

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis Economics and Business Economics

The effect of cultural distance on post-M&A performance in
Dutch acquiring firms

Name student: Gido van der Heiden

Student ID number: 429719

Supervisor: Prof. dr. H.P.G. Pennings

Second assessor: dr. M. J. Burger

Date final version:

ABSTRACT:

This paper researched a well-studied subject: the effect of cultural distance on post-M&A performance. However, the true impact of this effect is unclear due to contradicting results in prior research. To study this phenomenon an ordinary least squares regression analyses is conducted on a sample of 112 cross-border mergers and acquisitions that took place between 1993 and 2012. The empirical findings in this research indicate that cultural distance does not have a significant impact on post-merger and acquisition performance and should therefore not be taken into account when management decisions are being made about a cross-border merger or acquisition by Dutch companies.

Introduction

Mergers and acquisitions (M&As) remain a common way for external growth for multinationals and national firms (Trautwein, 2013). In 2017, 50.600 M&As were announced with a total value of 2.9 trillion euros, equivalent to almost 6 transactions per hour (Institute for Mergers, Acquisitions and Alliances, 2018).

However, as contradicting as it might sound, the question remains if M&As are a profitable way of expanding a firm. For example, Bruner (2002) shows mixed results on returns for shareholders. In these results, acquiring firm shareholders have negative to zero returns, while target firm shareholders earn sizable positive returns. Showing that apparently the acquiring firms do not benefit as much from M&As as they should. Andre, Kooli & L'her (2004) and Kumar (2009) confirm this by showing that acquiring firms underperform in post M&A financial performance.

Due to the large amount of M&As performed and the seemingly negative outcome of them, it is an extremely active topic within certain research fields. Therefore, over the last decades, M&A performance has been extensively studied in research fields such as organizational management, corporate finance and strategic management. Despite all this research, there is little agreement on the actual impact and effects of M&As on firm performance. For example, across research fields, different ways of measuring M&A performance are used. In which corporate finance, for instance, looks at financial performance and strategic management looks at synergy realization.

Despite disagreement on the way of measuring performance, most research fields acknowledge the influence of certain variables. One social variable related to post-M&A performance is cultural distance, which is primarily measured using a framework created by Hofstede (1984). Cultural distance in cross-border M&As is classified as the distance between norms, routines and range of organizational designs, new product development as well as other characteristics of the acquiring and targeted firms their countries (Kogut & Singh, 1988). Cartwright and Cooper (1993) argue that cultural fit, such as cultural distance, is related to post-M&A performance and should be taken into account when performing a merger or acquisition.

However, regardless of the common measuring method of cultural distance, researchers using Hofstede's (1984) framework still find contradicting results on the impact of cultural distance on post-M&A performance (Stahl & Voigt, 2008). Morosini, Shane & Singh (1998) and Chakrabarti, Gupta-Mukherjee & Jayaraman (2009) both find that there is a positive association

between cross-border acquisition performance and cultural distance. Meaning that acquisitions performed between more culturally distanced companies have, on average, better performance.

On the other hand, Very, Lubatkin & Calori (1996) provide evidence for a negative relation between cultural distance and post-acquisition performance through acculturative stress. Datta (1991) shows another negative impact of cultural distance on performance, independent of integration level in acquisitions, through the effect of differences in top management styles. Meaning that according to Very, et al. (1996) and Datta (1991), companies should acquire a firm with a similar culture, to prevent a negative outcome on their post-acquisition performance.

Apart from both the negative or positive side of cultural distance there are also researchers that find no significant impact, or a more complex impact of cultural distance on post-M&A performance. A recent study from Ahammad, Tarba, Liu & Glaister (2016) shows that there is no significant impact of cultural distance on cross-border acquisition performance. While Reus & Lamont (2009) see a more complex impact of cultural distance on performance. They find that cultural distance has a positive aspect in the way of enhancing a firm's learning opportunities, but a negative aspect in creating a barrier for integration capabilities.

Due to all the different outcomes in prior research, different levels of complexity and the impact of M&As on the economy, it is still relevant to study the topic. It is also stated that more research is needed to clarify specific country effects (Hofstede, 1984). Specific country focus is needed since large amounts of business research has been done with data from the U.S.. The results from these studies are, according to Hofstede (1984), mostly U.S. specific and can therefore not be used as the general effect of cultural distance for all countries. Therefore, the main question that will be answered in this paper is: *“What effect does cultural distance have on post firm performance in cross-border mergers and acquisitions of Dutch companies?”*.

The paper will start by introducing the existing knowledge on the subject, out of which hypotheses for the research question will be derived. Then, the chosen methods and data will be discussed followed by the results. The results will be used to make concluding remarks on this topic. The final part of the research will consist of limitations of this study and recommendations for future studies.

Theoretical background

In this part of the paper, the theoretical background of previous research will be discussed. It starts by comparing studies with different focus on their samples within M&A research, followed by an examination of accounting-based cultural distance research. The examination will provide a fitting background for deriving the hypotheses that will be used in this paper. A broad overview of the studies can be found in table 1.

Cross-border versus domestic M&As

In the prior literature, little empirical and theoretical research has been done on the topic of cultural differences in cross-border M&As (Weber, Shenkar & Raveh, 1996; Datta & Puia, 1995). In addition to that, most of the prior literature is focused on U.S. data (Hofstede, 1984) and corporate cultural differences in domestic M&As (for example, Datta, 1991; Reus & Lamont, 2009; Chatterjee, Lubatkin, Schweiger & Weber, 1992). Even though the focus of these studies is different, they are nonetheless still useful to provide insides in cross-border M&A research. The reason behind this is that cultural difficulties in domestic deals are to a certain extent quite similar to difficulties in cross-border M&As (Shimizu, Hitt, Vaidyanath & Pisano, 2004). Some researchers even argue that these difficulties are even larger in cross-border M&As (Weber, et al., 1996; Very, et al. 1996), which can be explained by two phenomena. The first is the combination of differences in organizational cultures, which applies to both domestic and cross-border M&As, on top of organizational cultures established in different national cultures, which only applies to cross-border M&As (Schneider & DeMeyer, 1991; Very, Calori & Labatkin, 1993). The second phenomenon is explained by Hofstede, Neuijen, Ohayv & Sanders (1990) and is related to the impact of corporate and national culture on employees. They find that employees stick more to their national culture than their corporate culture, meaning that if national cultures clash in a cross-border deal it is harder to change than if corporate cultures clash. Combining these two phenomena provides arguments that make researching national cultural differences in cross-border M&As interesting and could lead to potential new insides and results.

Cultural distance

Almost four decades ago, Hofstede (1984) introduced a new concept called Cultural Distance (CD). Creating a framework to determine the differences between countries their norms, values, routines and repertoires related to organizations and stakeholders (Kogut & Singh, 1988). In this framework, Hofstede (1984) makes a distinction between four different dimensions of national culture; individualism, power distance, masculinity and uncertainty avoidance. Following this approach, this paper measures the differences between acquiring and target companies following Hofstede's (1984) four cultural dimensions. Hofstede's (1984) cultural dimensions are used because of their fit with the empirical approach of this research, which will be discussed later in the methodology part.

Hofstede's (1984) framework of cultural distance is, and has been, extensively used in research fields, such as management, to study the effects of cultural distance on post-M&A performance in international markets (e.g. Chakrabarti, et al., 2009; Very, et al., 1996; Dikova & Sahib, 2013). Within this prior research a distinction can be made, dividing it into two groups. One group of studies argues that there is a positive relation between cultural distance and post-M&A performance. Morosini, et al. (1998) and Chakrabarti, et al. (2009) both claim, for example, that post-M&A performance is enhanced due to capturing and implementing different routines and repertoires from the targeted firm that would otherwise be hard to acquire. Dikova & Sahib (2013) agree with both studies, but add that the amount of benefits a cross-border deal creates is dependent on the prior M&A experience. Meaning that, if an acquiring company has little or none experience with M&As, it has a lower probability of enhancing its performance with different routines and repertoires. Therefore, when combining the studies of the first group, they provide enough evidence to derive the first hypothesis: "*Cultural distance has a positive relationship with post-M&A performance*".

The second group of research argues that there is a negative relation between cultural distance and post-M&A performance. Slangen (2006), for example, argues that higher post-M&A integration levels cause more negative effects of cultural distance on performance. In addition to Slangen's (2006) findings, Datta (1991) found another variable that influences the negative relation apart from integration levels. He shows that differences in top management due to cultural differences also have a negative impact on post-M&A performance. One of the explanations for this occurrence is that the more culturally distanced the acquiring and target firm are, the more

diverse and dissimilar their repertoires and routines (Kogut & Singh, 1988). This causes a more complicated transfer of knowledge and practices (Michael Geringer, Beamish & daCosta, 1989), making culturally distant companies costlier to manage (Kogut & Singh, 1988). Following this reasoning the following hypothesis can be derived: “*Cultural distance has a negative relationship with post-M&A performance*”.

When both groups are combined, they seem to contradict with each other. This contradiction might be explained by a U-shape relationship of cultural distance with post-M&A performance. A U-shape relationship would mean that M&As with low cultural distance would benefit from lower costs in managing different management styles and less difficulties in transferring specific routines and repertoires with integration (Kogut & Singh, 1988; Slangen, 2016; Datta, 1991). While on the other hand, following Morosini, et al. (1998) and Chakrabarti, et al. (2009), a U-shape would mean that M&As with high cultural distance would have benefits that outweigh the negative effects of cultural distance. Creating a situation in which the benefits of enhancing practices and insights, outweigh the higher costs in managing different management styles and more difficult integration process. For the M&As in the middle a U-shape would mean that they have higher costs, due to the more diverse management and difficulties with integration, and do not have enough benefits, from enhancing practices and insights, to outweigh these costs. Following this reasoning, the third hypothesis can be derived: “*Cultural distance has a U-shape relationship with post-M&A performance*”.

Table 1 provides a short overview of the prior selected research, which helps to clarify the general findings in the research field of cultural distance, in this theoretical framework.

Table 1. Studies examining the impact of cultural distance on accounting-based performance measures

<i>Study & year</i>	Impact of Cultural Differences	Cultural Dimension	Performance Measure	Sample	Final sample size
<i>Ahammad, Tarba, Liu & Glaister (2016)</i>	Not significant	Hofstede's Cultural Distance	Performance index based on Schoenberg (2004)	Cross-border	N=65
<i>Chakrabarti, Gupta-Mukherjee & Jayaraman</i>	Positive	Hofstede's Cultural Distance	Buy-and-hold abnormal returns (BAR)	Cross-border	N=755
<i>Datta (1991)</i>	Negative	Organizational differences in management styles	Performance index	Domestic	N=173
<i>Dikova & Sahib (2013)</i>	Positive	Hofstede's Cultural Distance using Kogut and Singh's (1988) adjustment	Percentage change of stock prices	Cross-border	N=1233
<i>Morosini, Shane & Singh (1998)</i>	Positive	Hofstede's Cultural Distance	Percentage rate of growth in sales	Cross-border	N=52
<i>Reus & Lamont (2009)</i>	Mixed	Hofstede's Cultural Distance using Kogut and Singh's (1988) adjustment	Performance index	Domestic	N=118
<i>Slangen (2006)</i>	Negative	Hofstede's Cultural Distance using Kogut and Singh's (1988) adjustment	Performance index	Domestic	N=102
<i>Stahl & Voight (2004)</i>	Not significant	Meta-analysis, all cultural dimensions	Performance index	Mixed	N=1449
<i>Very, Lubatkin, & Calori (1996)</i>	Not significant	Domestic versus cross-border	Performance index	Mixed	N=104
<i>Weber (1996)</i>	Not significant	Corporate cultural differences	Return on assets (ROA)	Domestic	N=52

The moderating effect of prior M&A experience

The above stated research and arguments mainly focus on the effects of cultural distance on post-M&A performance, however an important factor might be overlooked. Cannella and Hambrick (1993) conducted a research about the effects of manager departures on acquiring firms their performance. They state that managers from target firms are an integral part of the target firm's resource base and are therefore an important determinant of post M&A performance. Thus, the performance of the acquisition partially depends on the retention of managers, their skills and knowledge (Walsh & Ellwood, 1991; Ahammad, Glaister, Weber & Tarba, 2012).

In addition to that, Vaara, Sarala, Stahl and Björkman (2012) argue that cultural distance results in lower social conflict. Which could mean that cultural distance provides an opportunity to retain managers of the targeted firm by lowering social conflicts between the firms, providing a lower incentive to leave.

Zollo and Singh (2004) argue that knowledge transfer will be higher when the acquiring company has M&A experience. Meaning that companies that are familiar with integrating a target firm into the acquiring firm have an advantage in terms of transferring knowledge from the target to the acquiring firm, enhancing post-M&A performance. This argument is partially supported by Reus & Lamont (2009) who find that cultural distance creates an opportunity to capture knowledge, but also constrains communication between the acquiring and targeted firm. They argue that overcoming the negative effects of cultural distance on communication results in significant performance gains.

When the arguments stated above are combined, it can be argued that prior M&A experience would enable an acquiring company to overcome the negative effects of cultural distance on knowledge transfer. Following this reasoning, the fourth hypothesis can be derived: *“Prior M&A experience moderates the relationship between cultural distance and post-M&A performance”*.

Method

This part of the paper will explain the sample and methods used for the study. It will start by introducing the deductive method, followed by the data selection, variable and control variable selection and an explanation of the model. The final sections of the methodology part will consist of an explanation of the descriptive statistics and the correlation in the sample.

Deductive method

This paper uses a deductive method, which is an analytical research method, indicating that the hypotheses are based on logical reasoning with available facts (Wacker, 1998). The hypotheses are developed based on existing theory (Wilson, 2014), and apply them to new situations. To do so, a great supply of research is needed and is therefore mainly used in combination with extensively studied research subjects (Dudovskiy, 2016). As is shown in the theoretical framework section, cultural distance and M&A performance are both well examined subjects and have therefore provided enough insights to develop fitting hypotheses.

When creating these hypotheses, a relationship is expected between two or more specific variables. In this study, there will be mainly looked at positive or negative effects of cultural distance on performance, instead of quantifying the total impact of the effect. The relationships are tested by a quantitative method, which in this case is an ordinary least squares (OLS) regression analysis.

A quantitative research method means that statistical methods will be used to provide an answer for the main question and its hypothesis. Quantitative research has been used frequently for measuring M&A firm performance in panel data research (Datta, 1991; Andre et al., 2004; Slangen, 2006; Stahl & Voigt, 2008; Reus & Lamont, 2009; Kusewitt, 1985), and thus has proven its validity and usefulness. Therefore, this study also uses the quantitative research method to measure firm performance.

Together with the deductive method, they have the ability to be simple, while still being effective and precise. In combination with the abundance of research and the relatively short time period, it still makes it reliable to derive conclusions from the stated hypotheses and test them.

Sample selection

The sample of companies in this paper is acquired from Thomson ONE, a database of Thomson Reuters. This database consists of financial data on listed corporations, from all over the world, such as annual reports and data about M&As and IPO's. The original sample contained 8.957 Dutch firms that participated in a cross-border merger or acquisition between 1993 and 2012. The companies are selected based on four criteria, with the first criterion being that the companies needed to be Dutch. The second, that the companies should at least have a 50% possession rate of the targeted firm after the acquisition to make sure mergers are also included. The third and fourth are that the acquisition needs to be completed and effective.

The time range can be explained by two arguments. The year of 1993 is due to the fact that Thomson ONE could not provide enough observations on Dutch M&As between 1988 and 1993 and is therefore chosen as the starting date. The end date of 2012 is chosen since this research first used a 5-year growth rate to calculate performance and annual data after 2017 is not available. However, after some biases and statistical problems it was chosen to use the same original sample for a 2-year growth rate as performance measure.

After acquiring the list of 8.957 companies from Thomson ONE, Datastream is used to collect the annual data for each company over the required time range. Datastream is a global macroeconomic and financial database from Thomson Reuters containing, for example, stock market prices and annual accounting-based data from more than 3.5 million financial institutions in 175 countries and 162 markets (Thomson Reuters, 2018; Institute for Financial Management, 2017).

In the sample derived from Datastream, however, many companies had to be dropped due to missing values or unavailability of the company in the Datastream database. After dropping all these companies and checking for outliers, causing another 13 observations to be dropped from the sample due to impossible values, a sample of 112 acquiring Dutch companies remained. Even though it is a fraction of the original sample size, it is still deemed satisfactory for this research.

Only Dutch firms are chosen to be able to compare similar firms in a geographical region, which creates the opportunity to study the performance outcomes of M&As without the need to correct for home-country effects on performance.

Variables

The dependent variable in the model will be performance, which is measured as a percentage rate of growth in sales (in Euros) over a two-year period after the acquisition or merger. Sales growth rate has been used broadly in strategic management research to measure performance (Woo et al., 1992; Morrison & Roth, 1992), also containing research about post-acquisition performance (Datta, 1991; Schoenberg, 2004; Uhlenbruck, 2004; Morosini, et al., 1998). The choice for a two-year growth percentage is based on two justifications. First, prior research argues that the first two years following an acquisition are critical to the overall performance (Morosini, et al., 1998; Jemison & Sitkin, 1986). Second, the integration process of the companies is usually completed after the two-year period, meaning that the results of the integration can then be effectively measured (Jemison & Sitkin, 1986). The use sales growth rate will enable the model to look at the long-term post-merger and -acquisition performance.

The independent variable in the model is measured using the adjustments from Kogut and Singh (1988), which are based on the four individual measures of Hofstede (1984) (i.e., power distance, individualism, masculinity/femininity and uncertainty avoidance) and are combined to one, cultural distance. The definition Kogut and Singh (1988) use for cultural distance is the differences between the norms and routines of firms in countries, which can, according to them, have significant effects on the performance and interaction between firms and countries. Their adjustment is therefore used to create a measure that calculated an estimate of the distance between Dutch and other countries. Kogut and Singh (1988) create a composite index using the following algebraic index:

$$CD_j = \sum_{i=1}^4 \frac{(I_{ij} - I_{ix})^2 / V_i}{4}$$

Where

CD_j : *Is the cultural differences measured between country j and the Netherlands*

I_{ij} : *I^{th} score of Hofstede's cultural dimension of j^{th} country*

I_{ix} : *I^{th} score of Hofstede's cultural dimension of the Netherlands*

V_i : *Variance of Hofstede's cultural dimension score*

The cultural dimension scores the index uses will be obtained from Hofstede Insights (2018) which is a framework based on Hofstede's past work on cultural distance. This framework captured Hofstede's (1984) four cultural dimensions and expended it to almost every country and is therefore internationally used (Hofstede Insights, 2018).

The advantages of using this measurement compared to a questionnaire can be divided into two arguments, the first being that the common method variance problem is avoided by using Hofstede's cultural difference scores (Morosini, et al., 1995). Common method variance is variance that can be allocated to the measuring method instead of the variables being tested, due to the fact that explanatory variables are provided by the same respondent in a questionnaire (Chang, Van Witteloostuijn & Eden, 2010). Creating a false estimation of correlation among variables that are derived from the same source, which can cause up to a 26% bias in observed relationships (Doty & Glick, 1998). The second advantage is that the recall bias can be avoided. The recall bias causes participants to 'remember' aspects of the acquisition after the integration differently than that they actually were during the integration (Pannucci & Wilkins, 2010). This could cause a bias that would result in observations with less variance in cultural distance, harming the accuracy of the method.

To measure the U-shape of cultural distance a quadratic variable will be created which will be called 'Cultural distance²'.

Control variables

Several control variables will be taken into account in the model. The first of them being Prior firm performance, which is calculated using the annual growth rate (in percentages) of the acquiring company's revenues two years prior to the acquisition. Although prior research has not provided any clear evidence on the impact of prior firm performance, it is still used as a control variable since it has been used in various research on M&A performance (Reus & Lamont, 2009; Ramaswamy, 1997).

The second control variable is 'Acquiring firm size'. Acquiring firm size is in prior literature argued to have a significant influence on post-M&A performance (Kitching, 1967; Kusewitt, 1985). Kusewitt (1985), for example, shows that a negative relation exists between firm size and post-acquisition performance. Therefore, this research also controlled for firm size. The control variable will be measured using a logarithm of the revenues in euros of the acquiring firm in the year of the acquisition. There are two reasons behind the decision for a logarithm, a statistical

and a substantive one. The statistical reason is that the sample of ‘acquiring firm size’ is skewed to the right (see figure 4, Appendix A). Implementing a logarithm on the sample will prevent outliers from harming the normality assumption. The substantive reason is that differences in acquiring firm size are more multiplicative than additive, meaning that a company size difference of 20 million and 25 million is much bigger compared to a difference of 150 and 155 million. Taking a logarithm will create a relative size compression, which will reflect these differences in acquiring firm size better.

The third control variable is ‘Industry manufacturing’. Research argues that differences in industries determine acquisition entry mode choices (Caves, 1996) and that there are strong patterns in these choices between the manufacturing and service industry (Kogut and Singh, 1988). It is also in prior research about M&A performance used as a control variable (Dikova & Sahib, 2013; Morosini, Shane & Singh, 1998) and will therefore also be a control variable in this model. The variable ‘Industry manufacturing’ is created out of the 13 macro industry codes that Thomson ONE uses to mark industries. Out of these codes two dummy variables were created based on the core business of the acquiring firm. The dummy variables can be divided into manufacturing and services.

The fourth control variable is ‘Industry relatedness’, which is documented to have a significant impact on acquisition performance (Kusewitt, 1985) and is also used as control variable in other research (Slangen, 2006; Ahammad, et al., 2016). A dummy variable is created to measure Industry relatedness, in which relatedness is measured by using similarities between the acquiring and targeted firm’s macro industry code.

The fifth control variable is prior M&A experience. Prior experience in M&As is argued to have a significant impact on M&A performance and seems to improve the overall performance of an acquisition (Dikova & Sahib, 2013; Haleblian & Finkelstein, 1999). The variable will therefore be included into the model as a dummy variable.

The last control variable is acquisition waves, which has proven to be a trend that exists in M&A data and should be controlled for (McNamara, Haleblian & Dykes, 2008). According to prior research 2 waves were active in the selected time range of the sample. The two acquisition waves that are considered are from 1998 till 2000 (Rhodes-Kropf & Viswanathan, 2004) and from 2003 till 2007 (Alexandridis, Mavrovitis & Travlos, 2012; Moody & Nogrady, 2010). The different acquisition and non-acquisition waves will divide the sample into two groups, which will be

measured as dummies. The first group consists of M&As between 1993 till 1997, 2001 till 2002 and 2008 till 2012 containing the non-acquisition waves observations. The second consists observations of the acquisition waves from 1998 till 2000 and 2003 till 2008.

Multicollinearity and Heteroskedasticity

When using an OLS model, it is assumed that the sample does not suffer from multicollinearity. Multi-collinearity or perfect collinearity implies that predicting variables are highly correlated with each other, which can distort the found results in the model. One way to check for multi-collinearity is by looking at the correlation between the predicting variables. Table 2.3 shows the correlation of the variables within the sample. From this table can be derived that multiple variables are correlated with each other, such as cultural distance and the logarithm of acquiring firm size (0.317). The relationship between these two variables could be explained by the fact that larger firms are more likely to invest or acquire a company that is more distant, creating a higher likelihood that those countries are also more culturally distant. It is also notable that both the interaction effect and cultural distance² have high correlation with cultural distance (0.756 and 0.923 respectively). However, this is because the sample contains 23 (20.5%) Dutch companies. Dutch companies have a cultural distance value of 0, meaning that if it is squared or multiplied it remains close to the original variable, which lets correlation rise. To check if this is harmful for the model, variance inflation factor (VIF) statistics are used for checking multi-collinearity. The variance inflation factor (VIF) statistics are shown in table 2.1 and show that the variables cultural distance, cultural distance² and the interaction effect all have a high VIF value compared to the other variables. However, all three do not exceed the threshold established by Hair, Black, Babin, Anderson & Tatham (2009) of 10 and it is therefore assumed that the sample does not suffer from multicollinearity.

Table 2.1 VIF statistics

Variable	VIF
Cultural distance	8.36
Cultural distance ²	8.14
Cultural distance x Prior M&A experience	7.93
Prior M&A experience	3.91
Log acquiring firm size	1.53
Prior performance	1.14
Industry manufacturing	1.13
Industry relatedness	1.09
Acquisition wave	1.05
Mean VIF	3.81

After controlling for multi-collinearity, the sample needed to be checked for heteroskedasticity. Heteroskedasticity exists when the variability of a variable is differing across a range of values of another variable that predicts it. This could consequently distort the results when present in the sample but not controlled for. Therefore, a Cook-Weisberg test is conducted to check for heteroskedasticity, which shows that the model suffers from it ($P > chi^2 = 0.000$). Meaning that the model needs to be controlled for heteroskedasticity, which will be done by taking robust errors into account.

The model

As earlier mentioned, an Ordinary Least Squares (OLS) regression analysis will be used. The regression will use robust standard errors to control for heteroscedasticity, which is explained earlier. It will also use a 95% confidence interval to measure if an effect has a significant impact. The model uses the following variables:

$$\text{Post-M\&A performance} = f(\text{CD}, \text{CD}^2, \text{CD*PE}, \text{PFP}, \text{LAFS}, \text{IM}, \text{IR}, \text{PE}, \text{AW})$$

CD	=	Cultural distance
CD ²	=	Cultural distance ²
CD*PE	=	Interaction effect Cultural distance and Prior M&A experience
PFP	=	Prior firm performance
LAFS	=	Log acquiring firm size
IM	=	Industry Manufacturing, dummy
IR	=	Industry Relatedness, dummy
PE	=	Prior M&A experience, dummy
AW	=	Acquisition wave, dummy

Descriptive statistics

The method being described above resulted into the descriptive statistics shown in table 2.2.

The table shows that the minimum acquiring firm size is € 27.9 million in revenues, which according to the European definition of firm size can be classified as a medium-sized company (European commission, 2018). This is important to note, since it shows that the sample only consists of companies equal or larger than medium-sized firms.

When looking at the other variables, it can be seen that the post-M&A performance measure has a growth average of 20.8%. This is deemed high since the sample mainly consists of medium to large-sized companies and prior research suggests that firm growth decreases once companies size increases (Evans, 1987). The same performance growth can be observed for the prior firm performance, which has an average growth rate of 51.8%. However, this large growth rate is probably created because some companies aggregate their sales after the acquisition is completed. Meaning that if an acquiring company takes over a similarly sized target company its sales would double in the year of the acquisition, creating higher firm performance rates in the sample. This

explanation, however, does not contribute to an answer for the high growth rates after the acquisition.

The sample also consists for 70.5% out of companies that have prior experience with M&As. This result could be expected in a sample with mainly bigger companies, since bigger companies are more likely to use external growth to grow and have therefore a higher probability to have already participated in M&As.

Table 2.2 Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
1. Post-M&A performance	0.208	0.482	-0.867	2.356
2. Cultural distance	1.785	1.144	0	4.293
3. Cultural distance ²	4.483	4.202	0	18.433
4. CD*PE	1.402	1.286	0	4.293
5. Prior firm performance	0.518	0.850	-0.274	4.816
6. Acquiring firm size	1.58e+10	1.90e+10	2.79e+07	8.89e+10
7. Log acquiring firm size	22.393	1.850	17.145	25.221
8. Industry manufacturing	0.598	0.492	0	1
9. Industry relatedness	0.634	0.484	0	1
10. Prior M&A experience	0.705	0.458	0	1
11. Acquisition wave	0.580	0.496	0	1

N= 112

*CD*PE = Interaction effect cultural distance * prior M&A experience*

Correlations

The correlation table (Table 2.3) below shows how the used variables are related to one another. As the second hypothesis suggests, a negative correlation of -0.064 is found between cultural distance and the performance measure. However, this is a rather weak correlation, since it implies that cultural distance and post-M&A performance only negatively affect each other with 6.4% out of 100%.

A variable that does have a high correlation with post-M&A performance is prior firm performance. The value of 0.417 implies that 41.7% out of 100% of post-M&A performance is positively affected by prior firm performance. This might indicate that a firm that performed well in the past is likely to perform well in the future as well, however it does not say if the post-M&A performance would have been higher or lower without the acquisition.

Another expected correlation is that of acquiring firm size and post-M&A performance. The negative correlation of 0.161 indicates that as firm size grows its performance decreases. Even though the correlation is not strong, it does confirm the findings of Evans (1987).

Log acquisition firm size has two other interesting weak correlations with cultural distance and industry manufacturing. It seems that acquiring firm size has a strong positive correlation of 0.317 with cultural distance. Which is interesting since it might suggest that larger firms have M&As in more culturally distant countries. While acquiring firm size also has a negative correlation with industry manufacturing (-0.294), suggesting that the manufacturing companies in the sample are smaller than the service companies.

As expected, a positive correlation is found between post-M&A performance and the acquisition wave dummy (0.138). Even though it is a weak correlation, it might indicate that acquisition waves do alter M&A performance.

It is also interesting that the correlation between post-M&A performance and industry manufacturing has a weak negative relation (-0.142). This could mean that manufacturing industries perform worse two years after an acquisition than a service industry.

Another interesting value is the correlation between prior M&A experience and post-M&A performance, even though it is a weak negative relation (-0.09). It suggests that, in this sample, experience does not enhance the ability of an acquiring company to capture or integrate knowledge of a target firm, but even decreases it.

However, the correlation table does not control for other variables, meaning that it might show incorrect results. In order to control for these missing variables and to find the true effect of variables on post-M&A performance in comparison to each other, a regression analysis is created.

Table 2.3 Correlation table

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Post-M&A performance	1									
2. Cultural distance	-0.064	1								
3. Cultural distance ²	-0.013	0.923	1							
4. CD*PE	-0.076	0.756	0.735	1						
5. Prior firm performance	0.417	0.036	0.078	-0.138	1					
6. Log acquiring firm size	-0.170	0.317	0.263	0.498	-0.193	1				
7. Industry manufacturing	-0.142	0.029	0.102	0.011	-0.007	-0.294	1			
8. Industry relatedness	-0.027	-0.048	0.009	-0.027	0.001	0.035	-0.056	1		
9. Prior M&A experience	-0.090	0.276	0.232	0.708	-0.152	0.518	-0.170	-0.125	1	
10. Acquisition wave	0.138	0.092	0.073	0.068	0.124	-0.070	-0.033	-0.045	0.085	1

Results

In this section, the results of the OLS analyses will be discussed, which are shown in table 3. The results that influence the outcome of the hypotheses will be examined, followed by a discussion about other interesting results.

The first and second hypothesis suggest that cultural distance either has a positive or a negative effect on post-M&A performance. However, the results in model 1 show that the coefficient associated with the cultural distance variable is insignificant ($t = -0.57$, $P > 0.05$), thus not supporting either hypothesis. This result can have two possible implications. The first being that cultural distance does not have a significant effect on post-M&A performance, which is possible since prior research on cultural distance and post-M&A performance measured with accounting-based variables also yielded insignificant results (Ahammad, et al., 2016; Stahl & Voight, 2004; Very, et al., 1996). The second explanation could be that the expected positive and negative effect do exist in the model, but nullify each other. This would also result in an insignificant coefficient, since none of the effects dominates the other and there would not be enough evidence to reject the null hypothesis. However, both explanations could be true, since this model is not able to make a distinction between effects within cultural distance.

The third hypothesis suggests that cultural distance has a U-shape relationship with post-M&A performance. The results in model 3, however, also show an insignificant impact of cultural distance² on post-M&A performance ($t = 0.92$, $P > 0.05$). Nevertheless, before this result can be interpreted it is important to check if the sample is evenly distributed on the U-shape to prevent misinterpretation. To check this, the maximum of the curve is calculated and compared to the descriptive statistics of the sample, which show that the sample is evenly distributed. Therefore, the results imply that in model 3 cultural distance does not have a U-shaped relationship with post-M&A performance and that the expected trade-off between managing costs and knowledge enhancements within the acquiring firm is also not supported.

The fourth hypothesis stated that prior M&A experience would have a moderating effect on the relationship between cultural distance and post-M&A performance. However, the results from model 2 show that the coefficient associated with the interaction effect of cultural distance and prior M&A experience is insignificant ($t = 1.38$, $P > 0.05$). Indicating that, in this model, the interaction effect does not have a moderating effect and that the suggested effect of experience and manager retention is not supported.

Even after implementing all variables of interest, none of them provide enough evidence to reject the null hypothesis. However, model 4 shows some other interesting results related to the used control variables. The results of model 4 show that the regression coefficient of prior firm performance is positive and significant ($t= 2.27, P < 0.05$). This result suggests that prior firm performance is a significant indicator for post-M&A performance and that companies that have a higher performance in the past will likely have higher performance after the merger or acquisition.

The remaining dummy variables all had an insignificant result, but still yield some interesting implications. For example, regression model 4 in table 3 shows that the logarithm of acquiring firm size does not have a significant impact on post-M&A performance ($t= -0.47, P > 0.05$). Implying that the size of an acquiring firm does not have a significant impact on post-M&A performance in this model. This could mean that larger firms do not suffer from higher integration costs as is suggested by prior research (Aaronovitch & Sawyer, 1975), but that post-M&A performance could be independent of acquiring firm size.

From the regression coefficient for industry manufacturing can be observed that it is insignificant ($t= -1.94, P > 0.05$), suggesting that companies in the manufacturing industry do not perform worse or better two years after the acquisition compared to service related companies. However, no clear indication for this phenomenon could be found in prior research. In addition to that, the regression in table 3 shows that industry relatedness does not have a significant effect on post-M&A performance ($t= -0.73, P > 0.05$). Indicating that, in this sample, companies that acquire a target firm in the same industry do not gain any benefits compared to acquiring a target firm from a different industry and vice versa. The same goes for the variable prior M&A experience, which also has an insignificant result in this sample ($t=-1.09, P > 0.05$). Suggesting that prior experience does not matter in determining post-M&A performance. Also performing an acquisition in an acquisition wave does not seem to impact post-M&A performance. This might mean that acquisition waves might be a trend that convinces companies to participate in an acquisition but does not improve or decrease post-M&A performance.

Table 3. Results Ordinary Least Squares Regression Analyses

Variable	Model (1) Std. β (Robust Std. Err.)	Model (2) Std. β (Robust Std. Err.)	Model (3) Std. β (Robust Std. Err.)	Model (4) Std. β (Robust Std. Err.)
Cultural distance	-0.025 (0.043)	-0.138 (0.091)	-0.140 (0.119)	-0.193 (0.129)
Cultural distance ²			0.034 (0.037)	0.020 (0.035)
CD*PE		0.165 (0.120)		0.145 (0.125)
Prior firm performance	0.223* (0.107)	0.241* (0.105)	0.216* (0.104)	0.235* (0.103)
Log acquiring firm size	-0.167 (0.033)	-0.017 (0.033)	-0.014 (0.032)	-0.015 (0.033)
Industry manufacturing	-0.139 (0.090)	-0.178 (0.095)	-0.162 (0.092)	-0.187 (0.096)
Industry relatedness	-0.034 (0.095)	-0.068 (0.099)	-0.052 (0.105)	-0.075 (0.103)
Prior M&A experience	-0.018 (0.137)	-0.276 (0.222)	-0.026 (0.139)	-0.249 (0.229)
Acquisition Wave	0.083 (0.075)	0.091 (0.078)	0.088 (0.075)	0.093 (0.077)
Constant	0.579 (0.776)	0.766 (0.788)	0.601 (0.786)	0.758 (0.792)
F-value	2.29*	2.24*	2.06*	2.00*
R ²	0.213	0.240	0.225	0.244
N	112	112	112	112

* P < 0.05

** P < 0.01

Conclusion

As discussed in the theoretical background of this paper, an extensive amount of research has been conducted about the effect of cultural distance on post-M&A performance. Prior research found contradicting results on the effect size, a positive or negative impact, or if it was significant at all. These contradicting results might be due to the different methods or populations used to study this effect. However, in most of the prior research U.S. data is used to study the effects of cultural distance, while Hofstede (1984) argues that cultural distance effects cannot be generalized to all countries. Therefore, this research focusses on answering the following research question: *“What effect does cultural distance have on post firm performance in cross-border mergers and acquisitions of Dutch companies?”*.

To answer this question, four hypotheses have been deducted and an OLS analyses has been conducted. With these results this research provides empirical evidence for the claim that national cultural distance does not have a significant impact on post-M&A performance for Dutch acquiring companies. However, this conclusion can be interpreted in three ways. The first being that cultural distance on its own does not provide the acquiring company with new insights and routines that enhance its performance, since the different routines and repertoires do not exist. In other words, acquiring a company that is culturally distant does not have different values or routines and can therefore not enhance the acquiring company’s performance. However, since prior research has pointed out that there are differences in cultures and cultural distance does exist, this would be an unrealistic explanation. The second interpretation provides a more realistic explanation for the results and states that acquiring companies are not able, or do not want to capture or imitate the different routines and repertoires. Meaning that some routines are hard to imitate, as suggested by Michael Geringer, et al. (1989) and Kogut & Singh (1988), and will therefore not successfully be transferred to the acquiring firm. The third interpretation is that cultural distance could have a positive and a negative effect, as found in prior research, but that these effects nullify each other, creating an insignificant effect on post-M&A performance. This research also provides proof that prior M&A experience does not provide an advantage in obtaining these performance-enhancing routines and repertoires. This suggests that the way of capturing routines and repertoires is different in every target company or they cannot be captured at all.

The results from this research also have managerial implications for companies that are participating in cross-border mergers or acquisitions from the Netherlands. Since it is found that

cultural distance and its interaction with prior M&A experience do not have a significant impact on post-M&A performance, it is important that the effects of these variables are not overestimated by managers when planning the integration for the acquisition, as is advised by various scholars (Morosini, et al., 1998; Datta, 1991). Therefore, it is important that companies approach each acquisition differently to prevent overestimation of the acquiring company's ability to capture routines and repertoires.

Limitations

This section of the research will discuss some limitations of this study and recommendations for future studies, in which first the limitations will be discussed followed by the recommendations.

This research has some limitations that need to be accounted for, since these limitations might affect the internal or external validity of the study. Three limitations are related to the sample, which only consists of medium to large-sized Dutch acquiring firms.

The first being that the sample suffers from selection bias. Since many companies had to be dropped from the original sample, smaller firms were crowded out due to their lack of available data. The reason behind this is that larger companies in general provide more data to the public about their financial position compared to smaller companies. This causes smaller companies to be dropped from the sample making them underrepresented, which can also be seen in the descriptive statistics in table 2.2 or figure 4.1 in Appendix A.

The second limitation is that the sample might suffer from a survival bias, which is created by using a 2-year growth rate. The usage of a 2-year growth rate forces the sample to only select companies that exist two years after the acquisition. Meaning that companies that fail to exist for two more years will be dropped from the sample and are not be taken into account. That companies fail to exist in the two-year period could be due to bad performance, which could result in bankruptcy, or because the acquiring company is acquired by another company. Either way, this phenomenon causes the sample to be biased since it is unclear if the sample is biased towards companies that are relatively more successful or less successful compared to the population of acquiring companies.

The third limitation related to the sample is that the sample only consists of Dutch acquiring firms, therefore the empirical results should be interpreted with caution in relation to their applicability outside the Dutch context of this study.

Other limitations related to this research can be found in the method used. The first can be related to the use of accounting-based measurements to predict post-M&A performance. The use of accounting-based measurements creates the opportunity to study multiple aspects of financial performance, but does not capture nonfinancial performance or M&A motives. This makes the conclusions derived from the results solely rely on financial performance, creating results build on incomplete knowledge (Thanos & Papadakis, 2012). Besides the described limitations, more

limitations exist with the use of accounting-based measurements and are discussed by Thanos and Papadakis (2012), but will not be discussed further in this research.

Another limitation found in the used method is that the dependent variable can have irregularities. Acquiring companies do not always aggregate its sales with the acquired company, causing differences in growth rates that are unrelated to performance, which consequently lowers the internal validity. The same problem also occurs when measuring prior firm performance, though this problem can be solved by taking only measurements before the acquisition and not in the year of the acquisition.

Besides the fact that existing variables have to be changed in order to fix certain limitations of this study, analysis suggests that new variables also have to be introduced. According to Ramsey Regression Equation Specification Error Test, the sample suffers from omitted variable bias ($P < 0.01$). This indicates that other variables that are related to post-M&A performance are still missing. Therefore, it is recommended that in further studies a closer look is taken at different predictive variables.

The problem related to the accounting-based measurements can be solved by taking multiple accounting-based measurements into account within the same study and combining them with nonfinancial measurements such as, for example, manager's personal assessments (Thanos & Papadakis, 2012). Therefore, this research recommends that future research should introduce nonfinancial measurements, such as corporate culture, which can influence post-M&A performance.

Another recommendation comes from the second possible explanation of the insignificant effect of cultural distance on post-M&A performance, which was discussed in the results section. Since it could be possible that the negative and positive effect of cultural distance nullify each other, it could yield interesting results to study the separate effects. Changing the question of 'does cultural distance effect performance' to 'how does cultural distance effect performance'.

It is also recommended to study the Dutch market more thorough, since this research clearly yielded interesting results compared to other studies but also had some clear limitations. Besides the focus on the Dutch market, future studies could focus on other country specific effects of cultural distance. This way more knowledge is gathered of the true effect of cultural distance. However, since it is argued that cultural distance is different per country it is important to compare home-country effects with each other. Finally, further research in the area of cultural distance could

also be related to how cultural distance effects post-M&A performance by looking at the individual effects of Hofstede's measurements. Since it is suggested that certain differences, like high masculinity, might affect performance differently than individualism (Chakrabarti, et al., 2009).

In short, this research studied a well-studied subject, the effect of cultural distance on post-M&A performance, in which the true impact is unclear due to contradicting results. The empirical findings indicate that cultural distance should not be taken into account when management decisions are being made about a cross-border merger or acquisition by Dutch companies.

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Appendix A

Table 4. Boxplot Acquiring firm size

