

**Keep Walking?**  
**Geographical Proximity, Religion, and Relationship Banking**

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## **Abstract**

We investigate the geographical proximity of firms to their relationship banks. We find that (compared to the firms' average bank) Islamic, foreign and state banks are more, and large banks less remote to their borrowers. We also find that the probability for a firm to connect to a bank substantially decreases in distance, but that the choice along bank characteristics determines how potent distance is in its impact. For example, if the bank in the vicinity is an Islamic bank, distance plays a more muted role, especially in the Mediterranean and Aegean regions. Especially when engaging with small, foreign or state banks physical distance no longer plays a crucial role in determining the firms' choices. Overall these findings suggest that the presence of banks with certain characteristics in the vicinity of firms may determine the within-firm and across-firm configurations of observable firm-bank connections. (143 words)

*Keywords:* geography of banking, Islamic banking.

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## I. Introduction

Geographical proximity and repeated interactions between firms and banks are commonly perceived to be the two most defining characteristics of the small business lending market. Degryse and Ongena (2004) for example observe that despite all technological developments in information collection and processing “distance is far from dead” in small business banking.<sup>1</sup> At the same time relationships between firms and their financiers are deemed crucial for both firms and banks, and by now a very large literature has modeled and documented the existence, importance and dimensions of relationships between firms and banks—for example in time, scope and intensity.<sup>2</sup>

Not yet investigated, however, is the geographical proximity of firms to their *different* relationship banks, and correspondingly how different bank characteristics, including size, ownership and religious orientation, may play a role in determining the firms’ decisions to *engage different banks* across shorter or longer distances. The intersection between bank geography and choice of bank has been left mostly unexplored. In this paper we gauge the importance of the interaction between geographic proximity and bank characteristics for the choice of bank-firm relationships combining several unique databases. We exploit the rich variation in geographic bank branch distribution and bank characteristics present in Turkey.<sup>3</sup>

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<sup>1</sup> See also Petersen and Rajan (2002), Degryse and Ongena (2005), Brevoort and Hannan (2006), Degryse, Laeven and Ongena (2009), Agarwal and Hauswald (2010), among many others.

<sup>2</sup> Following Petersen and Rajan (1994), Berger and Udell (1995) and Petersen and Rajan (1995), among others. Boot (2000), Ongena and Smith (2000a)), Elyasiani and Goldberg (2004), Degryse and Ongena (2008) and Degryse, Kim and Ongena (2009), among others, review this literature, while Ongena and Smith (2000b), von Rheinbaben and Ruckes (2004), Ongena, Tümer-Alkan and Vermeer (2011), among others, study the number of bank relationships.

<sup>3</sup> The matching that occurs between firms and banks has been studied by Berger, Miller, Petersen, Rajan and Stein (2005) and Mian (2006), for example. The former paper documents that large banks in the US mainly lend to large firms (employing predominantly hard information in the loan decision process), while the latter paper

The Turkish economy provides excellent opportunities to assess the relationship between distance and bank characteristics. Our unique self-constructed dataset couples the complete and geo-coded branch network structure of all banks with a representative sample of firms that comes with their precise geo-coded location and all their primary firm-bank connections. Moreover Turkey's banking sector is diversified, containing banks of different sizes, ownership and nationality. Critically, Turkey has both conventional and Islamic banks. Similarly, as the Turkish economy is very multi-faceted and dynamic, there is a large variation within the firm population, in terms of their location, number of bank connections, size, age and industry for example.

The geographic distance between bank and borrowers has been explored extensively in the economic literature. Banks that are closer to their clients have a better capacity to screen and monitor their clients as they have access not only to hard information, such as financial information, or hard assets as collateral, but also to soft information. However, closer distance might give the bank also a competitive advantage especially in more concentrated banking markets. Borrowers incur higher transportation costs if engaging a bank whose branch is further away; this in turn might lead to price discrimination by the banks across borrowers with different distances to the bank, with clients closest by paying the highest rate. While the literature has focused on distance as important element in bank-borrower relationships, its interaction with different bank characteristics, critically with the religious orientation of banks, has not been explored yet.

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shows that foreign banks in Pakistan establish relationships with large and visible firms. Ongena and Şendeniz-Yüncü (2011) also documents a strong but varied correspondence between firm characteristics and bank type. Because the dataset employed in this paper augments theirs we will discuss their paper in more detail later.

Islamic finance fundamentally differs from conventional finance along several dimensions. Specifically, Sharia-compliant finance does not allow for the charging of interest payments (*riba*), as only goods and services are allowed to carry a price, does not allow for speculation, and prohibits financing of specific illicit activities. At the same time, Sharia-compliant finance relies on the idea of profit- and loss- and thus risk-sharing (and is thus sometimes also referred to as participation finance), on both the liability and asset side and posits that all transactions have to be backed by a real economic transaction that involves a tangible asset. Crucial in the context of our study is that Islamic banks put a heavy emphasis on close relationships with their clients. This would imply that Islamic banks rely less on geographic proximity as means of maintaining such relationships. However, the appeal of Islamic banks to borrowers whose religious beliefs make them reluctant to use conventional finance might also make them more attractive for these borrowers even when they are further away from Islamic branches.

The theoretical and empirical literature also provides predictions on the effect of other bank characteristics on the distance between banks and borrowers. Small and domestic banks rely more on close relationships with their borrowers and soft rather than hard(ened) information in their lending technology. They would therefore rely more on close proximity to their borrowers in their lending business. On the other hand, large and foreign-owned banks rely more on arms-length transaction-based lending techniques, which requires hard(ened) information and hard assets and less soft information and long-standing relationships and therefore less proximity to the client. However, larger banks might also have wider branch networks for deposit collection purposes and might thus be more attractive for clients.

Our empirical analysis provides two main insights. First, we find that firms have connections with banks whose closest branch is on average 1.7 kilometers away. However, within this set of firm-branch connections, there is a large variation across banks with different

characteristics. Specifically, compared to the average branch which a given firm has decided to have a relationship with (i.e., within-firm), Islamic banks are 6 percent further away, large banks are 38 percent closer, and foreign and state banks 25 and 11 percent further away, respectively. If firms would simply minimize distance to their bank or select banks on other criteria that are uncorrelated with bank type (i.e., if bank type would not play any role in determining firms' choices of banks), our findings would likely not arise even if branches of Islamic, foreign and state banks are dispersed and those of large banks are omnipresent.

Actually we also find an important variation within the group of Islamic banks that immediately shows the relevancy of this intuition; when differentiating by bank size, we find that large Islamic banks are 16 percent further away, while small Islamic banks are 9 percent closer than the average branch for a given firm! Similarly, we find important variation across regions and industries in the interaction of Islamic bank relationships and distance, with the distance effect most striking in the Mediterranean and Aegean regions and in Agriculture, Trade and Services, areas and sectors in which firms - given the business risks involved - may particularly appreciate the Islamic banking model of profit and loss sharing.

Second, we find that the probability for a firm to connect to a bank substantially decreases in the distance to this bank's nearest branch, but that the choice along bank characteristics determines how potent distance is in its impact. For example, an increase in distance from zero to ten kilometer decreases the probability a bank is engaged by more than seven percentage points (this is for given a firm-specific probability of engagement, i.e., controlling for firm fixed effects); this is a large effect given that the unconditional probability a firm engages the closest branch of any bank equals seven percent. But if the bank in the vicinity is an Islamic bank, distance plays a more muted role, especially in the Mediterranean and Aegean regions and in Agriculture, Transportation, Trade and Services. Concurrently controlling for other

bank characteristics suggests that especially when engaging with small, foreign or state banks physical distance no longer plays a crucial role in determining the firms' choices. Important to note is that the distance between bank and firm might be driven both by demand (i.e., firm-level) and supply-side (i.e., bank-level) factors. We therefore rely again on within-firm variation in the distance to different banks and confirm most of our findings.

Overall these findings suggest that the presence of banks with certain characteristics in the vicinity of firms may determine the across-firm and within-firm configurations of observable firm-bank connections. In this respect our study once more stresses the point that at least in corporate retail banking distance is “far from dead” and that policy should aim not to impede the physical presence of a variety of financial institutions. In addition, we show that Islamic financial products are sufficiently attractive for certain borrowers that they are willing to take into account longer distances to access these banking products.

Our paper relates to two different strands of literature. First, our paper is related to an extensive theoretical and empirical literature on the importance of geographic proximity for borrower-bank relationships. Petersen and Rajan (2002) document an increasing distance between borrowers and banks in the U.S. and relate this to the increased use of technology in the U.S. banking system. Degryse and Ongena (2005), on the other hand, do not find an increase in distance between bank and borrowers for Belgium. This literature has also explored variation across different bank types. Smaller banks might rely more on relationship lending and thus soft information and therefore have to be closer to the client. Larger and foreign-owned banks, on the other hand, rely more on hard(ened) information and can therefore afford to be geographically further away from their clients (e.g., Berger, Miller, Petersen, Rajan and Stein (2005)).

Second, our paper relates to a small but rapidly growing literature on Islamic banking. On the country level, Baele, Farooq and Ongena (2014) find lower defaults for Islamic than for

conventional loans even among the same borrower and same bank in Pakistan, while Ongena and Şendeniz-Yüncü (2011) find for Turkey that Islamic banks mainly deal with young, multiple-bank, industry-focused and transparent firms. Beck, Demirgüç-Kunt and Merrouche (2013) find in a large cross-country sample that Islamic banks are less cost-effective, but have a higher intermediation ratio, higher asset quality and are better capitalized, which also explains their better performance during the recent crisis. Similarly, Abedifar, Molyneux and Tarazi (2013) find evidence that Islamic banks have lower credit risk and are more stable than conventional banks and their loan quality is less responsive to domestic interest rate shocks (see also Čihák and Hesse (2010), Pappas, Izzeldin, Fuertes and Ongena (2013), among others).

The rest of the paper proceeds as follows. Section II introduces the data and summary statistics on bank geography and connections and motivates each of the individual bank and firm variables employed in our empirical specifications. Section III discusses the methodology and estimates when analyzing the distance between firms and their connected banks. Section IV does the same when analyzing the impact of distance on the probability firms establish connections with their banks. Section V summarizes the findings, discusses policy implications and concludes.

## **II. Data and Summary Statistics**

### **A. Data Sources**

Turkey's banking system is diverse in terms of size, nationality, ownership and religious orientation. As of November 2009, the Turkish banking system includes 49 banks: 31 commercial banks, 13 investment banks, 4 participation (Islamic) banks and one bank



managed by the Savings Deposit Insurance Fund (SDIF).<sup>4</sup> Among these 49 banks there are 24 foreign banks that are either established or that opened up branches in Turkey.<sup>5</sup> All these entities are supervised by the Banking Regulation and Supervision Agency (BRSA) which was established in June 1999. The financial sector in Turkey was also relatively stable prior to 2008.<sup>6</sup>

Our analysis is based on the merger of two unique databases. Brick-and-mortar branches define the physical presence of banks in Turkey as in most developing and emerging countries. We therefore obtain a comprehensive list of all bank branches in Turkey and geocode their addresses. On the bank side our sample consists of 9,546 bank branches. On the firm side our data source is a directory of firms distributed by *Kompass*. Kompass provides entries for over two million firms in 70 countries including firm address, executive names, industry, turnover, date of incorporation and, also important for our purposes, the firms' primary bank relationships. Kompass relies on information provided by chambers of commerce and firm registries across the different countries. Giannetti and Ongena (2012) were among the first to use this dataset in their investigation of which borrowers are able to benefit from a foreign bank presence in Eastern European emerging markets (see also Ongena, Peydró and van Horen (2013)).

We obtain the firm directory for Turkey for the year 2008. This particular directory was also used in Ongena and Şendeniz-Yüncü (2011). It contains 10,170 complete firm records.

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<sup>4</sup> See <http://www.bddk.org.tr> for detailed information on the Turkish banking system.

<sup>5</sup> In addition, there are 44 representative offices of foreign banks that provide mainly non-transactional operations and are therefore not included in the analysis.

<sup>6</sup> The Turkish banking system experienced quite a volatile environment during the 1990s though (see e.g., Ongena and Şendeniz-Yüncü (2011) for a concise summary). Zenginobuz and Mumcu (2005) analyze the mergers and acquisitions taking place in the Turkish banking sector post-crisis and Damar (2007) investigates the impact of this post-crisis bank consolidation on the branching patterns in Turkey.

One quarter (2,511) of these firms report they have no lending relationship with a bank,<sup>7</sup> while three quarters (7,659) of the firms report the identity of at least one bank. Among the firms with banking relationships almost one-third (2,354) report one relationship, while the remaining two-thirds (5,305) report multiple relationships, ranging between one and 14. The average firm reports more than two.<sup>8</sup> In total there are 29 banks reported to be “in relationship with” by the firms in our sample.

## **B. Measures of Distance**

Based on the bank and firm geo-codes we calculate great-circle distances, which are the shortest distance in kilometers between two points on Earth along its surface (i.e., “as the crow flies” and in our application calculated with a 0.5 percent level of precision) for various configurations. Table 1 provides the summary statistics.

[Table 1 around here]

We use these distance measures to compute three different measures of distance. First, we calculate the distance between each firm and the branch of each of the 29 main banks that is

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<sup>7</sup> Similarly an independent survey by the European Bank for Reconstruction and Development and World Bank called Business Environment and Enterprise Performance Survey (BEEPS) reports that in 2008, 39 percent of the firms in Turkey are unbanked. Across the 13 emerging economies in Giannetti and Ongena (2012) the identity of the registered firms’ banks in Kompas is reported for only one quarter of the firms. Also in their case, BEEPS reports similar proportions.

<sup>8</sup> The way in which Ongena and Şendeniz-Yüncü (2011), Giannetti and Ongena (2012), and this study identifies bank relationships is therefore similar to Ongena and Smith (2001), Karceski, Ongena and Smith (2005), and Ongena and Smith (2000b). While the relationship between a firm and the reported primary banks may have many aspects and involve a variety of products, the banks reported by firms in our sample are most likely not lead managers or participants in loan syndicates. As in other emerging markets, the syndicated loan market provides only a tiny amount of financing, even for the largest corporations in Turkey. Note also that since 1951 Turkey has a public credit registry maintained by the Central Bank of Turkey to which key credit information about many firms is reported (Miller (2003)). Strategic reporting or omissions of bank relationships is pointless if the registry information can also be easily verified by others.

closest. We correspondingly have 221,937 bank-firm combinations. Row (1) of the upper panel reports the descriptive statistics for this variable *firm-branch distance*. The median distance equals 1.5 kilometers, while the mean is 12.6 kilometers.

Second, we condition on the firm having a connection with the bank, thus gauging the *firm-related branch distance*. In row (2) we report that for the 15,918 observed bank-firm pairs, the median distance equals 700 meters, while the average distance is 1.7 kilometers.

Finally, we calculate the distance between each of the 7,653 sample firms and the bank branches that are closest, unconditionally, to the firm, a variable we call *firm-closest branch distance*. For all banks we report the summary statistics in row (3) in the upper panel. The number of observations equals 11,623, which is larger than 7,653 because some bank branches are located very close to each other in which case their distance to the firm will be calculated to be the same (due to the resolution of the raw address data and the geocoding procedure, two or more bank branches may have the same coordinates if they are in the same building for example). We find that many firms are located very close to a bank branch. The median firm is only 200 meters away from a bank branch, while the average distance is 600 meters. But there is a substantial variation with one firm 55 kilometers away from the closest bank branch. The fact that, on average, the branch of the bank with which a firm has a lending relationship is farther away than the closest branch suggests that distance is only one of the factors that may determine bank choice, i.e., firms do not only engage a bank branch because it is closest-by.

Next we split all banks in two groups, Islamic and conventional banks, because the Islamic character of a bank could potentially increase its appeal across larger distances. A bank is

defined to be Islamic if the bank declares itself to be a participation bank that carries out banking activities based on the principle of profit and loss participation.<sup>9</sup>

We find that while unconditionally firms and Islamic versus conventional banks are equally distant (the values for *firm-closest branch distance* are 0.5 versus 0.6, and 0.3 versus 0.2 kilometers in mean and median, respectively), conditioning on a bank-firm connection being observed Islamic banks are more distant (the values for *firm-related branch distance* are 3.3 versus 1.7, and 1.2 versus 0.7 kilometers, respectively). This is first tentative evidence that firms may be prepared to engage an Islamic bank over a longer distance. Other bank characteristics will be found to be of equal if not more importance in this engagement decision however.

### C. Bank Characteristics and Firm-Bank Relationships

In addition to bank orientation (i.e., Islamic versus conventional), we distinguish between three further defining bank characteristics: bank size, nationality, and ownership. We split the banks into two groups according to each bank characteristic.

A bank is defined to be *large* if its assets are among the top eight domestic banks at the end of 1998 (one of these banks was closed but the remaining seven still were the top seven domestic banks by assets by the end of 2008). By the size of their assets abroad all foreign banks are also classified as large banks.<sup>10</sup> All other banks are classified as small. A bank is defined to be *foreign* (domestic) if the majority of equity is owned by foreign (Turkish) individuals or institutions while a bank is defined to be *state-owned* (private) if the majority of equity is owned by the government (private individuals or institutions). Our sample contains

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<sup>9</sup> Source: www page of the "Participation Banks Association of Turkey", <http://www.tkbb.org.tr>.

<sup>10</sup> Source: www page of the "Banks Association of Turkey", <http://www.tbb.org.tr>.

29 banks. Shares of different banks in our sample are as follows: Among those 29 banks, 20 are large and 9 are small; 16 are domestic and 13 are foreign; 25 are private and 4 are state-owned banks.

[Table 2 around here]

Table 2 provides the total number of firms that have a connection with each type of bank (the lower panel of the Table collects the definitions of the bank categorizations). There are 52 firms that engage Islamic banks only, 7,371 firms engage conventional banks only, and 230 firms have relationships with both types of banks (hence the total number equals 7,653). 6,869 firms engage large banks only, 93 small banks only, while 691 firms have relationships with both large and small firms. 232 firms engage foreign banks only, 6,088 firms engage domestic banks only, and 1,333 have relationships with both foreign and domestic banks. Finally, 154 firms engage state banks only, 6,613 firms engage private banks only, and 886 have relationships with both. Hence, firms engage banks with a variety of characteristics and each of these characteristics could play a role in determining how distance determines bank choice.

#### **D. Methodology**

To explore the role played by physical proximity and the four bank characteristics in determining bank choice, we rely on two complementary sets of regression analyses. First, we will explore how within the set of observed bank-firm connections, the four bank characteristics co-determine the observed physical distances between firm and connected banks. These exercises rely therefore on the 15,918 observed bank-firm connections. Specifically, we use the following regression to gauge the relationship between bank characteristics and *firm-related branch distance*:

$$Y_{ij} = \alpha_i + \beta \text{Bank}_j + \varepsilon_i \quad (1)$$

Where  $Y_{ij}$  is the distance in kilometers between firm  $i$  and the closest branch  $j$  of each of the banks it has a lending relationship with. To take the logarithm we have to add one to the calculated distance because some calculated distances equal zero (to make the coefficients more easily readable we multiply by one hundred). The estimates that we will report in Table 4 and will be discussed below in Section III come from ordinary least squares models. All independent variables are defined in Table 3 with the summary statistics for the 15,918 observed bank-firm connections in the first set of (five) accordingly labeled columns.

[Table 3 around here]

Second, we will investigate how the actual physical distance combined with bank characteristics determine the observed bank choice outcomes. Here we rely on the 221,937 possible pairings of sample firms and the closest branches of each bank in Turkey. Specifically, we run the following regression to gauge which bank characteristics determine whether a firm has a relationship with a specific bank or not:

$$Y_{ij} = \alpha_i + \beta_1 \ln(\text{Distance})_{ij} + \beta_2 \text{Bank}_j + \beta_3 \ln(\text{Distance})_{ij} * \text{Bank}_j + \varepsilon_{ij} \quad (2)$$

where  $Y_{ij}$  is a dummy variable that takes the value one if firm  $i$  has a relationship with bank  $j$ . Coefficient  $\beta_1$  indicates the effect of distance on the likelihood that firm  $i$  engages bank  $j$ , coefficient  $\beta_2$  gauges the effect of bank orientation, size, nationality, and ownership on the likelihood that firm  $i$  has a relationship with bank  $j$  and coefficient  $\beta_3$  indicates the differential

effect across banks with different characteristics, including orientation, of distance on the likelihood that firm  $i$  engages bank  $j$ . As in regression (1) we use OLS estimation. The estimates will be reported in Table 5 and discussed below in Section IV,<sup>11</sup> and for the 221,937 pairings of firms and closest branches summary statistics are provided in the second set of (five) columns in Table 3.

### III. Distance to the Connected Banks

The results in Table 4 show the importance of different bank characteristics for the distance between a firm and the banks it has relationship with. Here we regress *firm-related branch distance* on an array of different bank characteristics.

The results in column (1) suggests that Islamic banks are further away from their clients than conventional banks. The result is not only statistically significant at the one percent level, but also of economic relevance. Specifically, the coefficient estimate of 29.2 implies that at the mean log distance (which equals 67.4) there is a 43 percent ( $= 29.2 / 67.4$ ) higher distance for Islamic than for conventional banks. Controlling for firm fixed-effects does not affect the significance or size of the coefficient estimate in column (2), suggesting that even for firms with several bank relationships, one of them possibly Islamic,<sup>12</sup> the distance to the Islamic bank is significantly larger than to the conventional bank.

[Table 4 around here]

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<sup>11</sup> We employ linear probability models because we include many fixed effects and because we are particularly interested in the estimated coefficients on interactive terms (Ai and Norton (2003), Norton, Wang and Ai (2004)). Parsimonious binary dependent models yield qualitatively similar results.

<sup>12</sup> Rerunning the analysis for the 230 firms that have at least one Islamic and one conventional bank yields similar estimates. We will report one representative specification in Model (10).

The results in column (3) show that other bank characteristics, partly correlated with the Islamic bank dummy, are also important for *firm-related branch distance*. Here, we include dummy variables for large, foreign, and state-owned banks, with small and privately-owned domestic banks being the reference group. We now find that within the set of connected banks, (and again taken at the mean log distance of 67.4), Islamic banks are only 9 percent farther away than conventional banks. Larger banks, on the other hand, are on average 56 percent closer to the firms they deal with, while foreign and state-owned banks are 37 and 15 percent, respectively, farther away. Hence within the firm's set of selected banks Islamic, small, foreign or state banks are geographically farther away, potentially indicating that these bank characteristics are more preferred by the firm and therefore the firm may be willing "to walk further" to connect with banks with these characteristics.

The results in column (4) show important differences between large and small Islamic banks. The different bank characteristics included in the analysis are clearly not exclusive and might interact with each other. A bank can be Islamic and large for example. To start exploring how combinations of characteristics can potentially lead firms to engage less or more remote banks, we interact *Islamic Bank* with *Large Bank*. We find that large Islamic banks are 37 percent farther away from the firms they deal with, while small Islamic banks are 13 percent closer than conventional banks. This is an interesting finding *per se* because it shows that although in general firms will pick small banks even when they are farther away, this is not the case for small Islamic banks. Also, while firms typically relate with large banks that are closer to the firm, this is not the case for large Islamic banks, where borrowers are willing to "walk farther".

We next compare the effect of bank orientation across regions, by including interaction terms of regional dummies with the Islamic bank dummy in column (5). The benchmark region is the East, Southeast, or Black Sea region, captured in the Islamic bank dummy. While



the Islamic bank dummy enters positively but insignificantly, we find that firms in the other four regions are further away from the Islamic banks they maintain a relationship with (than from conventional banks). Specifically, we find that the extra distance to an Islamic bank selected as the relationship bank is 57, 66, 30, and 32 percent higher compared to a conventional bank in the Mediterranean, Aegean, Marmara and Central Anatolia regions, respectively. The regions where the firms' willingness to engage more remote Islamic banks is more pronounced may match those where there exist more dispersed pockets of religious sentiments making the actual journey to an Islamic bank longer (we plan to investigate this issue further in future research).<sup>13</sup>

In column (6) we add interaction terms of the Islamic bank dummy with additional firm-level variables to thus control for differences in firm population across regions. Specifically, we add an interaction of Islamic Bank and the *Number of Banks* that the company has a relationship with. A firm with many banks may be less willing to travel over longer distances to its Islamic bank. On average, a firm has two bank relationship, though the variable varies between one and 14. We also add an interaction with the *Number of Industries* in which the company operates, thus capturing the industrial complexity of the firm. Firms present in many industries may prefer large and domestic banks that are more familiar with all the (domestic) industries the firm operates in and be less willing to spend time travelling to its Islamic bank. The average firm operates in 1.7 different industries, ranging from zero to 18.<sup>14</sup>

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<sup>13</sup> A structured interview with a manager working at the strategy department of one of the Turkish Islamic banks confirmed that customers are attracted to the bank in accordance with their religious beliefs and that as a consequence these customers travel farther distances to get branch access and also remain loyal over time. When opening new branches the bank would therefore consider (besides its own branch network and those of the competing Islamic banks) not only the economic potential of the city but also its degree of conservatism.

<sup>14</sup> 11 firms (out of 10,170) did not report any specific industry. See also Table 3 for the presence of the firms across Agriculture (agriculture, forestry or fisheries), Mining, Transportation (transportation, communications or utility services), Manufacturing, Construction, Trade (wholesale and retail trade), or Services.

We also include interactions with firm size and age. Firm size is measured using both the *Number of Employees* and *Turnover*. *Age* is the time since the establishment of the company. Firm size and age are included because the established literature documents that larger and older firms may prefer large and foreign banks, and not necessarily Islamic banks (e.g., Cole, Goldberg and White (2004)). The average firm (weighted by the number of bank relationships) employs 156 persons and has an annual turnover of 30.2 million EUR, and is 24 years old. Finally, we include the interaction of *Islamic Bank* with a variable *Timeliness of Information* which equals the final sample year plus one, i.e., 2009, minus the year the firm's turnover is reported to *Kompass*. Firms may differ in the amount and timeliness of the information that is available to their financiers. More opaque firms may prefer on the margin smaller and domestic banks, which are better suited to handle soft information.

The results in columns (6) through (8) show that our previous findings on the distance to Islamic bank branches holds when controlling for an array of firm characteristics interacted with the Islamic bank dummies. None of these interaction terms enters significantly while the coefficient on the Islamic bank dummy remains in sign and size unaltered. This finding suggests that the extra distance to a selected Islamic bank is independent of firm characteristics. Likely due to a substantial decrease in the number of observations from 15,703 in Model (6) to 8,952 in Model (8), the estimated coefficients are not so statistically significant anymore however. In Model (9) we also interact with the industry dummies and take Agriculture as the benchmark industry. Firms in this sector and also those in Trade and Services seem to be located farther from their Islamic bank, possibly because the business risks involved in these sectors make the profit and loss sharing embedded in Islamic banking attractive.

Finally, in Model (10) we limit our sample to 230 firms that have relationships with both conventional and Islamic banks. We find the same effect as in the larger sample, both in

statistical and economic significance. Specifically, for the 230 firms with relationships with conventional and Islamic bank, the Islamic bank branch is 45 percent farther away than the conventional bank branch.

To conclude Islamic, small, foreign or state banks are more remote among firms' connected banks, and for Islamic banks this is especially the case for large banks and for banks in the Mediterranean and Aegean regions. This phenomenon is further unaffected by varying firm characteristics but it is more pronounced in Agriculture, Trade and Services. Hence firms may be willing "to walk further" to connect with banks with particular characteristics.

#### **IV. Choice of Banks Given their Distance**

So far we have studied the relative distance, by various bank characteristics, within the set of the banks connected to each firm. By including firm fixed effects we assess deviations from the average distance within the set of connected banks for each firm. This average distance likely reflects the spatial configuration around the firm.

In this section we go one step further and consider the actual choice of banks given the spatial configuration of banks around the firm. We start from all possible pairings of sample firms and the closest branches of each bank in Turkey. We have 221,937 such pairs and for each we calculated the distance between firm and bank. These 221,937 pairs are our observations in Table 5 (in robustness in Table A.1 we restrict the sample to the 221,810 observations for which the distance between bank and firm is less than 50 kilometers).

[Table 5 around here]

The dependent variable equals one if the firm has a connection with the bank and equals zero otherwise (we again multiply by one hundred to obtain more readable coefficients).

The results in column (1) of Table 5 show a statistically significant and economically meaningful effect of distance on the likelihood that a firm will engage a specific bank. Specifically, the estimated coefficient on  $\ln(1 + \text{Distance})$  suggests that the probability a bank is engaged decreases by 7.5 percentage points if the distance between the firm and bank increases from 0 to 10 kilometers ( $= -3.16 * [\ln(11) - \ln(1)]$ ).

The results in columns (2) and (3) shows an important differential effect of the bank's orientation on the relationship between distance and the probability of a firm-bank relationship. Here, we include an Islamic bank dummy and its interaction with distance in column (2) and also add a comprehensive set of 7,653 firm fixed effects in column (3). We find that the effect of distance on the likelihood of a firm-bank relationship is muted in the case of an Islamic bank, yet that there is also a lower probability of a bank-firm relationship in the case of an Islamic bank. The coefficient sizes in column (2) suggests that there is no significant effect of distance on the likelihood that a firm engages a bank in the case of Islamic banks, while there continues to be a strong effect of distance on the probability of firm-bank relationship in the case of conventional banks. The coefficient estimates in column (3), on the other hand, which gauge the intra-firm likelihood of engaging a specific bank suggest a smaller but still significant effect of distance on the likelihood of engaging a bank in the case of Islamic banks. This finding implies that distance plays less of a role when engaging an Islamic bank. Put differently the firm is "willing to walk further" to engage an Islamic bank.

However when in Model (4) bank size, nationality and ownership are added, the coefficient on the interaction of distance with Islamic bank is no longer statistically significant, but the coefficients on the interactions of distance with bank size, nationality and ownership are. The latter estimates imply that when engaging a small, foreign or state bank distance again does not play a significant role, in contrast to when the engagement involves a large, domestic or

private bank where distance substantially reduces the probability that such a bank engagement will be observed.

In Models (5) to (14) we re-estimate the last two models by region and we again find that distance plays a lesser role when engaging an Islamic bank in the Mediterranean and Aegean regions, but that when adding the bank size, nationality and ownership variables and their interactions with distance statistical significance on all interactions is often lost. Models (15) to (28) show this to be the case across the different industries as well. Except for firms in Manufacturing, again we find that the effect of distance on the likelihood of a firm-bank relationship is muted in the case of an Islamic bank, yet that there is also a lower probability of a bank-firm relationship in the case of an Islamic bank. At the same time however bank size, nationality and ownership may matter even more than its Islamic orientation when it comes to determining the impact of distance of the likelihood of a firm-bank relationship for firms within most industries.

## **V. Conclusions**

This paper assesses the importance of bank characteristics for the distance bank clients are willing to accept to the nearest branch of the lender. Specifically, we gauge the importance of bank characteristics, including size, nationality and religious orientation for (i) the distance between firm and the banks it has relationships with and (ii) the effect that distance between firm and bank branches has on the likelihood that the firm contracts with a specific bank. We find consistent results across the two sets of exercises. In the first section we found that (“on the intensive margin”) among connected banks Islamic, small, foreign or state-owned were located farther afield from the firm. In the second section we have shown that (“on the extensive margin”) the engagement of a bank by a firm is less affected by distance when the

bank is Islamic, small, foreign or state-owned. Both findings vividly illustrate that banks with certain characteristics are worth for firms “walking the extra mile for”.

For policymakers these findings may indicate that from a corporate finance perspective competition between a variety of financial institutions should be fostered and that the physical presence of banks should not be made too costly or impeded. Distance still matters and firms incur seemingly sizeable costs (lest engagement probabilities would not be affected so strongly) to engage banks with certain characteristics.

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**Table 1.**

This table provides the distance in kilometers between each of the 7,653 sample firms and the indicated bank branches that are closest: (1) one branch for each bank operating in Turkey, (2) when the firm has a connection with the bank, and (3) unconditionally. The number of observations in (3) is larger than 7,653 because some bank branches are located very close to each other in which case their distance to the firm will be calculated to be the same (due to the resolution of the raw address data and the geocoding procedure, two or more bank branches may have the same coordinates if they are in the same building for example). The distance calculated is the shortest distance between two points on Earth along its surface (i.e., a great-circle distance that is calculated with a 0.5 percent level of precision). The table provides the number of observations, the mean, the median, the standard deviation, the minimum and the maximum for All Banks, and for Islamic and Conventional Banks. A bank is defined to be Islamic if the bank declares itself to be a participation bank that carries out banking activities based on the principle of profit and loss participation. Source: www page of the "Participation Banks Association of Turkey".

Distance in kilometers between each of the 7,653 sample firms and the indicated bank branches that are closest	Number of Observations	Mean	Median	Standard Deviation	Minimum	Maximum
<b>All Banks</b>						
(1) One branch for each bank operating in Turkey	221,937	12.6	1.5	54.6	0	1,286.4
(2) The firm has a connection with the bank	15,918	1.7	0.7	6.7	0	506.6
(3) Unconditionally	11,623	0.6	0.2	1.9	0	54.9
<b>Islamic Banks</b>						
(1) One branch for each bank operating in Turkey	30,612	4.1	1.3	11.7	0	244.4
(2) The firm has a connection with the bank	306	3.3	1.2	9.4	0	94.6
(3) Unconditionally	812	0.5	0.3	0.9	0	11.3
<b>Conventional Banks</b>						
(1) One branch for each bank operating in Turkey	191,325	13.9	1.6	58.5	0	1,286.4
(2) The firm has a connection with the bank	15,612	1.7	0.7	6.6	0	506.6
(3) Unconditionally	10,811	0.6	0.2	1.9	0	54.9

**Table 2.**

This table provides the total number of firms that have a connection with each type of bank; i.e., Islamic versus Conventional, Large versus Small, Foreign versus Domestic, and State versus Private. The total number always equals 7,653. The lower panel of the Table defines the bank categorizations.

<b>A</b>	<b>B</b>	<b>Only A</b>	<b>Only B</b>	<b>Mixed</b>
Islamic	Conventional	52	7,371	230
Large	Small	6,869	93	691
Foreign	Domestic	232	6,088	1,333
State	Private	154	6,613	886
<b>Category</b>	<b>Definition (and Source )</b>			
Islamic	A bank is defined to be Islamic if the bank declares itself to be a participation bank and carries out banking activities based on the principle of profit and loss participation ( <i>Source</i> : www page of the "Participation Banks Association of Turkey"). All other banks are classified as conventional.			
Large	A bank is defined to be large if its assets are among the top eight domestic banks at the end of 1998 (one of these banks was closed but the remaining seven still were the top seven domestic banks by assets by the end of 2008). By the size of their assets abroad all foreign banks are also classified as large banks ( <i>Source</i> : www page of the "Banks Association of Turkey"). All other banks are classified as small.			
Foreign	A bank is defined to be foreign (domestic) if the majority of equity is owned by foreign (Turkish) individuals or institutions.			
State	A bank is defined to be state-owned (private) if the majority of equity is owned by the government (private individuals or institutions).			

**Table 3.**

This table provides the variable names, definitions, units and for the three different samples the number of observations (Obs.), the mean, the standard deviation (St. Dev.), the minimum (Min.) and the maximum (Max.). There are different bank characteristics according to bank orientation, nationality, ownership and size (see Table 2 for definitions). DEM and FRF values are converted to EUR using official exchange rates. USD and TRL values are converted to EUR using the Turkish Central Bank official annual average exchange rates. 2,620 companies report their turnover to be under 1 million TRL. For these firms we set turnover equal to 500,000 TRL. The industry classification is based on the two-digit Kompass industry classification.

Variable Name	Definition	Unit	(1) Pairings of Sample Firms and the Bank Branch that Is Closest of Each With-The-Firm Connected Banks					(2) All Possible Pairings of Sample Firms and the Closest Branches of Each Bank in Turkey					(3) Pairings of Sample Firms and the Bank Branch That is Closest (Unconditionally)				
			Obs.	Mean	St. Dev.	Min.	Max.	Obs.	Mean	St. Dev.	Min.	Max.	Obs.	Mean	St. Dev.	Min.	Max.
Distance	Geographic distance calculated using coordinates of firms and bank branches. The distance calculated is the shortest distance between two points on Earth along its surface (i.e., a great-circle distance that is calculated with a 0.5 percent level of precision)	km	15,918	1.7	6.7	0	506.6	221,937	12.6	54.6	0	1,286.4	11,623	0.6	1.9	0	54.9
100 * Ln(1+Distance)		ln km	15,918	67.4	61.0	0	623.0	221,937	126.8	116.1	0	716.0	11,623	32.3	45.0	0	402.4
<i>Islamic Bank</i>																	
Islamic Bank	=1 if the bank is an Islamic bank, = 0 otherwise.	0/1	15,918	0.02	0.14	0	1	221,937	0.14	0.34	0	1	11,623	0.07	0.25	0	1
<i>Other Bank Characteristics</i>																	
Large Bank	=1 if the bank is a large bank, = 0 otherwise.	0/1	15,918	0.95	0.22	0	1	221,937	0.72	0.45	0	1	11,623	0.88	0.33	0	1
Foreign Bank	=1 if the bank is a foreign bank, = 0 otherwise.	0/1	15,918	0.11	0.32	0	1	221,937	0.45	0.50	0	1	11,623	0.30	0.46	0	1
State Bank	=1 if the bank is a state bank, = 0 otherwise.	0/1	15,918	0.07	0.25	0	1	221,937	0.14	0.34	0	1	11,623	0.17	0.37	0	1
<i>Firm Region</i>																	
East, Southeast, or Blacksea	= 1 if the company operates in the East Anatolia, South East Anatolia, or Blacksea region, = 0 otherwise	0/1	15,918	0.03	0.18	0	1	221,937	0.03	0.17	0	1	11,623	0.08	0.27	0	1
Mediterranean	= 1 if the company operates in the Mediterranean region, = 0 otherwise	0/1	15,918	0.03	0.18	0	1	221,937	0.03	0.17	0	1	11,623	0.05	0.21	0	1
Aegean	= 1 if the company operates in the Aegean region, = 0 otherwise	0/1	15,918	0.08	0.28	0	1	221,937	0.08	0.27	0	1	11,623	0.08	0.27	0	1
Marmara	= 1 if the company operates in the Marmara region (which includes Istanbul), = 0 otherwise	0/1	15,918	0.76	0.43	0	1	221,937	0.77	0.42	0	1	11,623	0.69	0.46	0	1
Central Anatolia	= 1 if the company operates in the Central Anatolia region, = 0 otherwise	0/1	15,918	0.09	0.29	0	1	221,937	0.09	0.29	0	1	11,623	0.10	0.30	0	1
<i>Firm Characteristics</i>																	
Number of Banks	The number of banks that the company has relationships with	-	15,918	2.6	1.1	1	14	221,937	2.1	1.0	1	14	11,623	2.1	1.1	1	14
Number of Industries	The number of industries the company operates in	-	15,918	1.7	1.1	0	18	221,937	1.7	1.1	0	18	11,623	1.7	1.2	0	18
Number of Employees	Number of employees in the company	-	15,721	156	607	1	30,000	219,153	145	609	1	30,000	11,471	165	842	1	30,000
Age	Time since the establishment of the company	Years	15,665	23.9	14.1	1	146	218,341	23.3	13.8	1	146	11,441	23.1	14.0	1	146
Turnover	Company turnover	EUR	9,107	30.2E+6	844.0E+6	2.5E+3	54.1E+9	124,932	31.1E+6	869.0E+6	2.5E+3	54.1E+9	6,751	24.3E+6	696.0E+6	2.5E+3	54.1E+9
Timeliness of Information	Timeliness of the turnover reported by the company, calculated as 2009 - year the turnover amount is reported	Years	9,107	5.7	2.1	1	10	124,932	5.9	2.1	1	10	6,751	5.7	2.1	1	10
<i>Firm Industry</i>																	
Agriculture	= 1 if the company operates in an agriculture, forestry or fisheries industry, = 0 otherwise	-	15,918	0.03	0.18	0	1	221,937	0.03	0.17	0	1	11,623	0.04	0.19	0	1
Mining	= 1 if the company operates in a mining industry, = 0 otherwise	-	15,918	0.02	0.15	0	1	221,937	0.02	0.14	0	1	11,623	0.02	0.15	0	1
Transportation	= 1 if the company operates in a transportation, communications or utility services industry, = 0 otherwise	-	15,918	0.03	0.18	0	1	221,937	0.03	0.18	0	1	11,623	0.03	0.16	0	1
Manufacturing	= 1 if the company operates in a manufacturing industry, = 0 otherwise	-	15,918	0.88	0.33	0	1	221,937	0.88	0.33	0	1	11,623	0.88	0.32	0	1
Construction	= 1 if the company operates in a construction industry, = 0 otherwise	-	15,918	0.02	0.15	0	1	221,937	0.02	0.15	0	1	11,623	0.02	0.15	0	1
Trade	= 1 if the company operates in a wholesale and retail trade industry, = 0 otherwise	-	15,918	0.14	0.35	0	1	221,937	0.14	0.35	0	1	11,623	0.14	0.35	0	1
Services	= 1 if the company operates in a services industry, = 0 otherwise	-	15,918	0.04	0.20	0	1	221,937	0.04	0.20	0	1	11,623	0.04	0.20	0	1

**Table 4.**

The estimates in this table come from ordinary least squares models. The dependent variable is one hundred times the logarithm of one plus the distance in kilometers between the firm and the closest branch of each of its connected banks. All independent variables are defined in Table 3. "Yes" indicates that the set of fixed effects is included. "No" indicates that the set of fixed effects is not included. The estimated coefficients are listed in the first row, standard errors are reported in the second row between brackets, and the corresponding significance levels are in the first row adjacent to the estimated coefficients. \*\*\* Significant at 1%, \*\* significant at 5%, \* significant at 10%.

	<i>Samples</i>		<i>All Firms</i>			<i>Firm with Characteristics Available</i>				<i>Firms with both Conventional and Islamic Banks</i>	
	<b>Models</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>
Islamic Bank		29.2 *** (3.5)	30.6 *** (2.9)	6.1 ** (2.9)	-8.9 ** (4.5)	9.2 (10.1)	22.0 ** (10.5)	20.5 (43.9)	43.3 (51.1)	108.3 * (63.4)	30.6 *** (3.7)
Large Bank				-38.3 *** (1.7)	-40.3 *** (1.7)						
Foreign Bank				25.3 *** (1.2)	24.4 *** (1.2)						
State Bank				10.7 *** (1.4)	10.7 *** (1.4)						
Islamic Bank * Large Bank					24.9 *** (5.7)						
Islamic Bank * Mediterranean						38.5 ** (17.3)					
Islamic Bank * Aegean						44.4 *** (14.8)					
Islamic Bank * Marmara						20.3 * (10.7)					
Islamic Bank * Central Anatolia						21.8 * (12.7)					
Islamic Bank * Number of Banks						0.9 (7.6)	-6.5 (10.5)	-8.6 (10.7)	-7.6 (11.1)		
Islamic Bank * Number of Industries						1.4 (5.6)	-0.1 (8.6)	-0.7 (8.6)	10.7 (10.6)		
Islamic Bank * Number of Employees						1.9 (2.1)	-3.4 (3.6)	-3.5 (3.6)	-3.3 (3.7)		
Islamic Bank * Age							4.4 (7.7)	5.4 (7.8)	2.9 (8.0)		
Islamic Bank * Turnover							1.0 (2.9)	0.2 (3.1)	-0.6 (3.2)		
Islamic Bank * Timeliness of Information								-8.0 (9.2)	-8.7 (9.6)		
Islamic Bank * Mining									-43.4 (35.9)		
Islamic Bank * Transportation									-18.9 (30.8)		
Islamic Bank * Manufacturing									-51.3 * (26.7)		
Islamic Bank * Construction									-46.0 * (27.7)		
Islamic Bank * Trade									-5.9 (15.0)		
Islamic Bank * Services									-32.3 (31.7)		
Firm Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm Fixed Effects	7,653	7,653	7,653	7,653	7,653	7,547	4,231	4,231	4,231	4,231	230
Number of Observations	15,918	15,918	15,918	15,918	15,918	15,703	8,952	8,952	8,952	8,952	688
R-squared	0.004	0.004	0.044	0.045	0.005	0.005	0.003	0.003	0.003	0.004	0.039

**Table 5.**

The estimates in this table come from ordinary least squares models. The dependent variable equals one hundred if the firm has a connection with the bank and equals zero otherwise. All independent variables are defined in Table 3. "Yes" indicates that the set of firm fixed effects is included. "No" indicates that the set of firm fixed effects is not included. The estimated coefficients are listed in the first row, standard errors are reported in the second row between brackets, and the corresponding significance levels are in the first row adjacent to the estimated coefficients. \*\*\* Significant at 1%, \*\* significant at 5%, \* significant at 10%.

<b>Models</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>	<b>(11)</b>	<b>(12)</b>	<b>(13)</b>	<b>(14)</b>
<b>Regions</b>	<b>All Regions</b>	<b>All Regions</b>	<b>All Regions</b>	<b>All Regions</b>	<b>East, Southeast, or Blacksea</b>	<b>East, Southeast, or Blacksea</b>	<b>Mediterranean</b>	<b>Mediterranean</b>	<b>Aegean</b>	<b>Aegean</b>	<b>Marmara</b>	<b>Marmara</b>	<b>Central Anatolia</b>	<b>Central Anatolia</b>
Ln(1+Distance)	-3.16 *** (0.05)	-3.59 *** (0.05)	-5.18 *** (0.06)	-1.08 *** (0.08)	-3.02 *** (0.18)	-1.21 *** (0.27)	-2.89 *** (0.17)	-0.79 *** (0.29)	-3.93 *** (0.16)	-1.04 *** (0.28)	-7.32 *** (0.08)	-1.29 *** (0.12)	-3.62 *** (0.14)	-0.77 *** (0.22)
Ln(1+Distance) * Islamic Bank		3.49 *** (0.18)	1.72 *** (0.18)	0.09 (0.17)	0.76 (0.69)	-0.09 (0.65)	1.35 * (0.81)	0.28 (0.75)	2.13 *** (0.54)	0.41 (0.50)	2.62 *** (0.26)	0.17 (0.24)	1.17 ** (0.50)	0.23 (0.46)
Ln(1+Distance) * Large Bank				-1.65 *** (0.25)		0.18 (1.14)		-0.14 (1.01)		0.09 (0.87)		-1.57 *** (0.34)		0.05 (0.59)
Ln(1+Distance) * Foreign Bank				1.46 *** (0.25)		-0.48 (1.13)		0.00 (1.00)		-0.11 (0.85)		1.39 *** (0.34)		-0.35 (0.59)
Ln(1+Distance) * State Bank				1.39 *** (0.26)		-0.55 (1.16)		-0.61 (1.03)		-1.49 * (0.90)		1.36 *** (0.35)		-1.03 * (0.60)
Islamic Bank		-11.75 *** (0.25)	-10.36 *** (0.25)	-1.47 *** (0.23)	-10.53 *** (1.33)	-2.31 * (1.30)	-10.87 *** (1.56)	-2.36 (1.48)	-12.09 *** (1.03)	-3.05 *** (0.97)	-11.31 *** (0.30)	-1.54 *** (0.27)	-9.24 *** (0.86)	-0.74 (0.80)
Large Bank				38.16 *** (0.24)		31.09 *** (1.51)		32.40 *** (1.43)		33.28 *** (1.03)		39.03 *** (0.29)		34.38 *** (0.80)
Foreign Bank				-37.52 *** (0.23)		-30.89 *** (1.34)		-31.70 *** (1.35)		-33.00 *** (0.95)		-38.42 *** (0.27)		-33.48 *** (0.75)
State Bank				-35.86 *** (0.26)		-26.16 *** (1.58)		-27.39 *** (1.54)		-27.12 *** (1.09)		-37.72 *** (0.31)		-26.50 *** (0.87)
Firm Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm Fixed Effects	0	0	7,653	7,653	221	221	240	240	589	589	5,877	5,877	726	726
Number of Observations	221,937	221,937	221,937	221,937	6,409	6,409	6,960	6,960	17,081	17,081	170,433	170,433	21,054	21,054
R-squared	0.020	0.033	0.032	0.255	0.044	0.180	0.044	0.199	0.038	0.199	0.037	0.273	0.029	0.219

**Table 5. Continued**

Models	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Industries	Agriculture	Agriculture	Mining	Mining	Transportation	Transportation	Manufacturing	Manufacturing	Construction	Construction	Trade	Trade	Services	Services
Ln(1+Distance)	-3.65 *** (0.25)	-0.72 ** (0.37)	-3.73 *** (0.29)	-1.13 * (0.44)	-6.64 *** (0.38)	-0.71 (0.52)	-5.16 *** (0.06)	-1.09 *** (0.09)	-5.55 *** (0.42)	-1.89 *** (0.70)	-5.74 *** (0.17)	-1.26 *** (0.24)	-5.30 *** (0.28)	-0.79 ** (0.39)
Ln(1+Distance) * Islamic Bank	1.54 ** (0.77)	-0.72 (0.37)	1.35 (0.92)	-1.13 (0.44)	3.13 ** (1.27)	0.87 (1.08)	-5.16 *** (0.20)	0.04 (0.18)	-5.55 (0.42)	0.38 (1.51)	1.85 *** (0.59)	0.12 (0.53)	1.87 ** (0.73)	-0.08 (0.64)
Ln(1+Distance) * Large Bank		-0.86 (1.20)		0.97 (1.34)		-2.95 ** (1.51)		-1.63 *** (0.27)		4.95 ** (2.15)		-3.67 *** (0.75)		-1.39 (1.25)
Ln(1+Distance) * Foreign Bank		0.41 (1.18)		-0.95 (1.32)		2.84 * (1.48)		1.44 *** (0.27)		-4.77 ** (2.12)		3.46 *** (0.74)		1.30 (1.23)
Ln(1+Distance) * State Bank		0.44 (1.23)		-1.02 (1.38)		2.67 * (1.55)		1.33 *** (0.28)		-4.43 ** (2.18)		3.44 *** (0.77)		1.23 (1.29)
Islamic Bank	-10.01 *** (1.45)	-2.01 (1.36)	-10.62 *** (1.67)	-2.85 * (1.58)	-12.18 *** (1.46)	-1.91 (1.26)	-10.32 *** (0.27)	-1.43 *** (0.25)	-9.90 *** (1.83)	-2.59 (1.72)	-10.60 *** (0.69)	-1.62 ** (0.63)	-9.68 *** (1.10)	-0.46 (0.98)
Large Bank		36.31 *** (1.44)		32.30 *** (1.66)		45.40 *** (1.30)		37.87 *** (0.26)		30.07 *** (1.68)		39.63 *** (0.64)		40.90 *** (1.08)
Foreign Bank		-33.99 *** (1.34)		-31.50 *** (1.54)		-44.34 *** (1.21)		-37.25 *** (0.25)		-30.27 *** (1.54)		-39.08 *** (0.60)		-40.54 *** (1.00)
State Bank		-33.22 *** (1.54)		-30.63 *** (1.79)		-44.19 *** (1.40)		-35.46 *** (0.28)		-29.44 *** (1.77)		-37.40 *** (0.70)		-38.78 *** (1.17)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm Fixed Effects	229	229	162	162	262	262	6,715	6,715	184	184	1,076	1,076	324	324
Number of Observations	6,641	6,641	4,698	4,698	7,598	7,598	194,735	194,735	5,336	5,336	31,204	31,204	9,396	9,396
R-squared	0.032	0.214	0.033	0.205	0.039	0.336	0.032	0.250	0.032	0.206	0.032	0.258	0.030	0.301

**Table A.1.**

The estimates in this table come from ordinary least squares models for a restricted sample of distance less than 50 km. The dependent variable equals one hundred if the firm has a connection with the bank and equals zero otherwise. All independent variables are defined in Table 3. "Yes" indicates that the set of firm fixed effects is included. "No" indicates that the set of firm fixed effects is not included. The estimated coefficients are listed in the first row, standard errors are reported in the second row between brackets, and the corresponding significance levels are in the first row adjacent to the estimated coefficients. \*\*\* Significant at 1%, \*\* significant at 5%, \* significant at 10%.

Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Regions	All Regions	All Regions	All Regions	All Regions	East, Southeast, or Blacksea	East, Southeast, or Blacksea	Mediterranean	Mediterranean	Aegean	Aegean	Marmara	Marmara	Central Anatolia	Central Anatolia
Ln(1+Distance)	-4.67 *** (0.07)	-5.43 *** (0.07)	-8.80 *** (0.09)	-1.76 *** (0.13)	-12.33 *** (1.05)	-7.60 *** (1.41)	-8.47 *** (0.81)	-1.45 (1.00)	-9.40 *** (0.37)	-2.91 *** (0.51)	-8.61 *** (0.10)	-1.51 *** (0.14)	-10.13 *** (0.36)	-1.67 *** (0.48)
Ln(1+Distance) * Islamic Bank		5.33 *** (0.22)	3.13 *** (0.23)	0.24 (0.21)	2.47 * (1.32)	1.37 (1.32)	2.99 *** (1.08)	0.26 (1.04)	3.90 *** (0.73)	0.87 (0.70)	3.34 *** (0.28)	0.26 (0.26)	2.01 *** (0.69)	0.22 (0.64)
Ln(1+Distance) * Large Bank				-1.52 *** (0.28)		3.03 * (1.71)		-0.23 (1.32)		0.45 (0.97)		-1.52 *** (0.35)	1.02 (0.73)	0.42 (0.73)
Ln(1+Distance) * Foreign Bank				1.31 *** (0.27)		-1.64 (1.54)		0.04 (1.26)		-0.52 (0.94)		1.31 *** (0.35)	-0.81 (0.68)	-0.81 (0.68)
Ln(1+Distance) * State Bank				1.23 *** (0.29)		2.29 (1.98)		-2.24 (1.63)		-1.60 (1.08)		1.36 *** (0.37)	-1.23 (0.88)	-1.23 (0.88)
Islamic Bank		-13.47 *** (0.27)	-11.84 *** (0.28)	-1.73 *** (0.26)	-11.46 *** (1.69)	-3.88 ** (1.69)	-11.29 *** (1.85)	-2.28 (1.79)	-13.23 *** (1.20)	-3.54 *** (1.16)	-12.02 *** (0.31)	-1.66 *** (0.29)	-9.92 *** (0.86)	-0.83 (0.96)
Large Bank				37.68 *** (0.27)		27.40 *** (1.96)		32.13 *** (1.80)		31.95 *** (1.17)		38.88 *** (0.30)	33.61 *** (0.96)	33.61 *** (0.96)
Foreign Bank				-37.10 *** (0.24)		-28.58 *** (1.68)		-31.42 *** (1.64)		-31.76 *** (1.07)		-38.26 *** (0.28)	-32.72 *** (0.85)	-32.72 *** (0.85)
State Bank				-35.52 *** (0.29)		-27.90 *** (2.02)		-25.96 *** (2.00)		-26.69 *** (1.24)		-37.65 *** (0.32)	-26.31 *** (1.04)	-26.31 *** (1.04)
Firm Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm Fixed Effects	0	0	7,652	7,652	221	221	240	240	589	589	5,877	5,877	725	725
Number of Observations	211,810	211,810	211,810	211,810	4,822	4,822	5,376	5,376	15,227	15,227	167,630	167,630	18,755	18,755
R-squared	0.021	0.036	0.033	0.252	0.011	0.148	0.017	0.180	0.031	0.192	0.038	0.272	0.019	0.212