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Cultural distance and cross-border M&A premia

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Abstract

Although a lot of work has been done to identify what influences the premia paid in cross-border M&A deals, there is still a lot of controversial results and lack of information concerning some of the determinants, being culture one of them.

This works seeks to study the relation between national cultural distance and the premia paid in acquisitions made between the period of 2000 and 2020, between companies from different countries, with a wide sample with countries representative of all continents.

To perform this analysis the methodology chosen was an OLS regression, with Newey-West estimators, that conducts the relation between the two main variables: premia and cultural distance. To ameliorate the analysis, some variables were added to control for other determinants of premia.

The main result is consistent with other studies, such as Lim, Makhija, and Shenkar (2016) and Chakrabarti, Gupta-Mukherjee, and Jayaraman (2009): premia has a positive relation with cultural distance. This higher premium offered is translated into smaller (abnormal) returns, which does not necessarily mean a worst performance of the deal. Moreover, this result is demonstrated to be stronger in Europe, when compared to other continents and in the industries of materials and financials.

Keywords: cross-border acquisitions, culture, premia

JEL-Classification: F23, F60, G30, G34, M14

Resumo

Nos últimos anos tem havido muito desenvolvimento no que diz respeito a identificar o que influencia o premio pago em operações transfronteiriças de M&A. Apesar disto, os resultados são muito controversos e há falta de informação em alguns dos determinantes, sendo a cultura um deles.

Esta dissertação procura estudar a relação entre a distância cultural e o prémio pago em aquisições ocorridas entre o período de 2000 e 2020, entre empresas de diferentes países, com uma vasta amostra de países representativos de todos os continentes.

Para realizar esta análise, a metodologia escolhida foi uma regressão usando o método OLS, com estimadores Newey-West, que relaciona as duas principais variáveis: prémio e distância cultural. Para melhorar a análise, foram adicionadas algumas variáveis para controlar outros determinantes do prémio.

O principal resultado é consistente com os resultados de outros estudos como Lim et al. (2016) and Chakrabarti et al. (2009): o prémio tem uma relação positiva com a distância cultural. Desta forma a empresa adquirente oferece prémios mais elevados para empresas alvo que estejam mais afastadas culturalmente e, consequentemente, os retornos esperados serão menores, não significando, contudo, uma pior performance da aquisição. Além disto, este resultado é também significativo quando controlado pelos efeitos fixos de indústrias e continentes. Neste seguimento, a relação positiva entre prémio e distância cultural ocorre principalmente nas indústrias de matérias e financeiras e no continente europeu.

Palavras-chave: aquisição transfronteiriça, cultura, prémio

Classificação JEL: F23, F60, G30, G34, M14

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1. Introduction

The long-term goal of most companies is to create value. Internationalization is a very important strategy to achieve this long-term purpose, as allow cost reductions, access to new technology, knowledge, lower costs related to distribution, better tax regulation, among others. In this segment, cross-border M&A is one of the tools that a company can use to pursue this goal. According to Dandapani, Hibbert, and Lawrence (2020), even for shareholders, cross-border M&A is positively perceived. These authors took into consideration the case of US firms, where shareholders attribute a premium of around 1% to the company when an international acquisition is made for the first time.

The US M&A wave, occurred before the world financial crisis, was strongly associated with cross-border deals. However, these types of mergers attach more and different concerns when having in mind domestic transactions. One of the most important determinants of success for these M&A deals, addressed by Chakrabarti et al. (2009) is culture. The literature that has been made about this topic concludes, most of the time, that cultural differences are one of the aspects pointed for ruining M&As. Nevertheless, the most recent works in this field, conclude that this is not always true. This cultural effect also depends on previous deals, geographical distance, and level of trust between the countries (Jha, Kim, & Gutierrez-Wirsching, 2019).

Moreover, Sonenshine and Reynolds (2014) highlighted the lack of work made related to what influences the value of cross-border mergers and, in particular, what determines why some cross-border mergers are expected to result in higher synergies when compared to others. Once the expected synergies are reflected in the premium paid and, in line with this and with what has been said before, my work will be focused on how these cultural differences affect the premium offered. Different measures of cultural difference will be used to analyze if cultural distance impacts the premium paid by acquirers.

The results achieved suggest that there is a positive relation between cultural distance and the premia paid. This study concludes that as more culturally apart are the firms included in the M&A deal, the higher the premia paid and, as a consequence, the lower the abnormal returns. This assumption remains even when controlling for other determinants of premia, and for industry and continent fixed effects. Furthermore, it is concluded that, when comparing continents, the main result has clearer evidence on the European and, when looking for industries, on the materials and financials industries.

After this Introduction, Chapter 2 will present the literature review, Chapter 3 introduces the methodology pursued, followed by Chapter 4 that will describe the sample definition and main characteristics, then Chapter 5 and 6 will provide the results achieved, and finally Chapter 7 concludes.

2. Literature Review

This section is divided into five subsections that narrow until achieving the literature that focuses specifically on the cultural distance impact on the premium paid in M&A. This way, subsection 2.1. is dedicated to mergers and acquisitions itself, the investors' perception of these deals and M&A waves. The next one, subsection 2.2., restrains the M&A theme to the influence culture plays in it. Knowing the role culture plays on it, subsection 2.3. is therefore about how we can measure cultural distance between countries. Subsection 2.4. refers to the thesis' main purpose, the influence of culture in the premium paid on M&A. Following subsection, 2.5., focus on other determinants that may affect premia, besides culture. Finally, the last subsection, 2.6., will conclude with the existent literature gap where this study is allocated.

2.1. Mergers and acquisitions (M&A)

Mergers and acquisitions can be defined as a global business strategy that enables firms to enter new potential markets or a new business area (M., Anuar, Khan, & Khan, 2014). Moreover, Stahl and Voigt (2008) enhance that M&A is a quicker and sometimes less risky form of doing it. In another perspective, it can also be defined as a form of foreign direct investment (Xu, 2017). This type of transaction gained a lot of importance for companies since the late nineties, what has been labelled as the fifth wave, strongly associated with multinationals and conglomerates. Later, is possible to see other peaks, one in the period before the world financial crisis, where the sixth US M&A wave phase occurred, that was related to cross-border deals; another in 2015. More recently, due to the untypical year 2020 was, is notable a decrease in the number of M&A deals worldwide.

In a world where the process of globalization is highly present, companies and markets become more closely integrated. Indeed, shareholders also perceive this important step for companies. In the case of investors of U.S. firms, they attach a premium of around 1% to the firm's initial effort to globalize via international acquisitions. ((Amewu & Alagidede, 2018); (Dandapani et al., 2020)) In this segment, cross-border M&A turns out to be a good decision for managers who want to internationalize their companies being, at this point, nearly 40% of M&A in general (Fresard, Hege, & Phillips, 2017). Moreover, having access to different markets brings cost advantages such as access to new technology and more knowledge, lower costs related to distribution, and better tax regulation.

Ferreira, Santos, de Almeida, and Reis (2014) affirm that mergers and acquisitions are the preferable types of strategies of multinational and bigger firms in the changing global markets. Even though cross border merger waves, like domestic merger waves, group by industry and time, these investments include additional uncertainty regarding the host country's cultural, legal, and business environment (Xu, 2017). That explains why, according to Xie, Reddy, and Liang (2017), the better the host country's institutional laws about financial markets, taxation, and corporate governance, the higher the number of internal acquisitions. On the subject of cross-border waves, the late entrants outperform those who enter earlier (Xu, 2017).

2.2. Cultural distance influence in M&A

One of the most important determinants of success for these M&A deals, addressed by Chakrabarti et al. (2009) is culture. The authors complement that it is even more important in the long run; on the other hand, Bauer, Matzler, and Wolf (2016) affirm the cultural differences are more noticeable in the integration phase, which means in a shorter term.

Thereby, culture becomes an important determinant to discuss and analyze when negotiating a cross-border merger or acquisition. Furthermore, Caputo, Ayoko, Amoo, and Menke (2019) developed a study that relates the negotiation style with cultural values and concluded that managers need to modify or adjust their negotiation styles to the different deals and cultures associated, a subject also emphasized by Popli, Akbar, Kumar, and Gaur (2016). Nevertheless, cultural differences seem to be neglected in the decision-making as identified by Weber and Tarba (2012).

In what concerns to the existing literature about the effects of culture on mergers and acquisitions, the results are solidly controversial ((Weber & Tarba, 2012); (D. J. Wang, Hain, Larimo, & Dao, 2020)), and commonly argued and criticized (Yildiz, 2014). A reason pointed out to justify these inconclusive results, by Bauer et al. (2016), is integration, more specifically the interaction and management of the different cultures. While according to some authors, culture can be a harmful factor on the performance of M&A ((Chakrabarti et al., 2009); (Bhaumik, Owolabi, and Pal (2018)), others may refute revealing it is a myth (Teerikangas & Very, 2006).

Both organizational and national culture influence cross-border M&A. Nonetheless, it is important to clarify that the notion of culture, in the case of this work, is related to national culture. Hofstede (1980) defined "national culture" as a concept that describes the 'shoulds' and the 'oughts' of life

that impregnate the minds of a country's citizens, their collective programming of the mind. As already approached, both national and organizational culture seems to be neglected during the M&A process, which results in a slower path to reach their most efficient stage (Teerikangas & Very, 2006). As a result, cross-border mergers are different from domestic ones once buyers and target firms are inserted in different cultural environments (Bauer et al., 2016). Still, and possibly because of the high awareness existent in cross-border deals to differences in national culture, organizational cultures can overcome the first effects and so, also needs to be taken into consideration (Teerikangas & Very, 2006).

Going back to the negotiation phase, Popli et al. (2016) focused on the Indian case and in the deals' abandonment induced by culture. The main conclusions rely on the positive relationship between cultural distance and leaving M&A deals. This decision can be avoided when the acquirer has more information about the target's culture. As already been said earlier, and due to the costs associated with the abandonment, managers should give extra attention in the negotiation phase to culture so that the phases that succeed in the deal are not harmed by this neglect.

Regarding the disparities existing between the short term and the long term, some conclusions can be retrieved in terms of culture. The most important that can be highlighted is that the negative impacts of this determinant are more relevant in the short term, for the target. That cannot be seen through the market reaction in the "announcement effect" and the announcement period returns (Chakrabarti et al., 2009). In the long term, the further away culturally, the better the performance (Xu, 2017). When analyzing the specific case of Chinese companies as acquirers, a positive return from 0.45% to 1.49% is possible to be identified (Boateng, Du, Bi, & Lodorfos, 2019). According to Li and Yang (2020) both short and long-term experience the same effect in terms of operating performance.

Jain, Pangarkar, Yuan, and Kumar (2019) pursue a study about the internationalization of emerging markets and its connection to cultural diversity. The main takeaway is that emerging markets have an opposite behave to the developed market multinational enterprises. Developed multinationals have a slower process of internationalization than emerging markets. Furthermore, DMNEs (developed market multinational enterprises) choose to expand to countries, in an initial stage, with less cultural differences to be easier to face the challenges an internationalization does. We can also see inverse conduct in the emerging markets in this subject, that prefer to invest in culturally distant countries, such as developed ones. Additionally, according to Boateng et al. (2019) these markets create value for the acquiring firms.

There are diverse factors that drive a company when deciding whether to follow a cross-border M&A to a closer or more distant company, in cultural terms. Trust is one of the most important determinants in this field (Jha et al., 2019). Companies that demonstrate higher trust between them can reduce the impacts of distance, unlike shorter cultural distance. Beyond that, these authors add to this statement the fact that the geographical distance effect is stronger than the cultural one. Other factors that Boateng et al. (2019) pointed out are the size of the acquirer firm, prior experience, and Tobin's q. This means that a big part of the uncertainty related to culture is endogenous to the company (Popli et al., 2016). Respecting the acquirer preferences, due to the higher costs inherent to an extra effort to match the companies insert in cross-border M&A and the higher possibility of things going wrong, Brock (2005) and Y. Wang and Larimo (2020) conclude they seek full ownership. In this context, Kim, Gaur, and Mukherjee (2020) also append the search for a lower share price.

Concentrating on the link between culture and the stock market, there have been some studies carrying out this subject. To begin, Xu (2017) advances that the stock price reaction after a cross-border deal is crucial once it is more probable that other firms pursue an M&A in the same country if the stock price movement of previous deals went favorable. In its turn, it is important to underline that the stock market behavior is similar between culturally close countries and so, this means that companies will prefer to direct their cross-border alliances with countries where they can more easily predict movements in the equity market (Zhou, Cui, Wu, & Wang, 2019). The authors explain that this happens because aspects such as investment psychology, response to information, and investment behavior reflect the national culture. On the other side, countries' cultural more disparate will bring higher transaction costs in obtaining information. Moreover, the article concludes that cultural distance has a higher impact on stock, than geographical distance.

2.3. How to measure cultural distance

One of the most important things to be defined in this study is how cultural distance can be measured. It is important to specify this to perceive which countries are closer or more apart, in terms of culture, and later apply that to the study. This subsection will thereby emphasize the literature that addresses this subject.

The most widely known author that refers to this topic is Hofstede (1980). In his study, the author created four dimensions that could be used as a criterion when defining cultural national distance: power distance, individualism, masculinity, and uncertainty avoidance. Later, the author added two

more dimensions to the previous ones: long term orientation, and indulgence. Power distance is related to the distribution of power in society and how people accept this distribution. Individualism is in opposition to collectivism and concerns how people relate to each other in their country. On its side, masculinity represents a more competitive nation than a feministic country, that is associated with cooperation and focus on the quality of life. Uncertainty avoidance measures, as its name says, how a country deals with uncertainty regarding the future and the risks it brings. Long-term orientation analyses how society is linked to its past; it can be more oriented to the future and willing to modernize or, on the other side, be more conservative and attached to the past. The last dimension examines if the country is more restrictive to the satisfaction of needs or if it is more open and permits basic and natural human drivers of happiness.

The dimensions presented above were used as a support to several more investigations. In fact, by itself, it is difficult to measure cultural distance using Hofstede's approach due to its qualitative instead of quantitative side. Nevertheless, Kogut and Singh (1988) developed an article that combines cultural distance with the selection of entry modes, and for that needed to define a variable that could reflect this distance. In this segment, the authors created a composite index that reflected numerically the primary four extents of Hofstede dimensions. This resulted in a weighted average of the squared differences of two countries for each dimension, corrected by the differences in the variance of each dimension. Although some studies criticize the way this index is computed, it is the one that better transforms the Hofstede's study in a numerical direction.

Moreover, Kaasa, Vadi, and Varblane (2016) arise to overcome the criticism related to the previous index. In this segment, the authors also use Hofstede (1980) as a reference for their study. This research extended the dimensions of cultural distance created by Hofstede by using the European Social Survey and in the European Values Study. The authors rely on some of the questions used in these surveys with each indicator, which made possible to have a wider view and better coverage when comparing to the older study. The index created turned out to be more precise and clearer when measuring cultural distance, once more detailed factors were considered.

On another perspective, House, Hanges, Javidan, Dorfman, and Gupta (2004) created a method to evaluate cultural distance, named GLOBE that stands for Global Leadership and Organizational Behavior Effectiveness. The aim of this project is to analyse the relation between social culture, social effectiveness, and organizational leadership. The first topic is the one that is more relevant in this case. Therefore, the researchers computed nine concepts that can be used to define culture: performance orientation, assertiveness in the relationship between individuals, future orientation,

human orientation, institutional collectivism, in-group collectivism, gender egalitarianism, power distance, and uncertainty avoidance. Despite some similarities with the Hofstede (1980) approach, House et al. (2004) added issues concerning gender discrimination and went deeper into the way people relate to each other through the collectivism concept.

2.4. Culture and the value creation

Acquisition premium, as defined by Hayes (2021) is equal to the difference between the estimated real value of a company and the actual price paid by the acquirer. This premium may also be negative, originating a discount. Thus, and substantial to this topic, this extra value paid is due to the believed synergies that may arise with the deal, which in turn are reflected in the value creation. For Xie et al. (2017), value creation is indeed the most important motive behind any M&A deal.

Boateng et al. (2019) summarize the effect of culture in the premia, for acquirers, as a negative influence on value creation for both short and long term. However, Chakrabarti et al. (2009), on the other hand, affirm that culturally distant deals can result in a positive impact for acquirers since they can have access to technologies, competencies, resources, and others that in other ways they wouldn't. To these advantages, Sonenshine and Reynolds (2014) add others such as cost advantages, access to new markets, regulatory, corporate, or tax differences when firms enter in cross-border mergers.

Despite the lack of consensus in whether cultural distance has a positive or negative impact in cross-border M&A premia, it can be deduced some factors that affect the perceived synergies when embedded in such kind of deals. Chakrabarti et al. (2009) support that firms realize more synergies when acquirers are in stronger economies than targets. According to the authors, this is justified because bidders can anticipate the possible culture clashes that may occur and prevent them. Another possible explanation for firms to pay higher premia is to get a higher control of the target firm, that following Sonenshine and Reynolds (2014) study becomes more important when the acquired firm is from an emerging market. This will lead to a higher offered premium in the case where the target is from an emerging market. Chkir, Dutta, and Hassan (2020), in this segment, realized that, even when targets are complex, the bidder firm also overestimates the synergies that may arise from the deal.

One of the criteria that can define cultural distance is the most physic one, geographical distance. Chkir et al. (2020) infer that geographical distance is related to lower acquirer abnormal returns and

higher premia. However, this premium has an overestimation implicit, that may be related to the lack of information derived from the existent barriers that result in a non-accurate valuation of the target.

In more detail, Lim et al. (2016) showed some evidence regarding the relationship between cultural distance and cross-border M&A premium in the United States. The main conclusion is that premium is not consistent and therefore, differs by acquirer origin. In the case of this country, an opposite outcome is recognized depending on if the US firm is the bidder or target. For the first case, premia are more negative than in the second one.

2.5. Other determinants of premia

According to Chakrabarti et al. (2009) acquirers pay a premium of between 20 to 30% of their total acquisition payment. Nevertheless, some authors ((Teerikangas & Very, 2006); (Weber & Tarba, 2012)) argue that sometimes the premia paid is seen as a negative sign because it destroys value for shareholders. In fact, Teerikangas and Very (2006) adds that acquirer's shareholders are the ones harmed by the overpayment of a target. Pricing is therefore, as Weber and Tarba (2012) agreed, an important step in a M&A process once the success of it depends on the consensus of both parties regarding this subject. As stated in the efficient markets' hypothesis the price of a company should reflect the present market value of its assets and the expected future cash flows (Weber & Tarba, 2012).

In addition to culture, there are other factors that affect the premia paid in a merger or acquisition. It is important to also analyse these other determinants once they are implicit in the premia that will be scrutinized and, to reach the objective to isolate the role of culture in it, the other elements need to be identified. Therefore, this section focuses on these other elements that further will be used as control variables. For that, the chapter will be divided in sub-chapters: 2.5.1. reflects macroeconomic factors, 2.5.2. determinants related to the deal characteristics, and 2.5.3. firms' specific characteristics that may affect the premia paid.

2.5.1. Macroeconomic determinants

Information asymmetry is a current issue when analysing and evaluating a firm which impacts the premia offered. On different articles we can see that R&D can potentialize this asymmetry (Chakrabarti et al., 2009) because of the increased costs and need to hedge, and the uncertainty that

it brings that can be differently perceived from acquirer to acquirer. Nonetheless, Weber and Tarba (2012) argues that R&D investment level is positively related to premia. The larger companies are more transparent and so, reduce the possible information asymmetries; on the smaller firms there is a need to pay to get the information (Xie et al., 2017). The lack of information may also lead to a payment in stock (Hansen, 1987), that can be refused when this lack of information is on the bidder side (Faccio & Masulis, 2005).

With cross border M&A political, and currency issues may arise and influence when it comes to the value offered in the deal. If the target country is known for being more corrupt, the premia will decrease (Weber & Tarba, 2012). Lower tariff rates and higher real effective exchange rates determine higher premia as it means lower costs for the acquirer if there is an appreciation of the bidder's country currency and higher purchasing power (Lim et al., 2016).

Regarding market-to-book ratio, acquirers where the market perceives a lower value for the firm when comparing to book values are overinvested and therefore pay higher premia especially on underinvested firms with the ability to grow. Teerikangas and Very (2006) and Faccio and Masulis (2005) completed that a high market-to-book ratio is related to high levels of deductible R&D expenditures, low current earnings and cash dividends.

2.5.2. Deal specific determinants

One of the most explored determinants of premia is the payment method, which depends on several characteristics associated with both firms and the deal itself (Faccio & Masulis, 2005). Weber and Tarba (2012) conclude that the cash payment is the less used method of payment, nevertheless, Sonenshine and Reynolds (2014) add that when it is the case of a majority of cash payment, the result is an increase in the premium paid. We can justify this once targets need to be compensated for the immediate tax implication that a cash transaction has (Bauer et al., 2016). Both targets and bidders benefit from this, gaining abnormal returns with it (Yildiz, 2014), on the other side stock harms shareholders' returns (Díaz, Azofra, & Gutiérrez, 2009). Relying on target firms' size, Bauer et al. (2016) and Salma and Hussain (2020) relate larger targets to being less likely to be acquired with cash, and smaller less likely with stocks. This happens because, to acquire a larger firm, a bigger amount of cash is needed and not all acquirers have the necessary liquidity to do it. However, bidders can apply for a loan to do it. Summing up, Faccio and Masulis (2005) describes this choice as a trade-off between equity and debt, that is highly influenced by the bidders' capital structure and facility in getting a loan.

On the competition side, a merger or acquisition can be classified as friendly or hostile. This also influences the premia paid in the deal, as higher premium is more related to hostile acquisitions that, in its turn, is more likely to occur in countries with better shareholder protection (Rossi & Volpin, 2004).

Concerning if the deal assumes an intra or inter industry acquisition, Teerikangas and Very (2006) argue that an acquirer won't pay more for a target in a different industry, because of the managerial and valuation issues that it can bring. Also, horizontal transactions in stagnate industries are associated with higher premiums due to a better resources allocation (Xie et al., 2017). The interest for intra-industry deals may also be justified by the positive perception of the market when deals occur between firms with some potential relatedness (Sonenshine & Reynolds, 2014). In terms of sectors, the technology-intensive ones are where the premia offered is the highest (Chakrabarti et al., 2009), and banks in high growth market environment (Weber & Tarba, 2012).

2.5.3. Firms' specific determinants

Following the trade-off problem presented about the payment choice, the debt level is also a crucial factor not only indirectly through the method of payment, but directly in the premia paid. The main conclusion on this is that the debt ratio is proportional to the premia paid, the higher the ratio the higher the premia (Weber & Tarba, 2012). Yildiz (2014) adds that a highly leveraged firm that has growth opportunities is an appealing target and even more if the company has high liquidity. Nevertheless, acquirers may also pursue low leveraged firms as they are less risky and in the case that the payment method assumes a loan request. The authors argue that their conclusions show the debt-to-equity ratio to be significantly relevant (and positive), in opposition to Modigliani and Miller propositions.

Focusing on the target size, smaller firms are considered to be more attractive and so they receive better premia than the larger ones, that have lower probability of overpayment (Bauer et al., 2016). Smaller firms have advantages like fewer share dilution (Yildiz, 2014) and quicker in adapting and gaining synergies. On the other side, larger firms foresee higher costs during the acquisition process, have reduced competition (which doesn't require higher premia), have more accurate valuations, but, at the same time, more uncertainty in the future which is transformed in extra costs in mitigating this. Officer (2003) even say that target size has three times more impact in the premia then the acquirer size. The greater the difference in size of both companies, the better synergies, efficiency, and economies of scale will work ((Díaz et al., 2009), (Gorton, Kahl, & Rosen, 2009)).

However, a bigger difference in size implies high level of asset duplication, reducing the premium paid (Lim et al., 2016).

2.6. Literature gap

Sonenshine and Reynolds (2014) addressed the lack of studies dedicated to what impacts cross-border mergers' premia, and related to this, why some end resulting in higher synergies than others. D. J. Wang et al. (2020) refer that the value creation and culture-performance relationship has not yet been taken into consideration in a lot of papers. Lim et al. (2016) add that a focus on all announced cross-border deals (completed and abandoned) is an interesting topic to a future approach in terms of the paid premium in culturally distant companies and in the success ratio of the deal.

This work will therefore try to answer how does culture influence the premium paid in cross-border M&A. In more detail, the following question will also guide the research: Does the premium paid by companies is affected by target and acquirers' countries cultural distance?

3. Methodology

The methodology presented in this chapter aims to answer the research question and conclude if the cultural distance may have an impact on the premia paid in cross-border acquisitions. Thereby, both the premia paid, and the cultural distance formulate the principal relation that is being studied. For all regressions, the premium is the dependent variable, defined as the difference between the price paid for the acquisition and its value, and measured as a percentage of the target's share price four weeks prior to the deal announcement, as in Alexandridis, Fuller, Terhaar, and Nickolaos (2013).

For that, and on a first approach, it was done an equation between the two variables of interest – cultural distance and premia, as in Lim et al. (2016).

$$premia_{i,j} = \alpha + \beta_1 CD_{i,j} + \varepsilon_{i,j} \quad (3.1.)$$

where $CD_{i,j}$ denotes the cultural distance between the acquirer i and the target j, and $\varepsilon_{i,j}$ the residual term.

In another perspective, the cultural distance was divided in its six dimensions:

$$premia_{i,j} = \alpha + \beta_1 Pow_{i,j} + \beta_2 Ind_{i,j} + \beta_3 Indul_{i,j} + \beta_4 Masc_{i,j} + \beta_5 Unc_{i,j} + \beta_1 Lt_{i,j} + \varepsilon_{i,j} \quad (3.2.)$$

where each independent term is one of the six dimensions between the acquirer i and the target j, and $\varepsilon_{i,j}$ the residual term.

As it can been seen, the main independent variable is cultural distance, measured through the Hofstede dimensions: six elements created by Hofstede (1980) that describe a country on a cultural level. To compute this variable, it was needed information concerning each country, where each dimension was assigned with a value from 0 to 100, depending on if they are countries (1) that don't accept the power to be unequally distributed or are prepared to be more hierarchically apart, (2) more interdependent working as a group or more individualist societies, (3) worried about the quality of life or more concerned with being the best and only achieve success, (4) less or more likely to avoid uncertainty situations, (5) with normative beliefs high connected to their past and traditions or more willing to innovate and oriented to the long term, and (6) more restrictive in the

education and more pessimist or more indulgent and feel freer in the gratification of their desires. All this levelling was found in Hofstede Insights[1].

This way, the variable was computed by using Chakrabarti et al. (2009) and, in its turn, Kogut and Singh (1988) as a reference:

$$Hofstede\ Dist = \frac{\sqrt{\sum_{i=1}^{6} (S_{A,i} - S_{T,i})^2}}{6} \quad (3.3.)$$

Where $S_{A,i}$ represents the dimension i of the acquirer and $S_{T,i}$ the same dimension for the target.

The final model is given by the following multivariate regression, where all the control variables are present, as well as the other variables that define cultural distance:

$$\begin{aligned} premia_{i,j} = \alpha + \beta_1 CD_{i,j} + \beta_2 Border_{i,j} + \beta_3 Log(Dist_{i,j}) + \beta_4 Lang_{i,j} \\ + \beta_5 Law_{i,j} + \beta_6 DE_j + \beta_7 Log(Pop_j) + \beta_8 RelSize_{i,j} \\ + \beta_9 Log(Size_j) + \beta_{10} Ind_{i,j} + \beta_{11} Cash_{i,j} + \varepsilon_{i,j} \end{aligned} \quad (3.4.)$$

where $CD_{i,j}$ denotes the countries cultural distance between the acquirer i and the target j, measured by both the global Hofstede measure and its dimensions, and $\varepsilon_{i,j}$ is the residual term.

Furthermore, culture is also defined through other determinants as referred by Lim et al. (2016). As a result, it was added geophysical variables in terms of culture: $Log(Dist_{i,j})$, which is the logarithm of the distance (in kilometers) between the capitals of i and j, by using the information available GeoBytes[2], and if the countries share a border or not (through a dummy - $Border_{i,j}$ - that takes a value of 1 if the countries share a border and 0 if otherwise). Besides, a dummy associated with if the countries speak or not the same language - $Lang_{i,j}$ - was added to reflect another element that affects cultural proximity (Boateng et al., 2019; Chakrabarti et al., 2009; Lim et al., 2016; Sonenshine & Reynolds, 2014) that is equal to 1 in the case of the countries speaking the same language and 0 if not. Still concerning the variables used to define culture is a legal dummy that is equal to 1 when both countries follow the same line of rationale in terms of political and legal norms and 0 if they don't, following La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) study, $Law_{i,j}$. According to the authors, there are two main types of laws: common and civil. This

[1] Available in www.hofstede-insights.com/country-comparison/

[2] Available in geobytes.com/citydistancetool/

last can be discriminated from its origin being French, Scandinavian, or Germanic however in this study this distinction will not be made.

As seen in different literature related to determinants of premia in M&A in section 2.5. Other determinants of premia, there are a lot more variables that could be inserted in the regression. To control for those variables' possible effects, some of them were included in this multivariate regression.

Regarding deal specific variables are $Cash_{i,j}$, a dummy that equals 1 when the transaction was made using only cash (Chakrabarti et al., 2009); relative size of target, $RelSize_{i,j}$, calculated through the ratio of their assets as according to Salma and Hussain (2020) – however both sales (Popli et al., 2016) and market value (Díaz et al., 2009) could also be a possibility; and industry relatedness through a dummy , $Ind_{i,j}$also, that takes the value of 1 if both firms belong to the same industry, and 0 otherwise (Chakrabarti et al., 2009).

On the target specific characteristics are the debt-to-equity ratio (DE_j) (Tarabay & Hammoud, 2018), measured by the ratio between the target's debt and market capitalization, $Log(Size_j)$ that determines the target's size through its market capitalization in respect to the sample median size in respect to the median of the sample (Alexandridis et al., 2013), and the logarithm of the population of the target j in millions ($Log(Pop_j)$) that, according to Sonenshine and Reynolds (2014), companies located in larger markets are more attractive in terms of gains and the authors assert that population is a good proxy for the market size.

Besides, it was also included fixed effects for target's industries and location in terms of continents.

4. Sample and Descriptive Statistics

4.1. Sample

The sample of cross border acquisitions was retrieved from Thomson Reuters Eikon database. All deals should be completed and between two public companies from different countries (cross-border deals). It was established a minimum of 20% of shares acquired to avoid small shares acquisitions. Besides, all deals with lack of information regarding the premium paid and other determinants (further detailed) were also excluded from the sample. Deals with at least one of the countries (acquirer or target) assumed as a fiscal paradise by PWC Fiscal Guide for 2021 [3]were not considered to avoid shell operations[4] (Chakrabarti et al., 2009).

It was achieved a total of 229 deals within a temporal window of 20 years from January 1st, 2000, to 31st of December 2020, from 45 different countries, distributed as in Annex 1.

4.2. Descriptive statistics

The variable premium (percentage of actual price paid by the acquirer to the estimated real value of a company) was extracted from Eikon, as a percentage to the target's closing on the four weeks prior to the deal in order to prevent stock price changes related to leakages and acquisition rumours.

As it can be seen in Table 1, that describes in more detail the dependent variable, most of the deals were paid at a premium, as only 20.52% of the 229 stake purchases payments were below the target's share price. Notably, 2 of the acquirers paid the same value for each share as it was priced in the market. The average premium paid in this sample is around +26.36% of the target share price.

[3] Available in www.pwc.pt/pt/pwcinforfisco/guia-fiscal/2021/paraisos-fiscais.html

[4] Which includes Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Faroe Islands, Gibraltar, Guernsey, Hong Kong, Isle of Man Jersey, Jordan, Kuwait, Lebanon, Mauritius, Oman, Qatar, Samoa, Turks and Caicos Islands, United Arab Emirates

TABLE 1 - Premia distribution

This table presents the premia distribution in terms of sign (positive, null or negative) for the 229 deals between 2000 and 2020.

Premia	Mean	N	N (%)
Positive	38.56	180	78.60
Negative	-19.26	47	20.52
Null	0	2	0.87
Total	26.36	229	100

In more detail, Table 2 presents the descriptive statistics of the whole sample.

TABLE 2 - Descriptive statistics for whole sample

This table presents the descriptive statistics for the whole sample, regarding all variables, in terms of mean, median, minimum and maximum, and standard deviation.

	Mean	Median	Minimum	Maximum	Std. Dev
Premia (%)	26.36	20.61	-98.67	266.23	43.42
Cultural Distance	10.68	10.95	1.34	20.26	4.55
Border (%)	17.90				
Distance (thousand km)	5.39	5.32	0.17	16.99	4.50
Language (%)	18.78				
Law (%)	49.7				
Debt to Equity	342.95	0.94	0.00	22058.73	2184.34
Population (in millions)	203.67	51.78	0.61	1400	386.40
Relative Size	1.14	0.06	0.00	144.71	9.75
Target Size	20.58	1.00	0.00	867.34	79.80
Industry (%)	48.91				
Cash (%)	92.57				

On the side of the independent variable – cultural distance – the only deal that included a company from Cyprus was excluded from the sample as no information for the six dimensions was found. In addition, Israel and Sri Lanka had also no information about the sixth dimension (Indulgence)

so, in the cases where these countries were being considered, only the other five dimensions were part of the comparison.

The cultural distance index ranges from 1.34 to 20.26 where the culturally closer countries are Australia and United States (1.34), Norway and Iceland (2.78), and Canada and United States (3.01). The more culturally apart pairs demonstrate the highest values for the Hofstede distance - United States and South Korea (20.26), China and Australia (19.50) and South Korea and United Kingdom (18.93).

Scrutinizing the cultural distance through a geophysical perspective, most of the countries (82.10%, to be more precisely) don't share a bord. This mean gives a sign that the distance between capitals must be high. In fact, the distance observed between the pairs' country capitals in each deal arises an average of 5.39 thousand km (like the distance between Canada and United Kingdom).

Relatively to the other two dummies, language and law, the statistics show that there's a bigger discrepancy in language then in law. This means that the sample gathers much more different languages, and most of the deals are between countries that speak different languages. In fact, as La Porta et al. (1998) only defines two possible laws to pursue, this variable demonstrates almost half of the deals following the same type of law in their countries.

Converging to the capital structure, is another determinant to define the indebtedness of the target athwart the debt-to-equity ratio. The ratio was calculated using the target's total liabilities in the past 12 months before the deal, and for equity the target high share price in the 12 months before multiplied by the number of shares outstanding 1 year before. The data concludes that companies are largely financed by debt, when observing the mean, debt is more than three hundred times the value of equity. Nevertheless, in this variable case, the median presents a more accurate value once there is a large standard deviation, and outliers. Therefore, through median, the conclusion is the opposite – firms are mainly financed through equity.

For the variable population, the information needed was retrieved from Trading Economics[5]. It reveals an average of 203.67 million people per country, nonetheless, China and India are two big outliers with 1412 million and 1300 million people respectively, once the third country with the biggest population is the United States with less 1000 million people than the second one. On the other side, there are seven countries with less than 5 million people. This disparity is observable

[5] Available in tradingeconomics.com/country-list/population.

through the standard deviation of 386.40 million. In this case, the median gives a more accurate value of 51.78 million people per country.

About the variables concerned to the firm's characteristics, the relative size between acquirer and target and the target size were considered. The relative size between the firms involved in the deal was computed using the value of their assets (available in Eikon). Acquirers tend to be bigger than the targets, which is reflected in the value of the ratio. Still, there are 23 targets bigger than the acquirers. The target size, on its side, is compared, via its asset (or sales) value, with the median of all targets, as addressed by Bauer et al. (2016).

Throughout Eikon, it was possible to know the macro and mid industry for both acquirer and target. Thus, it was constructed a dummy variable that takes the value of 1 if both acquirer and target belong to the same mid industry and 0 if they do not. Most of the deals (51.09%) are inter-industry, however the difference is not significant. On the intra-industry side, most of the deals are in the materials industry of metals and mining. Moreover, it can also be added that this industry is the most requested as well as the one with more acquisitions. On the opposite side, companies included in the energy and power industry, especially on the oil and gas, have the most acquisitions present in this sample with companies from other industries, which means, giving this sample, this is the industry with a more diversified approach.

The method of payment, as referred to in the literature, is one of the most impacting variables on the premia paid. Consequently, via Eikon, it was possible to know the type of payment offered by the acquirer in its final offer. For the deals where Eikon had no evidence on this topic, it was used Zephyr or the deal was excluded if also this platform had no information. Relying on this sample, different methods were used such as cash, stock, debt, a mix of cash and stock, or cash and liabilities. Nonetheless, for this study, the dummy variable assumes the value of 1 if the payment is only cash, and 0 otherwise. This happens because all cash payments lead to an increased premium, which the dummy will assume. In this sample, 92.57% of the acquisitions were made through cash.

Through Table 2, more specifically on the standard deviation column, besides the variables already changed to their logarithms, as specified already in the methodology section, there are others that have big outliers. As so, variables consisted in ratios (Target Debt to Equity and Relative Size) were winsorized at the 1st and 99th percentiles.

Table 3 displays the descriptive statistics for sub-samples related to the cultural distance: above and below median (10.95). The results observed in the dependent variable (premia) demonstrate a

significant difference between samples, as observable through the equality tests. In average, firms located in firms more culturally apart tend to pay higher premia in M&A transactions. Regarding the other independent variables, the results suggest there are some differences in mean as well as median, in the equality tests.

TABLE 3 - Descriptive statistics for sub-samples: low cultural distance and high cultural distance

This table presents the descriptive statistics for the low and high cultural distance samples, for all variables defined in the previous chapter. Low cultural distance represents cultural distance below the median (10.95) and high cultural distance the ones above the median. The descriptive statistics presented are mean, median, and number of observations (N). Equality tests were performed to every variable for both sub-samples. For the difference in means it was performed T-tests, and for the difference in medians the Wilcoxon rank-sum (Mann-Whitney) tests. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

	Low cultural distance			High cultural distance			Equality Tests	
	Mean	Median	N	Mean	Median	N	Mean	Median
Premia (%)	21.21	12.37	114	31.46	23.95	115	-1.80*	2.18**
Border (%)	34		114	17.39		115	7.04***	
Distance (thousand km)	4.30	1.81	114	6.48	6.71	115	-3.78***	5.22***
Language (%)	35.96		114	1.74		115	7.34***	
Law (%)	57.02		114	42.61		115	2.19**	
Debt to Equity	460.55	0.81	114	226.37	1.14	115	0.81	1.98**
Population (in millions)	115.49	51.78	114	291.08	60.36	115	3.52***	0.92
Relative Size	0.6150	0.07	114	1.67	0.06	115	-0.82	0.18
Target Size	22.55	1.29	114	18.63	0.79	115	0.37	1.16
Industry (%)	48.25		114	49.57		115	-0.20	
Cash (%)	88.60		114	96.52		115	-2.30**	

5. Empirical Results

This section presents the results following the methodology defined in section 3, with the intent to perceive the role of culture in the premia paid in M&A deals. The model presented previously in section 3 was regressed using Newey-West estimators to control for heteroscedasticity.

Through table 4 is possible to see relevant statistics about the premia, on the different sub-samples already defined through high and low cultural distance. This table describes the means, medians, standard deviation, and number of observations (N) for each sub-sample, as well as the equality tests.

TABLE 4 - Summary statistics for premia for sub-samples

This table summarizes the mean, median, standard deviation, and number of observations (N) for the premia paid for sub-samples: low and high cultural distance according to if this distance is lower or higher than 10.95, respectively. Equality tests were performed to every variable for both sub-samples. For the difference in means it was performed T-tests, and for the difference in medians the Wilcoxon rank-sum (Mann-Whitney) tests. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

	Low Cultural Distance				**High Cultural Distance**				**Equality Tests**	
	Mean	Median	Std. dev.	N	Mean	Median	Std. dev.	N	Mean	Median
Premia	21.21	12.37	33.46	114	31.47	23.95	51.07	115	-1.80*	2.18**

The first conclusion that can be retrieved is the higher premia mean for high cultural distance sample, suggesting higher percentage of premia paid between companies located in countries with high cultural distance. In fact, this difference is even more relevant when observing the medians of both sub-samples, as seen through the equality tests. However, high culturally distance firms demonstrate a bigger disparity in the premia paid, and wider values.

Regarding the relation between culture and premia, the first equation presented in chapter 3 (3.1.) was performed for the whole sample, and for the two sub-samples already defined through the cultural distance. The results for the three samples are presented in table 5.

TABLE 5 - Premia and cultural distance analysis, using regression (3.1.)

This table reports the results for the performance of the first equation using the full sample (model I) and the sub-samples defined through the cultural distance: model II corresponds to the low cultural distance, and model III to the high cultural distance. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

Independent variables	**Dependent variable: Premia**		
	I	**II:** low cultural_distance	**III:** high cultural_distance
Intercept	16.67**	38.77***	1.91
CD	1.84***	-0.76	2.87
CD*Dum_neg	-5.04***	-46.81***	-76.37***
Observations	229	114	115
Adjusted R-squared	0.2757	0.3673	0.2668

For the full sample, the main result obtained is that, as higher the cultural distance between two companies from different countries, the higher the premia paid for an acquisition. Nevertheless, the variable used to define cultural distance is not statistically significant for the two other sub-samples. For lower cultural distances the intercept demonstrates the same conclusion as for the full sample: bigger premia for companies from countries more culturally apart.

The previous regression was similarly produced by disaggregating the cultural distance variable into its six dimensions – first with an individual approach (one dimension at a time), and then considering all dimensions at once, as in Lim et al. (2016). For that, each dimension was calculated as the absolute difference between the target and acquiror score, similarly to what has been done in equation (3.2.).

Table 6 resumes the results achieved with this disaggregated model. As stated by Lim et al. (2016), the aggregation of all dimensions of culture in one measure is an "invalid assumption of equivalence". As so, it can be seen some relevant differences between the six dimensions of culture when the regression is performed with each one, and when associates all of them individually or in an index (Table 6). Moreover, as in the first model, a dummy for negative premia was added to control for this difference.

TABLE 6 - Cultural distance disaggregation: Results for regression (3.2.)

This table reports the results for the performance of the equation (3.2.), where cultural distance is disaggregated through its six dimensions, using the full sample. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

Independent variable	Dependent variable: Premia						
	I	**II**	**III**	**IV**	**V**	**VI**	**VII**
Intercept	26.66***	19.23***	27.36***	24.60***	21.96***	20.76***	17.23**
Pow	0.33**						-0.25
Pow*Dum_neg	-2.12***						-0.16
Indv		0.65***					0.46**
Indv*Dum_neg		-1.70***					-0.72**
Masc			0.29*				0.05
Masc*Dum_neg			-1.78***				-0.55**
Unc				0.38**			0.12
Unc*Dum_neg				-1.68***			-0.16
LT					0.48***		0.17
LT *Dum_neg					-1.60***		-0.57**
Indul						0.72***	0.33
Indul*Dum_neg						-2.22***	-0.23
Observations	229	229	229	229	229	229	229
Adjusted R-squared	0.1748	0.2538	0.1689	0.1898	0.2181	0.2065	0.2732

All dimensions reveal a positive relation with premia, meaning, as already seen previously, bigger cultural differences lead to bigger premia. The main results when computing a regression with all dimensions are in line with Lim et al. (2016), and, therefore, in line with the conclusions of Hofstede (2001) who stated that the aggregation of all dimensions assuming an equivalent weight for each dimension ignores the reality that some of these may have a bigger impact than others, depending on the context.

Still, individualism is the only dimension with a significant contribution in model VII, maintaining the positive relation with premia as concluded above. Towards two companies from two countries that differ between a culture focused on the individualism and another that follows a more collective way of living, the premia paid is expected to be higher.

Expanding the univariate equation (3.1.) (between culture and premia) by adding the other culture explanatory variables: distance in kilometers between acquiror and target's country

capitals, and dummies for border, language, and law, it was perceivable in more detail the influence of culture in premia. However, the variable of distance (km) was correlated with border dummy (Annex 2), as it was expected. Because of this, when both are present in the regression, they lost their significance, so border dummy was excluded.

For the final regression, with control variables included, as presented in equation (3.4.), an additional model was performed to control for industrial and continent fixed effects. Table 7 includes the results for the previous three models presented.

TABLE 7 - Results for the performance of regression (3.4.)

This table reports the results for the performance of the equation (3.4.), using the full sample. Model I reveals the results only using cultural specific control variables, and Models II and III using all variables defined. The difference between these two models lies on the inclusion of industry and continent fixed effects, only model III considering it. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

Independent variables	Dependent variable: Premia		
	I	II	III
Intercept	-35.96**	-39.49*	-25.53
CD	2.18***	2.43***	2.50***
Dum_neg*CD	-5.22***	-4.95***	-4.94***
Log(Dist)	5.18**	4.36**	4.39
Lang	10.83*	15.77**	13.11*
Law	10.94**	9.57**	9.10*
Cash		-9.09	-5.46
DE		0.002*	0.002*
Ind		9.60**	12.87***
Log(Pop)		1.85	3.81*
RelSize		3.34	3.32
Log(Size)		-1.34*	-2.01**
Industry effects	Not included	Not included	Included
Continent effects	Not included	Not included	Included
Observations	229	229	229
Adjusted R-squared	0.3063	0.3544	0.3484

The main variable of interest, cultural distance, assumes the same behaviour in all three models, which are in line with the conclusions achieved before. Firms located in countries more culturally apart demonstrate a higher premium paid than those who have more cultural similarities. In fact, for all regressions present in table 7, the results regarding this variable are very identical in terms of sign, magnitude, and significance. On the fixed effects side (model III), it can be concluded that, ceteris paribus, if the Hofstede distance defined in equation (3.3.) increases by one, the premia paid (in percentage of the target's value) is 2.5 percentual points higher.

Concerning other culturally specific variables, it is perceivable that physical distance increases the premia paid, however when controlling for industry and continent fixed effects this variable losses its significance, meaning cross-continent deals have more impact than acquisitions between firms from the same continent, on the premia paid. This conclusion is in line with Chkir et al. (2020), as geographical diversity leads to an overestimation of the possible synergies and, as a result, increases the premia. Nevertheless, on the other side, if the two companies are in countries that follow the same law, or speak the same language, there is an increase in premia. Overall, when analysing the different models, these control variables have slight changes in terms of magnitude and significance, although always maintaining the same sign.

The other control variables included in models II and III are, generally, consistent in terms of sign, magnitude, and significance.

Going deeper into detail, the target size, measured through the relation between target's equity and the median of all sample, is negatively related to premia. An increase by one percentual point to the target size in respect to the sample's median leads to an increase of 0.13 ($e^{-2.01}$) percentual points of the premia, almost zero. This result is consistent with Bauer et al. (2016) that found larger targets tend to be subject of lower premia, and the probability of overpayment is lower. In its turn, Simonyan (2014) argues that larger targets are better managed, have more power and are more difficult to acquire hence, have lower expected returns. On the other hand, a larger acquiror (higher relative size) is willing to pay higher premia for its target as the impact on the bidder's company will be small.

Observing the population of the target (used as a proxy of the target's market size) variable, the relation with premia is positive, as according to Sonenshine and Reynolds (2014), firms located in bigger market may produce bigger profits for their acquirers. These results suggest that an increase of one million in the target's population leads to an increase of 45.15 ($e^{3.81}$) percentual points on the premia paid.

Relatedness, assessed through Industry dummy, is also significant at a 1% significance level. In this case if both companies operate in the same industry the premia tend to rise. Xie et al. (2017) comments intra-industry deals have higher premia, and Teerikangas and Very (2006) clarifies that higher premium will not be paid if the target work in different industries, which confirms the results achieved.

6. Possible asymmetric effects

This section provides the results based on the methodology defined in the third section, but with different samples than the one in the previous chapter. The intent is to conclude if the target's industry or location may redefine the conclusions achieved before, mainly on the cultural variable power in explaining the premia paid. As in the global view, it was used Newey-West estimators to provide heteroskedasticity and autocorrelation corrections, for both the univariate and final regressions.

This chapter was added in the research once some authors argue the lack of studies regarding the industry segments effect impact on the relation between culture and premia (Sonenshine & Reynolds, 2014) and, additionally, because the cultural distance also depends on who performs the evaluation and so, same cultural distance value may have a different impact depending on who is the target and who is the acquirer, as stated by Lim et al. (2016).

6.1. Target's industry effect

First possible impact investigated was the target's industry, due to the possibility of culture having a bigger impact on some industries than others, when analysing the premia paid.

It was constructed as many samples as existing industries on the target side: telecommunications, retail, real estate, media, financials, consumer products and services, materials, energy and power, consumer staples, industrials, high technology, and healthcare. Nonetheless, some industries had a reduced number of observations, which made the results not as reliable, and in some cases, it wasn't even possible to estimate equation (3.4.). As so, these tests will only be performed in the following industries: materials, financials, industrials, energy and power, high technology, and healthcare.

Table 8 presents the output obtained when performing equations 3.1. and 3.4. for these industry sub-samples.

TABLE 8 - Results for sub-samples defined through target's industries

This table reports the results for the performance of the equation (3.1.) and equation (3.4.), using the sub-samples according to the target's industry: materials, financials, industrials, energy and power, high technology, and healthcare. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

Independent variables	Dependent variable: Premia											
	I: Materials		II: Financials		III: Industrials		IV: Energy		V: High Tech		VI: Healthcare	
Intercept	18.52*	-129.87*	23.53	3.58	18.12*	-55.26	7.92	-48.14	24.47	-67.30	34.12	-54.03
CD	2.37**	5.76***	0.95	3.28**	1.68**	2.72	1.63	2.51	1.71	1.68	-0.02	1.39
Dum_neg*CD	-6.44***	-5.89***	-4.84***	-3.97***	-3.96***	-2.74**	-3.72***	-5.40*	-5.61***	-6.42	-4.94**	-6.06
Log(Dist)		4.52		0.50		1.31		-19.23		16.02		-1.46
Lang		34.33***		48.02*		24.87		-81.67		66.41		
Law		17.93		4.21		12.42		-18.50		-34.27		-6.73
Cash		22.26		-50.13**		21.97				-110.67		
DE		0.03*		0.00		0.09*		3.43		0.00		-3.97
Ind		29.75**		29.82*		2.41		-90.77		-3.47		42.74*
Log(Pop)		2.33		3.40		2.58		44.64		45.23		13.32
RelSize		-2.47		5.28		15.65		35.60		-7.01		24.70
Log(Size)		-0.97		-4.51***		4.91		50.01				-9.01**
Observations	50	50	39	39	27	27	13	13	20	20	16	16
Adjusted R-squared	0.2136	0.2420	0.3308	0.4388	0.2130	0.1666	0.3587	0.8751	0.1623	0.3561	0.3688	0.4545

Observing equation (3.1.) recalculation with these sub-samples, materials and financials industries have the bigger number of observations, meaning these two sub-samples are more reliable. Energy and power and healthcare industries do not include Cash dummy in the final regression as all the observations included were paid in cash (dummy=1). Moreover, healthcare industry regression does not include Language dummy, as all companies by deal speak the same (dummy=1).

The cultural distance variable presents different results according to the industry observed. For materials and financials industries, the variable, as in the overall results, has a positive impact on premia paid. When comparing these two industries, it can be concluded that the materials industry is much more sensitive to the cultural distance factor than the financials.

Nonetheless, CD has a much higher magnitude on the premia paid, comparing to when performing the same regression for the full sample. For the other sub-samples, the main variable of interest hasn't even significance and so, no conclusion can be retrieved.

Regarding the other control variables, the one with statistical significance are in line with the results from the previous chapter, in terms of sign. Even so, in terms of magnitude, there's a higher impact of these variables in these sub-samples than when considering the full sample.

Overall, the main conclusions remain stable, even controlling by the asymmetries industries could bring, excluding the already mentioned magnitude of some control variables.

6.2. Target Continent Effect

The same tests were made by dividing the main sample of 229 deals into three subsamples according to the target's location. Each subsample represents the observations in which the target is located whether in Europe, America, or Asia. The remaining observations, from Africa or Oceania were not included as they were insufficient to create two distinct samples.

It was added a dummy for when acquirors and targets are located in the same continent (Dum_cont), as when looking for target industry effect there is the industry dummy.

Table 9 shows the results, as for the industries sub-samples, for the performance of equation 3.1. and 3.4., for sub-samples divided corresponding to the target's continent.

TABLE 9 - Results for sub-samples defined through target's continentes

This table reports the results for the performance of the equation (3.1.) and equation (3.4.), using the sub-samples according to the target's continent: Europe, Asia, and America. ***, **, and * refer to statistical significance at 1%, 5%, and 10%, respectively.

Independent variables	Dependent variable: Premia					
	I: Europe		II: Asia		III: America	
Intercept	-4.05	-7.46	32.58***	-79.90	25.45***	-109.32*
CD	3.43*	2.97***	0.51	-1.72	1.56	2.14
Dum_neg*CD	-4.17	-3.47***	-5.66***	-4.94***	-5.10***	-4.33***
Log(Dist)		0.88		15.69**		6.78
Lang		12.78				24.53
Law		-5.69		-5.70		-4.20
Cash		-16.63				13.74
DE		0.50***		0.00		0.02*
Ind		2.13		14.35		16.35
Log(Pop)		4.64*		-0.44		8.14
RelSize		10.39*		-0.79		0.25***
Log(Size)		-1.75		-2.57*		-1.12
Dum_cont		-7.43		-1.81		4.19
Observations	76	76	80	80	55	55
Adjusted R-squared	0.2155	0.4031	0.3201	0.4102	0.2937	0.3165

Observing cultural distance variable, only the European targets show statistical significance at a 1% level. As so, both sign and magnitude represented are in line with the full sample results, and others. Intriguingly, the intercept for the other continents (Asia and America) is much higher and has a bigger impact on the regression and even oddly, for the first column of the American targets, the sign is, in opposition to the previous results, negative.

On the side of the control variables, there are very few with statistical significance. However, with magnitudes similar to the overall sample. In more detail, the difference in size between target and acquiror, measured by the Relative Size variable, seems to be more important in European targets due to its bigger coefficient when compared to American targets.

Regarding the main variable of interest, the conclusions achieved are the same as for the other samples, meaning there is a consistency in the results obtained.

7. Conclusion

When looking through the determinants of premia in a M&A deal there are several studies that focus on different factors, and a lot of research has been done in this field, however sometimes the conclusions can be opposite depending on the authors and methodologies. Previous literature demonstrates the lack of consensus in what concerns the impact that national culture has in the premia paid on an M&A transaction. Moreover, there are still few studies focusing on this relation. Nevertheless, culture is one of the most important elements on the performance of a deal between two companies from different countries (Chakrabarti et al., 2009). As described in chapter 2. Literature Review, some authors argue this is the most harmful factor in an acquisition in terms of value creation and, on the other side, other defend there's a positive relation between cultural distance and premia paid, which leads to a positive value creation for shareholders.

This dissertation had therefore the intent to study the cultural distance influence on cross border M&A premia, by answering the main research question: Does the premium paid by companies is affected by target and acquirers' countries cultural distance? And if yes, how does it impact?

The methodology pursued followed an OLS regression, where the dependent variable was the premia paid and the main variable of interest the cultural distance, measured through the six Hofstede dimensions. Newey-West estimators were used to control for heteroscedasticity. There were also some control variables defined with the help of the literature regarding other determinants that can affect the premia paid, besides culture.

The main results achieved are that there is a positive relation between premia and cultural distance that remain even after controlling for the other determinants of premia and for industry and continent fixed effects. These results are in line with Chakrabarti et al. (2009), one of the articles more relied in this dissertation.

Moreover, the re-performance of the methodology to sub-samples related to industries and continents, as suggested by Lim et al. (2016) and Sonenshine and Reynolds (2014) concluded that this positive relation is stronger on the materials and financials industries, and on the other side, on the European continent.

There are some limitations that can be overcome in future investigations such as the low representative deals for the second analysis by industry and by continent, which doesn't make as reliable conclusions. In addition, there are other factors that could be added for control purposes, for example the exchange rate risk.

For further studies it can also be recommended to go deeper in the continent analysis, by doing the same analysis for common pairs of countries, or how the culture may affect the effectiveness of a deal – by comparing deals that have been completed and deals that weren't performed at the end.

8. Bibliography

Alexandridis, G., Fuller, K. P., Terhaar, L., & Nickolaos, G. T. (2013). Deal size, acquisition premia and shareholder gains. *Journal of Corporate Finance, 20*, 1-13.

Amewu, G., & Alagidede, P. (2018). Do mergers and acquisitions announcements create value for acquirer shareholders in Africa. *International Journal of Finance & Economics, 23*(4), 606-627. doi:10.1002/ijfe.1639

Bauer, F., Matzler, K., & Wolf, S. (2016). M&A and innovation: The role of integration and cultural differences A central European targets perspective. *International Business Review, 25*(1), 76-86. doi:10.1016/j.ibusrev.2014.07.010

Bhaumik, S. K., Owolabi, O., & Pal, S. (2018). Private information, institutional distance, and the failure of cross-border acquisitions: Evidence from the banking sector in Central and Eastern Europe. *Journal of World Business, 53*(4), 504-513. Retrieved from <Go to ISI>://WOS:000434745700007

Boateng, A., Du, M., Bi, X. G., & 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. doi:10.1016/j.irfa.2018.12.009

Brock, D. M. (2005). Multinational acquisition integration: the role of national culture in creating synergies. *International Business Review, 14*(3), 269-288. Retrieved from <Go to ISI>://WOS:000235833700002

Caputo, A., Ayoko, O. B., Amoo, N., & Menke, C. (2019). The relationship between cultural values, cultural intelligence and negotiation styles. *Journal of Business Research, 99*, 23-36. doi:10.1016/j.jbusres.2019.02.011

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. doi:10.1057/jibs.2008.58

Chkir, I., Dutta, S., & Hassan, B. E. (2020). Does target geographical complexity impact acquisition performance. *Finance Research Letters, 33*. doi:UNSP 10119610.1016/j.frl.2019.05.014

Dandapani, K., Hibbert, A. M., & Lawrence, E. R. (2020). The Shareholder's response to a firm's first international acquisition. *Journal of Banking & Finance, 118*. doi:ARTN 10585210.1016/j.jbankfin.2020.105852

Díaz, K., Azofra, S., & Gutiérrez, C. (2009). Are M&A Premiums Too High? Analysis of a Quadratic Relationship between Premiums and Returns. *Quarterly Journal of Finance and Accounting, 48*(3), 5-21.

Faccio, M., & Masulis, R. W. (2005). The choice of payment method in European mergers and acquisitions. *Journal of Finance, 60*(3), 1345-1388. Retrieved from <Go to ISI>://WOS:000228751000009

Ferreira, M. P., Santos, J. C., de Almeida, M. I. R., & Reis, N. R. (2014). Mergers & acquisitions research: A bibliometric study of top strategy and international business journals, 1980-2010. *Journal of Business Research, 67*(12), 2550-2558. doi:10.1016/j.jbusres.2014.03.015

Fresard, L., Hege, U., & Phillips, G. (2017). Extending Industry Specialization through Cross-Border Acquisitions. *Review of Financial Studies, 30*(5), 1539-1582. Retrieved from <Go to ISI>://WOS:000400899900004

Geobytes - Distance Calculator. Retrieved from https://geobytes.com/citydistancetool/

Gorton, G., Kahl, M., & Rosen, R. J. (2009). Eat or Be Eaten: A Theory of Mergers and Firm Size. *The Journal of Finance, 64*(3).

Hansen, R. G. (1987). A Theory for the Choice of Exchange Medium in Mergers and Acquisitions. *Journal of Business, 60*(1), 75-95. Retrieved from <Go to ISI>://WOS:A1987F669800004

Hayes, A. (2021). What is a Risk Premium. Retrieved from https://www.investopedia.com/terms/r/riskpremium.asp

Hofstede, G. (1980). *Culture's Consequences. International differences in Work-Related Values.* (Vol. 5): Sage Publications.

Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations* (2nd ed.). Thousand Oaks, CA: Sage.

Hofstede Insights - Country Comparision. (2021). Retrieved from https://www.hofstede-insights.com/country-comparison/

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*: Sage publications.

Jain, N. K., Pangarkar, N., Yuan, L., & Kumar, V. (2019). Rapid internationalization of emerging market firms-The role of geographic diversity and added cultural distance. *International Business Review, 28*(6). doi:ARTN 10159010.1016/j.ibusrev.2019.101590

Jha, A., Kim, Y., & Gutierrez-Wirsching, S. (2019). Formation of cross-border corporate strategic alliances: The roles of trust and cultural, institutional, and geographical distances. *Journal of Behavioral and Experimental Finance, 21*, 22-38. doi:10.1016/j.jbef.2018.10.003

Kaasa, A., Vadi, M., & Varblane, U. (2016). A new dataset of cultural distances for European countries and regions. *Research in International Business and Finance, 37*, 231-241. Retrieved from <Go to ISI>://WOS:000386009700015

Kim, H. G., Gaur, A. S., & Mukherjee, D. (2020). Added cultural distance and ownership in cross-border acquisitions. *Cross Cultural & Strategic Management, 27*(3), 487-510. doi:10.1108/Ccsm-01-2020-0003

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. Retrieved from <Go to ISI>://WOS:A1988Q880900004

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and Finance. *Journal of Political Economy, 106*, 1113-1155.

Li, C., & Yang, L. (2020). Import to invest: Impact of cultural goods on cross-border mergers and acquisitions. *Economic Modelling, 93*, 354-364. doi:doi.org/10.1016/j.econmod.2020.08.014.

Lim, J., Makhija, A. K., & Shenkar, O. (2016). The asymmetric relationship between national cultural distance and target premiums in cross-border M&A. *Journal of Corporate Finance, 41*, 542-571. doi:10.1016/j.jcorpfin.2016.07.007

M., M., Anuar, M., Khan, S., & Khan, F. (2014). Mergers and Acquisitions: A Conceptual Review. *International Journal of Accounting and Financial Reporting, 4*(2). doi:10.5296/ ijafr.v4i2.6623

Officer, M. S. (2003). Termination fees in mergers and acquisitions. *Journal of Financial Economics, 69*(3), 431-467. Retrieved from <Go to ISI>://WOS:000185211900002

Popli, M., Akbar, M., Kumar, V., & Gaur, A. (2016). Reconceptualizing cultural distance: The role of cultural experience reserve in cross-border acquisitions. *Journal of World Business, 51*(3), 404-412. doi:10.1016/j.jwb.2015.11.003

PWC. (2021). Guia Fiscal 2021 | Paraísos Fiscais. Retrieved from https://www.pwc.pt/pt/pwcinforfisco/guia-fiscal/2021/paraisos-fiscais.html

Rossi, S., & Volpin, P. F. (2004). Cross-country determinants of mergers and acquisitions. *Journal of Financial Economics, 74*(2), 277-304. Retrieved from <Go to ISI>://WOS:000225026100003

Salma, G., & Hussain, A. (2020). Synergy, Agency Cost, and the Determinants of Premia Paid in Mergers and Acquisitions Across Pakistan. *International Journal of Management, 11*(8), 1476-1498.

Simonyan, K. (2014). What determines takeover premia: An empirical analysis. *Journal of Economics and Business, 75*, 93-125.

Sonenshine, R., & Reynolds, K. (2014). Determinants of cross-border merger premia. *Review of World Economics, 150*(1), 173-189. doi:10.1007/s10290-013-0164-3

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. doi:10.1287/orsc.1070.0270

Tarabay, M. N., & Hammoud, J. (2018). Determinants of M&A premiums: emprical evidence from Kuwaiti firms. *Journal of Business, Economics and Finance, 7*(1), 130-138.

Teerikangas, S., & Very, P. (2006). The culture-performance relationship in M&A: From yes/no to how. *British Journal of Management, 17*, S31-S48. doi:10.1111/j.1467-8551.2006.00477.x

Trading Economics - População - Lista de Paises. (2021). Retrieved from https://pt.tradingeconomics.com/country-list/population

Wang, D. J., Hain, D. S., Larimo, J., & Dao, L. T. (2020). Cultural differences and synergy realization in cross-border acquisitions The moderating effect of acquisition process. *International Business Review, 29*(3). doi:ARTN 10167510.1016/j.ibusrev.2020.101675

Wang, Y., & Larimo, J. (2020). Survival of full versus partial acquisitions: The moderating role of firm's internationalization experience, cultural distance, and host country context characteristics. *International Business Review, 29*(1). Retrieved from <Go to ISI>://WOS:000501415500009

Weber, Y., & Tarba, S. Y. (2012). Mergers and acquisitions process: the use of corporate culture analysis. *Cross Cultural Management-an International Journal, 19*(3), 288-303. doi:10.1108/13527601211247053

Xie, E., Reddy, K. S., & Liang, J. (2017). Country-specific determinants of cross-border mergers and acquisitions: A comprehensive review and future research directions. *Journal of World Business, 52*(2), 127-183. doi:10.1016/j.jwb.2016.12.005

Xu, E. Q. (2017). Cross-border merger waves. *Journal of Corporate Finance, 46*, 207-231. doi:10.1016/j.jcorpfin.2017.07.004

Yildiz, H. E. (2014). Not All Differences Are the Same: Dual Roles of Status and Cultural Distance in Sociocultural Integration in Cross-border M&As. *Journal of International Management, 20*(1), 25-37. doi:10.1016/j.intman.2013.03.014

Zhou, X. G., Cui, Y. D., Wu, S. W., & Wang, W. Q. (2019). The influence of cultural distance on the volatility of the international stock market. *Economic Modelling, 77*, 289-300. doi:10.1016/j.econmod.2018.10.005

9. Annexes

ANNEX 1 - Country distribution

This table summarizes the countries present in this study and their distribution in terms of their intervenient role in the deal observed: target or acquiror.

Country	Target	Acquiror	Country	Target	Acquiror
Argentina	2	0	Mexico	3	2
Australia	15	5	Morocco	1	0
Austria	1	3	Netherlands	3	9
Belgium	2	3	Norway	5	2
Bulgaria	4	0	Peru	2	0
Brazil	1	4	Philippines	4	0
Canada	21	8	Poland	6	1
Chile	3	1	Portugal	1	0
China (Mainland)	4	7	Romania	1	0
Colombia	2	0	Russia	2	1
Croatia	1	0	Singapore	11	7
Czeck Republic	0	1	South Africa	0	2
Denmark	0	3	South Korea	7	8
Finland	0	1	Spain	2	6
France	19	13	Sri Lanka	2	0
Germany	12	14	Sweden	1	5
Greece	4	0	Switzerland	5	9
Iceland	0	1	Taiwan	6	4
India	19	7	Thailand	7	4
Indonesia	4	1	Turkey	3	0
Ireland	0	1	United Kingdom	6	22
Israel	3	0	United States	18	29
Italy	4	7	Total	229	229
Japan	5	27			
Latvia	1	0			
Luxembourg	1	6			
Malaysia	5	5			

ANNEX 2 - Correlation matrix

This matrix presents the correlation analysis between all variables described in chapter 4. Sample and Descriptive Statistics.

	CD	Border	Dist	Lang	Law	Cash	DE	Ind	Pop	RelSize	Size
CD	1										
Border	-0.44	1									
Dist	0.18	-0.47	1								
Lang	-0.59	0.33	0.10	1							
Law	-0.14	0.06	-0.04	0.13	1						
Cash	0.14	-0.21	0.13	0.01	-0.22	1					
DE	0.01	-0.07	-0.05	-0.08	-0.03	0.05	1				
Ind	-0.06	-0.05	0.04	0.04	-0.03	-0.06	0.00	1			
Pop	0.12	-0.16	0.10	-0.16	-0.06	0.10	-0.00	0.12	1		
RelSize	0.00	-0.02	-0.06	-0.06	0.07	-0.12	0.12	-0.10	-0.06	1	
Size	-0.00	-0.08	-0.02	-0.05	-0.06	-0.08	-0.04	-0.08	-0.01	-0.01	1