROA with excess pre-merger ROA, our sample had success rate of 41.8% showing an improvement following the merger. This is line with literature regarding the publicly traded firm success rate. However, this raises a very important question in regards to why firms regardless of size continue to engage in M&A transactions.

Overall, it can be stated that considerable differences between SMEs and larger firms exist and that those differences affect the way that SMEs perform in M&A. This topic will gain more and more importance in the coming years, especially for SMEs, and it will be crucial for business owners, investors and consultants to understand the mechanisms involved.

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Appendix

Table A1. Regression results from MD Model and MD Model B 2011-2013 with cultural distance

	MD Model 2011-2013				MD Model B 2011-2013		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.105	0.066			0.057	0.472	
Cultural Distance	-0.026	0.017			-0.021	0.016	
Experience	-0.004**	0.002			-0.006***	0.002	
Abs. Size	0.002	0.003			0.008**	0.003	
Cross-Industry	-0.006	0.004			-0.007	0.004	
PreROA	0.239***	0.035					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.166	23.375	0.000	3314	0.031	3.837	0.000

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

Table A2. Regression results from MD Model and MD Model B 2011

	MD Model 2011				MD Model B 2011		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	-0.065	0.041			-0.117	0.056	
Cross-Border	-0.041	0.036			-0.007	0.026	
Experience	-0.004	0.004			-0.006	0.004	
Abs. Size	0.005	0.007			0.012	0.008	
Cross-Industry	-0.006	0.012			-0.002	0.013	
PreROA	0.212***	0.045					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.176	6.206	0.000	662	0.065	2.110	0.003

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

Table A3. Regression results from MD Model and MD Model B 2012

	MD Model 2012				MD Model B 2012		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	-0.057	0.122			-0.089	0.140	
Cross-Border	0.016	0.017			0.019	0.019	
Experience	-0.003	0.003			-0.005	0.003	
Abs. Size	-0.002	0.004			0.002	0.005	
Cross-Industry	-0.011*	0.007			-0.008	0.007	
PreROA	0.200***	0.045					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.148	8.931	0.000	1151	0.052	2.955	0.000

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

Table A4. Regression results from MD Model and MD Model B 2013

	MD Model 2013				MD Model B 2013		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.133	0.093			0.067	0.495	
Cross-Border	-0.034	0.027			-0.028	0.026	
Experience	-0.009*	0.006			-0.010*	0.006	
Abs. Size	0.002	0.005			0.010*	0.026	
Cross-Industry	-0.001	0.006			-0.002	0.007	
PreROA	0.337***	0.093					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.270	20.969	0.000	1501	0.032	1.956	0.003

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

Table A5. Regression results from AV Model and AV Model B 2011-2013 with Cultural Distance

	AV Model 2011-2013				AV Model B 2011-2013		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.113	2.700			0.028	3.211	
Cultural Distance	0.017	0.018			0.012	0.019	
Credit Risk	0.003	0.002			0.003	0.002	
Experience	-0.003	0.005			-0.003	0.005	
Relative Size	-0.005	0.018			0.009	0.020	
Abs. Size	-0.013	0.013			-0.002	0.013	
Cross-Industry	-0.015	0.010			-0.018	0.011	
PreROA	0.315***	0.053					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.232	6.885	0.000	690	0.058	1.452	0.063

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

Table A6. Regression results from AV Model and AV Model B 2011

	AV Model 2011				AV Model B 2011		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	-0.010	0.1789			-0.268	0.209	
Cross-Border	0.009	0.048			0.051	0.052	
Credit Risk	0.024	0.015			0.049**	0.019	
Experience	0.000	0.010			0.004	0.012	
Relative Size	-0.001	0.001			-0.001	0.002	
Abs. Size	-0.073*	0.043			-0.010	0.051	
Cross-Industry	0.011	0.026			-0.000	0.029	
PreROA	0.340***	0.113					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.513	5.646	0.000	128	0.271	2.117	0.008

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

Table A7. Regression results from AV Model and AV Model B 2012

	AV Model 2012				AV Model B 2012		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	0.195	10.161			0.166	0.341	
Cross-Border	-0.011	0.024			-0.013	0.024	
Credit Risk	0.000	0.001			0.000	0.001	
Experience	-0.009	0.012			-0.009	0.012	
Relative Size	-0.001	0.001			-0.001	0.001	
Abs. Size	-0.023	0.019			-0.019	0.018	
Cross-Industry	-0.015	0.010			-0.003	0.012	
PreROA	0.129*	0.067					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.145	1.835	0.010	296	0.101	1.268	0.185

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

Table A8. Regression results from AV Model and AV Model B 2013

	Model 2 2013				Model 2B 2013		
Variable	**Coeff**	**Std. Error (HC3)**			**Coeff**	**Std. Error (HC3)**	
Intercept	-0.013	0.393			-0.086	0.416	
Cross-Border	-0.029	0.041			-0.054	0.056	
Credit Risk	0.007*	0.004			0.006	0.006	
Experience	-0.006	0.011			-0.009	0.006	
Relative Size	-0.000	0.001			-0.000	0.001	
Abs. Size	-0.010	0.024			0.004	0.028	
Cross-Industry	-0.029*	0.017			-0.013	0.018	
PreROA	0.494***	0.093					
	R-Square	**F-Stat**	**P-Value**	**N**	**R-Square**	**F-Stat**	**P-Value**
	0.462	7.982	0.000	256	0.143	1.613	0.039

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