National Culture, Trust in Banks and Multiple Firm-Bank Relationships: Cross-Country Evidence

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Abstract

The present study aims to examine the impact of national culture (as defined in the multidimensional Hofstede model) and trust in banks (as identified in the World Values Survey) on the number of firm-bank relationships, an original proposal in front of mixed theoretical and empirical studies that have not previously dealt directly with this research question. We use a sample of over 22,000 non-financial firms operating in 41 countries, which allows us to consider a wide range of cross-country differences in terms of deep-rooted national cultural elements. Our results show that *power distance*, *masculinity*, *uncertainty avoidance*, *individualism*, *long-term orientation*, *indulgence*, and *trust in bank(s)* all play a role in the number of bank relationships a firm elects to maintain.

1. Introduction

Theories provide conflicting views on the optimal number of firm-bank relationships. On the one hand, some studies imply that due to the monitoring role of banks, exclusive bank-firm relationships with a single bank are optimal for various reasons related to the avoidance of free-riding problems, duplication of monitoring efforts, transaction costs and/or the acquisition of information about the quality of the counterpart (Diamond, 1984; Ramakrishnan and Thakor, 1984; Allen, 1990). Yet, theories also suggest that multiple-bank lending may allow banks to mitigate the agency problems with depositors and achieve higher monitoring and expected profits (Carletti et al., 2007). Others argue that certain factors play a conditional role. For example, Detragiache et al. (2000) present a theoretical model in which multiple banking can reduce liquidity risk – i.e. prematurely liquidating a profitable project - as at least one bank will refinance the project. However, they also mention that when adverse selection problems are less severe, thus allowing firms to refinance from nonrelationship banks, then multiple banking does not offer benefits to the borrower, and therefore single banking prevails.

Data from various studies provide a mixed picture. Petersen and Rajan (1994) report that the median firm in their sample borrows from only one bank, and Ongena and Smith (2001) report that 74% of the Norwegian firms in their sample maintain only one bank relationship. In contrast, Ongena and Smith (2000) document that less than 15% of the European firms in their sample have a single bank, and 20% of the firms have no less than eight banks. Similarly, Detragiache et al. (2000) highlight that 55.5% of US firms and 89% of Italian firms use more than one bank.

Given the above ambiguity, it is not surprising that many empirical studies try to shed some light on this issue, by investigating the driving factors for the number of firm-bank relationships. Some of these studies focus on single countries like Germany (Neuberger and Rathke, 2009), Portugal (Farinha and Santos, 2002), Japan (Ogawa et al., 2007), the UK (Braggion and Ongena, 2013), and the US (Gopalan et al., 2011), to reveal the importance of firm-specific attributes like size, age, liquidity, and capital structure.

Nonetheless, Ongena and Smith (2000) highlight that, while some firm-level characteristics are significant determinants of the number of bank relationships, they cannot explain the distribution of multiple-bank relationships across countries. Rather, they find that country-level variables explain a large proportion of the variation left unexplained by firm and industry variables. More detailed, they used a sample of around 1,000 large corporations

from 20 European countries, and concluded that firms maintain more bank relationships in countries with inefficient judicial systems and poor enforcement rights as well as in unconcentrated but stable banking systems and active public bond markets. Others tend to support these findings. Hernandez-Canovas and Koeter-Kant (2010) confirm the importance of the legal system while focusing on SMEs from 19 European countries. They find that legal origins, legal efficiency, and creditor rights influence the existence of multiple bank relationships. Finally, in a somehow related cross-country study that focuses on the syndicated loans market, Qian and Strahan (2007) find that the number of lenders is influenced by the degree of creditor rights protection and the sovereign debt rating. Therefore, these studies illustrate that country-specific attributes, and to a large extend the formal institutional environment of a country, may be important drivers of the decision to establish relationships with more than one bank.[1]

Motivated by the above findings, the present study aims to examine the impact of informal institutions, like national culture and trust on the number of firm-bank relationships. To our knowledge, this issue has not been explored in the literature. This is surprising as a growing number of recent business and finance studies highlight the impact of national culture on, among other things, the relative importance of stock versus bank markets (Aggarwal and Goodell, 2009; Kwok and Tadesse, 2006), venture capital activity (Li and Zahra, 2012), debt maturity choice (Zheng et al., 2012), cost of debt (Chui et al., 2016), the terms of syndicated loans (Giannetti and Yafeh, 2012), access to finance (Aggarwal and Goodell, 2014), capital structure (Li et al., 2011), risk-taking (Li et al., 2013), innovation (Chen et al., 2017), corporate reputation (Deephouse et al., 2016), corporate cash holdings (Chen et al., 2015), trade credit provisions (El Ghoul and Zheng, 2016), and externally financed firm growth (Boubakri and Saffar, 2016).

In the present study, we aim to bring together these two strands of the literature. We believe that there are a number of reasons for which culture and trust influence the decision of firms to establish relationships with more than one bank. For example, due to information asymmetry, a firm may have to release sensitive (soft) information to its main bank. Within this context, Refait-Alexandre and Serve (2016) argue that trust in the bank could enhance such disclosures, subsequently leading to the bank's decision to grant loans to the firm. In contrast, in cases where the firm manager does not trust the main bank, the firm will establish

[1] Nifo et al. (2016) confirm the importance of the institutional environment (in terms of corruption, government effectiveness, regulatory quality, rule of law, voice and accountability) in explaining the differences in the number of firms' banking relationships among different Italian provinces.

multiple banking relationships to improve its chances of obtaining credit. Although a few studies examine the impact of trust on credit availability and loan pricing, the relationship between trust and the number of banks has received limited attention in the literature. In fact, only Refait-Alexandre and Serve (2016) provide such evidence from France, indicating that manager's trust in the main bank results in a negative association with the probability of multiple banking relationships. Aristei and Gallo (2017) argue that from the bank's perspective, lending by multiple banks may be the result of (i) a risk-averse attitude that is more likely whenever the monitoring costs and the difficulties in assessing customers increase (Carletti et al., 2007) and (ii) the desire to diversify firm-specific credit risk (Detragiache et al., 2000). Therefore, we would expect uncertainty avoidance, which is one of the national cultural dimensions, to be associated with the number of bank relationships. Antonczyk et al. (2014) conclude that firms in countries characterized by a long-term oriented culture appear to prefer (relationship) bank financing, because it is usually available for the long term and will not be withdrawn quickly in response to adverse development. However, Antonczyk et al. (2014) do not actually examine relationship banking or the number of firm-bank relationships. Instead, they consider the ratio of 'bank debt' to 'total debt': that is an indicator of the general relevance of bank financing for firms.

We use a sample of 22,326 non-financial firms operating in 41 countries, which allows us to consider a wide range of cross-country differences in terms of national culture and trust in banks. Our results confirm our expectations that this deep-rooted informal institutional environment plays an important role in shaping the decision of firms as for the number of firm-bank relationships they establish. These results are obtained while we control for the formal institutional environment and various firm-specific attributes.

The rest of the paper is structured as follows. Section 2 describes the data, variables, and methodology. Section 3 presents the empirical results, and Section 4 concludes.

2. Data, Variables and Methodology

2.1. Data

We collect data from various sources. Firm specific data are from the OSIRIS database of Bureau van Dijk (BvD) that contains information for listed and major unlisted/delisted companies around the world. For the purposes of the present study we focus on publicly listed non-financial firms from countries for which we information on (i) national cultural

indicators from Hofstede Insights[2], and (ii) trust in banks, from the sixth wave of the World Values Survey. Our data are from 2016 as information on the number of bank relationships in OSIRIS is available for the most recent year only. Our final sample includes 22,326 firms from 41 countries. The number of firms in the sample by country is available in Appendix 1.

2.2. Variables

2.2.1. Dependent Variable

The dependent variable in our study is the number of bank relationships a firm maintains. It ranges between 0 and 47, with a mean equal to 2.14, median of 1, and a standard deviation equal to 3.39. As mentioned in Ongena and Yu (2017), who also use a BvD database, we cannot exclude the possibility that some of the firms maintain bank relationships and fail to report them. Also, BvD tends to report the number of bank advisors and it is likely that this does not correspond to all the firm-bank relationships. Our statistics are comparable to the ones of Ongena and Yu (2017). Additionally, conditional on being banked (i.e. have at least one bank relationship), our mean increases to 4.03 and the median increases to 3, making them comparable to the ones in Ongena and Smith (2000).[3]

2.2.1. Trust and Cultural Indicators

Tang et al. (2017) highlight the importance of the firm manager's opinion on whether the loan manager (and the bank) is supportive about the prospective application by the firm. More detailed, they argue that if the bank customer does not trust the manager as someone who will be supportive, they might consider a waste of time and resources to go ahead with an application. Howorth and Moro (2006) also make two interesting points. First, they seem to support the argument that the trust that a firm feels towards its main banks plays an important role in the construction of the firm-bank relationship (Refait-Alexandre and Serve, 2016), by highlighting that it is a two-way relationship in which the entrepreneur also decides whether he (or she) trusts the bank manager enough to let him (or her) have some power of the finances of the firm. Second, they argue that the entrepreneur's trust toward the individual bank employee is transferred to the institution (bank). Refait-Alexandre and Serve (2016) appears to be the only study that investigates the link between trust in banks and the use of

[2] Hofstede Insights was created in 2017 from a merger between itim International and The Hofstede Centre. The data are available at: https://www.hofstede-insights.com/country-comparison

[3] Ongena and Smith (2000) report a mean of 5.6 and median of 3. Ongena and Yu (2017) mention that the number of firm-bank relationships in their sample ranges between 0 and 33, with a mean equal to 1 and a standard deviation equal to 2.

multiple banking. Their results are mixed, and they depend on the indicator of trust used in the regressions. First, they find a positive relationship between their proxy of antecedent of trust – the firm's CEO knowledge of the bank's rating process – and the likelihood to have multiple banking relationships. This can be either due to a firm's attempt to boost competitive between banks or trying to avoid a hold-up situation. Second, as for the consequences of trust, they conclude that when the manager only tries to find a transaction with the lower interest rate he is more likely to develop multiple banking relationships. In contrast, when he believes in a long-term relationship, he is more likely to have a single bank. Third, they find a positive relationship, albeit not always statistically significant, between multiple banking and the frequency of exchanges between the CEO and the bank.

In the present study, we measure the degree of *trust in banks* in different countries using the answer to the following question from the sixth wave of the World Values Survey: Could you tell me how much confidence you have in banks? (i) *Not at all*, (ii) *Not very much confidence*, (iii) *Quite a lot of confidence*, and (iv) *A great degree of confidence*. Following Fungacova et al. (2017), we first assign values between 1 (no confidence) and 4 (great degree of confidence) to each answer, and we then weight these values by the proportion of respondents from each country who provided each answer. For example, in the case of Germany, 2.94% answered "A great deal", 22.31% answered "quite a lot", 47.77% answered "not very much", and 26.98% answered "none at all". Therefore, the resulting overall score for Germany is 2.01.[4] Apparently, higher values of this indicator correspond to higher trust in banks.

To account for the various dimensions of national culture we use the Hofstede model that consists of six dimensions: *Power Distance Index*, *Individualism versus collectivism*, *Masculinity versus femininity*, *Uncertainty Avoidance Index*, *Long-Term versus Short-Term Orientation*, and *Indulgence versus restrained*. These dimensions are the outcome of the work in Hofstede (1980, 1991, 2001), Hofstede and Bond (1988), and Hofstede et al. (2010). In the discussion that follows, we outline these dimensions and their association with financial decisions.

The power distance dimension can be defined as "*the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally*" (Hofstede 2001, p.19). Hofstede constructed the *Power Distance Index* by taking into account answers to the following survey questions:

[4] In calculating the proportions, we exclude respondents who have not answered or answered that they do not know.

(i) Are employees afraid to express their disagreement with their managers? (ii) What are the subordinates' perception of their bosses' actual decision-making style? and (iii) What do subordinates' prefer as their bosses' decision-making style. As discussed in Hofstede et al. (2010), in countries with a high power distance index, people accept a hierarchical order in which everybody has a place and which needs no further justification. In contrast, in countries with a low PDI, people strive to equalise the distribution of power and demand justification for inequalities of power. The literature documents that higher PDI is associated with higher trade provisions (El Ghoul and Zheng, 2016), issuance of debt with shorter maturity (Zheng et al., 2012), lower externally financed firm growth (Boubakri and Saffar, 2016), less risk-taking (Mihet, 2010), and corporate reputation (Deephouse et al., 2016). Finally, Dash et al. (2009) conclude that consumers characterized by low power distance expect highly responsive and reliable bank services.

The *individualism versus collectivism* dimension was constructed on the basis of answers to questions related to work goals like having personal time, the freedom to adopt own approach to the job, a challenging work to do, training opportunities, good physical working conditions, and use of skills and abilities on the job. As discussed in Hostede et al. (2010) the first three questions reveal a tendency towards individualism whereas the last three questions are associated with collectivism. At the country level, the high side of this dimension – individualism – is defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. In contrast, collectivism represents a preference for a tightly-knit social framework in which individuals can expect their relatives or members of a particular group to look after them in exchange for unquestioned loyalty. A society's position on this dimension is reflected in whether people's self-image is defined in terms of 'I' or 'we.' The business and finance literature reports that individualism has a negative impact on trade credit provisions (El Ghoul and Zheng, 2016) and corporate cash holdings (Chen et al., 2015), while being positively related to the magnitude of earnings discretion (Han et al., 2010), corporate risk-taking (Li et al., 2013), debt maturity (Zheng et al., 2012), corporate innovation (Chen et al., 2017), cost of equity capital (Gray et al., 2013), debt leverage (Antonczyk and Salzmann, 2014), and valuation of cash holdings (Orlova et al., 2017). Additionally, Boubakri and Saffar (2016) conclude that individualism not only affect firm's ability to overcome financial constraints but it also has a strong and robust impact compared to other dimensions. Dash et al. (2009) conclude that consumers high on individualism expect lower empathy and assurance from bank service providers. Finally, Ferris et al. (2013) find that CEOs of firms

headquartered in countries with a high level of individualism are significantly more overconfident. In the context of the present study, high levels of individualism could imply more negotiations, which combined with managerial overconfidence could result in a higher number of banks relationships.

The dimension of *masculinity versus femininity* also emerges through answers to various questions related to work goals. This dimension refers to "the distribution of emotional roles between the genders, which is another fundamental problem for any society to which a range of solutions are found; it opposes "tough" masculine to "tender" feminine societies" (Hofstede, 2001 p.20). Hofstede et al. (2010) highlight that work goal items associated most strongly with masculinity were an opportunity for high earnings, recognition at work, opportunity for advancement, and challenging work to do. In contrast, the ones associated with the feminine side were having a good working relationship with the supervisor, work with cooperative people, live in a desirable area and have employment security.[5] Therefore, at the country level, the masculine side of this dimension represents a preference in society for achievement, heroism, assertiveness, and material rewards for success, as well as a society that is more competitive. Past studies document that masculinity is negatively related to reputation (Deephouse et al., 2016) and use of options for hedging purposes (Lievenbruck and Schmid, 2014). However, it is positively associated with stock market development (de Jong and Semenov, 2002), corporate cash holdings (Chang and Noorbakhsh, 2009), use of short-term debt (Zheng et al., 2012), and trade credit provisions (El Ghoul and Zheng, 2016). Boubakri and Saffar (2016) also report a positive association between masculinity and externally financed firm growth; however, this is not statistically significant in all the regressions.

The *uncertainty avoidance index* was the result of answers to questions related to job stress, rule orientation, and intention for a long term career with the same firm. At the country level, uncertainty avoidance is defined as "the extent to which a culture programs its members to feel either uncomfortable or comfortable in unstructured situations" (Hofstede 2001, p.19). Among other things, this is expressed through nervous stress and in a need for predictability: a need for rules, both written and unwritten ones. Therefore, countries with a high uncertainty avoidance index maintain rigid codes of belief and behaviour, and are intolerant of unorthodox behaviour and ideas. As discussed in Hofstede et al. (2010) the differences between week and strong uncertainty – avoidance societies related to work,

[5] The reason for labelling this dimension masculinity versus femininity is that answers to the questions were consistently different between men and women employees (Hofstede et al., 2010).

organization, and motivation are that in strong uncertainty avoidance societies, there is an emotional need to be busy and work hard, time is money, there is need for precision and formalization, there is a belief in experts and technical solutions, and top managers are concerned with daily operations. The finance literature documents that on the one hand uncertainty avoidance has a negative impact on access to finance (Aggarwal and Goodell, 2014), stock market development (de Jong and Semenov, 2002), venture capital activity (Li and Zahra, 2012), risk-taking and proactive behaviour of SMEs (Kreiser et al., 2010), cash valuation (Orlova et al., 2017), cost of equity capital (Gray et al., 2013), and corporate innovation (Chen et al., 2017). On the other hand it has a positive impact on the relative importance of bank-based versus stock-based financial systems (Kwok and Tadesse, 2006), cash holdings (Chang and Noorbakhsh, 2009; Chen et al., 2015), externally financed firm growth (Boubakri and Saffar, 2016), and trade credit provisions (El Ghoul and Zheng, 2016).

The fifth dimension refers to *long-term versus short-term orientation*, and was integrated into Hofstede's model in 1991 after a Chinese value survey (Hofstede, 1991). This dimension refers to "*the extent to which a culture programs its members to accept delayed gratification on their material, social, and emotional needs*" (Hofstede 2001, p.20). A new version of this fifth dimension, based on World Value Surveys became available in Hofstede et al. (2010) and it is the one used in the present study. In general, societies who score low on this dimension, for example, prefer to maintain time-honoured traditions and norms while viewing societal change with suspicion. In contrast, those with a culture that scores high, take a more pragmatic approach: They encourage thrift and efforts in modern education as a way to prepare for the future. Hofstede et al. (2010) summarize some of the key differences between short-term oriented and long-term oriented societies as follows. In long-term orientation societies children should learn to save money and other assets. These societies experience fast economic growth (particularly in poor countries), and have large savings quotes and funds available for investments, investments in real estate, the appeal of pragmatism, knowledge and education. In the field of finance, a long-term orientation has been associated with less leveraged firms (Wang and Esqueda, 2014), lower cash valuation (Orlova et al., 2017), lower probability to hedge (Lievenbruck and Schmid, 2014), higher corporate csh holdings (Chang and Noorbakhsh, 2009), and a preference for bank over bond financing (Antonczyk et al., 2011).

Finally, the sixth dimension of *indulgence versus restrained*, is also based on World Value Survey data, and this was added in Hofstede's model in 2010. Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to

enjoying life and having fun. In contrast, restraint stands for a society that suppresses gratification of needs and regulates them by means of strict social norms. In the context of the business environment, as indulgent societies have the privilege of freedom of speech, it is more likely that employees will voice their opinion and give feedback. Such participation in the workplace may have a positive impact on decisions making and firm performance. Being a relatively new dimension, indulgence has received considerably less attention in the business finance literature. Yamen et al. (2017) find no association between financial crime and indulgence. Karolyi (2016) reports that the pairwise country differences in indulgence have a negative effect on excess investments; however, this is statistically significant in only out of the two regressions. Using a large international sample of banks, Haq et al. (2017) find that higher national indulgence results in lower bank leverage. Finally, Rethi (2012) reports that higher indulgency is related to lower tax evasion levels across countries.

2.2.2. Other control variables

Following Ongena and Yu (2017), among others, we control for firm-specific attributes that may have an impact on the number of bank relationships. Therefore, we use the natural logarithm of the years since establishment to control for firm age, the natural logarithm of total assets to control for size, return on assets to control for profitability, the ratio of current assets to current liabilities to control for liquidity, loans to total assets to control for leverage, and the number of recorded subsidiaries to control for organizational and geographical footprint. Additionally, to control for the country-level formal institutional environment we use an indicator of the rule of law as in Ongena and Smith (2000) and Hernandez-Canovas and Koeter-Kant (2010). Taken from the Worlwide Governance Indicators, this indicator captures perceptions of the extent to which agents have confidence in and abide by the rules of society, including among other things the quality of contract enforcement, and property rights. It takes values between -2.5 and 2.5, with higher values indicating a more favourable outcome.

2.3. Methodology

As discussed earlier, the dependent variable is the number of bank relationships a firm maintains. Given the discreteness of the dependent variable data, we rely on quantile regression (QR) for counts, which has numerous advantages over alternative techniques (Machado and Santos Silva, 2005; Miranda, 2008)[6]. First, this semiparametric approach allows the analysis of the data without imposing restrictions on the distribution of the outcome variable, as is usually the case with fully parametric probabilistic models, like Poisson and negative binomial regressions. Second, quantile regression does not restrict the way the explanatory variables affect different regions of the outcome distribution. In other words, while other approaches that analyze count data concentrate on estimating the conditional mean given covariates, quantile regression for counts provides estimates at different quantiles, and is thus a more complete analysis. Third, it is more robust against outliers. Fourth, the estimated values of the response variable (number of bank relationships) in the QR for counts is always discrete as in practice. Finally, the standard errors of the QR for counts are robust as they are jittered[7].

QR has been recently employed in various strands of finance and banking literature, including banking risk and regulations (Klomp and de Haan, 2012), herding behavior (Chiang et al., 2012), capital structure (Fattouh et al., 2005), and bankruptcy prediction (Li and Miu, 2010). However, in the case of a count, QR analysis is complicated by the fact that when *Y* results from counts, it has a discrete distribution, and $Q_{Y(\alpha|x)}$ cannot be a continuous function of the parameters of interest. Therefore, standard econometric techniques do not offer valid asymptotic results for the distribution of the conditional quantiles. A solution to this problem was proposed by Machado and Santos Silva (2005) and is used in the present study. We provide a brief discussion below, while further details are available in Machado and Santos Silva (2005).

The proposed approach is based on the artificial smoothing of the data using a form of jittering (Stevens, 1950) through the construction of a continuous random variable whose quantiles have a one-to-one relation with the quantiles of *Y*. This is achieved by creating an auxiliary variable Z = Y + U, where Y is the count variable of interest, and U is a uniform random variable independent of Y and X.

[6] Figure 1A in the appendix shows that the number of bank advisors is skewed and heteroscedastic by nature, suggesting the appropriateness of using a quantile-based approach.
[7] For more details, see Machado and Santos Silva (2005) and Miranda (2008).

The procedure results in a continuous variable whose distribution is smooth almost everywhere. Given some regularity conditions, valid asymptotic inference is possible by applying standard quantile regression to a monotonic transformation of Z that ensures the estimated quantiles are non-negative and that the transformation is linear in the parameters of a vector of regressors. As discussed in Machado and Santos Silva (2005), it is possible to show that:

$$Q_Z(a|x) = Q_Y(a|x) + \frac{a - \sum_{y=0}^{Q_Y(a|x)-1} Pr(Y = y|x)}{Pr(Y = Q_Y(a|x)|x)}$$

To implement the procedures, the authors suggest the following parametric representation:

$$Q_Z(a|x) = a + exp\big(x'\gamma(\alpha)\big), \qquad 0 < \alpha < 1$$

The reason for adding α to the right side is that $Q_Z(a|x)$ is bounded from below due to the way it is constructed, whereas the exponential form is traditionally assumed in count data models. Using the equation above, Machado and Santos Silva (2005) estimate $\boldsymbol{\gamma}(\alpha)$ with a linear quantile regression of:

$$T(Z;a) = \begin{cases} \log(Z-a), & Z > a \\ \log(s), & Z \leq a \end{cases}$$

on x, with *s* being a small positive number. This is feasible because quantiles are equivariant to monotonic transformations and to censoring from below up to the quantile of interest. Having estimated $\boldsymbol{\gamma}(\alpha)$, the average-jittering estimator can be obtained as the sample average of the estimates from each of the *m* jittered sample average of the estimates from each of the m jittered samples.

3. Empirical results

3.1. Main results

Table 1 presents descriptive statistics, and Table 2 presents the correlation coefficients. The results of the quantile regression for counts are presented in Table 3. Power distance, masculinity, uncertainty avoidance, and indulgence have a coefficient with consistent sign and statistical significance across the different areas of the conditional distribution. The first three carry a positive sign, while the fourth is negatively associated with the number of firm-bank relationships.

[Insert Tables 1 to 3 Around Here]

Therefore, higher power distance is associated with multiple banking. There are two possible explanations for this. First, from a finance perspective, firms in power distance countries tend to prefer bank over bond financing (Antonczyk et al., 2011). Given the higher needs of firms for bank financing, they may turn to many banks. Second, from a customer service perspective, the modern marketing viewpoint of the "customer is the king" can put the bank at a disadvantaged position. For example, Kim and Aggarwal (2016) argue that customers in such cultures could feel superior in social hierarchy compared to the service providers, and develop an undue sense of entitlement, with undue and unfair expectations of services providers, and, in extreme cases, they may even become abusive in their dealings with service providers. In other words, customers may use their power differential advantage to place unreasonable demands and expectations on their service providers. In our context, this could lead to multiple bank relationships in an attempt to exploit rents.

Masculinity has also a positive influence on the number of firm-bank relationships. In a masculine society, managers are expected to be assertive, decisive, aggressive, competitive, and performance-oriented, with an emphasis on personal dominance. Therefore, managers may opt for multiple banking relationships to negotiate the best possible deals. Additionally, as discussed in El Ghoul and Zheng (2016), borrowers in high masculinity societies are more likely to display opportunistic behaviors. Therefore, creditors tend to perceive higher risks of overinvestment and thus prefer to extend short-term debt to reduce the duration of their exposure (Zheng et al., 2012). In turn, this may create a need for multiple banking relationships.

People in societies with high uncertainty avoidance feel uncomfortable with ambiguous or unknown situations. Thus, they try to implement controls for this uncertainty. One way to achieve this can be the use of more than one bank. This could be particularly important in the light of the results of Kwok and Tadesse (2006) and Aggarwal and Goodell (2014). The first study concludes that countries characterised by higher uncertainty avoidance are more likely to have bank-based systems. The second concludes that access to all three forms of financing considered (debt, equity, venture capital) is generally more difficult in environments of higher uncertainty avoidance. Given the preference for banking financing and the difficulties to secure it, firms could show a preference for multiple banking.

Indulgence carries a negative and statistically significant coefficient across the different areas of the distribution. Therefore, firms in societies that encourage free gratification of basic and natural human drives and a working environment where employees can express their opinions and provide feedback are more likely to have fewer banks.

The impact of Individualism is consistently positive and statistically significant, the only exception being the quantile at the upper tail, in which case it becomes insignificant. There are at least two characteristics of an individualistic society that could explain this positive association. First, every customer should get the same treatment. Second, the task prevails over relationship. Together these could motivate firms to maintain multiple rather than single bank relationships. Additionally, as mentioned earlier, a high level of individualism is associated with managerial overconfidence that could result in a higher number of bank relationships to achieve the best possible deal from the negotiations with the various banks.

In the case of trust in banks and long-term orientation, the QR technique provides some interesting results. In both cases, we notice that the marginal effects exhibit a sign reversal, initially being positive and then becoming negative. In the case of trust in banks, the coefficient is positive and statistically significant up to the 70^{th} quantile. Therefore, up to this point higher trust in banks results in a higher number of firm-bank relationships. At the 80^{th} quantile, the coefficient becomes insignificant, and after this point it becomes negative and statistically significant. In the case of long-term orientation, we observe the opposite. More detailed, long-term orientation has a positive sign only up to the 30^{th} quantile, after which it becomes negative. The long-term oriented are characterized by patience and perseverance, and management practices consistent with such a culture include solving problems for the long-term (Newman and Nollen, 1996). Additionally, managers are encouraged to focus on long term strategic investment opportunities to create a stable stream of value (Chang and

Noorbakhsh, 2009). To finance such projects, firms may have to establish long-term relationships with banks to provide private information about the quality of the projects and also to engage in reputation building (Antonczyk et al., 2011). Within this context, firms in countries with high long-term orientation may opt for a lower number of firm-bank relationships.

3.2. Further analysis

In this section, we estimate a few additional specifications. First, we include country and industry dummies in the quantile regressions for count. In general, the results remain the same in the case of power distance, masculinity, uncertainty avoidance, and indulgence. We observe some small differences in the case of the other three key variables. More detailed, in the case of trust in banks, the coefficients are significant up to the 50^{th} percentile, and then become insignificant. Similarly, in the case of long-term orientation, the coefficient is now positive and statistically significant only at the 10^{th} quantile, then becoming insignificant at the 20^{th} quantile, before turning to positive and significant from the 30^{th} quantile onwards. Nonetheless, it should be mentioned that in all the cases, the results are the same as the one of the base model at the 50^{th} quantile.

Then, we re-estimate the base model with: (i) OLS, and (ii) Tobit regression. In the case of OLS and Tobit, the results are same as the ones obtained from the QR count at the 50th quantile (See Table 4). Importantly, results based on the QR for counts (Table 3) are generally more nuanced than those reported in Table 4. This is important as it implies the appropriateness of using a quantile-based approach capable of uncovering the differences in the impact of national culture and trust in Banks on firm-bank relationships across lower, middle, and upper quantiles.

[Insert Table 4 Around Here]

4. Conclusions

This paper is the first to examine whether differences in informal institutions, like national culture and trust, can explain the variations in the number of firm-bank relationships around the world. To do so, we use Hofstede's national culture indicators and trust in banks from the world value survey, along with a sample of around 22,000 firms from 41 countries, to estimate quantile regressions for count.

Controlling for firm-specific attributes and the formal institutional environment, we find that trust in banks and all six cultural dimensions of Hofstede (power distance, masculinity, uncertainty avoidance, individualism, long-term orientation, indulgence) are associated with the number of bank relationships a firm maintains. Our results are in general the same when we use alternative econometric techniques, country and industry dummies.

The main implication of our work is that the financial decisions of firms cannot be effectively examined without considering deep-rooted national cultural elements since the perceptions of the managers are influenced by the society to which they adhere but also constrained by their environment characteristics.

It may also help banks determine alternate strategies to engage existing or prospective clients further. This is especially relevant to banks with international reach that have to determine and ponder global as well as local considerations when building strategies for developing firm relationships. For instance the acquisition of new clients should be eased thanks to a better understanding of the firms' motivations and preferences in various countries and cultural areas.

Our work also shed light on potential cultural, trust issues or institutional resistances that may be explored further in future work. It may thereby help define a relevant research agenda around the various relationships identified in this study.

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Tables

Table 1 – Descriptive Statistics

	Mean	Std. Dev.
Number of Banks	2.144	3.392
Trust in Banks	2.783	0.358
Power Distance	65.272	17.233
Individualism	40.038	24.359
Masculinity	59.525	18.791
Uncertainty Avoidance	57.206	25.521
Long-term orientation	66.828	26.759
Indulgence	39.205	18.056
Rule of Law	1.712	0.154
Total Assets (in th. USD)	1,993,671	12,000,000
Ln (Total Assets)	11.797	2.352
Firm Age (Years)	32.674	28.959
Ln (Firm Age)	3.181	0.805
Current assets to Current liabilities	2.291	6.294
Return on assets	-0.228	14.287
Loans / Total assets	0.475	20.135
Number of recorded subsidiaries	26.136	91.254

Table 2 – Correlation coefficients

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Number of Banks	(1)	1.000															
Trust in Banks	(2)	0.007	1.000														
Power Distance	(3)	0.035	0.545	1.000													
Individualism	(4)	0.024	-0.572	-0.674	1.000												
Masculinity	(5)	0.304	0.048	-0.102	0.145	1.000											
Uncertainty Avoidance	(6)	0.316	-0.483	-0.277	0.033	0.130	1.000										
Long-term orientation	(7)	0.060	0.348	0.233	-0.639	0.222	0.142	1.000									
Indulgence	(8)	-0.129	-0.504	-0.646	0.638	-0.059	0.042	-0.530	1.000								
Rule of Law	(9)	0.008	-0.447	-0.815	0.557	0.129	0.253	-0.082	0.670	1.000							
Ln (Total Assets)	(10)	0.148	-0.105	-0.148	0.042	0.154	0.058	0.073	0.147	0.163	1.000						
Ln (Firm Age)	(11)	0.328	-0.139	-0.074	0.032	0.080	0.396	0.012	0.004	0.066	0.203	1.000					
Current assets/Current liabilities	(12)	-0.030	-0.005	0.003	-0.001	0.016	0.003	0.018	-0.009	0.003	-0.060	-0.019	1.000				
(Current assets/Current liabilities) sq.	(13)	-0.008	-0.012	-0.003	0.008	-0.002	0.006	-0.004	-0.006	-0.003	-0.020	-0.001	0.865	1.000			
Return on assets	(14)	0.011	0.021	0.025	-0.037	-0.001	0.007	0.027	-0.027	-0.022	0.076	0.013	0.006	0.001	1.000		
Loans / Total assets	(15)	-0.009	-0.013	-0.017	0.027	0.000	-0.005	-0.023	0.017	0.013	-0.078	-0.004	-0.007	-0.001	-0.013	1.000	
Number of recorded subsidiaries	(16)	0.012	-0.194	-0.201	0.232	0.042	-0.007	-0.119	0.197	0.185	0.414	0.096	-0.029	-0.007	0.005	-0.005	1.000

Table 3 – Results of the Base Model: Quantile Regression for count

Quantile	0.10	0.20	0.30	0.40	0.50
Trust in banks	3.349***	3.122***	2.527***	1.753***	1.535***
Power distance	0.045***	0.054***	0.063***	0.081***	0.087***
Individualism	0.067***	0.060***	0.049***	0.035***	0.033***
Masculinity	0.009***	0.011***	0.014***	0.019***	0.022***
Uncertainty avoidance	0.067***	0.059***	0.052***	0.048***	0.046***
Long-term orientation	0.024***	0.018***	0.009***	-0.009***	-0.016***
Indulgence	-0.028***	-0.018***	-0.021***	-0.038***	-0.045***
Rule of law	0.241*	0.284**	0.506***	1.044***	1.212***
Ln (total assets)	0.066***	0.070***	0.078***	0.083***	0.089***
Ln (firm age)	0.389***	0.384***	0.418***	0.407***	0.367***
Current assets /Current liabilities	-0.002	-0.001	-0.003	-0.005	-0.009*
(Current assets / Current liabilities) sq	-0.000	0.000	0.000	0.000	0.000
Loans / total assets	0.005***	0.004***	0.004***	0.004***	0.004***
ROA	0.001	-0.000	-0.001	-0.001*	-0.001**
Number of recorded subsidiaries	-0.001**	-0.001***	-0.001***	-0.001***	-0.001***
Constant	-24.230***	-22.990***	-20.430***	-17.190***	-16.020***
Quantile	0.60	0.70	0.80	0.90	0.95
Trust in banks	1.313***	0.905***	0.184	-0.635***	-0.855***
Power distance	0.087***	0.074***	0.062***	0.055***	0.048***
Individualism	0.028***	0.013***	0.007***	0.003**	0.002
Masculinity	0.025***	0.029***	0.029***	0.029***	0.028***
Uncertainty avoidance	0.046***	0.046***	0.038***	0.026***	0.017***
Long-term orientation	-0.026***	-0.044***	-0.055***	-0.061***	-0.056***
Indulgence	-0.057***	-0.068***	-0.072***	-0.073***	-0.059***
Rule of law	1.338***	1.280***	1.257***	1.329***	1.057***
Ln (total assets)	0.100***	0.132***	0.161***	0.161***	0.166***
Ln (firm age)	0.356***	0.393***	0.370***	0.258***	0.181***
Current assets /Current liabilities	-0.012***	-0.014***	-0.008	-0.006	-0.006
(Current assets / Current liabilities) sq	0.000**	0.000***	0.000	0.000	0.000
Loans / total assets	0.004***	0.004***	0.004***	0.004***	0.004***
ROA	-0.002***	-0.002***	-0.002**	-0.001*	-0.001*
Number of recorded subsidiaries	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
Constant	-14.190***	-10.370***	-5.759***	-0.820**	0.734**

Notes: The dependent variable is the number of firm-bank relationships; *, **, *** denote significance at 5%, 1%, and 0.1% levels.

Table 4 – Results of alternative regression techniques

	OLS	Tobit
Trust in Banks	2.045***	3.411***
Power distance	0.049***	0.123***
Individualism	0.031***	0.044***
Masculinity	0.037***	0.060***
Uncertainty avoidance	0.049***	0.099***
Long-term orientation	-0.018***	-0.052***
Indulgence	-0.038***	-0.108***
Rule of law	0.631***	2.014***
Ln (total assets)	0.210***	0.386***
Ln (firm age)	0.733***	1.426***
Current assets / Current liabilities	-0.016***	-0.027**
(Current assets / Current liabilities) sq.	0.000***	0.000**
Loans / total assets	0.009***	0.014***
Return on Assets	-0.004***	-0.007***
Number of recorded subsidiaries	-0.001***	-0.003***
Constant	-15.654***	-31.283***
R Squared	0.293	
Pseudo		0.117
Log likelihood		-39153.019
Sigma		4.213
Log pseudo likelihood		

Notes: The dependent variable is the number of firm-bank relationships; *, **, *** denote significance at 10%, 5%, and 1% levels.

Appendix

Figure 1A – Quantiles of the number of bank advisors

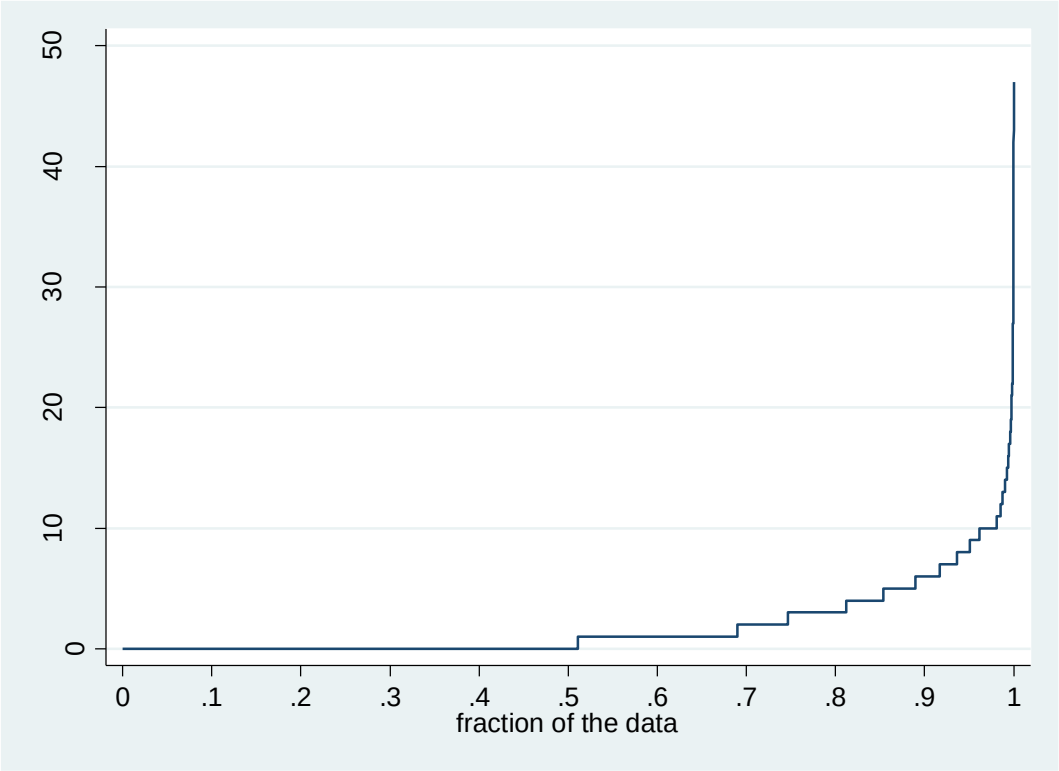

Table 1A – Firms in sample by country

	Frequency	Percentage	Cumulative
Argentina	63	0.28	0.28
Australia	582	2.61	2.89
Brazil	243	1.09	3.98
Chile	110	0.49	4.47
China	5,197	23.28	27.75
Colombia	47	0.21	27.96
Egypt	114	0.51	28.47
Estonia	9	0.04	28.51
Germany	401	1.80	30.31
Ghana	16	0.07	30.38
Hong Kong	107	0.48	30.86
India	2,370	10.62	41.47
Iraq	3	0.01	41.49
Japan	3,046	13.64	55.13
Jordan	74	0.33	55.46
Lebanon	2	0.01	55.47
Malaysia	619	2.77	58.24

Mexico	83	0.37	58.61
Morocco	40	0.18	58.79
Netherlands	92	0.41	59.20
New Zealand	65	0.29	59.50
Nigeria	67	0.30	59.80
Pakistan	271	1.21	61.01
Peru	77	0.34	61.35
Philippines	105	0.47	61.82
Poland	509	2.28	64.10
Republic of Korea	1,628	7.29	71.40
Romania	130	0.58	71.98
Russian Federation	586	2.62	74.60
Singapore	409	1.83	76.44
Slovenia	20	0.09	76.53
South Africa	155	0.69	77.22
Spain	132	0.59	77.81
Sweden	390	1.75	79.56
Taiwan	1,373	6.15	85.71
Thailand	466	2.09	87.79
Trinidad & Tobago	10	0.04	87.84
Turkey	232	1.04	88.88
Ukraine	262	1.17	90.05
USA	2,215	9.92	99.97
Uruguay	6	0.03	100.00
Total	22,326	100.00	