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*The influence of culture on cross-border M&A performance. A German perspective.*

## ***Abstract***

This study examines the role of cultural distance on merger performance for German firms engaging in cross-border M&A deals. The sample consists of 256 firms ranging from deals from 2000 to 2019. The proxy for merger performance in this study is the cumulative abnormal returns. Cultural distance is measured with help of the cultural dimensions created by Hofstede (1980). Furthermore, this study examines whether experience and firm size can be used as moderators for cultural distance. At last, the sample is divided into two groups, to measure whether the effect of cultural distance on merger performance has diminished in the recent years. No link has been found between cultural distance and merger performance. Also, no link has been found for experience on merger performance. There is a significant negative correlation between firm size and merger performance. Both moderators failed to show any significance, and thus could not be used. At last, there has not been a significant difference between the early stages of the sample and the more recent part of the sample.

Keywords: M&A, Cultural distance, Experience, Firm size, German perspective

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## 1. Introduction

A main increase in the number of M&A deals, is due to cross-border deals. Due to global changes, cross-border M&A deals have become more cheaper and easier to pursue (Warter & Warter, 2014). Therefore, the number of cross-border M&A deals have risen sharply in this century (Warter & Warter, 2014), making cross-border M&A a highly relevant subject in the realm of international business studies. However, M&A deals that involve acquirer and target that are not from the same country, often result in failure (Haspeslagh and Jemison, 1991). Many reasons can cause such a failure, but often a cultural clash is involved. Due to differences in culture, the combined firm may not work efficiently. Some scholars even go as far that a cultural fit is more important than a strategic fit (Chatterjee et al. 1992, Weber et al. 1996), highlighting the importance of national culture in the success of mergers and acquisitions.

However, literature shows mixed results regarding M&A deal performance and cultural distance. Some scholars argue that a difference in national culture and deal performance go hand in hand (Morosini & Singh, 1994; Larsson and Finkelstein, 1999; Harrison et al. 2001; Steigner & Sutton, 2011), since both firms can learn from their cultural traits and therefore come with better solutions for the firm. However, most scholars find the opposite, because they argue that the mix of culture lead to inefficiencies that will often lead to bankruptcy (Weber & Camerer, 2003; Hollmann et al., 2010; Weber & Tarba, 2012). What is important to note is that most studies that have been conducted are either been based on US-data or on Chinese data. The European area has somewhat been neglected when it comes to this issue.

Due to the contrary results in prior literature regarding the effect of cultural distance on M&A deal performance and the lack of studies based upon European firms, this study would like to investigate deeper into the issue. This study will mainly focus on German companies acquiring cross-border companies. It is important to note that these acquiring companies must be publicly listed, because it would not be possible to capture deal performance, because this study will use cumulative abnormal returns (hereafter CAR) as a proxy for deal performance. The CAR is conducted from the returns in shareholder value, and therefore the company must be publicly listed in order to retrieve the CAR for each individual company. The reason this study chooses German companies is for two reasons. First little research has been conducted on this topic with respect to German firms. Secondly, the German culture has a quite unique set of traits (Hofstede, 2009), which will make it interesting to study the effects of culture on cross-border M&A performance. The Hofstede index will be used to measure cultural distance between Germany and the corresponding countries where the German firms have acquired another firm. The Hofstede index is a well-known index, that has been used in prior studies and is regarded is one of the main indices to use, when it comes to culture.

Furthermore, the data collection starts from 2000, and not 1980 as other studies use, because in 1980 Germany was still divided and this study wants to capture the effect of the Germany we know today. The sample will end in 2019, and not the most recent year 2020, due to the covid-19 pandemic. Given the theoretical and empirical arguments, the following research question can be made:

*What is the influence of cultural distance on cross-border M&A performance for German firms, during the period 2000-2019?*

This study, however, wants to expand the model by also wanting to capture a moderating effect of experience on the matter. Experience is the concept that a German company has acquired more companies abroad or not. This might influence the results because such companies might overcome possible cultural barriers. This study wants to find out if this is also the case for German companies. This study will also investigate whether firm size has an influence on the CAR and furthermore if it can be used as a moderator for cultural distance. Prior literature suggests that bigger firms are better capable to absorb possible culture clashes between the acquiring company and the target company. This study will also analyse whether this suggestion holds for the German sample.

At last, this study wants to investigate whether cultural distance is a constant factor throughout the sample. In the last twenty years, the world has become a lot 'smaller', making it easier to acquire other firms abroad. Since the world has changed in the past twenty years, it might also affect the effect of cultural distance on M&A performance. This study therefore wants to explore whether the effect of cultural distance on M&A performance was stronger in the early stages of the sample, compared to the later stages of the sample. To examine this, the sample is split up in two subsamples. The first subsample starts in 2000 and ends in 2009. The second subsample starts in 2010 and ends in 2019. To gather all the data, datasets of Thomson Reuters will be used.

This study will both contain theoretical as well as practical relevance. First, this study will add relevance to the literature, since it will have a German scope, which has sparsely been done before. Furthermore, it will check if previously made claims still hold for a more recent sample, or if certain variables might have changed meaning over the years. This study will also contain practical relevance, especially for German firms. This study will examine the effect of M&A performance of cross-border M&A deals. German firms can therefore use this study as guideline as to how strong the effect of cultural distance on their M&A performance is, and if experience and firm size are important factors for the succeeding of a cross-border M&A deal.

The study will continue as follows: Section 2 will give an overview of the literature on the topic. Section 3 will provide the methodology of this study and the used methods. Section 4 will

provide the results and robustness checks of this study. At last, section 5 will conclude this study and will provide future research possibilities and the limitations of this study.

## 2. Literature review

National culture is the main explanatory variable in this study. Therefore, it is important to understand what national culture means and why it is important for M&A performance. According to Hofstede (1984) national culture is 'collective programming of the mind which distinguishes the members of one group or society from those of another' (p. 21). Furthermore, 'Culture represents a characteristic profile of a society regarding norms, values and institutions that provides understanding in how a society manages exchanges' (Hofstede, 1984). According to Hofstede (1984) these differences in values are what differentiate one national culture from another. Thus, due to differences in perception, values and beliefs, people in different countries will react differently to certain challenges, which are also applicable to business strategy.

So, national culture, therefore, also is applicable to mergers and acquisitions. Many studies have studied the effect of national culture on M&A performance; however, results differ from study to study, making the effect of national culture on M&A still ambiguous to this day. Goshal (1987) created a theoretical framework that implied that cultural distance would be beneficiary for the acquiring firm. Goshal (1987) argued that it would increase performance, because it would increase competencies across the globe. This claim was empirically supported by Morosini, Shane & Singh (1998)<sup>1</sup>. They were one of the first to notice a positive effect of national culture on M&A performance empirically. They argued that due to the differences in national culture multinational firms could learn from the different cultures and could integrate the positive notes from each culture into their own corporate strategy. Chakrabarti, Gupta-Mukherjee & Jayaraman (2009)<sup>2</sup> partly support the analysis from Morosini, Shane & Singh (1998). They stated that in the short-run, cultural distance has a negative influence on deal performance, but this is reversed in the long-run. They stated that cultural distance was first seen as a barrier that was costly to overcome, but once integrated properly, synergies would be higher, causing a positive effect in the long run. Aybar and Ficici (2009)<sup>3</sup> also found a positive link between culture and M&A performance for emerging markets, but not for firms for which the home market was based in a developed economy. As such they are arguing that location matters for national culture to have a positive or negative impact on M&A performance. This is highly relevant for this study, since this study focuses on German firms, which would be categorized as firms operating in a developed economy. Qian et al. (2017)<sup>4</sup> confirm the theory of Aybar and Ficici (2009) by finding a positive link between cultural distance and M&A performance by

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<sup>1</sup> Based upon an Italian sample from 1987 to 1992 with 52 firms.

<sup>2</sup> Based upon a mixed sample across the globe with 1167 firms from 1991 to 2004, using the CAR as short-term proxy and the BHAR as a long-term proxy for deal performance.

<sup>3</sup> Based upon a mixed sample across the globe with 433 firms from 1991 to 2004.

<sup>4</sup> Based upon a Chinese sample with 119 firms from 1995 to 2008.

Chinese firms. So, there are studies that find a relationship between cultural distance and M&A performance. However, most of these studies only find this link based upon long term prognoses and/or on firms based in emerging markets, as opposed to developed markets.

Most scholars thus examine a negative relationship between culture distance and M&A performance (e.g., Gomez-Mejia & Palich, 1997; Cartwright & Price, 2003; Brock, 2005; Conn et al., 2005; Stahl & Voigt, 2008; Dakessian & Feldmann, 2013; Nicholson & Salaber, 2013; Basuil & Datta, 2015). Gomez-Mejia & Palich (1997)<sup>5</sup> stated that due to cultural dissimilarities, uncertainty within the organization rises. This will mean that integration costs will increase, to prevent this uncertainty to disrupt the firm's business. Therefore, M&A performance will decrease due to these cultural dissimilarities, and they will be higher when cultural distance increases. Cartwright & Price (2003) came to similar conclusions. They argued that to overcome the cultural dissimilarities, integration is key and that this will result in higher acquisition costs, which is detrimental for the performance of the firm. Brock (2005)<sup>6</sup> supported the argument of Cartwright & Price (2003), but he narrowed it down. He concluded that there were mainly two cultural dimensions that created poor merger performance: Power distance and individualism. If those two dimensions have a big discrepancy between the two countries, mergers will perform poorly. Conn et al. (2005)<sup>7</sup> also noticed that cross-border M&A deals score poorly. They, however, compared the cross-border deals with domestic deals in the same period, to compare if it could be a 'market thing' as to why cross-border M&A deals perform relatively poorly. However, Conn et al. (2005) found that domestic deals performed better than cross-border deals, eliminating any market explanation as to why cross-border deals perform worse. Dakessian and Feldmann (2013)<sup>8</sup> also found a negative link with cultural distance and performance. They, however, concluded that for the firm itself it might not be a problem, but the shareholders do not trust such acquisitions, causing the shareholder value to drop, and thus negatively influencing the merger performance.

The fact that the literature cannot yet give a definitive answer to the question whether cultural distance is harmful or blissful for the firm, is illustrated by Li et al. (2020), Reus & Lamont (2009) and Stahl and Voigt (2008). Li et al. (2020)<sup>9</sup> found that national culture for firms was positively related to M&A performance in the short-run, but this effect was reversed for the long-run, stating the exact opposite as was being discussed before. Reus & Lamont (2009)<sup>10</sup> found that cultural differences meant higher integration costs, but that these cultural differences were also fruitful for

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<sup>5</sup> Based upon a sample from 442 Fortune 500 firms from 1985 to 1989.

<sup>6</sup> Based upon a sample from 103 multinationals.

<sup>7</sup> Based upon a UK sample with 4344 transactions from 1984 to 1998.

<sup>8</sup> Based upon a sample from 182 multinationals in South and Central America from 1989 to 2011.

<sup>9</sup> Based upon a sample from 560 emerging markets firms from 2002 to 2016.

<sup>10</sup> Based upon a sample from 118 US firms.



the firm, because of an increase in knowledge which benefitted their corporate strategies. They claim that cross-border M&A deals were double-edged when looking at firm performance. Stahl and Voigt (2008) found that there was a difference in the significance of certain dimensions and that different firm performance proxies resulted in different results, causing just like Reus and Lamont (2009) to have double-edged results.

However, most literature that found a positive relationship between national culture and M&A performance, mainly had a sample that consisted of firms from emerging markets. The literature that has been discussed that found negative relationships between national culture and M&A performance, were based upon all regions across the globe. Furthermore, there is simply more literature that finds a negative relationship between national culture and M&A performance during cross-border M&A transactions. When combining the previous literature, the following hypothesis can be formulated:

*H1: Cultural distance will have a negative effect on M&A performance for German firms engaging in cross-border M&A transactions.*

Prior literature found mitigating factors that could diminish the negative relationship between national culture and M&A performance, or even reverse the coefficient. These factors were mainly based upon firm-level capabilities. Experience is such a firm-level capability that improves the M&A performance for a cross-border M&A deal (Boateng et al., 2019; Dikova & Sahib, 2013; Qian et al., 2017; Luo & Shenkar, 2011). Experience, according to Levitt and March (1988), is a constant and dynamic process that is being stored as knowledge in the firm, that will be used for future purposes and which they can gain a competitive advantage. According to Johanson & Vahlne (1977), experience is one of the main attributes a firm must have to succeed across the border. They argue that this is a slowly evolving process, and that a firm learns by doing and in this way, knowledge will be accumulated that is necessary to succeed elsewhere. This is also known as the Uppsala model. According to Barkema, Bell & Pennings (1996)<sup>11</sup>, it has a significantly positive effect when a firm acquires a firm in a market in which it already operated before. This means that, according to Barkema, Bell & Pennings (1996) prior experience in a certain country will improve the integration process of the newly combined firm, due to the knowledge that they obtained prior to the merge.

When applying experience as a moderating factor for cultural distance to cross-border M&A performance, it has mostly been considered to have a positive influence. Boateng et al. (2019)<sup>12</sup> found a negative relationship between cultural distance and M&A performance, however when applying experience as a moderating factor, the negative relationship was diminished significantly.

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<sup>11</sup> Based upon a Dutch sample with 225 entities from 1966 to 1996.

<sup>12</sup> Based upon a Chinese sample with 209 firms from 1998 to 2012.

Dikova and Sahib (2013)<sup>13</sup> also found the same positive link as Boateng et al. (2019). They argue that such a positive link exists, because firms with prior cross-border experience are more likely to be aware of cultural pitfalls and they have managed to accumulate the required knowledge to deal with them more cost efficiently than firms with no experience. This will result in a better M&A performance. This empirical analysis is in line with the theoretical framework of Luo and Shenkar (2013), who argue that multinationals with more global experience will deal with cultural clashes more efficiently, compared to countries with no such experience. Whereas Boateng et al. (2019) found a positive moderating effect for experience when cultural distance negatively influenced M&A performance, Qian et al. (2017) also found this moderating effect for a sample that experienced a positive effect for cultural distance and M&A performance. This implies that regardless of the effect of cultural distance on M&A performance, having experience as a moderating variable will always improve the M&A performance.

*H2a: Experience will have positive direct effect on the CAR.*

*H2b: Experience will moderate the effect of cultural distance on M&A performance for German firms, meaning that experience will cause the potential negative relationship between cultural distance and M&A performance to become weaker.*

Another important determinant in the realm of M&A deals is firm size. Some literature suggests that the direct effect of firm size negatively correlates with merger performance, since they acquire firms that are not of any good use for the firm, but still pursue the deal which will hurt the shareholder (Meschi & Métais, 2015). Another reason is that large firms may be overvalued, and if they acquire firms (especially with stocks) that they want to get rid of their overvalued shares. But, in the process, they may acquire a company which does not contribute to the true value of the firm (Dong et al, 2002). This is also empirically proven by Moeller, Schlingemann and Stulz (2004). So, literature suggest that larger firms tend to engage in more value-destroying M&A deals.

However, prior literature also highlighted the importance of absorptive capacity to be a determinant for cross-border performance (Björkman, Stahl & Vaara, 2007). When a firm has a high absorptive capacity, it can react quicker and better to changes in the environment of a firm. For example, a merger with a company with a different culture. Boateng et al. (2019) see that firms with bigger size, tend to have more absorptive capacity. They argue that, together with experience, firm size could be seen as an important determinant that influences cross-border M&A performance (Boateng et al. 2019). A bigger firm means that it has more resources and/or more economies of scale. With these resources, bigger firms are more likely to overcome the cultural differences,

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<sup>13</sup> Based upon a worldwide sample with 1223 cross-border acquisitions from 2009 to 2010.

because they can apply more sophisticated integration tools. This could improve the cross-border M&A deals with regards to cultural distance, and thus improve M&A performance, according to Banerjee and Eckard (1998). Similar studies concluded the same results. Lang, Stulz and Walking (1989) and Yermack (1996) concluded that there was a positive relationship between an equivalent of firm size (Tobin's Q) and cross-border M&A performance when taking cultural distance into account, by stating that bigger firms could absorb cultural differences better and thus improve M&A performance. Prior research has thus shown that firm size positively affects moderates' cultural distance in cross-border M&A deals. However, as stated above firm size on its own, predominantly has a negative relationship with merger performance, since M&A deals performed by bigger firms might not solely be for the good of the firm (empire building etc.). Therefore, the following hypotheses can be made:

*H3a: Firm size negatively affects merger performance.*

*H3b: Firm size will moderate the effect of cultural distance on M&A performance for German firms, meaning that firm size will cause the potential negative relationship between cultural distance and M&A performance to become weaker.*

At last, this study wants to introduce a novelty in the realm of M&A literature. As shown in the literature review, lots of studies have raised the question what the effect of culture on merger performance is. The vast majority claims it has negative effects. However, many of those study start their introduction that it is necessary to address the phenomenon, due to changes in our society e.g., globalization and that therefore more deals are completed e.g., Coeurdacier, De Santis and Aviat (2009). However, there are not many studies that studied the effect of cultural distance on cross-border M&A performance by splitting up their sample into different periods. This could be an interesting idea, since the world gets more digitalized and/or 'smaller'. This study therefore wants to examine the effect of cultural distance not only on the overall sample, but also look at the differences within the sample. Because it is evident, the world is getting 'smaller', it might be true that in more recent years, cultural distance did not have such a strong effect on M&A performance than deals that were made many years ago. With this assumption, the following hypothesis can be made:

*H4: The effect of cultural distance on cross-border M&A performance diminished in the more recent years, compared to the earlier years in the sample.*

### **3. Research method**

#### **3.1 Data & Sample**

To give an appropriate answer for the research question, a quantitative approach will be used. The reason is that most data in this study will be numerical. Quantitative models can capture such data; therefore, a quantitative approach will be used. Since this study has a German perspective, the acquiring firms will only consist of German firms. The data for this study will be retrieved from Thomson Reuters database, since this database has the required M&A data to fulfil this study's needs. For the data of the cultural dimensions, the website of Geert Hofstede will be used. The data collection starts in the year 2000. The reason for this is twofold. Firstly, this study wants to measure a more recent effect of culture on the M&A performance, therefore using older data would not make much sense. Secondly, Germany was unified in 1989, which makes data collection hard if this study opted to choose a longer time frame. This study wants to be as time relevant as possible, so the data collection ends in 2019. The data ends in 2019, as opposed to 2020, since this study wants to avoid possible Covid-19 biases. Only German public firms will be used in this study since the dependent variable in this study is the cumulative abnormal returns (hereafter CAR). To capture the CAR, returns must be collected. These returns are only available for public firms for this study, therefore this study will only focus on German public firms and not the addition of private firms. Furthermore, this study opts to exclude any financial firms in the sample. Prior literature has shown that the motives for financial firms are fundamentally different than any other industry, therefore creating possible biases in the sample, when selecting them (Vafeas & Theodorou, 1998). Also, only finished deals will be incorporated in this study, since this study wants to capture the actual effect of culture on cross-border M&A deals. Therefore, rumours or unfinished deals will not be included in the sample of this study. At last, the sample will also be split into two parts. This makes it possible to run a separate test in order to test hypothesis 4. The first part of the sample consists of the M&A deals that occurred during the period 2000-2009 and the second part of the sample will consist of the M&A deals that occurred during the period 2010-2019. This is done to test whether the effect of cultural distance diminished in the second part, compared to the first part due to 'globalization factors'. Due to certain restrictions that were made in the process of the sample, as explained above, the sample consists of 305 German firms. However, for some firms the stock returns were not visible in the database, so they had to be removed in order to create a non-biased CAR. Furthermore, even though it was decided to not include German target firms, six German firms did enter the sample. These firms were also removed, since measuring cultural distance has no meaning if Germany is compared with Germany. In the end, the final sample consists of 256 German firms that engaged in Cross-border

M&A deals. 155 of the firms engaged their M&A in the first subsample (2000-2009) and 101 entered the second subsample (2010-2019).

### 3.2 Dependent variable

The dependent variable of this study is the CAR. The reason why the CAR is chosen to be the proxy of merger performance is twofold: First, data to compute the CAR is relatively easy to obtain. Secondly, the CAR is an objective measure, meaning that the acquiring firm is not able to alter it, whereas for other measures they can be altered with (merger performance by using accounting standards) Burgstahler & Dichev (1997). Therefore, the credibility of the CAR relatively high, which is shown by widespread use in the economic literature. To compute the CAR, the following formulas need to be incorporated in this study:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

$R_{it}$  = Rate of return on the security price of the German company  $i$  on day  $t$ .

$\alpha_i$  = An estimated parameter during the estimation window which shows the average return on security  $i$  when there the market return is absent.

$\beta_i$  = An estimated return during the estimation window which shows the systematic risk of stock  $i$

$R_{mt}$  = The rate of return of the market index<sup>14</sup> on day  $t$ .

$\varepsilon_{it}$  = The error term, which is 0 in this study.

Formula 1 represents the preparation phase, to be able to compute the CAR in the next phase. This formula calculates, the average returns for each individual firm and the returns of their corresponding market index will be calculated. The number of days used, to calculate the average returns is called the estimation window. This study uses an estimation window of (-170,-5). This means that the calculation of the average returns starts 170 days prior to the announcement and ends 5 days prior to the announcement. It is important to note that estimation must end before the calculation of the CAR itself, which will be in the event window. This is because the estimation window is used to predict the stock returns in the event window. If there would be an overlap, it would cause bias in this calculation of the CAR. Therefore, the estimation window ends before the start of the event window.

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<sup>14</sup> Every single German company is automatically attached to their corresponding market index, so there will be multiple market indices, since not all firms are listed on the same index.

$$CAR_{i,t_1,t_2} = \sum_{t=t_1}^{t_2} AR_{it} \quad (2)$$

$CAR_{i,t_1,t_2}$  = Cumulative abnormal returns for each company  $i$  over period  $t_1$  to  $t_2$ .

$t_1$  = Start of event window at -3 days before the announcement date of the cross-border deal.

$t_2$  = End of event window at +3 days after the announcement date of the cross-border deal.

Formula two shows how the CAR is calculated. The main concern in this formula is the chosen interval for the calculation of the CAR. In this study the event window is (-3,3)<sup>15</sup>. The reason for this is that a shorter window for instance (-1,1) might not capture all the effect of the announcement and therefore not capture the effects of the cross-border M&A deal, since the market needs time to evaluate the consequences of the cross-border deal. However, using a wide window will entail that other factors, other than the cross-border M&A deal will also be captured in the event window. This would mean that the CAR that has been calculated also consists of other events that might change the stock returns of the company. Therefore, it is not wise to use a too broad event window, since one wants to capture, ideally, solely the effects of the announcement of the cross-border M&A deal.

The model makes use of the market model. This model has been used before for the calculation of the CAR, by studies of Lang et al. (1989) and Servaes (1991). The market model makes use of the returns of the market index in the estimation window, to predict the stock returns of the company in the event window. The returns of the stock in the event window are then compared to the estimated stock returns, making it possible to retrieve the CAR from each individual company.

### 3.3 Independent variables

The most important independent variable in this study is cultural distance. Culture is an abstract term, that is hard to quantify. However, most scholars use the cultural dimensions of Hofstede (1980), to give operationalize cultural distance. Culture, according to Hofstede (1984) can be split up into dimensions. The four dimensions that will be used are individualism, power distance,

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<sup>15</sup> This means an event window starting 3 prior and ending 3 days after the announcement.

uncertainty avoidance and masculinity. According to Hofstede (1984) the dimensions are explained as follows:

‘Individualism refers to the degree to which the members in a society are integrated into groups. Within an individualistic society, ties between individuals are loose and people are expected to take care of themselves. On the opposite site, in a collectivistic society, people are integrated within strong, cohesive groups that protect each other in exchange for unquestionable loyalty.’

‘Power Distance refers to the attitude of society towards power inequalities and is defined as the extent to which the less powerful members of the society expect and accept that power is unequally distributed.’

‘Uncertainty Avoidance refers to the way in which the members of a society feel uncomfortable by uncertain or ambiguous situations and have created institutions and beliefs to avoid these situations.’

‘Masculinity refers to the distribution of values between genders within a society. A masculine society (high score) is characterized by a preference for competition, achievement and success, while a feminine society (low score) is characterized by values as cooperation, caring for the weak and quality of life.’

In order to operationalize these dimensions, the following function will be used. This function has been used before by Kogut and Singh (1988) and Boateng et al. (2015):

$$Cultural\ distance\ (CD) = \sqrt{\frac{\sum_{i=1}^4 (S_{A,i} - S_{T,i})^2}{4}} \quad (3)$$

$S_{A,i}$  = cultural scores of the home country (Germany)

$S_{T,i}$  = cultural scores of the target country

The larger the discrepancy between scores of Germany and a particular target country, the bigger the cultural distance will be. The equation is divided by four, because the study includes four cultural dimensions.

The second independent variable in this study is firm size. Firm size will be operationalized as the log of the total number of assets the acquiring firm possesses. It is important to take the log function of this variable, otherwise the data will be skewed due to possible huge differences in firm size across the sample. By taken the logarithmic function of the total number of assets, this problem will be resolved.

### **3.4 Moderating variables**

In this study two moderating variables will be used. These are experience and firm size. Experience in this study will be defined as follows: has the firm already made a cross-border acquisition prior to this one (thus a dummy variable) or alternatively a creation of a variable that enlist all previous cross-border acquisitions of the acquiring firm (non-dummy variable). In the model, an interaction will be formed with the independent variable cultural distance. This will be done, to check whether experience indeed, as stated in the hypothesis positively moderates cultural distance. The same will be done for firm size. Firm size and cultural distance will be interacted with each other to show a possible moderating factor of firm size on cultural distance.

### **3.5 Control variables**

This study will also use control variables, to capture the wanted effects of the independent variables and the moderating variable. The used control variables will be selected based on prior literature that conducted similar studies. Most control variables were also used by the authors described in the literature review.

#### **Tobin's Q**

The first control variable is Tobin's Q. This is the market value of equity, plus the book value of debt, divided by the book value of equity plus the book value of debt. This measure was also used in the study of Boateng et al. (2019).

#### **Deal value**

Secondly, deal value will be used as a control variable. This will be the amount paid by the acquiring company for the target company. It is used as a control variable, since some companies might overpay heavily, or underpay heavily for the target firm. This can change the perception of the market as to how good the cross-border deal will be. This control variable has been used by Boateng et al. (2019) and Dakessian and Feldmann (2013).

#### **Method of payment**

Thirdly, the method of payment is used as a control variable. This variable will be a dummy variable, which will be 1 if the method of payment is cash and 0 otherwise. Prior literature states that most successful cross-border deals were paid with cash since this shows genuine commitment to pursue and make the deal merger successful. Other methods, for instance paying with stocks might show other explanations for the merger (Chakrabarti, Gupta-Mukherjee & Jayaraman, 2009). This control



variable has been used by Chakrabarti, Gupta-Mukherjee & Jayaraman (2009), Boateng et al. (2019) and Qian et al. (2017).

### **Return on assets**

Next, return on assets (ROA) will be used as a control variable. The ROA will be the net income after tax divided by the average of total assets. According to Kim et al. (1989:50) ROA measures "the relative efficiency with which the firm produces its output and is particularly well-suited to reflect the attainment of synergies in business operations." So, if the ROA of a firm is relatively high, according to Kim et al. (1989), merger performance will also be higher. ROA has also been used as a control variable by Gomez-Mejia & Palich (1997) and Boateng et al. (2019).

### **Language**

Language will also be a control variable, since sharing a common language between the acquiring company and the target company will most likely improve the cross-border deal performance, or more importantly: not sharing a common language will increase the failure of cross-border M&A deals, according to Kedia and Reddy (2016). Language will be a dummy variable, with a value of 1 if the target company is located in a German speaking country and 0 otherwise. This method has been used before by Chakrabarti, Gupta-Mukherjee & Jayaraman (2009) and Boateng et al. (2019).

## **3.6 Method**

The method that will be used to answer the hypotheses in this study, and thus the research question, will be a multiple regression model. Similar studies e.g. Boateng et al. (2019), Li et al. (2020), who also looked at the effects of cultural distance on merger performance with the CAR as a dependent variable, also used a multiple regression model and stated that this was the most convenient method to test their models. For example, other methods, like a logistic regression is not of any benefit since the CAR is not a dichotomous variable. Of course, certain tests need to be run, prior to running the entire model to check for possible problems like heteroskedasticity and collinearity. In the end the model would look like this. First, the sample is being checked if there are any possible outliers. This study will use the DfFit test, which according to Kianifard and Swallow (1989) is the best way, together with Cook's distance, to detect outliers. Furthermore, after every regression a variance inflation factor test, also known as a VIF-test, has been taken to test for multicollinearity in the regression. In the end the model for this study will look like this:

$$CAR(-3,3) = \beta_0 + \beta_1 CD + \beta_2 Controls + \varepsilon_{it} \quad (4)$$

$$CAR(-3,3) = \beta_0 + \beta_1 CD + \beta_2 Experience + \beta_3 Controls + \varepsilon_{it} \quad (5)$$

$$CAR(-3,3) = \beta_0 + \beta_1 CD + \beta_2 Experience + \beta_3 CD * Exp + \beta_4 Controls + \varepsilon_{it} \quad (6)$$

$$CAR(-3,3) = \beta_0 + \beta_1 CD + \beta_2 FirmSize + \beta_3 Controls + \varepsilon_{it} \quad (5)$$

$$CAR(-3,3) = \beta_0 + \beta_1 CD + \beta_2 FirmSize + \beta_3 CD * FirmSize + \beta_4 Controls + \varepsilon_{it} \quad (7)^{16}$$

During the tests, it turned out that firm size and deal value (one of the control variables) suffered from kurtosis and skewness. This was as predicted, since the values range from under 1 million to billions, making it highly possible for kurtosis and/or skewness to occur. The natural logarithm of those two variables was calculated and instead used for the analysis of this study, to eliminate this problem. Using the natural logarithm of a variable has its drawbacks. Interpretation of those variables will be hard to determine in a regular OLS-regression. The variables can only be used to determine whether they have a positive or negative coefficient, if they have at least any significance in the first place.

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<sup>16</sup> This model will also be run with different event windows to check for robustness. Furthermore, Exp will also be run using a different method to operationalize experience, also to check for robustness.

## 4. Results

### 4.1 Descriptive statistics

Before testing the data whether the hypotheses hold or not, the variables are being checked for anomalies. One possible adjustment that could have been done, was to trim the CAR variable by 1 or 5% on both sides<sup>17</sup>, since the lowest value is -67.92 and the highest value 47.66. However, after checking this with the original results of the CAR, minor differences only appeared. The direction of the coefficient from the independent variables did not change. Only some control variables became less or more significant, without a noticing any difference in their coefficients. Therefore, the CAR was left how it originally was since no apparent changes would have occurred in the analysis. When analysing the mean of the CAR, it shows that, on average, the stocks increased abnormally with 1.096%. This means that on average pursuing cross-border M&A deals was beneficiary for the German firms, with the chosen event window. What is also noticeable is the relative high number for experience (0.691), which means that 69.1% of the sample did engage in cross-border M&A deals before. This could indicate that the German sample consist of relatively mature companies, which makes sense, since for relatively small German firms being private and under control of banking rights, is better for firm performance than going public (Gorton & Schmid, 2000).

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
CAR	256	1.096	10.05	-67.92	47.76
ROA	256	1.908	13.16	-84.02	30.94
tobinsQ	256	1.862	1.465	0.322	12.11
experience	256	0.691	0.463	0	1
payment	256	0.523	0.500	0	1
language	256	0.141	0.348	0	1
lnFirmSize	256	14.73	2.991	8.326	21.51
lnDealValue	256	9.459	3.954	2.303	16.28
CD	256	4.370	4.534	0	25.50
EXPNMR	256	2.770	2.925	0	10
pdi	256	13.34	15.96	0	69
idv	256	18.68	11.43	1	55
mas	256	11.50	14.52	0	52
uai	256	19.68	8.770	5	42

Figure 1: Descriptive statistics.

### 4.2 Correlation matrix

Before testing the hypotheses, it must be ensured that the data does not suffer from any bias. As mentioned earlier, deal value and firm size suffered from skewness and kurtosis. Another possible problem might be that some variables correlate with each other. If the values cross the critical values

of -0.7 or on the other side 0.7, those variables correlate severely (Pallant & Manual, 2010). As shown in figure 3 below none of the variables exceed these critical values. There is however a moderate correlation between cultural distance and masculinity. However, this is explainable, since cultural distance is made from the four dimensions, including masculinity. Furthermore, the cultural distance variable and the masculinity variable are never run in the same regression, eliminating possible bias immediately. The individual culture dimensions are only run as a robustness check, checking whether these variables indicate something different than the combined cultural variable, which is cultural distance. So, the data is free from any correlating variables in this analysis.

	CAR	CD experience	lnFirmSize	payment	language	lnDealValue	
CAR	1.0000						
CD	0.0286	1.0000					
experience	-0.0598	-0.1112	1.0000				
lnFirmSize	-0.1267	0.0418	0.3467	1.0000			
payment	-0.0953	0.1022	0.1075	0.2394	1.0000		
language	-0.0972	-0.2001	-0.1190	-0.2710	-0.2215	1.0000	
lnDealValue	-0.1026	-0.0680	0.1938	0.3909	-0.0441	-0.0985	1.0000
tobinsQ	-0.1264	-0.1034	0.0398	-0.2187	0.0611	0.0202	-0.0173
ROA	-0.0175	0.0747	0.0627	0.2345	0.2002	-0.0121	0.0511
pdi	-0.0450	0.3968	0.1318	0.1186	0.1964	-0.1040	-0.0660
idv	-0.0280	-0.0845	0.2002	0.2428	0.2217	-0.4626	0.0509
uai	0.0054	0.1069	0.1101	0.1849	0.1603	-0.5785	0.0037
mas	0.0561	0.6536	-0.0999	-0.0414	-0.0057	-0.1358	-0.0083

	tobinsQ	ROA	pdi	idv	uai	mas
tobinsQ	1.0000					
ROA	-0.0590	1.0000				
pdi	-0.0957	0.0531	1.0000			
idv	0.0453	0.0845	0.3305	1.0000		
uai	0.0279	-0.0720	0.1861	0.5612	1.0000	
mas	-0.1312	0.0955	0.2311	-0.2156	-0.2145	1.0000

Figure 2: Correlation matrix.

### 4.3 Testing hypotheses

VARIABLES	(1) CAR	(2a) CAR	(2b) CAR	(3a) CAR	(3b) CAR
CD	-0.0156 (0.141)	-0.0265 (0.143)	-0.0107 (0.209)	-0.0250 (0.140)	-0.934 (0.724)
payment	-2.490* (1.307)	-2.419* (1.314)	-2.404* (1.324)	-1.834 (1.329)	-2.156 (1.351)
language	-3.919** (1.873)	-4.036** (1.886)	-4.009** (1.907)	-4.832** (1.903)	-5.299*** (1.935)
lnDealValue	-0.316** (0.159)	-0.299* (0.162)	-0.299* (0.162)	-0.160 (0.172)	-0.166 (0.172)
tobinsQ	-0.813* (0.427)	-0.806* (0.428)	-0.807* (0.429)	-1.057** (0.438)	-1.061** (0.437)
ROA	0.00427 (0.0484)	0.00556 (0.0485)	0.00563 (0.0486)	0.0250 (0.0489)	0.0346 (0.0494)
experience		-0.821 (1.394)	-0.685 (1.914)		
CDEXP			-0.0290 (0.281)		

InFirmSize				-0.559**	-0.826**
				(0.250)	(0.325)
CDFirmSize					0.0611
					(0.0477)
Constant	7.510***	7.928***	7.839***	14.52***	18.73***
	(2.172)	(2.288)	(2.449)	(3.807)	(5.027)
Observations	256	256	256	256	256
R-squared	0.052	0.054	0.054	0.071	0.077

Standard errors in parentheses

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

Figure 3: Results of hypotheses. Each number corresponds with hypothesis.

The first hypothesis examines the relationship between cultural distance and merger performance for German firms that pursued cross-border M&A deals. To see the effect of cultural distance, formula 3 from chapter 3 has been used with help of the Hofstede Index. For merger performance the CAR has been used which was also explained in chapter 3 with help of formula 1 and 2. Prior literature could not state a definite answer for this relationship, however the general consensus was that cultural distance negatively effects merger performance, in this case the CAR. In figure 5 below the relationship is indeed negative (R-squared=0.053 &  $\beta=-0.016$ ). However, the results are not significant. This is in line with the partly contradicting literature that does not have a definite answer for the relationship between cultural distance and merger performance. Therefore, for this study hypothesis 1 must be rejected, because there is no evidence that supports the claim. The control variables language (t=-2.09) and InDealValue (t=-1.99) are significant on a five percent level and method of payment (t=-1.91) and Tobins Q (t=-1.90) are significant on a ten percent level. Return on assets does not show any significance.

For hypothesis 2, the study looks at the moderating role of experience on cultural distance with respect to merger performance. Prior literature suggests that experience can be used as a moderator, since experience offsets possible negative merger performance when there is cultural distance between the acquiring firm and the target firm. First, experience is only added as a independent variable in the analysis. After that, the interaction term between experience and cultural distance is added: CDEXP. In the first model, the study already suggests that there is no evidence that experience has a significant effect on the CAR. When looking at the moderating role of experience on cultural distance with respect to the CAR, once again no claim can be made that experience has a moderating role in this study, since the t-value only has a score of -0.10. Therefore, hypothesis 2 must also be rejected, since the variable CDEXP is not significant in the model. For the control variables language (t=-2.14) is significant on a five percent level and InDealValue (t=-1.85) method of payment (t=-1.84) and Tobins Q (t=-1.88) are significant on a ten percent level. Return on assets does not show any significance.

For hypothesis 3, the study looks at the relationship between firm size and merger performance on the one side and on the other side, a possible moderating role for firm size to

cultural distance with respect to the CAR. When examining prior literature, the general consensus was that firm size negatively affects the CAR, since bigger firms that perform M&A have a bigger chance for pursuing M&A deals that are not necessarily good for the firm, compared to smaller firms. When looking at hypothesis 3a, firm size was negatively related to the CAR. This indeed holds, when looking at the model firm size is negatively related to the CAR on a 5% significance level. As stated earlier in chapter 3, the interpretation of the coefficient (-0.559) is hard since firm size has been transferred into a logarithmic function. However, the negative sign in front of the coefficient does suggest that the relationship is negative. Therefore, hypothesis 3a must be accepted.

Hypothesis 3b looks at the possible moderating role of firm size to cultural distance and if firm size can moderate the effect of cultural distance on the CAR. The literature stated that bigger firms could indeed have a moderating role, since they have a larger absorptive capacity, which could moderate the cultural differences between the acquiring and target firm. When looking at the coefficient of the interaction term, this is indeed the case, however the term is not significant, and therefore it is not certain if this interaction term holds. Therefore, hypothesis 3b must be rejected, since there is no evidence that this moderating role of Firm size exists.

The control variable language ( $t=-2.56$  &  $-2.74$ ) is significant on a five and one percent level and  $\ln DealValue$  ( $t=-1.85$ ) method of payment ( $t=-1.84$ ) and Tobins Q ( $t=-1.88$ ) are significant on a ten percent level. Return on assets does not show any significance.

Hypothesis 4 looks at the difference between two time periods<sup>18</sup>. The period of 2000-2009 and 2010-2019. Since, there is no literature at this date that compares the effect of cultural distance between two time periods, no evidence from previous literature can be used to answer this question. However, many studies regarding cross-border M&A deals do state that the effect of culture is diminishing, since the world is getting more digitalized and that countries are getting more familiar with each other's culture. Based upon these assumptions, hypothesis 4 expected a diminishing effect of cultural distance on the CAR. When looking at the results in the model, no concrete statements can be made. Although in the second sub sample, the variable CD did get more significant ( $z=-1.62$  compared to the z-value of the first sub sample ( $z=0.75$ ), it still not significant enough to make a statement if cultural distance has diminished in strength. When solely looking at the coefficients, this is not the case since the coefficient doubled in value, but once again no arguments can be made, due to a lack of significance. Therefore, hypothesis 4 must be rejected.

	(1)	(2)	(3)	(4)
VARIABLES	id1_mean	id1_lvar	id2_mean	id2_lvar
CD	0.119 (0.158)		-0.262 (0.161)	

<sup>18</sup> See figure 3.

InFirmSize	-0.393 (0.325)		-0.402 (0.317)	
experience	2.110 (2.399)		-2.728 (1.962)	
payment	-1.884 (2.381)		-2.386 (1.532)	
language	-5.348 (3.637)		-5.756*** (2.202)	
lnDealValue	-0.518* (0.277)		0.179 (0.217)	
tobinsQ	-0.862 (0.937)		0.0603 (0.741)	
ROA	0.143 (0.153)		-0.244** (0.0995)	
Constant	12.15* (6.577)	4.606*** (0.278)	11.69* (6.134)	4.294*** (0.234)
Observations	256	256	256	256

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 4: Results of hypothesis 4.

#### 4.4 Robustness checks

As stated earlier, choosing the appropriate event window is of big importance, since one wants to capture the full effect of the cross-border M&A deal, but one also wants to keep it as short as possible so that other factors play a minimal role in the creation of the CAR. In the regular analysis an event window of (-3,3) had been chosen. However, this might be a too long of a window or too short of a window when looking at the above given reasons. Therefore, this study will use two other event windows, to check whether these results are in line with the results in the regular analysis. One event window will be shorter (-1,1) and one will be larger (-5,5). All models of the robustness checks can be found in the appendix of this study.

##### Robustness check for the interval (-1,1)

	(1)	(2a)	(2b)	(3a)	(3b)
VARIABLES	CAR	CAR	CAR	CAR	CAR
CD	-0.0619 (0.0926)	-0.0715 (0.0935)	-0.0928 (0.137)	-0.0603 (0.0928)	0.0762 (0.480)
payment	-0.403 (0.859)	-0.332 (0.864)	-0.352 (0.871)	-0.522 (0.882)	-0.473 (0.899)
language	0.420 (1.240)	0.327 (1.247)	0.293 (1.260)	0.590 (1.272)	0.660 (1.297)
lnDealValue	-0.264** (0.105)	-0.250** (0.107)	-0.250** (0.107)	-0.292** (0.115)	-0.292** (0.115)

tobinsQ	-0.0242 (0.280)	-0.0176 (0.280)	-0.0157 (0.281)	0.0207 (0.289)	0.0212 (0.290)
ROA	0.0300 (0.0317)	0.0311 (0.0318)	0.0311 (0.0318)	0.0262 (0.0323)	0.0247 (0.0328)
experience		-0.723 (0.918)	-0.905 (1.256)		
CDEXP			0.0391 (0.184)		
lnFirmSize				0.102 (0.165)	0.142 (0.216)
CDFirmSize					-0.00917 (0.0317)
Constant	4.274*** (1.427)	4.652*** (1.507)	4.771*** (1.610)	2.989 (2.519)	2.359 (3.332)
Observations	254	254	254	254	254
R-squared	0.030	0.033	0.033	0.032	0.032

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 5: Robustness check with event window (-1,1)

The results for the shorter event window (-1,1) are comparable to the event window used in the regular analysis. Cultural distance has still a negative relationship with the CAR as expected, but also in this time frame, the variable is insignificant. Even though the t-value increased from -0.11 to -0.67, which could implicate that a shorter time frame captured the effect of the deal better, it remained insignificant. The coefficient did however increase roughly 4 times (from -0.015 to -0.06.) But this has no real meaning since both coefficients are not significant.

For the second model, just like the first model, nothing major changed in the perception of the model. All critical variables had the same direction in their relationship to the CAR and the variables experience and CDEXP did not become significant when applying the shorter time frame. One remarkable notion can however be seen from the change in time frame. The control variable language did remain significant on a five percent significance level but changed in direction (from positive to negative) and the coefficient went from around 0.3 to roughly 4.

For the third model, the first major change can be noticed when comparing the independent variable. Where firm size was negative in the event window (-3,3), which was in line with prior



literature, the shorter event window (-1,1) examined a positive coefficient, but insignificant. So, by changing the event window, firm size went from significant to insignificant. This shows that choosing the right event window is of big importance in analysing the results.

### Robustness check for the interval (-5,5)

	(1)	(2a)	(2b)	(3a)	(3b)
VARIABLES	CAR	CAR	CAR	CAR	CAR
CD	0.0740 (0.149)	0.0881 (0.151)	-0.0766 (0.221)	0.0753 (0.150)	0.237 (0.776)
payment	-0.429 (1.387)	-0.532 (1.395)	-0.682 (1.403)	-0.524 (1.424)	-0.466 (1.453)
language	1.485 (2.002)	1.621 (2.013)	1.358 (2.029)	1.621 (2.054)	1.703 (2.095)
lnDealValue	-0.286* (0.170)	-0.306* (0.172)	-0.304* (0.172)	-0.309* (0.185)	-0.308* (0.186)
tobinsQ	-0.0289 (0.452)	-0.0387 (0.452)	-0.0240 (0.453)	0.00687 (0.467)	0.00747 (0.468)
ROA	0.0553 (0.0512)	0.0536 (0.0513)	0.0530 (0.0513)	0.0523 (0.0522)	0.0506 (0.0529)
experience		1.066 (1.481)	-0.336 (2.024)		
CDEXP			0.301 (0.296)		
lnFirmSize				0.0818 (0.267)	0.129 (0.348)
CDFirmSize					-0.0108 (0.0511)
Constant	3.661 (2.303)	3.104 (2.432)	4.021 (2.593)	2.636 (4.068)	1.891 (5.380)
Observations	254	254	254	254	254
R-squared	0.020	0.022	0.026	0.021	0.021

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 6: Robustness check for event window (-5,5)

For model 1, the implications of using a wider event window are visible. Whereas in the original sample some control variables were significant, in the wider event only Deal value is significant on a ten percent significance level ( $t=-1.69$ ). So, for testing hypothesis 1, choosing a different event window did not result in significance changes, only for the fact that control variables lost some of their significance.

For model 2, the coefficient of the main independent variables did not change, compared to the original event window and the shorter event window. However, three control variables lost their significance, just as in the shorter event window. This justifies the choice for the chosen event window of (-3,3).

For model 3, firm size gets insignificant when using the event window of (-5,5) ( $t\text{-value}=0.29$ ). This is in line with the event window of (-1,1). However, in the original time window firm size is significant, therefore highlighting once again the importance of the chosen event window in this study. For the hypothesis 3b, just as in the event windows (-3,3) and (-1,1), there is no significant independent variable, therefore rejecting hypotheses 3b.

### **Robustness check for experience**

The operationalization in the regular analysis for the variable experience could be seen as a pitfall, since it is a dummy variable, which results in less explaining power of this variable. In all models, including the different event windows as well, the variable experience was never significant. This could have to do with the fact that experience was a dummy variable. To know whether this is the reason for its insignificance, a robustness check with respect to variable experience will be made. Instead of using a dummy variable to operationalise experience, experience can now have a value ranging from 0 to 10. 0 for no prior cross-border M&A deals performed before, and 10 for 10 prior cross-border deals done prior to the latest one. Now experience has a more context, because the more experienced firms, that score a high number in the new experience variable are not restricted to the given 1 in the old dummy variable.

When looking at the old results, compared to the newly transformed experience variable<sup>19</sup>, nothing major has changed. The experience coefficients in the newly transformed variable do have a stronger coefficient, possibly implicating that the effect is more noticeable with the new variable, however in both models, experience and the interaction term of experience and cultural distance remain insignificant, meaning that still for German firms, it is impossible to conclude whether experience has a direct influence on the CAR and if it can be used as a moderator for cultural distance.

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<sup>19</sup> New variable is now called EXPNMR.

	(2a)	(Check for hypothesis 2a)	(2b)	(Check for hypothesis 2b)
VARIABLES	CAR	CAR	CAR	CAR
CD	-0.0265 (0.143)	-0.0313 (0.143)	-0.0107 (0.209)	-0.0387 (0.178)
payment	-2.419* (1.314)	-2.401* (1.314)	-2.404* (1.324)	-2.413* (1.327)
language	-4.036** (1.886)	-4.140** (1.902)	-4.009** (1.907)	-4.159** (1.925)
lnDealValue	-0.299* (0.162)	-0.299* (0.161)	-0.299* (0.162)	-0.299* (0.161)
tobinsQ	-0.806* (0.428)	-0.809* (0.428)	-0.807* (0.429)	-0.807* (0.430)
ROA	0.00556 (0.0485)	0.00411 (0.0485)	0.00563 (0.0486)	0.00420 (0.0486)
Experience/ EXPNMR	-0.821 (1.394)	-0.153 (0.222)	-0.685 (1.914)	-0.169 (0.319)
CDEXP			-0.0290 (0.281)	0.00395 (0.0561)
Constant	7.928*** (2.288)	7.825*** (2.222)	7.839*** (2.449)	7.861*** (2.285)
Observations	256	256	256	256
R-squared	0.054	0.054	0.054	0.054

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 7: Robustness check for new experience variable

## 5. Discussion

In this section the results of the previous section are being discussed and compared to prior literature. Furthermore, possible explanations will be given as to why certain results occurred as they did not always meet the expectations of prior literature.

The main question in this study was if cultural distance influenced cross-border M&A performance for German firms during the period of 2000-2019. In all regressions, cultural distance had a negative correlation with the CAR, which is in line with the thinking of prior literature and thus the hypothesis. However, as stated earlier, the results were inconclusive, since in none of the regressions cultural distance was significant. This is not in line with similar studies, which did find significance between cultural distance and merger performance (Gomez-Mejia & Palich, 1997; Cartwright & Price, 2003; Brock, 2005; Conn et al., 2005; Stahl & Voigt, 2008; Dakessian & Feldmann, 2013; Nicholson & Salaber, 2013; Basuil & Datta, 2015). A possible reason why this sample has inconclusive results is the fact the most firms selected made deals within the European Union. Even though Hofstede (2009) mentioned that Germany had a unique set of traits, they are still rather similar compared with the European countries. The difference in scores between Germany and neighbouring countries was small. Therefore, cultural distance was already low in the sample itself, nullifying the effect on the merger performance. The studies mentioned above are either based in the US or in China. Both countries are rather dissimilar with the European culture index of Hofstede. However, most of their deals were made in Europe, creating a bigger cultural discrepancy between their samples the sample used in this study. Therefore, results of prior literature may be more significant because, since their position was unique to start with, compared with the sample in this study.

Secondly, study tried to examine whether experience could be a possible independent variable that influences the CAR, but more importantly if it had a moderating role on cultural distance. Once again, the results were inconclusive for both parts of the analysis; as an independent variable itself and as a moderator, the results were not significant. Prior literature examined if cultural distance had a negative relationship with merger performance. Including experience as a moderator did improve merger performance (Boateng et al., 2019; Dikova and Sahib, 2013; Qian et al., 2017). However, in this study those results could not be replicated, even though the same methods for creating the experience variable was used in this study, plus an additional measure of experience explained in the robustness check of this study. A possible reason, as to why this study could not find out significant result, is the large number of experienced firms in the sample. Nearly 70 percent of the sample already made already cross-border acquisitions. This means that experience itself is already nullified to an extent, since already 70 percent has this experience.

Furthermore, as stated earlier, most acquisitions were done in the European Union, which had close cultural distance scores. This makes it harder for experience to have an influence on the matter. When looking graphically to the cultural distance scores and the experience dummy's, the high-end cultural distance scores were often met with firms with no experience. This is odd but could explain why experience could not make a significant impact. If companies with experience perform M&A deals with a relative similar culture and companies without experience perform the deals with high cultural distance, it makes sense that the results in this study are inconclusive, when looking at prior literature. Boateng et al. (2019) stated that experience has the most impact on companies that perform M&A deals in cultural distant countries, since there is more chance that the deal would end in failure. This would be less of the case in the cultural similar countries. This might give an explanation, as to why in this dataset experience is not a moderator for cultural distance. At last, since experience is a numerical variable in this study, it leaves out where the prior experience was. If, for instance, a German firm first made a cross-border deal in the United Kingdom, and the next one in Brazil, the previously obtained experience may not be of any worth for their merger. This operationalisation problem of experience might therefore hinder the significance that it might have as a moderating variable for cultural distance.

Thirdly, the study examined the effect of firm size on merger performance and if it could also be a moderator for cultural distance. According to the results, firm size has a negative impact on merger performance itself and this result is significant. Hypothesis 3a was therefore accepted in section 4, which was in line with prior literature stated in section 2. However, as a moderator for cultural distance firm size was not significant. Therefore, hypothesis 3b was rejected, which was not in line with prior literature. Prior literature stated that firm size can be used as a moderator since the larger the firm gets, the more absorptive capacity it can create. This entails that the cultural dissimilarities between the acquiring firm and the target firm may be reduced, since larger firms have more resources and therefore better integration tools to cope with the cultural differences. Therefore, a positive moderating effect was expected, but not found in the analysis. A possible reason might be the fact that in this study firm size had to be transformed into a logarithmic function. This might lose the explanatory power of firm size, which in turn led to inconclusive results regarding firm size being a moderator.

At last, the study split the sample into two subsamples to examine whether the effect of cultural distance diminished in the more recent stage of the sample. This idea was a novelty in the literature since, as of this date, this kind of test has not been performed before. The predictions were that, based on other studies, culture as whole was a diminishing factor due to digitalisation and globalisation. However, the tests did not show any significant results that indicated that cultural distance had a weaker effect on the CAR than in the more recent subsample. Therefore hypothesis 4

had to be rejected. It makes sense that the results were insignificant since hypothesis 1 was also already rejected based on insignificance. However, it was striking that the coefficient went from positive to negative, with almost being significant in the second subsample, meaning that the effect of cultural distance worsened in the more recent years, contradicting the evidence that culture as a whole is diminishing in the world. This could imply that culture is still a relevant factor in the realm of international business, and that future research is still beneficial for explaining certain economic phenomena.

## 6. Conclusion

The number of M&A deals continue to grow each year, and also the number of cross-border deals. This study looked at the effects of cultural distance on cross-border merger performance for German firms during the period 2000-2019. For merger performance, the cumulative abnormal returns were used as a proxy, and cultural distance was measured with help of the cultural dimensions of Hofstede (1980). Earlier research had mainly focused on a Chinese or US-perspective, slightly neglecting the European take on the matter. Germany was chosen due to its unique set of cultural traits (Hofstede, 2009), which would make it easier to find a possible effect. Furthermore, the study extended the model by including two possible moderators: experience and firm size. Lastly, this study examined whether the effect of cultural distance on M&A performance diminished in the more recent years.

There was no link found between cultural distance and the CAR. Furthermore, experience was not significant in this study, both as an independent variable and as a moderator. This was also not the case when a different method was used to operationalise experience. Firm size, however, did have a significant effect on the CAR as an independent variable. This was in line with the hypothesis. As a moderator, however, firm size did not have a significant effect. Lastly, there was no evidence that cultural distance diminished in explanatory power over time since both subsamples did not provide different results. The more recent subsample was nearly significant. What was striking though, was that the direction of the coefficient changed from positive to negative and the coefficient doubled in size.

This study has its limitations. First, certain control variables were expected to be used, but data limitations forced this study to drop them, causing a potential omitted variable bias. These variables were attitude (dummy variable for whether the deal was friendly or hostile) and industry relatedness. Furthermore, most firms in German economy are private, making it hard to generalize this study for all German firms. This study had to use public firms, otherwise the CAR could not be created, but this did reduce the sample size heavily. If it would be possible, adding private firms to the sample with possibly a different proxy for merger performance, might increase the generalizability of the study and thus its practical and theoretical relevance. At last, the effects of cultural distance on merger performance might not be well interpreted by the market in such a short event window. This makes it possible that the CAR does not fully reflect the true merger performance. This could bias the results. However, it is difficult to capture the full effect of the cross-border merger, since using a longer event window would introduce different factors other than the deal itself in calculating the CAR.

Future research might incorporate a variable that contains whether prior experience obtained is in the same country as the new deal. This might help give the experience variance more

relevancy in the study. Furthermore, the novel idea that was introduced by examining whether cultural distance reduced in power across the years can also be applied to already existing studies for US-based or Chinese-based firms. Since, literature already examined significant results for the overall sample, it might be beneficial to split the sample into older and more recent subsamples.



## References

- Aybar, B., & Ficici, A. (2009). Cross-border acquisitions and firm value: An analysis of emerging-market multinationals. *Journal of International Business Studies*, 40(8), 1317-1338.
- Banerjee, A., & Eckard, E. W. (1998). Are mega-mergers anticompetitive? Evidence from the first great merger wave. *The Rand Journal of Economics*, 803-827.
- Barkema, H. G., Bell, J. H., & Pennings, J. M. (1996). Foreign entry, cultural barriers, and learning. *Strategic management journal*, 17(2), 151-166.
- Basuil, D. A., & Datta, D. K. (2015). Effects of industry-and region-specific acquisition experience on value creation in cross-border acquisitions: The moderating role of cultural similarity. *Journal of Management Studies*, 52(6), 766-795.
- Björkman, I., Stahl, G. K., & Vaara, E. (2007). Cultural differences and capability transfer in cross-border acquisitions: The mediating roles of capability complementarity, absorptive capacity, and social integration. *Journal of international business studies*, 38(4), 658-672.
- Boateng, A., Du, M., Bi, X., & Lodorfos, G. (2019). Cultural distance and value creation of cross-border M&A: The moderating role of acquirer characteristics. *International Review of Financial Analysis*, 63, 285-295.
- Brock, D. M. (2005). Multinational acquisition integration: the role of national culture in creating synergies. *International business review*, 14(3), 269-288.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of accounting and economics*, 24(1), 99-126.
- Cartwright, S., & Price, F. (2003). Managerial preferences in international merger and acquisition partners revisited: How are they influenced? In *Advances in mergers and acquisitions*. Emerald Group Publishing Limited.
- Chakrabarti, R., Gupta-Mukherjee, S., & Jayaraman, N. (2009). Mars–Venus marriages: Culture and cross-border M&A. *Journal of International Business Studies*, 40(2), 216-236.
- Chatterjee, S., Lubatkin, M.H., Schweiger, D.M. and Weber, Y. (1992), “Cultural differences and shareholder value in related mergers: linking equity and human capital”, *Strategic Management Journal*, Vol. 13 No. 5, pp. 319-34.
- Coeurdacier, N., De Santis, R. A., & Aviat, A. (2009). Cross-border mergers and acquisitions and European integration. *Economic Policy*, 24(57), 56-106.

- Conn, R. L., Cosh, A., Guest, P. M., & Hughes, A. (2005). The impact on UK acquirers of domestic, cross-border, public and private acquisitions. *Journal of Business Finance & Accounting*, 32(5-6), 815-870.
- Dakessian, L. C., & Feldmann, P. R. (2013). Multilatinas and value creation from cross-border acquisitions: an event study approach. *BAR-Brazilian Administration Review*, 10(4), 462-489.
- Dikova, D., & Sahib, P. R. (2013). Is cultural distance a bane or a boon for cross-border acquisition performance?. *Journal of World Business*, 48(1), 77-86.
- Dong, M., Hirshleifer, D., Richardson, S., & Teoh, S. H. (2006). Does investor misvaluation drive the takeover market?. *The Journal of Finance*, 61(2), 725-762.
- Ghoshal, S. (1987). Global strategy: An organizing framework. *Strategic Management Journal*, 8(5), 425-440.
- Gomez-Mejia, L. R., & Palich, L. E. (1997). Cultural diversity and the performance of multinational firms. *Journal of International Business Studies*, 28(2), 309-335.
- Gorton, G., & Schmid, F. A. (2000). Universal banking and the performance of German firms. *Journal of Financial Economics*, 58(1-2), 29-80.
- Harrison, J.S., Hitt, M.A., Hoskisson, R.E. and Ireland, R.D. (2001), "Resource complementarity in business combinations: extending the logic to organizational alliances", *Journal of Management*, Vol. 27 No. 6, pp. 679-90.
- Haspeslagh, P. J. and D. B. Jemison (1991). *Managing Acquisitions, Creating Value Through Corporate Renewal*. The Free Press, New York.
- Hollmann, J., de Moura Carpes, A., & Beuron, T. A. (2010). The DaimlerChrysler merger—a cultural mismatch?. *Revista de Administração da UFSM*, 3(3), 431-440.
- Hofstede, G., & Hofstede, G. H. (1984). *Culture's consequences: International differences in work-related values* (Vol. 5). sage.
- Hofstede, G. (2009). Geert Hofstede cultural dimensions.
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, 2(1), 2307-0919.

- Johanson, J., & Vahlne, J. E. (1977). The internationalization process of the firm—a model of knowledge development and increasing foreign market commitments. *Journal of international business studies*, 8(1), 23-32.
- Kedia, B. L., & Reddy, R. K. (2016). Language and cross-border acquisitions: An exploratory study. *International Business Review*, 25(6), 1321-1332.
- Kianifard, F., & Swallow, W. H. (1989). Using recursive residuals, calculated on adaptively-ordered observations, to identify outliers in linear regression. *Biometrics*, 571-585.
- Chan Kim, W., Hwang, P., & Burgers, W. P. (1989). Global diversification strategy and corporate profit performance. *Strategic management journal*, 10(1), 45-57.
- Kogut, B., & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of international business studies*, 19(3), 411-432.
- Larsson, R. and Finkelstein, S. (1999), "Integrating strategic, organizational and human resource perspectives on mergers and acquisitions: a case survey of synergy realization", *Organization Science*, Vol. 10 No. 1, pp. 1-26.
- Lang, L. H., Stulz, R., & Walkling, R. A. (1989). Managerial performance, Tobin's Q, and the gains from successful tender offers. *Journal of financial Economics*, 24(1), 137-154.
- Levitt, B., & March, J. G. (1988). Organizational learning. *Annual review of sociology*, 14(1), 319-338.
- Li, W., Wang, C., Ren, Q., & Zhao, D. (2020). Institutional distance and cross-border M&A performance: A dynamic perspective. *Journal of International Financial Markets, Institutions and Money*, 66, 101207.
- Luo, Y., & Shenkar, O. (2011). Toward a perspective of cultural friction in international business. *Journal of International Management*, 17(1), 1-14.
- Meschi, P. X., & Métais, E. (2015). Too big to learn: The effects of major acquisition failures on subsequent acquisition divestment. *British Journal of Management*, 26(3), 408-423.
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of financial economics*, 73(2), 201-228.
- Morosini, P., & Singh, H. (1994). Post-cross-border acquisitions: Implementing 'national culture-compatible' strategies to improve performance. *European Management Journal*, 12(4), 390-400.
- Morosini, P., Shane, S., & Singh, H. (1998). National cultural distance and cross-border acquisition performance. *Journal of international business studies*, 29(1), 137-158.

Pallant, J., & Manual, S. S. (2010). A step by step guide to data analysis using SPSS. Berkshire UK: McGraw-Hill Education

Qian, W., Chun, W. Y., Qi, H. Y., & Qi, D. (2017). Cultural Distance and Chinese Cross-Border Merger and Acquisition Performance. *Journal of Marketing Development and Competitiveness*, 11(4), 145-156.

Reus, T. H., & Lamont, B. T. (2009). The double-edged sword of cultural distance in international acquisitions. *Journal of International Business Studies*, 40(8), 1298-1316.

Stahl, G. K., & Voigt, A. (2008). Do cultural differences matter in mergers and acquisitions? A tentative model and examination. *Organization science*, 19(1), 160-176.

Steigner, T., & Sutton, N. K. (2011). How Does National Culture Impact Internalization Benefits in Cross-Border Mergers and Acquisitions? *Financial Review*, 46(1), 103-125.

Vafeas, N., & Theodorou, E. (1998). The relationship between board structure and firm performance in the UK. *The British Accounting Review*, 30(4), 383-407.

Warter, I., & Warter, L. (2014). Latest trends in mergers and acquisitions research. The new pattern of globalization. *Bulletin of The Polytechnic Institute of Iasi*, 60, 25-43.

Weber, R. A., & Camerer, C. F. (2003). Cultural conflict and merger failure: An experimental approach. *Management science*, 49(4), 400-415.

Weber, Y., Shenkar, O. and Raveh, A. (1996), "National and corporate cultural fit in mergers/acquisitions: an exploratory study", *Management Science*, Vol. 42 No. 8, pp. 1215-27.

Weber, Y., & Tarba, S. Y. (2012). Mergers and acquisitions process: The use of corporate culture analysis. *Cross Cultural Management: An International Journal*.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of financial economics*, 40(2), 185-211.

## Appendix

### Appendix A: Description of control variables

Control variables	Author
Tobin's Q (Market value of equity + book value of debt divided by book value of equity + book value of debt)	Boateng et al. (2019)
Deal Size (Logarithmic value of the amount paid for the acquisition)	Boateng et al. (2019), Dakessian & Feldmann (2013)
Method of payment (dummy, 1 if it paid with cash, 0 if paid with stock)	Chakrabarti, Gupta-Mukherjee & Jayaraman (2009), Boateng et al. (2019), Qian et al. (2017)
Acquirer ROA (Net income after tax divided by average of total assets)	Gomez-Mejia & Palich (1997), Boateng et al. (2019)
Language (dummy, 1 if target speaks German, 0 otherwise)	Chakrabarti, Gupta-Mukherjee & Jayaraman (2009) and Boateng et al. (2019).

### Appendix B: Proof firmsize and Dealvalue must have a logarithmic function

FirmSize				
Percentiles	Smallest			
1%	6245	4131		
5%	29964	5236		
10%	63858	6245	Obs	256
25%	221365.5	8587	Sum of Wgt.	256
50%	2107501		Mean	8.55e+07
			Std. Dev.	2.98e+08
75%	2.80e+07	1.62e+09		
90%	1.36e+08	2.00e+09	Variance	8.86e+16
95%	7.54e+08	2.00e+09	Skewness	5.018484
99%	2.00e+09	2.19e+09	Kurtosis	29.83397

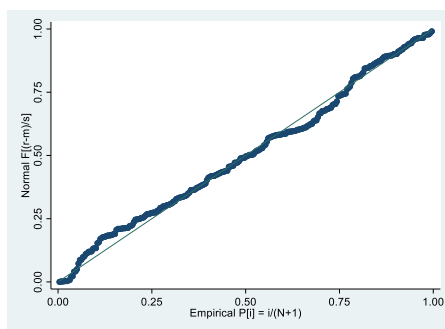
Dealvalue				
Percentiles	Smallest			
1%	10	10		
5%	10	10		
10%	10	10	Obs	256
25%	3530.11	10	Sum of Wgt.	256
50%	28484.22		Mean	447976.9
			Std. Dev.	1322871
75%	233475.4	7250000		
90%	1036240	7300000	Variance	1.75e+12
95%	2000000	8130440	Skewness	5.080246
99%	7300000	1.18e+07	Kurtosis	33.71721

lnFirmSize					
Percentiles		Smallest			
1%	8.739536	8.326275			
5%	10.30775	8.563313			
10%	11.06442	8.739536	Obs	256	
25%	12.30747	9.058004	Sum of Wgt.	256	
50%	14.5602		Mean	14.73236	
		Largest	Std. Dev.	2.990821	
75%	17.1479	21.20654			
90%	18.72919	21.41872	Variance	8.945012	
95%	20.44151	21.41872	Skewness	.2026211	
99%	21.41872	21.50897	Kurtosis	2.25378	
lnDealValue					
Percentiles		Smallest			
1%	2.302585	2.302585			
5%	2.302585	2.302585			
10%	2.302585	2.302585	Obs	256	
25%	8.17129	2.302585	Sum of Wgt.	256	
50%	10.25682		Mean	9.45927	
		Largest	Std. Dev.	3.954193	
75%	12.36044	15.79651			
90%	13.85111	15.80338	Variance	15.63564	
95%	14.84513	15.91113	Skewness	-.7009585	
99%	15.80338	16.28361	Kurtosis	2.487469	

### Appendix C: VIF scores

Variable	VIF	1/VIF
lnFirmSize	1.62	0.618150
lnDealValue	1.23	0.812500
experience	1.18	0.847840
payment	1.17	0.853598
language	1.16	0.858697
tobinsQ	1.10	0.908426
ROA	1.10	0.911667
CD	1.09	0.918945
Mean VIF	1.21	

### Appendix D: Normality check



Test for multivariate normality

Doornik-Hansen  $\chi^2(18) = 3242.743$  Prob> $\chi^2 = 0.0000$

**Appendix E: Proof that separate cultural dimensions do not change results.**

VARIABLES	(1) CAR
pdi	-0.0280 (0.0456)
uai	-0.0558 (0.101)
idv	-0.0266 (0.0747)
mas	0.00542 (0.0516)
payment	-2.214* (1.335)
language	-5.122** (2.496)
lnDealValue	-0.326** (0.159)
tobinsQ	-0.813* (0.432)
ROA	0.00204 (0.0493)
Constant	9.475*** (3.257)
Observations	256
R-squared	0.059