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THREE ESSAYS ON THE RELATIONSHIP BETWEEN TRUST AND CREDIT AVAILABILITY

JURY

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Trois essais sur la relation entre la confiance et la disponibilité du crédit

Résumé

Le titre de cette thèse est "Essais sur la confiance et le crédit". Il se compose de trois essais.

Le premier essai s'attache à examiner le lien entre la confiance généralisée et le financement relationnel : sont-ils complémentaires ou substituables ? S'ils sont complémentaires, plus le niveau de confiance généralisée est important, plus le financement relationnel est utilisé. Cette relation étant inversée, s'ils sont substituables. Pour répondre à cette question, nous utilisons une base de données originale de 610 entreprises non bancaires vietnamienne constituée à partir d'une enquête que nous avons administrée durant la période 2019-2020. Les résultats que nous obtenons montrent que lorsque la confiance généralisée est forte, le financement relationnel est plus faible ce qui valide un phénomène de substitution entre la confiance généralisée et le financement relationnel. Par ailleurs, lorsque les entreprises ont déjà des prêts bancaires, ce lien de substitution devient plus faible.

Le deuxième essai analyse la relation entre la confiance généralisée et la structure organisationnelle des banques (centralisée ou décentralisée). En utilisant les réponses de deux enquêtes (BEPS II et LITS II) administrées par la Banque Européenne pour la Reconstruction et le Développement (BERD) en 2010, nous constituons un échantillon de 411 banques établies dans 25 pays d'Europe centrale et de l'Est qui nous permet de conclure que lorsque les banques mènent leurs activités de crédit dans une région où la confiance généralisée est élevée (resp. faible), elles ont une forte propension à mettre en place une structure centralisée (resp. décentralisée).

Le troisième essai examine la relation entre la confiance généralisée les deux dysfonctionnements majeurs du marché du crédit : le rationnement du crédit et le découragement de l'emprunteur. En utilisant les réponses deux enquêtes BEEPS VI et WVS administrées respectivement par la Banque Européenne pour la Reconstruction et le Développement (BERD) et Le programme international World Values Survey, nous construisons un échantillon de 21,729 observations d'entreprises à travers 28 pays d'Europe, d'Asie et d'Afrique au cours de la période

2018-2020. Notre travail empirique révèle que dans les régions où la confiance généralisée est forte, d’une part, les entreprises accèdent davantage au crédit bancaire, et d’autre part, elles sont moins découragées à demander un crédit.

Mots clés : Structure organisationnelle de la banque, Découragement de l'emprunteur, Disponibilité du crédit, Financement relationnel, Confiance généralisée.

Three essays on the relationship between trust and credit availability

Abstract

This thesis title is “Three essays on the relationship between trust and credit availability”. It consists of three essays.

The first essay works on examining a link between generalized trust and relationship lending: whether it is complementary or substitute. Regarding the former, higher levels of generalized trust see increasing use of relationship lending. For the latter, higher levels of generalized trust see decreasing use of the lending technology. We conduct our own survey in Vietnam during 2019-2020 to build a unique dataset of 610 non-bank enterprises. After analyzing it, we find that generalized trust and relationship lending are substitutes. When firms already had bank loans, the substitute link becomes statistically weaker.

The second essay analyzes the relationship between generalized trust and bank organizational structure (centralized vs decentralized). Using banks’ audited financial reports and three databases of the Banking Environment and Performance survey round II (BEPS II) of the European Bank for Reconstruction and Development (EBRD), the Life in Transition Survey round II (LITS II) of the EBRD and Bankscope of the Bureau van Dijk, we obtain a final sample of 411 individual banks across 25 countries in Central and Eastern Europe for the year 2010. Our empirical results show when banks conduct their credit activities in an area where generalized trust is high (resp. low), there is a strong propensity for them to set up a centralized (resp. decentralized) structure.

The third essay examines the relationship between generalized trust and two credit dysfunctions (credit rationing as the credit supply issue and borrower discouragement as the demand one). Using the Business Environment and Enterprise Performance Survey round VI (BEEPS VI) of the EBRD and the World Values Survey (WVS) joint (2017-2020), we achieve a final sample of 21,729 observations across 28 countries in Europe, Asia and Africa during 2018-2020. Our empirical work finds that in regions with stronger generalized trust, firms access greater

bank credit. Another is that in regions with stronger generalized trust, firms are less discouraged from applying for credit.

Key words: Bank organizational structure, Borrower discouragement, Credit availability, Relationship lending, Generalized trust.

General introduction

1. Introduction

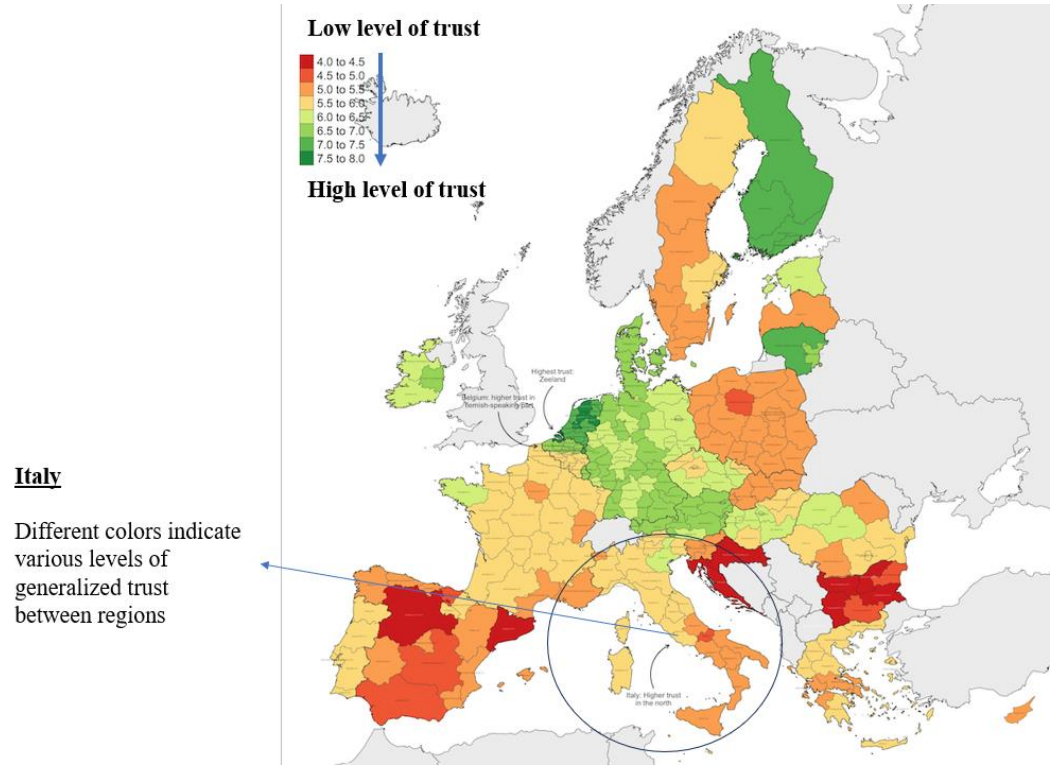
Financing is crucial to firm development. However, some firms, especially small and medium-sized enterprises (SMEs), find difficulty obtaining sufficient credit. This is one of the main obstacles to the firm growth and then the country's economic development as the whole. One of the causes is information asymmetry in which one party has better and more sufficient information than the other and therefore the latter might have ineffective decisions. Information asymmetry causes two dysfunctions in credit markets, namely credit rationing on the supply side and borrower discouragement on the demand side. On one hand, credit rationing has been studied for over 40 years. It is the problem in which banks keep interest rates under the equilibrium level although there is the excess credit demand. Banks rejects loan applications while borrowers are willing to accept higher interest rates. On the other hand, borrower discouragement is on the demand side and first introduced by Kon and Storey in 2003 in which they defined it as *"a good borrower may not apply for a loan to a bank, because they feel they will be rejected".* The literature argues that information asymmetry is at the heart of credit rationing and borrower discouragement. Mitigating it is the main objective of lenders and borrowers. However, information is heterogenous and has two distinct kinds, namely hard and soft information. Hard information is the one, which is obtained from financial statements, financial analysis (i.e. credit score) or collateral of firms. It can be verified, transferred and presented in numbers. In contrast, soft information is the one, which is collected through regular contacts between lenders and borrowers. It is difficult to be verified, transmitted and shown in figures. Based on the types of information (soft and hard information), there are two distinct lending technologies, namely relationship and transactional lending. Relationship lending is based on soft information whereas transactional lending is related to hard information. They help lenders and borrowers mitigate information asymmetry.

Throughout history, trust has played a crucial role and appeared everywhere in human lives. Rotter in 1970 in page 443 of his article[1] states that *"the entire fabric of our day-to-day living, of our social world, rests on trust – buying gasoline, paying taxes, going to the dentist, flying to a convention – almost all our decisions involve trusting someone else".* The concept of trust was shown in the Roman and Greek law. The Romans trusted their friends to take care of their property in favor of their wife or heirs after they were dead. A reason is that their wife would not be allowed to inherit if she was not Roman. Then, in the Medieval England period between 1066 and 1485, before going to battlefields, soldiers asked friends to manage their property such as land. It was based on trust between them in the sense that the latter would take care and return it to the former once the wars ended. In the recent period, people might trust others because they are family members, friends, colleagues, neighbors, or business partners. There has not been any universally accepted definition of trust. One of its well-known definitions is *"the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party"* (Mayer et al., 1995, p.712). Moreover, trust is complex concept and therefore holds various meanings. The literature shows two distinct kinds of trust, namely interorganizational and interpersonal trust. The former refers to the trust of a member from a focal organization placed at the partner organization. Meanwhile, the latter is an agent's trust in its counterpart at the partner organization (Zaheer et al., 1998). For instance, in the banking sector, interorganizational trust arises from institutional relationships between banks and their clients. Interpersonal trust is the one between bank staff and usual contact persons from the borrowing enterprises. Interpersonal trust has two different types, namely particularized and generalized trust. Particularized trust is the one in which people trust others due to similarities or specific things. This kind of trust is also improved over a period of time. For example, at the beginning there was a low level of particularized trust between a firm owner and bank manager. Then, the firm owner fosters the relationship with the latter and this enhanced relationship results in increasing the level of particularized trust. In contrast, generalized trust refers to the trust in others despite differences such as different nationality, religion, etc. In other words, a person trusts most people without being mentioned their background or specific things. In addition, generalized trust is a social norm and inherited between generations so it is a stable phenomenon over time. But the levels of

[1] The article name is "Generalized expectancies for interpersonal trust" published in American Psychologist Journal.

generalized trust vary across not only countries but also geographical regions within the same country. These differences in the trust level are visualized into the map below when the Big Think research team analyzes the data of 27 European Union members during 2020-2021[2]. As can be seen in Graph 1, there are different colors across the countries, indicating different levels of generalized trust between them. This is the same for geographical regions in the same country. Italy can be taken as an example in which there are four colors from red (low level of trust), orange, yellow to green (high level of trust). In the northern, most regions are in yellow color but one in the North East has green.

Graph 1: Levels of generalized trust across regions in the EU in 2020-21 (Big Think, 2021).[3]



[2] The data was extracted from the 2021 European Quality of Government Index and respondents were asked how much confidence they personally had in other people in their area.

[3] Map source: https://bigthink.com/strange-maps/europe-trust-survey/

The literature presents while the positive influences of trust on economic development have been studied for over 20 years, its impacts on credit activities have not attracted sufficient attention. Moreover, most of previous work focuses on the effect of trust on loan characteristics (i.e. costs, credit availability). Among them, measures of trust in some studies are not generalizable to a broader definition of trust although the proxy used in their work is linked to generalized trust. For example, Hernandez-Canovas and Martinez-Solano (2010), and Moro and Fink (2013) construct the measure of trust using the banker's trust in the borrower. Moreover, most of the prior studies determine trust at the country level. However, as mentioned before, geographical areas or regions in the same country might have different levels of trust. Thus, it is important to have a good understanding of the effects of trust, because a policy that is implemented globally and not differentiated can have opposite effects in areas where the level of trust is different. In this regard, our study focuses on generalized trust and its indicators, more interestingly, are specific for each firm and bank or geographical region where a firm or bank is located. By doing so, we aim to enrich the existing literature by studying the link between generalized trust and relationship lending in the first essay. We then examine the impact of generalized trust on the organizational structure of banks in the second essay. In the last essay, we investigate the effect of generalized trust on the two credit dysfunctions: credit rationing and borrower discouragement.

The structure of this chapter is organized as follows. Section 2 presents Literature review. Section 3 discusses the research questions in the three essays. Section 4 describes the methodology and data used for each essay. Section 5 discusses key findings of the thesis.

2. Literature review

2.1. Failures of credit market

2.1.1. A market characterized by information asymmetry

Financing plays an important role in firm's development. Banks are one of their vital financing sources. They receive deposits from households and organizations and use them to provide longer-term loans to others. Before deciding to grant loans to borrowers, banks have to do analysis and evaluation which ensure the latter to pay back the principal and some interests on time. In addition, the banks also need to monitor that the borrowers use the loans properly and

effectively. However, some firms, especially SMEs, find difficult accessing credit and this causes a problem to their growth (Malhotra et al., 2007). The difficulty might be due to information asymmetries. The information asymmetry theory was first introduced by George Akerlof in the 1970s. It was developed further by Michael Spence in 1973 and Joseph Stiglitz in 1975. According to this theory, one party has better and more sufficient information than the other. This makes the latter with insufficient information make ineffective decisions. The level of information asymmetry also depends on firm characteristics, namely their size, age, legal form, and industry, etc. More specifically, smaller firms are more likely to be more informationally opaque compared to large ones, thereby causing information asymmetry. Furthermore, firm reputation also affects loan constrains (Martinelli, 1997). For instance, good reputation about the firm's owners or managers, history of credit and business helps provide additional information to banks to assess the creditworthiness of the firm. More information is collected when the number of operation years increases so the reputation will be increased if the firm performs well (Diamond, 1991). The firm's legal form (i.e. private or stated ownership, listed on stock market) also impacts the information availability (Elsas & Krahnen, 1998). For example, listed companies have to publish required information by Securities Commissions or responsible authorities to the public so they are less likely to be informationally opaque.

The literature presents that asymmetric information is one of main causes to two dysfunctions of credit markets, namely credit rationing on the supply side and borrower discouragement on the demand side. The two problems are described clearly below.

Two dysfunctions of credit market	
Credit rationing on Supply side	Borrower discouragement on Demand side
• Banks keep interest rates under the equilibrium level despite the greater credit demand. • Thus, the banks decline to provide loans to borrowers although the latter are willing to accept higher rates.	• Borrowers do not apply for bank credit as they think that their application will be rejected. • No matter having good investment projects or sufficient collateral, the borrowers might be discouraged from applying for loans.

Credit rationing

Credit rationing is the problem from the supply side in which interest rates are kept under the equilibrium level by banks despite the greater credit demand. As the result, the lenders might reject to grant loans to borrowers although the latter are willing to accept higher interest rates (Stiglitz & Weiss, 1981). Credit rationing is due to information asymmetry in which the banks know the average return but they lack information on the borrower's investment projects. In this case, the former might increase interest rates to compensate it. However, this might make the latter involve higher-risk projects and if they fail, the bank's expected returns will be impacted adversely. As the result, the banks tend to reject to provide credit to borrowers rather than asking for higher loan rates. Credit rationing has been studied for over 40 years. It is hard to measure credit rationing because this requires the information about the amount of credit a firm applied for and the actual one it received. Therefore, some previous studies adopt various proxies for credit rationing. In particular, the studies of Cole (1998), Hernandez-Canovas and Martinez-Solano (2008), Lehmann and Neuberger (2001), and Kano et al (2010) proxy credit rationing based on how likely borrowers can obtain, extend or renew bank credit. Borrowers are rationed when they apply for or extend bank credit and then their application are rejected. Besides that, trade credit is also used as a proxy for credit rationing in the work of Petersen and Rajan (1994), and Rice and Strahan (2010). Trade credit is an agreement where buyers can purchase goods without paying cash right away but pay their sellers at later scheduled time. Hence, it is also known as one of financing methods for firms. However, trade credit is more expensive than bank credit (Petersen & Rajan, 1997; Engemann et al., 2014). Petersen and Rajan (1997) report that trade credit has a real interest rate of 40 percent. As a result, when firms need credit, they are more likely to obtain bank loan as much as possible and then trade credit for the rest. In other words, when the firms can get more bank credit, they will use less trade credit.

Borrower discouragement

From the survey by the European Bank for Reconstruction and Development (EBRD), we find that 20 percent of firms applied for bank loans while 80 percent did not[4]. This raises a question of why firms do not apply for bank credit although the World Bank (2023) highlights the huge financing needs of enterprises. The main reason is that borrowers are discouraged from applying for bank credit at the beginning because they think that their loan applications will be rejected. This is known as "borrower discouragement" which is the problem from the demand side. Imperfect information is at the heart of borrower discouragement (Han et al., 2009). It is first introduced by Kon and Storey (2003) when they define it as *"discouraged borrowers are good borrowers who do not apply for a bank loan because they feel they will be rejected"*. They argue that the levels of the discouragement are conditional on imperfect screening in credit markets, application costs, screening issues of banks, and interest rate differences between banks and other lenders. Interestingly, Han et al. (2009) extend the definition of "discouraged borrower" by including both good and bad borrowers because Kon and Storey (2003) only mention "good borrowers". They state that borrower discouragement can be viewed as a self-rationing mechanism in the application decision. No matter having good investment projects or sufficient collateral, the borrowers might be discouraged from applying for. Meanwhile, Chakravarty and Xiang (2013, p.67) define discouraged borrowers as *"firms with a need for a loan who nevertheless choose to not apply for a bank loan because (1) the loan procedure was too complicated; (2) interest rates were too high; (3) collateral requirement were too high; and (4) there was corruption in allocation"*. Adding to the definition, Gama et al. (2017, p.35) state: *"If it does not apply for a loan for different reasons, such as tough loan prices or loan contract procedures or fear of rationing, that is, the scale of discouragement as a function of bank screening errors, application costs, and the difference in interest rates between the bank and other money lenders"*. In contrast to the definition involving good borrowers by Kon and Storey (2003), the previous studies by Brown et

[4] This is the author's own calculation based on the Business Environment and Enterprise Performance Survey round VI (BEEPS VI). The survey was conducted in 41 countries during 2018 – 2020. These countries, which are in the EU, Eastern Europe, Central Asia, Middle East and North Africa, are low, middle, and high-income groups classified by the World Bank. This includes SMEs and large firms.

al. (2018) and Vincent (2010) mention high-risk borrowers or poor history of credit as the measure of borrower discouragement.

2.1.2. One solution: Relationship lending

As discussed previously, information asymmetry causes the two dysfunctions in credit markets: credit rationing and borrower discouragement. To mitigate that problem, lenders and borrowers can adopt the two lending technologies, namely transactional lending and relationship lending (Berger & Udell, 2002; Petersen, 2004; Stein, 2002). They are distinct technologies due to the kind of information: hard and soft information. Transactional lending is based on hard information which is collected from financial statements, collateral or financial analyses of firms. This kind of information can be verified, transmitted and presented in numbers. In contrast, relationship lending is attached to the use of soft information which is gathered from regular contacts over time between lenders and borrowers, lenders and others in the same areas where the borrowers operate. Dissimilar to hard information, the soft one is difficult to be verified, transmitted and presented in figures. A reason is that it is obtained from the communication and therefore in the form of words reflecting their own judgement and views of the bank officer on the firm business or financial performance (Uchida et al., 2012). It can be transformed into figures for the easy transmission but its qualitative values might vary due to own judgement or evaluation of the person dealing with the information. With relationship lending, bank staff can obtain soft information about borrowers, especially SMEs or opaque firms that face difficulty having audited financial reports and others.

Interestingly, there is a link between the structure of bank and the lending technologies. In particular, large banks with multilayered hierarchies have strict requirements for credit applications so they are likely to use hard information which indicates transactional lending (Stein, 2002). Based on the size and structure, large banks have a comparative advantage in transactional lending to SMEs whereas smaller lenders have a comparative advantage in relationship lending (Berger & Udell, 2006). There also is a relation between the business cycle and the lending technologies. In good economic times, relationship banks charge higher interest rates for higher screening costs and capital buffers. However, in bad times, they will charge lower rates to support the borrowers (Bolton et al., 2016).

Relationship lending is not a panacea. Firstly, firms might face hold-up problems where they are locked in relationships with their main bank. The bank can exploit all the firm information to extract rents or charge higher interest rates (Ioannidou & Ongena, 2010; Von Thadden, 1992). Secondly, another cost is created by soft information as it is difficult to be verified and transmitted. It depends on bank officers to accept or not and the way they process the information (Uchida et al., 2012). Furthermore, the use of relationship lending is also conditional on the firm's needs for bank credit. If they do not have any needs, they might not care about relationship lending.

Prior empirical studies find that relationship lending helps firms, especially opaque SMEs, obtain greater credit availability because banks can use soft information for their decision-making process (Cole, 1998; Machauer & Weber, 2000; Stein, 2002). In addition, relationship lending is based on the strength of firm-bank relationship and therefore the strong relationship produces more soft information via regular interactions between the bank and firm over time (Cosci et al., 2015).

Regarding the measures of relationship lending, the lending technology depends on the use of soft information through the firm-bank relationship and therefore is hard to be measured directly (Loukil & Jarboui, 2016). Therefore, prior studies need to use proxies for relationship lending. The common ones are described and summarized in Table 1. Notably, Loukil and Jarboui (2016) have a direct measure of the firm-bank relationship by using bank self-assessment. In their work, bank officers are asked two questions. The first is whether the bank has close relationship with the firm. The second is whether they think that the relationships are close due to one of following reasons: having high amount of debt financing, good access to information, high business intensity, etc.

Table 1: The summary of common measures for relationship lending.

Measures of relationship lending	**Description**	**Studies**
Duration of the firm-bank relationship	The longer duration is, the more firm-bank relationship is fostered and more information is exchanged over time. In turn, more relationship lending is used.	Behr et al. (2011); Berger and Udell (1995); Degryse and Van Cayseele (2000); Ongena and Smith (2001); Petersen and Rajan (1994).
Number of bank relationships	The lower number of banking relationships indicates a more concentrated relationship and therefore the relationship is strengthened. This leads to higher use of relationship lending because it is based on the strength of the firm-bank relationship.	Cole (1998); De Bodt et al. (2005); Harhoff and Korting (1998); Petersen and Rajan (1994).
Exclusivity of the firm-bank relationship	When the bank provides credit which accounts for the highest amount in the firm's loan portfolio, the former is known as the latter's main bank. In turn, their relationship is concentrated and therefore more relationship lending is used.	Ongena and Smith (2001).

Table 1: The summary of common measures for relationship lending (Cont.)

Measures of relationship lending	Description	Studies
Geographical distance between the firm and its bank	The shorter distance is, the more relationship lending is used. A reason is that banks will save costs of transportation, screening and monitoring if the distances between them and borrowers are short.	Beck et al. (2018); Berger et al. (2005); Berger and Udell (2002); Degryse and Ongena (2007).
Direct measure of the firm-bank relationship through the bank self-assessment	Two questions are asked. The first is whether the bank has close relationship with the firm. The second is whether they think that the relationships are close because of having high amount of debt financing, good access to information, high business intensity, etc.	Loukil and Jarboui (2016).

2.2. Trust, a complex notion

Definition and function of trust

Trust is a complex concept and therefore there is no universally-accepted definition. Rousseau et al. (1998, p.395) define it as *"a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions of behavior of another"*. Interestingly, Yamagishi and Yamagishi (1994, p.136) define "trusting person" as *"the one who overestimates the benignity of the partner's intentions beyond the level warranted by the prudent assessment of the available information"*. This definition is crucial because we can know who is a trusting person in the context of imperfect information. Thus, we can apply it into this thesis.

Trust plays an important role in structuring the society (Putman, 1993[5]; Fukuyama, 1995). It is argued to reduce transaction costs. The reason is that trust is "*the expectation that arises within a community of regular, honest and cooperative behavior, based on commonly shared norms, on the part of other members of that community"* (Fukuyama, 1995, p. 26). With the existence of trust between people in business, transaction costs will be reduced because of *"less need to spell things out in lengthy contracts, less need to hedge against unexpected contingencies, fewer disputes, and less need to litigate if disputes arise"* (Fukuyama, 1995, p. 151). Moreover, trust is known as a lubricant for the social systems (Arrow, 1974). It promotes competitive economies (Fukuyama, 1995), enhances relationships (Gulati, 1995) and cooperation (Das & Teng, 1998) between parties. It also reduces uncertainty and vulnerability to material losses (Heimer, 2001), monitor and management costs (Zand, 1972), and agency costs (Howorth & Moro, 2012; Macaulay, 1963; Ring & Van de Ven, 1992; Uslaner, 2002). Trust also mitigates imperfect information, uncertainty and risk (Fisman & Khanna, 1999; Uzzi & Lancaster, 2013).

The kinds of trust: interorganizational and interpersonal trust

As mentioned earlier, trust is the complex concept and therefore hold various meanings. The first distinction to make is between interorganizational and interpersonal trust. On one hand, interorganizational trust refers to the trust that members of a focal organizational place into the partner organization (Zaheer et al., 1998). For example, interorganizational trust arises from the institutional relationship between borrower and its bank (Hirsch et al., 2018). On the other hand, interpersonal trust is of interest to us in this thesis. It refers to the trust where someone put into his/her counterpart in the partner organization (Zaheer et al., 1998). For instance, it is the trust between bank officers and usual contact persons at borrowing firms. (Hirsch et al., 2018). In interpersonal trust, there is a vital distinction between generalized and particularized trust. Generalized trust refers to social trust (Hardin, 2001; Taylor et al., 2007) and with it, people trust most people without any identities. In contrast, with particularized trust, people have trust in others due to similarities or identities (Yamagishi & Yamagishi, 1994).

[5] Putman's book entitled "*Making Democracy Work: Civic Traditions in Modern Italy"*, Princeton University Press.

Generalized trust is argued to be stable from time to time (Uslaner, 2004; Bjørnskov, 2007). The reason is that generalized trust is a social norm and inherited from the past generations to the next ones (Uslaner, 2008, Algan & Cahuc, 2010). This is supported by the work of Uslaner (2004) where there are similar levels of trust between immigrants in the United States and their ancestors in the origin countries many years ago. Similarly, Bjørnskov (2007) finds the stability of generalized trust after analyzing the yearly change in generalized trust between different World Values Survey waves (i.e. 1981–1990, 1990–1997, 1990–2000). Moreover, as discussed above, the levels of generalized trust vary across not only countries but also regions in the same country[6]. When it comes to particularized trust, it can change from time to time because this type of trust depends on specific groups of people or particular things. For example, the level of particularized trust between a bank manager and a firm owner can be increased when there is a relationship between them.

Measures of generalized trust

Prior studies use various measures of generalized trust through games or surveys. Regarding the game method, the trust game is first created by Camerer and Weigelt (1988). In particular, groups of people play the game under strict conditions in laboratory. One of them needs to transfer money to another and then the latter has an option of returning or keeping the amount of money. Trust therefore is determined by the amount of money passed or by whether money is passed or not (Guth & Kliemt, 1994; Guth et al., 1997).

For the survey method, the measure of generalized trust is determined based on answers to attitudinal or behavioral questions. They are designed to find a person's level of trust in others (i.e. family, friends, etc.). One of the common attitudinal questions is *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful when dealing with others?"*. It was the first introduced by Almond and Verba (1963) when they conducted research on civil society in post-war Europe. This question is widely used in the EBRD's surveys, General Social Survey, World Values Survey (WVS), Latinobarómetro and Australian Community Survey. In the

[6] The trust data from the surveys by the World Values Survey and the Life in Transition Survey of the EBRD can show various levels of generalized trust between countries and between regions within the same country.

WVS, another one is also used: "*Could you tell me for each whether you trust people from these group (Your family; Your neighborhood; People you know personally; People you meet for the first time; People of another religion; People of another nationality) completely, somewhat, not very much or not at all?".* We use these two attitudinal questions in this thesis to measure generalized trust. A reason is that based on its definition, people trust others irrespective of the differences. For the behavioral questions, there have been common ones as follows: (1) whether people lie to their family members or peers; (2) whether they lend out money or personal things to others (i.e. friends, family, etc.) and (3) whether they intentionally leave room or home doors unlocked (Glaeser, et al., 2000; Gachter, et al., 2004). We also use the behavioral question of whether they are willing to lend out money to others (family, friends, colleagues, etc.) to obtain a measure of generalized trust.

One question can be raised about whether the measure of generalized trust is accurate when using the answers to the common question: *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful when dealing with others?"*. Firstly, Glaeser et al (2000) conclude that the students' answers to the trust questions of the World Values Survey are significantly linked with the trustworthiness of subjects when the authors conduct various experiments using undergraduate students of Harvard. Sapienza et al. (2007) have the similar conclusion when implementing experiments using Chicago MBA students. Glaeser et al (2000, p.813) argue that attitudinal trust surveys *"may be good at predicting the overall level of trustworthiness in society"*. Secondly, it is the most common measure used in the previous studies (see Knack & Keefer,1997; Bjørnskov, 2007; Bloom et al. 2012; Vilderson et al., 2023).

2.3. Trust and banking

2.3.1. The influences of generalized trust on credit availability and borrower discouragement

With the existence of trust, banks and borrowing firms are more likely to exchange information, especially private, sensitive and credible information, because the borrowers believe that the former will not share the information with the third party. The disclosure of the private

information to other party might seriously harm the borrowers. For example, the firms trust that their bank will not share with the media that their financial performance is challenging due to the downward trend of the global economy. If the outside investors or business partners know that, they will not continue to do business with the borrowing firms and this certainly worsens the situation further. Moreover, trust also makes the bank have positive expectations towards borrowers' future behaviors in the sense that the firms will use the loans properly and responsibly. The latter will do businesses well and repay the loan principle and interests to the bank. As the result, trust facilitates the information exchange between the bank and borrowers and positive expectations towards each other. The bank then can obtain the information and grant credit to the borrowing firms.

The previous studies find the positive link between trust and credit availability (see Hernandez-Canovas & Martinez-Solano, 2010; Moro & Fink, 2013; Namara et al.., 2019). For instance, Hernandez-Canovas and Martinez-Solano (2010) examine the relationship between SMEs and banks in Murcia (Southeastern Spain). They find that the existence of trust between SMEs and their main bank allows them to access greater credit. Similarly, Moro and Fink (2013) conclude that SMEs that have high levels of trust from bank loan managers receive more credit, using the sample of three banks characterized by Italian culture and six ones with German culture. It should be noticed that these two studies adopt the same measure of trust, namely the banker's trust in the borrower. This a kind of particularized trust because it is built along with the duration of the relationship. Interestingly, the study by Namara et al. (2019) uses generalized trust but it is measured at the country level. Analyzing 13,957 SMEs in eleven European countries, they find that in countries with higher levels of generalized trust, SMEs are less rationed, indicating greater bank credit availability.

As discussed previously, generalized trust fosters cooperation, relationships and information sharing between lenders and borrowers. It also helps reduce uncertainty and risk. With generalized trust, firm managers or owners believe that banks will function well and securely, and provide the best and most convenient products and services to them. Their information, especially private and sensitive ones, will not be shared with the third party by the banks. The lenders will collect all the information and process loan applications properly. Then the borrowing firms can

be offered fair and good rates and terms of credit. Kon and Storey (2003) argue that the levels of the discouragement depend on imperfect screening in credit markets, application costs, screening issues of banks, and interest rate differences between banks and other lenders. When firm owners or managers have high levels of generalized trust, they will believe that these issues will be reduced, thereby lowering the level of discouragement. In other words, with the existence of generalized trust, firm owners or managers are less likely to be discouraged from applying for bank credit. Tang et al. (2017) analyze a sample of enterprises in China and find that firm managers' trust in loan managers impacts the former's decision to submit loan applications by lowering the risk of being discouraged borrowers. Regarding the influence of trust on using bank services, Ampudia and Palligkinis (2018) study the link between households' trust in banking sector and their decision to hold a bank account and switch to a new main bank. Using the sample of Italian households, they conclude that with distrust in the banking sector, households are less likely to hold a bank account. They are also more likely to switch to a new main bank. More recently, Vilderson et al. (2023) test the sample of 42,509 firms in 53 countries. The authors report that generalized trust[7] reduces the influence of economic uncertainty on borrower discouragement. However, as discussed previously, the levels of generalized trust can be various notably between regions in the same country. Hence, the measure of trust at the country level might not allow the authors to study its impact on borrower discouragement properly.

2.3.2. Trust and relationship lending

There might be a link between trust and relationship lending. On one hand, higher levels of trust can see more use of relationship lending. A reason is that with trust, firm owners or managers and bank staff have trust in each other and therefore they are more likely to exchange information (especially private and sensitive information). Opaque firms that find difficult submitting hard information can provide soft information instead. Due to strong trust, the bank staff can use soft information for the loan application process. Relationship lending is a lending technology which is based on the use of soft information. In this regard, stronger trust can see greater use of relationship lending. This is supported by some empirical studies. For instance,

[7] To construct the measure of generalized trust, they use the common trust question *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"*

Moro et al. (2018) analyze both semi-structured interviews and 450 bank-entrepreneur relationships. They find that trust of loan manager in entrepreneur is positively associated with relationship lending.

On the other hand, higher levels of trust can see less use of relationship lending. A reason might come from the costs of relationship lending (i.e. time to build up, hold-up problems, bank officer's own judgement, etc.). Due to these costs, firm owners or managers need to evaluate benefits and costs of relationship lending. Meanwhile, trust, as discussed before, can play a role in mitigating information asymmetry. Therefore, with strong trust, they might use less relationship lending if its aggregate costs outweigh the benefits. The empirical study by Hernández-Cánovas and Martínez-Solano (2010) finds that SMEs with longer relationships with their bank can obtain greater credit but they need to pay higher charges. The duration of the relationship is a proxy for relationship lending so their finding can indicate that relationship lending helps access greater credit but at higher costs.

3. Research questions

This thesis focuses on studying the impacts of generalized trust on banking such as relationship lending, the organizational structure of banks, and two dysfunctions (credit rationing and borrower discouragement). To achieve that, we address three research questions and each essay provides answers to each question. As stated previously, our three essays use generalized trust because we want to focus on the social norm and this kind of trust is a root of the society. Moreover, the levels of generalized trust can be different significantly across locations in the same country. In this regard, we determine indicators of generalized trust which are specific for each firm and bank. We also measure it at the region level rather than country level in previous studies.

In the first essay, we examine whether there is a link between generalized trust and relationship lending. According to the existing literature, the link between generalized trust and relationship lending is still ambiguous. On one hand, with high levels of generalized trust, lenders and borrowers are more likely to exchange information, especially soft information when small

borrowing firms find difficulty providing hard information via credit scores or audited financial reports. The lenders can use soft information for processing credit applications and then making decisions. The borrowers, in turn, are more likely to access bank credit. In other words, higher levels of generalized trust see more use of relationship lending. It indicates a complementary link between generalized trust and relationship lending. On the other hand, relationship lending also has costs (hold-up problems, time, etc.). In addition, soft information is hard to be verified, transmitted and shown in figures. It also depends on the bank officer's judgement and views. Therefore, firms might use less relationship lending if the aggregate costs outweigh the benefits and there are higher levels of generalized trust. In other words, higher levels of generalized trust see less use of relationship lending, indicating a substitute link between them. Collectively, we want to make the link between generalized trust and relationship lending more clearly by trying to answer a following question:

Research question 1: What is a link between generalized trust and relationship lending?

In the second essay, we investigate the link between generalized trust and bank organizational structure (centralized or decentralized). As an enterprise, a bank can take a wide range of organization structure, from the most centralized (hierarchical) with multiple layers to the most decentralized (flat) structure with less layers. In addition, collecting and transferring information to the decision-making center (the loan committee) are crucial to the bank's activities and businesses. The existence of generalized trust can influence the bank structure through how easy information is transmitted across the bank organizational layers and whether loan managers at the local office can make credit decisions rather than moving to upper layers like the headquarters. On one hand, in the existence of generalized trust, local loan officers are trusted to collect all information from borrowers and then make loan decisions rather than moving to upper layers of the bank. In other words, the applications can be completed at the local office, indicating the decentralized structure. On the other hand, due to generalized trust, information can be transmitted easily across hierarchical layers from local offices to the headquarters. Thus, the loan committee at the headquarters can obtain loan documents and information (both hard and soft information) more easily, timely and economically, and then can make decisions. This indicates the centralized structure. As the result, the impact of generalized trust on bank organizational

structure still looks mixed. This becomes more complex when touching how firms, especially banks, need to process huge amount of information. To make the relation between generalized trust and the bank structure more clearly, we pose a following question:

Research question 2: Does generalized trust induce a more decentralized or centralized bank structure?

In the third essay, we test the influences of generalized trust on credit availability and borrower discouragement. As discussed earlier, trust facilitates information exchange between banks and borrowers. It also makes banks believe that the latter will use loans properly and do businesses well to be able to repay the principle and interests. This, in turn, makes borrowers be more likely to obtain credit. Moreover, borrower discouragement can be viewed as a self-rationing mechanism in the application decision (Han et al., 2009). If firm managers or owners trust their bank officers that they are reliable and helpful and the process of loan application works properly. They will be evaluated correctly and receive good loan rates and terms. As the result, the borrowing firms are more likely to submit loan applications in the existence of generalized trust. In other words, in regions with strong generalized trust, firms are less discouraged from applying for bank loans. Most of the previous studies analyze the impact of trust measured at the country level but the levels of trust, in fact, vary across not only countries but also regions in the same country. Hence, the generalized trust used might be not the true level of generalized trust that a firm faces. To overcome that, we measure generalized trust at the region level where the firm operates rather than the country level. Collectively, we try to answer a following question for the third essay:

Research question 3: Does generalized trust, defined at the region level where the firm operates, influence, on one hand, credit availability and, on the other hand, borrower discouragement?

4. Methodology and Data

4.1.Methodology

In the first essay, we explore the link between generalized trust and relationship lending. Therefore, the dependent variable is relationship lending and the variable of interest is generalized trust. We adopt Ordinary Least Squares (OLS) method for all regressions. The fixed effects of firm size, firm sector and economic area are included. The regressions have an interaction term between generalized trust and the dummy variable of whether the firm already had bank loan or not. This helps us examine whether the influence of generalized trust remains unchanged when firms had bank credit before. For the robustness tests, we create alternative measures of generalized trust and relationship lending. Moreover, relationship lending or generalized trust might help enterprises, especially opaque ones, access greater bank credit. If the link between generalized trust and relationship lending is found, it is interesting for us to test their joint effect on bank credit availability. For this, the dependent variable is credit availability while the variables of interest are generalized trust, relationship lending and the interaction term between them.

In the second essay, we examine the relationship between generalized trust and bank organizational structure. Thus, the dependent variable is the bank organizational structure whereas the variable of interest is generalized trust. Ordinary Least Squares (OLS), Ordered Probit and Probit are applied as the methods. The fixed effects of country are also included in our estimation regressions. Standard errors are clustered at the country level. We also address the endogeneity problem in the sense that the results can be biased by omitted variables. To solve that, we construct instrumental variables of generalized trust and then apply the two-stage least squares method (2SLS). For the robustness checks, we create and then use alternative measures of generalized trust.

Through the third essay, we want to understand the influences of generalized trust on credit availability and borrower discouragement. Therefore, the dependent variables are credit availability and borrower discouragement respectively. Meanwhile, the variable of interest is generalized trust. We adopt Ordinary Least Squares (OLS) and Logit as the methods. We also control for fixed effects of industry, country, and year. Standard errors are clustered at the country level. In the robustness tests, we construct alternative measures of generalized trust and credit availability.

The methodology for each essay is summarized in Table 2.

Table 2: Summary of the method used for each essay.

The essay	The method used
The first essay on the link between generalized trust and relationship lending.	• OLS method. • All regressions have fixed effects of firm size, firm sector and economic area where a firm is located.
The second essay on the relationship between generalized trust and the organizational structure of banks.	• OLS, Ordered Probit and Probit methods. • Creating instrumental variables of generalized trust and then applying the 2SLS method. • Having fixed effects of country. Standard errors are clustered at the country level.
The third essay on the links between generalized trust and credit availability and between generalized trust and borrower discouragement.	• OLS and Logit methods. • All regressions have fixed effects of industry, country, and year. Standard errors are clustered at the country level.

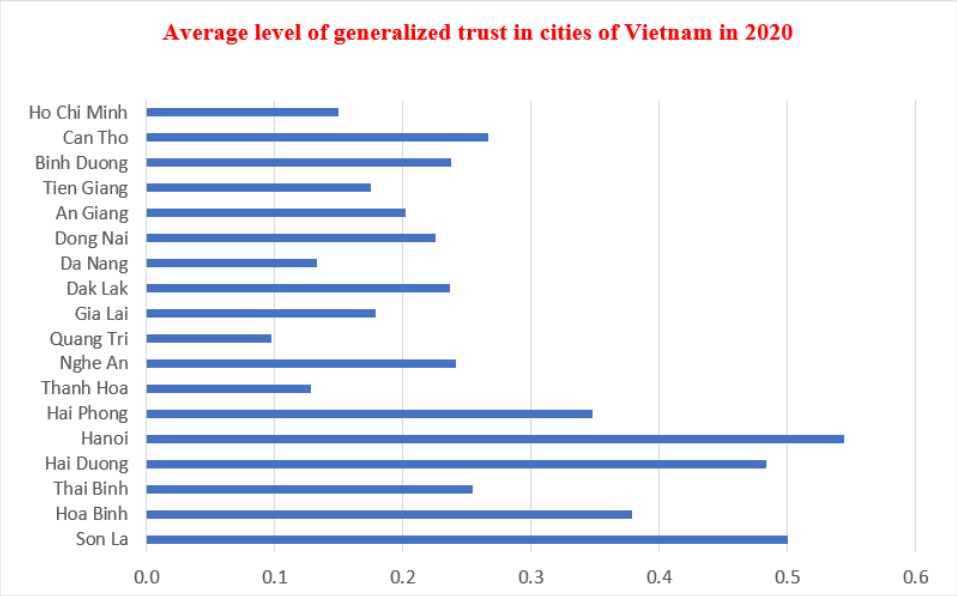
4.2. Data

As mentioned before, we study the influences of generalized trust on bank credit activities as it has not been caught sufficient attention. To do so, in the first essay, we examined the link between generalized trust and relationship lending and took the context of Vietnam. It is important

and interesting to study Vietnam due to following reasons. Firstly, the country is a shining star among the emerging economies. Despite various events around the world in recent years (i.e. the tension between China and the United States, Russia and Ukraine war, Covid-19 pandemic, etc.), Gross Domestic Product (GDP) of Vietnam reached approximately US$408 billion and the annual GDP growth recorded 8.0 percent in 2022 (World Bank Data, 2023). FDI capital into the country increased to 7.7 percent on-year to US$20.21 billion in the first nine months of 2023. FDI inflows will continue to grow in incoming years with many production expansion and investment projects (Vietnam Investment Review, 2023). However, most enterprises in Vietnam have difficulties obtaining bank credit. Only 30 percent of SMEs could access bank credit (Binh, 2019) while SMEs account for 97 percent of Vietnamese firms and contribute over 45 percent of the country's GDP (Vietnam Investment Review, 2021). Secondly, the literature shows that the relation between trust and relationship lending is still under-researched in Vietnam as there is only the study of Nguyen and Rose (2009). But they focus on the link between trust and interfirm relationships rather than firm-bank relationships. Moreover, as can be seen from Graph 2, the levels of generalized trust vary across cities of Vietnam[8] and therefore its measure needs to be specific for each firm. The data had not been available in Vietnam yet so we needed to conduct our own survey in Vietnam from 2019 to 2020. Then, in the next two essays, we were interested in studying the impact of generalized trust on credit activities in more countries rather than only Vietnam. We searched and noticed that several datasets of the European Bank for Reconstruction and Development (i.e. the BEPS II, LITS 2, BEEPS VI) and World Values Survey could provide the data needed. We therefore used them. The data used for each essay is described as follows and summarized in Table 3 at the end of the section.

[8] This is our own calculation using the data of Vietnam from World Values Survey wave 7. The survey was conducted in Vietnam in 2020. Respondents answered to the trust question "*Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?*". Answer options include "Most people can be trusted" and "Need to be careful". We coded 1 for "Most people can be trusted" and 0 for "Need to be careful". Then we took average of the answers from people living in the same city.

Graph 2: Average levels of generalized trust in 18 cities of Vietnam in 2020 (Author's own calculation using the World Values Survey wave 7).



Data of the first essay

In the first essay, we answer the first research question *"What is a link between generalized trust and relationship lending?"* in the context of Vietnam. To answer the research question, we needed to obtain data of trust and firm-bank relationships (i.e. the number of bank relationships, etc.). To build the data, we conducted our own survey there during July 2019 – February 2020. The survey participants included senior officers (Chairman, Owner, CEO, Manager) and accountants of non-bank firms who knew their relationship with banks well. Using answers to the questions of trust and number of bank relationships, we constructed variables of generalized trust and relationship lending. Besides that, from the survey responses, we knew the names of firms and their main bank and therefore used them to extract the data from the other sources (i.e. ORBIS, Vietnamese National Business Registration Portal, enterprises' websites and business registration licenses). This helped us create control variables for the firm and main bank characteristics. At the end of the day, we received 619 responses but only 610 were fully complete. Therefore, the final sample includes 610 firms. We also compared between our final sample (610 enterprises) and the

population (714,755 enterprises) and found that the two did not differ notably regarding their location, firm ages, business sectors, ownership, etc.

Let us describe more how we conducted the survey. First, we needed to create a questionnaire. We fully understood that respondents were busy at work and therefore our questionnaire needed to be short and precise but still had a sufficient number of questions allowing us to obtain enough information on generalized trust, relationship lending, names of firms and their main bank. Once the first version of the questionnaire was done, we discussed with three experts in the banking sector and one representative of a business association to ensure that the questionnaire was precise and simple in order to increase the response rate. As a result, the final version had six questions. Regarding the distribution method, we sent out the questionnaires as much as possible by email and in-person meetings. To do so, we collected contact email addresses manually from the ORBIS and other websites. We then obtained email addresses of 85,431 large enterprises and SMEs accounting for over 11 percent of total active enterprises in Vietnam. Once everything was in good order, we started to send out the questionnaires. We also sought support from the business associations where they helped distribute to their members by email and posting on their websites. After a month of sending out the first emails, we sent out reminder emails. Then, after a month, we continued to send the second reminder emails.

The data of generalized trust and relationship lending were obtained from the survey. In particular, similar to previous studies (de Bodt et al., 2005; Ongena & Smith, 2000; Petersen & Rajan, 1994, 1995; Refait-Alexandre & Serve, 2018), we used numbers of bank relationships as proxies for relationship lending. We obtained the data form the answers[9] to Question 3 *"How many banks has your enterprise been conducting business with?"*. The lower number of banks indicates higher use of relationship lending.

For the generalized trust indicator, we adopted the approach by Gachter, et al., (2004), Glaeser, et al. (2000) by using Question *5 "Are you willing to lend money or other things with the values of over US$5,000 to*". Respondents needed to answer "Yes" or "No" to different groups of people: (1) Family relatives, (2) Friends, (3) Colleagues and (4) Someone they just met or knew.

[9] Answers include "*Only 1 bank", "2 banks", "3-5 banks", and "Over 5 banks"*

Regarding the amount of money, we carefully considered finding a suitable one. If we set a low number (i.e. US$1, US$10), respondents are likely to afford the losses and therefore accept to lend it irrespective of the levels of trust. If we set a significantly high number (i.e. US$10,000, US$50,000), the amount of money is beyond their capacity. They, therefore, are not willing to lend out despite strong trust. US$5,000 (equivalent to about 100 million Vietnamese dong) is a regular price of new SH motorbike, an expensive and popular one of Honda in Vietnam. Motorbikes are a common mean of transport in Vietnam. Furthermore, GDP per capita of Vietnam reached US$3,700 in 2021 (World Bank, 2023). Respondents in the sample were firm owners, managers and accountants. Medium-level-position staff such as accountants could earn between US$3,600 and US$6,000 on average per year while owners and other senior officers were able to earn more than US$10,000 on average per year. In addition, Vietnamese people tend to save money. Nielsen (2019) conducted a survey and found that 69% of Vietnamese surveyed said they put free cash into savings compared to other countries Hong Kong (68%), China (66%) and Indonesia (62%) (Thanh Nien Newspapers, 2019). They therefore could have some savings over time. In our survey, our respondents were accountants, senior managers, shareholders and owners and therefore US$5,000 (equivalent to about 100 million Vietnamese dong) made sense enough to be selected as the amount of money respondents were willing to lend out.

Data of the second essay

As discussed earlier, generalized trust is an important social parameter but its influence on the bank structure has not been caught sufficient attention in the literature. Furthermore, relationship lending as a lending technology is also related to the structure of banks in the sense smaller banks support relationship lending. Meanwhile, bigger ones with multiple hierarchical layers are linked to transactional lending. Thus, we enrich it through the second essay by addressing the following question: "*Does generalized trust induce a more decentralized or centralized bank structure?"*. To answer the question, we needed the data on generalized trust and especially bank organizational structure. Our own survey conducted in Vietnam during 2019-20 could not offer the bank data so we had to find other data sources. Eventually, the following datasets such as the Banking Environment and Performance Survey (BEPS) round II and Life in Transition Survey (LITS) round II of the European Bank for Reconstruction and Development (EBRD), and Bankscope of the Bureau van Dijk helped us construct variables of bank

organizational structure and generalized trust, and other control variables. Data of the BEPS II was not publicly available so we needed to contact the EBRD for allowing us to access it. Fortunately, they agreed to give us the access.

More specifically, using the answers[10] to Question 5 of BEPS II: *"Where are the applications of SME Customers typically finally approved*?", we created a variable of bank organizational structure (centralized or decentralized). The degree of centralized (hierarchical) structure ranges from the lowest "Local Branch/Office", "Regional Branch/Office", "Headquarters (domestic)" to the highest "Headquarters (foreign)". The BEPS II surveyed 611 individual banks in 32 countries[11] in 2011, in which the same questionnaire was delivered to each bank's CEO through a face-to-face interview. The purposes of the BEPS II are to compare the conditions for banking activities between different countries.

To build measures of generalized trust, we adopted the answers[12] to Question 3.02 of LITS II:*"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"*. The LITS II was also conducted in 2010 and surveyed around 39,000 households in cities/towns of 34 countries. Its objectives are to examine public attitudes, well-being and impacts of economic changes. It should be highlighted that our trust indicators are specific for each bank by taking average of the answers to the question of trust above. This reflects generalized trust in a geographical area centered on the bank. This methodology has two advantages. Firstly, the measure of generalized trust is bank-specific so it will be different for each value of our dependent variable. Secondly, the trust indicator is not at the country level and this allows us to control for the available country invariants. In addition, we also take into account the differences in levels of generalized trust across locations.

We constructed a specific value of trust for each bank with the radius of 100 km. Let's take Bank A of Albania from the BEPS II as an example (see Graph 3). We placed Bank A as the center and from LITS II, there were 506 Albanian households living within a distance of 100 km. Each

[10] Answers include *"Local Branch/Office", "Regional Branch/Office", "Headquarters (domestic)"* and *"Headquarters (foreign)"*

[11] Countries surveyed are part of Eastern Europe, Central Asia and the south and east of the Mediterranean basin.

[12] Answers can take integer values from 1 to 5, where 1 means "complete distrust" and 5 means "complete trust".

household has specific answer and therefore value of trust. Then, we took average of the 506 trust values and the average one is our specific trust value for Bank A. Selecting the distance of 100 km is based on two conditions. The first one is that the geographical area must be large enough to integrate a large number of observations from LITS II. This, in turn, allows the calculated averages to be representative of characteristics measured. The second is that the distance, at the same time, must not be too large so in the same country there are different average values of trust. The radius of 100 km met the two conditions. To check that our results were not dependent on a given distance, we also constructed using two different distances: 50 km and 150 km for robustness checks.

Using the LITS II, we also created control variables for the environment where the banks were operated. Regarding controlling for bank characteristics, the Bankscope database of Bureau van Dijk and banks' audited financial reports were used.

Graph 3: Our methodology on creating specific generalized trust indicator for each bank[13]

[13] Map source: https://www.globalsecurity.org/military/world/europe/al-maps.htm

Data of the third essay

Information asymmetry causes two dysfunctions in credit markets, namely credit rationing and borrower discouragement. Trust can play its important role in resolving it and allowing firms to obtain bank loans. There has not been any empirical study on the relations between generalized trust and the two dysfunctions (credit rationing and borrower discouragement). Thus, we enrich it by trying to answer the research question *"Does generalized trust, defined at the region level where the firm operates, influence, on one hand, credit availability and, on the other hand, borrower discouragement?".* To do so, we needed the data of enterprises and generalized trust instead of using the same datasets of the first essay (non-bank firms in Vietnam only) and the second one (banks only). Finally, we used the enterprise data from the Business Environment and Enterprise Performance Survey round VI (BEEPS VI) of the EBRD and the generalized trust data from the World Values Survey (WVS) Joint 2017-2020.

To construct the measures of credit availability and borrowing discouragement, we used the BEEPS VI. In particular, for credit availability variables, we referred to Question *K.20 "Referring only to this most recent application for a line of credit or loan, what was the outcome of that application?".* Regarding borrowing discouragement variables, we used Questions K16 *"Referring again to the last fiscal year, did this establishment apply for any lines of credit or loans?* and K.17 *"What was the main reason why this establishment did not apply for any line of credit or loan?".* From the BEEPS VI, we also built control variables for the firm's characteristics. The BEEPS VI surveyed approximately 28,000 enterprises through face-to-face interviews with their managers in 41 countries [14] during 2018-2020. The purpose of the survey is to study the quality of the business environment.

For generalized trust indicator, the answers to Question Q57 of the WVS survey *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"* allow us to construct it for firms (surveyed in BEEPS VI). For each firm in the BEEPS VI, we took average of answers to the trust question of the interviewees

[14] They are of the EU, Eastern Europe, Central Asia and Middle East and North Africa.

living in the same geographical area with the firm. Let's take Firm X in Greece from BEEPS VI as an example (see Graph 4). We knew that Firm X is located in Attica (Greece). From WVS' dataset, we found 1,200 respondents living in Attica and then computed an average of the set of 1,200 answers to obtain the indicator of trust for Firm X. It should be noticed that our trust measures are determined at the region level where the firm operates. It is not at the country level and therefore we can control for the available country invariants. World Values Survey (WVS) Joint 2017-2020 is conducted jointly by the European Values Survey (EVS) and World Values Survey (WVS). The joint version combined the EVS' wave 5 (2017-2020) and the WVS' wave 7 (2017-2021) and therefore covered 81 countries[15] during 2017-2020. The purposes of the WVS survey are to examine cultural values, attitudes and beliefs towards various areas (such as gender, family, religion, trust, institutions, governance, corruption, media etc.). For the robustness tests, we applied the same methodology like the second essay by creating trust indicators computed within the radius of 70 km and 150 km of each firm's location.

Graph 4: Our methodology on creating generalized trust indicator at the regional level[16]

[15] They are of the EU, U.S., South America, Asia, Africa and Oceania.
[16] Map source: https://www.smartraveller.gov.au/destinations/europe/greece#images

We summarize the data used for each essay in Table 3 below.

Table 3: The summary of data used for each essay.

The essay and its research question	Data used
The first essay with the research question *"What is a link between generalized trust and relationship lending?"*	Our own survey conducted in Vietnam during July 2019 – February 2020, ORBIS of the Bureau van Dijk, Vietnamese National Business Registration Portal, enterprises' financial report and website.
The second essay with the research question *"Does generalized trust induce a more decentralized or centralized bank structure?"*	Banking Environment and Performance survey round II (BEPS II) of the European Bank for Reconstruction and Development (EBRD), the Life in Transition Survey round II (LITS II) of the EBRD and Bankscope of the Bureau van Dijk.
The third essay with the research question *"Does generalized trust, defined at the region level where the firm operates, influence, on one hand, credit availability and, on the other hand, borrower discouragement?"*	Business Environment and Enterprise Performance Survey round VI (BEEPS VI) of the EBRD and World Values Survey (WVS) Joint 2017-2020.

5. Key findings

In this thesis, we study the link between generalized trust and credit activities through relationship lending, bank organizational structure and two dysfunctions in credit markets (credit rationing and borrower discouragement). Our key findings are shown as follows.

In the first essay, we examine the link between generalized trust and relationship lending in the context of Vietnam. Using our own enterprise survey, we construct the measures of generalized trust by using the survey answers to the question of being willing to lend out $5,000 to family relatives, friends, colleagues and someone they just met or knew. The responses to the question of numbers of bank relationships allow us to create the proxies for relationship lending. Analyzing the unique sample of 610 non-bank enterprises, we find that generalized trust is negatively associated with relationship lending, indicating the substitute link between them. In other words, firms with higher levels of generalized trust are likely to use less relationship lending. The other finding is that when firms already had bank loans, the substitute link between generalized trust and relationship lending is statistically weaker. These interesting results can be explained by the costs of relationship lending. Although the lending technology allows firms and banks to use soft information to mitigate information asymmetry issue, it also has costs (i.e. time to build up and hold-up problems). Meanwhile, generalized trust also helps firms foster cooperation and relationship with their banks and reduce transaction costs. In this regard, in the existence of strong generalized trust, firms might use less relationship lending when they notice relationship lending's aggregate costs outweigh benefits. Moreover, when firms had bank loans before, the costs of relationship lending are already paid. Thus, the substitute link between generalized trust and relationship lending is statistically weaker. We do the robustness tests using the new measures of generalized trust and relationship lending. The key results remain unchanged.

The second essay works on the relationship between generalized trust and the bank organizational structure (centralized vs decentralized). We adopt the dataset of the BEPS II of the EBRD for the measures of the bank organizational structure. The structure (centralized or decentralized) is determined based on where the bank approves the firm loan application (from local office to Headquarters in a foreign country). We then use the dataset of the LITS II of the

EBRD for the measures of generalized trust. We build the trust indicators from the answers to the common question of generalized trust *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"*. As mentioned earlier, we construct the measure of trust within a distance of 100 km of the bank location. This makes our generalized trust indicator specific for each bank. 100 km is an appropriate distance for us to obtain the sufficient number of observations and therefore build good measures of generalized trust. Analyzing the sample of 443 banks in 25 countries, we find when banks conduct their credit activities in an area with a high (resp. low) level of generalized trust, there is a propensity for them to set up a centralized (resp. decentralized) structure. This can be explained that the existence of generalized trust fosters information sharing. In addition, high levels of interpersonal trust also allow information to transmit more easily through the hierarchical layers. We create some alternative measures of generalized trust and the bank organizational structure for the robustness checks. We also determine trust indicators within other distances (50 km and 150 km rather than 100 km in the main analysis) and the key findings remain robust.

In the third essay, we investigate the influences of generalized trust on the two dysfunctions in credit markets, namely credit rationing and borrower discouragement. Credit rationing is on the supply side while borrower discouragement is on the demand side. We use the data of the BEEPS VI to construct variables of credit rationing and borrower discouragement. In particular, in our study, firms are credit rationed if they applied for loans but were rejected or received some instead of full amount. Moreover, discouraged firms are ones that did not apply for credit because they thought their loan application would not be approved by the bank. For the measures of generalized trust, we adopt the answers to the question of World Values Survey (WVS) Joint 2017-2020: *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"*. Dissimilar to the previous studies, our generalized trust indicators are at the regional level rather than the country level. We do it by taking average of all answers to the trust question from respondents living in the same region like the firm's. This allows us to control for the different levels of generalized trust across regions in each country. We analyze the sample of 21,729 firms across 28 countries in Europe, Asia and Africa, and find that in regions with higher levels of generalized trust, firms are more likely to access greater bank credit. The reason is that banks and borrowing firms trust each other and therefore the former can obtain more

information and then process loan applications. This makes the latter be more likely to access bank credit. The result is consistent with the study by Namara et al. (2019), in which they find that generalized trust is positively linked to access to credit. The other important finding is that in regions with higher levels of generalized trust, firms are less likely to be discouraged from applying for bank credit. This can be explained that with generalized trust, firm managers or owners trust bank officers that the loan applications will be processed properly. They believe that they will be evaluated accurately and offered good interest rates and terms of credit. As the consequence, the firm owners or managers are less discouraged from applying for bank credit. These key results remain robust when we conduct two robustness checks by using alternative measures of credit availability and generalized trust computed within the radius of 70 km and 150 km of the firm's location.

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Essay 1: How is trust related to relationship lending? A case of Vietnam[17]

Abstract

Theories and previous work indicate that opacity problems cause difficulties for enterprises, especially small and medium sized enterprises (SMEs), to access bank credit. Trust and relationship lending are found to allow the enterprises to mitigate the problems and therefore obtain bank credit. However, the link between trust and relationship lending is still under-researched and therefore needs more empirical consideration especially in countries where the banking system and legal infrastructure are developing. We conduct our own survey in Vietnam during July 2019 – February 2020 to create a unique dataset of 610 non-bank enterprises. After analyzing it, we find that the link between generalized trust and relationship lending is substitute. When firms already had bank loans before, the substitute link is statistically weaker.

JEL Codes: G21, L14

Keywords: Bank credit, Relationship lending, Trade credit, Generalized trust, Vietnam.

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1.1. Introduction

Access to finance is crucial to the development of firms. However, some firms, especially small and medium sized enterprises (SMEs), face informational opacity problems and therefore have difficulties obtaining bank credit. Trust has been playing a vital role in all aspects of the human life. It is also important to credit activities as it reduces agency, transaction, monitor and control costs (Macaulay, 1963; Ring & Van de Ven, 1992; Zand, 1972). It also fosters relationships and cooperation (Das & Teng, 1998; Gulati, 1995). Besides that, several notable studies (see Berger et al., 2005; Petersen, 2004; Stein, 2002) suggest that relationship lending and transactional lending are two distinct lending technologies mitigating opacity problems. They are identified based on the types of information. The former is based on soft information obtained by regular contacts over time between banks and firms. The latter uses hard information collected from financial statements and collateral of firms.

The literature shows that there is a link between trust and relationship lending but the work on it is still under-researched (Refait-Alexandre & Serve, 2018). There are a few empirical studies on the link between them (see Hernández-Cánovas & Martínez-Solano, 2010; Moro et al., 2018). Hence, we aim to fill the gap by investigating the link between generalized trust and relationship lending. To do so, we pose a research question: *"What is the link between generalized trust and relationship lending?"*. If the link exists, we explore further by investigating whether it is either complementary or substitute. If it is complementary, the higher levels of generalized trust see greater use of relationship lending. In contrast, if it is substitute, the higher levels of generalized trust see less use of relationship lending. To the best of our knowledge, this study is the first one determining the level of generalized trust at the firm level and examining whether the link between generalized trust and relationship lending is complementary or substitute.

The analysis is in the context of Vietnam, a country in South East Asia. It is important to study Vietnam because the country is a shining star among the emerging countries. Despite various fatal events around the world in recent years (i.e. the trade war between China and the United States, Brexit), Gross Domestic Product (GDP) of Vietnam reached approximately US$245 billion in 2018 and the annual GDP growth is estimated to be 6.5 percent during 2019 – 2021 (World

Bank, 2019). Apart from those remarkable achievements after the economic reform in 1986 called "Đổi mới", there is still a room for improvements in its banking sector and legal infrastructure because firms and banks need to deal with substantial uncertainty and risks. In addition, although the government has implemented support policies, most enterprises in Vietnam have difficulties obtaining bank credit (Tran Ngoc, 2020). In the Vietnamese culture, trust has an important role in every aspect of lives and therefore it is likely to substitute the developed banking system and legal infrastructure to facilitate business transactions and relationships. Understanding the link between trust and relationship lending could help policymakers have appropriate policies on credit activities. However, the literature shows that studies on the link between trust and relationship lending are still under-researched as there is only work by Nguyen and Rose (2009) but they focus on the link between trust and interfirm relationships rather than firm-bank relationships. Furthermore, as mentioned above, the levels of generalized trust are various across regions in Vietnam. Therefore, it needs to be measured specific for each firm rather than a country like prior studies.

The data was not available in Vietnam and therefore we need to conduct our own survey during July 2019 – February 2020. Eventually, we obtain a unique dataset of 610 enterprises and then analyze it. We find that the link between generalized trust and relationship lending is substitute in the sense that stronger generalized trust sees lower use of relationship lending. A reason is that relationship lending has costs and takes time to be bult up. Strong trust helps mitigate asymmetric information problems for firms to access bank credit. Thus, firms will use less relationship lending when generalized trust is strong. On the other hand, when firms had bank credit before, the costs of relationship lending were already paid in part. Generalized trust and relationship lending are still substitutes but this link is statistically weaker.

Explicitly, with the strong existence of generalized trust, firms, especially opaque ones, might use relationship lending to access greater bank credit. Therefore, after finding the relationship between them, we continue to test an implication on a joint effect of generalized trust and relationship lending on allowing firms to obtain bank credit. To do so, we use trade credit as a proxy for credit availability like the previous studies (see Atanasova & Wilson, 2004; Cunningham, 2004; Petersen & Rajan, 1994). Trade credit is more expensive than bank credit

because the former's real interest rate is 40 percent (Petersen & Rajan, 1997). Therefore, firms with needs for specific amount of credit have to obtain bank credit as much as possible and then get the rest from trade credit. In other words, higher (resp. lower) trade credit indicates lower (resp. greater) bank credit availability. Our findings for the implication suggest that it should be with caution when using trade credit as a proxy for bank credit availability and involving generalized trust. A reason is that we find generalized trust has two opposite effects on trade credit and this depends on whether firms have credit relationships with the bank or not. In particular, the existence of strong generalized trust between sellers and buyers facilitates the use of trade credit. However, when generalized trust is strong, firms that have existing relationships with the bank through relationship lending or having bank loans before appear to use less trade credit.

The structure of this paper is organized as follows. Section 1.2 presents Related literature. Section 1.3 describe Research hypotheses, Data and Models. After discussing the results and robustness tests in Section 1.4, we conclude in Section 1.5.

1.2. Related literature

1.2.1. Trust

Yamagishi and Yamagishi (1994, p.136) define trust as *"a bias in the processing of imperfect information about the partner's intentions. A trusting person is the one who overestimates the benignity of the partner's intentions beyond the level warranted by the prudent assessment of the available information".* This definition is interesting because it describes who a trusting person is in the context of imperfect information. Therefore, it can be applied to the study on the relationships and trust between firms and banks. According to Uslaner (2001), there is a clear distinction between two different types of trust, namely generalized trust and particularized trust. Generalized trusters are likely to interact with and trust others despite any differences between them (i.e. different religions or races, etc.) (Yamagishi & Yamagishi, 1994). In contrast, particularized trusters connect to and trust only particular individuals or communities in which they have similarities (Uslaner & Conley, 2003).

1.2.2. Relationship lending

Some enterprises, especially SMEs, might have difficulties accessing bank credit due to information asymmetries. To mitigate the problems, banks and enterprises may use two different lending technologies, namely transactional lending and relationship lending (Berger et al., 2002; Stein, 2002). According to the pioneer study by Stein (2002), relationship lending is a lending technology where lenders and borrowers use soft information collected through regular contacts between them over time and from the history of the use of bank services. But this type of information is difficult to be verified, presented in numbers, and transmitted. On the other hand, transactional lending is a lending technology based on hard information obtained from firms' financial statements and collateral. Hard information can be verified, transmitted, and presented in figures more easily.

1.2.3. Trust and relationship lending

The literature shows that trust lowers agency and transaction costs (Macaulay, 1963; Ring & Van de Ven, 1992) and monitor and control costs (Zand, 1972). Trust also fosters relationships between parties (Gulati, 1995) and their cooperation (Das & Teng, 1998) because firms trust their bank that the latter does not share information with the third party and do meet its obligations specified in loan contracts. Meanwhile, the bank also trusts the firms that the latter meets all the obligations and repays the loans. This, in turn, makes them exchange soft information, thereby increasing the use of relationship lending. In this regard, when trust exists between banks and firms, relationship lending is more likely to be used.

Relationship lending is the lending technology which allows firms, especially informational opaque ones, to access bank credit, have less collateral required and get better credit terms (Berger & Udell, 2006; Bharath et al., 2011; Petersen & Rajan, 2002). But it also has costs. It requires time to build up. In addition, firms might suffer hold-up problems in which they are locked in relationships where banks can exploit all the firm information to extract rents or charge higher loan rates (Ioannidou & Ongena, 2010; Von Thadden, 1992). Another cost is related to soft information where it is difficult to be verified and transmitted and therefore it may depend on bank

officers to accept or not and the way they process the information (Uchida et al., 2012). Furthermore, the use of relationship lending also depends on the firm's need for bank credit. If they do not have the need, they might not care about relationship lending. In addition, if there has not been a such relationship, firms might find costly to build relationship lending. In this regard, trust and relationship lending are substitutes due to their own costs and the firm's needs for bank credit.

For the previous empirical work on the link between trust and relationship lending, Moro et al. (2018) analyze both semi-structured interviews and 450 bank-entrepreneur relationships. Their results report that trust of loan managers is positively associated with relationship lending. However, the study by Hernández-Cánovas and Martínez-Solano (2010) finds that trust-based relationships are a better strategy for SMEs to obtain bank credit than relationship lending, after examining relationships between banks and SMEs in the continental European bank-based system. It implies that if SMEs are able to use trust-based relationships, they might deploy less relationship lending.

1.3. Research hypothesis, Data and Models

1.3.1. Research hypothesis

In this study, we explore the impact of generalized trust on relationship lending: whether they are complements or substitutes. To do so, we address a main research question: "*What is a link between generalized trust and relationship lending?".* Trust reduces information asymmetries, uncertainty and risks (Fisman & Khanna, 1999). Due to the existence of trust, relationships between parties and their cooperation are enhanced (Das & Teng, 1998; Gulati, 1995). Relationship lending is the lending technology based on soft information and trust might help facilitate the exchange of soft information between firms and their bank. This implies that generalized trust and relationship lending are complements in the sense that higher levels of trust see increasing use of relationship lending. But relationship lending also has costs and takes time for firms and banks to build up. Given that firms have strong generalized trust, if they have not had bank loans before and found relationship lending costly, they might not use the lending

technology. In other words, generalized trust and relationship lending are substitutes. We, therefore, propose a following hypothesis:

Hypothesis 1: Generalized trust and relationship lending are complements (resp. substitutes) in which the higher levels of trust see the greater (resp. lower) use of relationship lending.

As discussed earlier, with strong generalized trust, enterprises can use relationship lending to access greater bank credit. Thus, if the link between them is found, it will be interesting to examine the joint effect of generalized trust and relationship lending on bank credit availability. If the joint effect on credit availability is positive, it will imply that generalized trust and relationship lending together help firms access greater bank credit. We, hence, test a following implication:

Implication 1: The joint effect of generalized trust and relationship lending allows firms to obtain greater bank credit.

1.3.2. Data

Our dataset is constructed by merging data of our own survey with other databases, namely the ORBIS of the Bureau van Dijk, Vietnamese National Business Registration Portal, enterprises' websites and business registration licenses. Our own survey was conducted from July 2019 to February 2020 in Vietnam. The purposes of our survey are to obtain the data of the firm names, their main bank names, trust and relationship lending. Using the firm names and bank names, we could obtain the data from the other sources (i.e. ORBIS, Vietnamese National Business Registration Portal, enterprises' websites and business registration licenses) to create control variables for the firm and bank. We created a questionnaire for the survey. We were aware that respondents were busy so our questionnaire was required to be short and precise. But it still had a sufficient number of questions in order to allow us to obtain enough information on trust, relationship lending, names of firms and their main bank. Once the first version of the questionnaire was done, we discussed with three experts in the banking sector and one

representative of a business association to ensure that the questionnaire was precise and consistent to increase the response rate. As a result, the final version had six questions.

Table 1: Comparison of the population and our final sample. In this table, we compare our final sample (610 enterprises) against the population in Vietnam (714,755 enterprises).

	Statistic	**Population**	**Final sample**
		714,755	**610**
Region			
Red River Delta	Percentage	31	28.85
Central and Central Highlands	Percentage	15.8	5.41
Southeast	Percentage	41.5	61.64
Mekong Delta River	Percentage	7.4	3.44
Firm sector			
Industry & Construction	Percentage	31.9	30.66
Services & Trade	Percentage	66.6	69.34
Firm ownership			
State-owned	Percentage	0.4	9.67
Privately-owned & FDI	Percentage	99.6	90.32
Firm size			
1-10 staff	Percentage	74.4	31.8
11-100 staff	Percentage	22	42.13
101-200 staff	Percentage	1.6	7.05
Over 200 staff	Percentage	1.9	19.02
List status			
Listed	Percentage	0.3	8.69
Unlisted	Percentage	99.07	91.31

Furthermore, we also were aware of selection bias and therefore attempted to minimize it by designing the survey properly to reach a wide range of both recipients and respondents. More specifically, we carried out the survey to analyze the relationship between trust and relationship lending and therefore only respondents who had interests in our research topic took the survey. In

addition, respondents could also have high levels of trust and therefore are more likely to disclose their information. To mitigate the problems, we had to design the survey in a proper way. Firstly, we sent out the questionnaires to recipients who were legal representatives, owners, shareholders, managers, and accountants because they were aware of their enterprises' financial performance and relationships with their banks. We put many efforts to send out the questionnaires as much as possible by using all available contact details of enterprises and seeking support of the business associations to connect to their members. Secondly, we foresaw that people with higher levels of trust would be more likely to take the survey when receiving our first email. Then, we sent the first and second reminders to those who had not answered yet. This allowed us to obtain responses from the rest because they could think that they did not trust other people easily but they could give a try to help us for this occasion. As a result, we could reach a wide range of respondents who had both high and low levels of trust.

Finally, we received 619 responses but only 610 responses were completed fully. Therefore, the final sample includes 610 enterprises. Table 1 presents a comparison between our final sample (610 enterprises) and the population (714,755 enterprises). The population consisted of all active enterprises in Vietnam and its figures were collected from the White Book 2019 of the Vietnamese Ministry of Planning and Investment. Meanwhile, 610 observations in the final sample included SMEs and large ones which varied in terms of location, firm ages, business sectors, ownership, and the like. As can be seen from Table 1, the two did not differ notably. In particular, most enterprises in the population were located in Southeast with 41.5 percent, Red River Delta with 31 percent and Central and Central Highlands with 15.8 percent. Regarding the final sample, the responses from Southeast accounted for the highest proportion, 61.64 percent and this was followed by Red River Delta with 28.85 percent, and then Central and Central Highlands with 5.41 percent. Firm sector, Firm ownership and List status were in the similar pattern for the two groups. For the firm size, most of the enterprises in both the population and final sample were SMEs that had less than 100 staff members. SMEs in the population and sample accounted for 96.4 percent and 73.9 percent respectively. However, the large enterprises with over 200 staff and the ones with 101-200 staff in the population recorded only 1.9 percent and 1.6 percent respectively. Meanwhile, firms over 200 staff and the ones with 101-200 staff comprised 19.02 percent and 7.05 percent respectively.

1.3.3 Models

To examine the link between generalized trust and relationship lending, we use following estimation regressions below. We employ ordinary least squares (OLS) and include fixed effects of firms' business sectors, size and economic area where the firm is located[18] for all regressions. The description and descriptive statistics of all the variables are also presented in Table 1.1 in Appendix. Table 1.2 shows the correlation matrix.

$$RL_i = \alpha + \beta_1 TRUST_i + \beta_2 FIRM_i + \beta_3 BANK_i + \beta_4 HHI_{i,c} + FE(Firm\ size, firm\ sector, economic\ area) + \mu_i \quad (1)$$

where

- RL_i is the dependent variable and for relationship lending.
- $TRUST_i$ is the variable of generalized trust.
- $FIRM_i$ is a set of control variables for the firm's characteristics.
- $BANK_i$ is a set of control variables for the firm's main bank's characteristics.
- $HHI_{i,c}$ is the Herfindahl-Hirschman index measuring the bank concentration for the city where the firm is headquartered.
- μ_i is an error term.

The first regression allows us to test the link between generalized trust and relationship lending. B_1 is the main coefficient of interest. If the coefficient is statistically significant and positive, it will indicate that generalized trust complements relationship lending. If it is statistically significant and negative, it will imply a substitute relationship. Furthermore, there might be a difference in the effect of generalized trust on relationship lending between firms with and without

[18] For the firm size, we code 1,2,3 and 4 for "1-10 staff", "11-100 staff", "101-200 staff" and "Over 200 staff" respectively. For the firm sector, we code 1,2,3 and 4 for "Industry", "Construction", "Services" and "Trade" respectively. For the economic area, there are 7 economic areas across Vietnam, namely Northeast, Northwest, Red River Delta, North Central, South Central, Southeast, and Mekong Delta River. Therefore, we code from 1 – 7 for a particular area where a firm is located.

the need for bank credit. Firms with the needs are more likely to care about relationship lending to be able to access bank credit. The ones without the needs might not care about the lending technology and this makes the link different. For instance, they might have many bank relationships. Therefore, we add an interaction term $\mathrm{TRUST_i} \times \mathrm{BBORROWING_i}$ into Model 1 to form Model 2 as follows:

$$\mathrm{RL_i} = \alpha + \beta_1 \mathrm{TRUST_i} + \beta_2 \mathrm{TRUST_i} \times \mathrm{BBORROWING_i} + \beta_3 \mathrm{FIRM_i} + \beta_4 \mathrm{BANK_i} + \beta_5 \mathrm{HHI_{i,c}} + FE(Firm\ size, firm\ sector, economic\ area) + \mu_i \quad (2)$$

where BBORROWING is a variable of whether the firm already had bank loans or not. The coefficients of $\mathrm{TRUST_i}$ and $\mathrm{TRUST_i} \times \mathrm{BBORROWING_i}$ allow us to notice the difference in the influence of generalized trust on relationship lending between firms with and without bank credit before. The similar signs indicate show no difference while the opposite ones present a difference. In addition, if the coefficient of the interaction term $\mathrm{TRUST_i} \times \mathrm{BBORROWING_i}$ is statistically significant and positive, it will indicate that firms with strong generalized trust and already having bank loans use more relationship lending. If it is statistically significant and negative, it will present that those firm uses less relationship lending.

If the link between generalized trust and relationship lending is found, we continue to examine it through their joint effect on bank credit availability, using Model 3 below

$$\mathrm{TRADECREDIT_i} = \alpha + \beta_1 \mathrm{RL_i} + \beta_2 \mathrm{TRUST_i} + \beta_3 \mathrm{TRUST_i} \times \mathrm{RL_i} + \beta_4 \mathrm{FIRM_i} + \beta_5 \mathrm{BANK_i} + \beta_6 \mathrm{HHI_{i,c}} + FE(Firm\ size, firm\ sector, economic\ area) + \mu_i \quad (3)$$

$\mathrm{TRADECREDIT_i}$ is the dependent variable using the firm's use of trade credit to proxy for bank credit availability. This adopts the method of the prior studies (see Atanasova & Wilson, 2004; Cunningham, 1994; Petersen & Rajan, 1994) where the authors use trade credit as a proxy for bank credit availability. As mentioned before, higher (resp. lower) trade credit indicates lower (resp. greater) bank credit availability. $\mathrm{TRUST_i} \times \mathrm{RL_i}$ is an interaction term allowing to examine a joint effect of generalized trust and relationship lending on bank credit availability. Its coefficient β_3 is the coefficient of interest. If the coefficient β_3 is statistically significant and negative, it will

imply that the joint impact of generalized trust and relationship lending allows firms to obtain greater bank credit.

Next, we are interested in testing whether there are any differences in the impacts of generalized trust on trade credit for firms with and without bank credit before. We, therefore, add an interaction term $\mathrm{TRUST_i} \times \mathrm{BBORROWING_i}$ to form Model 4.

$$\mathrm{TRADECREDIT_i} = \alpha + \beta_1 \mathrm{RL_i} + \beta_2 \mathrm{TRUST_i} + \beta_3 \mathrm{TRUST_i} \times \mathrm{BBORROWING_i} + \beta_4 \mathrm{FIRM_i} + \beta_5 \mathrm{BANK_i} + \beta_6 \mathrm{HHI_{i,c}} + FE(Firm\ size, firm\ sector, economic\ area) + \mu_i \quad (4)$$

The coefficients β_2 and β_3 are of our interests because they allow us to study the effects of generalized trust on trade credit between firms with and without bank loans before. Trade credit is still used as a proxy for bank credit availability. In particular, if the coefficient of generalized trust β_2 is statistically significant and positive, it will indicate that generalized trust allows firms to use more trade credit. Moreover, if the coefficient of the interaction term β_3 is statistically significant and negative, it will indicate that firms that have higher levels of generalized trust and bank loans before are likely to use less trade credit.

Relationship lending variables

Based on the previous studies (see de Bodt et al., 2005; Ongena & Smith, 2000; Petersen & Rajan, 1994; Refait-Alexandre & Serve, 2018), we created two proxies for relationship lending, using the total number of banks that the firm did business with. The higher number of banking relationships indicates less use of relationship lending. Regarding the first indicator of relationship lending RL1, we computed it through dividing the number of bank relationships by 1, using Question 3 *"How many banks has your enterprise been conducting business with?"*. Respondents need to choose "Only 1 bank", "2 banks", "3-5 banks" and "Over 5 banks". For each option, we took average in the sense that 1 for "Only 1 bank", 2 for "2 banks", 4 for "3-5 banks" and 6 for

"Over 5 banks". To do so, we had equal gaps between the values 2, 4 and 6[19]. Then, we divided the numbers of banks by one (1/NUMBANK). If firms focus on doing business with few banks, their relationships with the banks will be more concentrated. Thus, the higher values of 1/NUMBANK indicates more use of relationship lending. The second indicator RL2 was a dummy variable and coded 1 if respondents answered "Only 1 bank" or "2 banks"; 0 for "3-5 banks" or "Over 5 banks". When firms do business with a few numbers of banks (only 1 or 2 banks), the relationships are concentrated, implying more use of relationship lending.

Generalized trust variables

Following the approach by Mansbridge (1999), Glaeser, et al. (2000), Rosenberg (1956) and Uslaner (2001). we constructed generalized trust measures based on the willingness of people to lend things out. The more willingness indicates greater levels of generalized trust. To do so, we used Question 5 *"Are you willing to lend money or other things with the values of over US$5,000*[20] *to"*. Respondents needed to answer "Yes" or "No" to different groups, namely family relatives, friends, colleagues and someone they just met or knew. The measure of trust GENTRUST1 was computed based on the number of "YES" answers the respondent selected in Q5. It is a dummy variable coded 1 if the number of "YES" answers was over 1; otherwise, 0. The higher value indicates stronger generalized trust.

Credit availability variables

As mentioned above, we used trade credit as a proxy for bank credit availability, namely the variable TRADECREDIT. Higher (resp. lower) use of trade credit indicates lower (resp. greater) bank credit availability. A reason is that trade credit is more expensive than bank one.

[19] We also examined that the firm might have 8 or 10 bank relationships. Besides the value of 6, we also coded 7 and 9 for "Over 5 banks" and the empirical results still remain the same as coding 6. Thus, we only presented and discussed the results of coding 6.

[20] We needed to carefully consider suitable amount of lending money. If we set a low number (i.e. US$1, US$10), respondents are likely to afford the losses and therefore accept to lend it irrespective of the levels of trust. If we set a significantly high number (i.e. US$10,000, US$50,000), the amount of money is beyond their capacity. They, therefore, are not willing to lend it despite strong trust. US$5,000 (equivalent to about 100 million Vietnamese dong) is a regular price of new SH motorbike, an expensive and popular one of Honda in Vietnam.

Firms who need a specific amount of credit have to obtain bank loans as much as possible and then get the rest from trade credit.

Firm characteristics variables

To create control variables for firm characteristics, we extracted the data from the ORBIS, Vietnamese National Business Registration Portal, company websites, business registration licenses, audited financial reports, and official websites of stock markets. We included control variables for the firm's male CEO (MALE, a dummy variable) and their Vietnamese nationality (VIETNAMESE, a dummy variable). The gender of CEOs might impact the firm-bank relationships. The studies by Aristei and Gallo (2021), and Ongena and Popov (2016) find that female-led enterprises are more discouraged from applying for bank loan, thereby influencing credit availability. Furthermore, if the CEOs are Vietnamese, they understand Vietnamese culture and communicate with bank managers in Vietnamese language more easily. This might impact the firm-bank relationship and credit availability.

The firm age represents its reputation, thereby influencing its credit availability (Harhoff & Korting, 1998). Larger firms are less risky and have more negotiation power (Moro & Fink, 2013). When firms involve more import or export activities, they are likely to have broader business network. They, hence, might suffer less information asymmetries problems and obtain more credit (Nguyen et al., 2020). Moreover, listed firms have more financing channels and mitigate information asymmetries and this impacts their use of relationship lending and credit availability. In this regard, we have important control variables for firm characteristics, namely the firm age (LNAGE), list status on the stock markets (LISTED), the ownership types (PRIVATE), and import-export activities (EXIM). Furthermore, the financial performance of the firm influences credit availability and the use of relationship lending. When the firm's financial performance is strong, it is more likely to repay bank loans, thereby influencing the bank's decisions. Hence, several control variables for the firm's financial performance are added, namely the amount of capital (CAPITAL), returns on asset (ROA) and leverage (LEVERAGE). In addition, we also create a control variable (BBORROWING) for whether firms had bank loans or not. It allows us to distinguish between firms with and without bank credit before. Relationship

lending also has costs (i.e. time, locked in a relationship with its main bank, etc.). If firms had bank loans before, they might already paid the costs of relationship lending. If they did not have bank credit yet, they might consider using relationship lending based on whether they can afford the costs of the lending technology.

Bank characteristics variables and HHI index

The previous studies reveal that the bank size, list status and ownership also impact relationships with borrowers and credit availability (see Berger et al, 2005; Uchida et al., 2008; Uchida et al., 2012). Hence, we have control variables for bank characteristics, namely the bank size (BSIZE), list status on the stock markets (BLISTED) and state-owned bank[21] (SBANK), using the information from the banks' audited financial reports and official websites of stock markets. We also have a variable of Herfindahl-Hirschman index[22] (HHI) for bank concentration of cities where firms are headquartered. The HHI indexes of 41 cities in the sample are presented in Table 1.3 in Appendix.

1.4. Empirical results

1.4.1. Univariate analysis

We start with a univariate analysis where we compare the mean of our main variables in two sub-samples: the first one includes firms using relationship lending (RL2=1) and the second those without it (RL2=0). The results in Table 1.4 of Appendix suggest that firms not using relationship lending has a higher average level of generalized trust (GENTRUST1) than those using relationship lending (0.561 against 0.468, difference significant at 5 percent). It is the same for GENTRUST2 between the groups without and with the lending technology (0.298 against 0.197, difference significant at 1 percent). Firms using relationship lending appear to be younger, more private-owned, unlisted on stock markets and less capital on average. To sum up, these results

[21] The state owns more than 50 percent of the stake.

[22] HHI = $\sum_{i=1}^{n} s_i^2$. n is the number of banks in the city and s is the size of each bank. We computed it by ourselves, using the information of the banks' audited financial reports, their official websites and the ORBIS

provide an overall picture in which higher levels of generalized trust see lower uses of relationship lending, indicating the substitute link between generalized trust and relationship lending.

1.4.2. Multivariate analysis

Results on the link between generalized trust and relationship lending

To test our hypotheses, we use Models 1 and 2 in which the dependent variable, measuring the use of relationship lending by the firm, is RL1 or RL2. The generalized trust measure between individuals (GENTRUST1) is deployed. We also include fixed effects of the firm's size, business sector and the economic area where it is located. Table 1.5 presents that the variable GENTRUST1 is negatively correlated with the dependent variable RL1 (see Column 1). Next, when regressing Model 2 where it has the interaction term GENTRUST1×BBORROWING, we find that the variable GENTRUST1 continues to be negatively associated with the dependent variable (RL1). Interestingly, the coefficient of GENTRUST1×BBORROWING is positive and statistically significant (see Column 2). When firms already had bank loans, the dummy variable (BBORROWING) takes the value of 1. We take a sum of the coefficient of generalized trust GENTRUST1 and that of the interaction term between generalized trust and bank loans GENTRUST1×BBORROWING. As the result, the aggregate effect of generalized trust on relationship lending is still negative. This can be explained that relationship lending also is costly and takes time. When there has not been such a relationship yet, if generalized trust is strong, firms will find costly to build it, implying that generalized trust and relationship lending are substitutes. However, when the firm had bank loans before, the costs of relationship lending were already paid in part. Thus, the substitute link between generalized trust and relationship lending becomes statistically weaker. These key results remain unchanged when we use RL2 as the dependent variable (see Column 4).

Regarding the firm characteristics, having bank loans before and being listed on stock markets are found to be negatively associated with relationship lending.

Results on the implication for the joint effect of generalized trust and relationship lending on bank credit availability

Column 1 of Table 1.6 in Appendix presents that the coefficient of the interaction term GENTRUST1× RL2 is statistically significant and negative. Lower trade credit indicates greater bank credit availability. This implies that the joint effect of generalized trust and relationship lending allows firms to obtain greater bank credit. Hence, we can confirm Implication 1. In addition, the coefficient of generalized trust GENTRUST1 is statistically significant and positive. When adding the interaction term between generalized trust and having bank credit before, the coefficient of generalized trust GENTRUST1 is statistically significant and positive while that of the interaction term GENTRUST1×BBORROWING is statistically significant and negative (see Column 2). These results are interesting because they show that generalized trust could have two opposite effects on trade credit and this depends on whether firms have credit relationships with the bank or not through relationship lending or having bank loans before. A reason is that when generalized trust is strong, sellers and buyers trust each other and therefore they can negotiate more easily, quickly and confidently for the use of trade credit. Therefore, trade credit is used more. However, when generalized trust is strong and firms have relationship lending or bank credit before, they appear to use less trade credit. This can be explained that trade credit is more expensive than bank loan so the existing bank relationships and strong generalized trust can allow the firms to obtain more bank credit and therefore they can use less trade credit.

For the firm characteristics, having bank loans before and private ownership are negatively associated with trade credit. Moreover, firms with import and export activities and higher capital are found to have more trade credit. Firms located in regions with more bank concentration appear to obtain more trade credit.

Robustness tests

We conduct two robustness tests to check whether the main findings are robust. For the first robustness test, we replace the generalized trust measure GENTRUST1 with an alternative GENTRUST2 while keeping the same relationship lending variable RL1. GENTRUST2 is a

continuous variable of trust measured by the number of "YES" answers using Question 5[23]. To conduct the second robustness test, we construct a stricter measure of relationship lending in which the firms have businesses with only one bank, indicating that the most concentrated relationship. To do so, we create a dummy variable RL3[24] coded 1 for "Only 1 bank"; 0 for "2 banks", "3-5 banks" and "Over 5 banks". The trust measure GENTRUST1 is used in this test.

As can be seen in Table 1.7, the main findings remain robust. In particular, in the first robustness test, the coefficient of generalized trust variable GENTRUST2 is statistically significant and negative while that of the interaction term GENTRUST2×BBORROWING is statistically significant and positive (see Column 2). Regarding the second robustness check where we keep the trust indicator GENTRUST1 and replace the relationship lending variable RL1 with RL3, the key results are still the same (see Columns 3 and 4).

Taken together, the key results in the main analyses are confirmed to be robust.

1.5. Conclusion and discussion

It is crucial and interesting to examine the link between generalized trust and relationship lending because the studies on this topic are still limited and most of them have measures of trust at the country level but while levels of trust are stable over time, they can vary greatly from one place to another: not only between countries but also between locations within each country. Therefore, we enrich the research strand by addressing a main research question of what the link between generalized trust and relationship lending is and our levels of generalized trust are at the firm level. We conduct our own survey in Vietnam to construct the unique dataset of 610 enterprises located in 41 cities. Our results show that generalized trust and relationship lending are substitutes in the sense that stronger trust sees less use of relationship lending. When firms already had bank loans, the substitute link is statistically weaker. The reason is that when firms already had bank credit, these costs were paid and this makes the substitute link weaker. The main results

[23] For example, if a respondent answered "YES" to all four options: Family relatives, Friends, Colleagues, and Someone you just met or knew, GENTRUST2 is coded 4. If a respondent answered "YES" to only three of the four options, GENTRUST2 is coded 3.

[24] We use Question 3 *"How many banks has your enterprise been conducting business with?"*

still remain robust after we perform the robustness tests by using alternative ones of generalized trust and relationship lending.

Moreover, we also test the implication on the joint effect of generalized trust and relationship lending on the use of trade credit by the firm. The results show that generalized trust has two opposite effects on trade credit. In particular, when generalized trust is strong, sellers and buyers trust each other and therefore can use trade credit at ease. Therefore, trade credit appears to be used more. However, it is not the same when firms already have credit relationships with the bank through relationship lending or having bank loans before. In particular, when generalized trust is strong, firms having relationships with the bank appear to use less trade credit. Trade credit is more expensive than bank one so the firms with the existing bank relationships are likely to use more bank credit rather than trade one. This study offers important implications for researchers. Firstly, using generalized trust at the country level could induce problems: i) no country controls, and ii) not taking account of the variation within country. Hence, the researchers should determine the level of generalized trust at the regional level or specific for each enterprise. The second implication is that the researchers should be careful when they study the influence of generalized trust and use trade credit as a proxy for credit rationing. A reason is that as explained before, generalized trust has two opposite impacts on trade credit and this might depend on whether firms already have bank relationships through relationship lending or having bank loans before. Therefore, trade credit is not a good proxy for credit rationing in this case. If the researchers need to use trade credit proxying for credit rationing, they should take generalized trust and whether firms already have bank relationships into account.

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1.7. Appendix

QUESTIONNAIRE OF "TRUST OF ENTERPRISES AND BANKING" SURVEY

1. **Your enterprise's name**:.....

2. **A question for measuring enterprises' credit availability: Your enterprise's borrowings are from (Please rank from "the least" to "the most")**

	The least	*Little*	*Many*	*The most*	*No borrowing*
Banks	☐	☐	☐	☐	☐
Company owners/shareholders	☐	☐	☐	☐	☐
Other companies	☐	☐	☐	☐	☐
Internal staff	☐	☐	☐	☐	☐

3. **A question for measuring the relationship of enterprises and their banks: How many banks has your enterprise been conducting business with?**

   ☐ Only 1 bank ☐ 2 banks ☐ 3-5 banks ☐ Over 5 banks

4. **What is a name of your enterprise's main bank? Has your enterprise changed the main bank over the last two years? (If Yes, please write down "Yes" or No, please write "No")** ……...

5. **A question for trust measurement: Are you willing to lend money or other things with the values of over $5,000 to?**

	Yes	*No*
Family relatives	☐	☐
Friends	☐	☐
Colleagues	☐	☐
Someone you just met or knew	☐	☐

6. **A question for trust measurement: You trust others because (Please rank from "Not important" to "Very important")**

	Not important	*Slightly important*	*Important*	*Very important*
Same religion or race	☐	☐	☐	☐
Same interests, objectives	☐	☐	☐	☐
Similar character traits	☐	☐	☐	☐
Through a long process of building relationship	☐	☐	☐	☐
Their behavior	☐	☐	☐	☐
Referral or network	☐	☐	☐	☐
Family connection	☐	☐	☐	☐
Same hometown	☐	☐	☐	☐

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Table 1. 1: The description and descriptive statistics of the variables.

Variables	Definitions	Sources	Mean	Std Dev	Min	Max
Panel A: Relationship lending variables						
RL1	One is divided by the number of banks that enterprises conduct business with (1/NUMBANK).	Q3 in Questionnaire.	0.46	0.27	0.17	1
RL2	Dummy = 1 if only 1 bank relationship and 2 bank relationships; 0 otherwise.	Q3 in Questionnaire.	0.532	0.499	0	1
RL3	Dummy = 1 if only 1 bank relationship; 0 otherwise.	Q3 in Questionnaire	0.168	0.374	0	1
Panel B: Credit availability						
TRADECREDIT	Net trade credit is used as a proxy for credit availability (Tradecredit = Account Payable – Account Receivable). (in thousands of USD).	ORBIS and author's own calculation.	1.52	21.68	-71.17	437.72
Panel C: Generalized trust						
GENTRUST1	Dummy = 1 if the number of "YES" answers is over 1; 0 otherwise.	Q5 in Questionnaire.	0.51	0.50	0	1
GENTRUST2	Continuous variable of generalized trust measured by the number of "YES" answers	Q5 in Questionnaire.	1.55	1.12	0	4
Panel D: Firm characteristics						
BBORROWING	Dummy = 1 if the firm has bank loan; 0 otherwise.	Q2 for "Bank" in Questionnaire.	0.69	0.46	0	1
MALE	Dummy = 1 if the firm's CEO is male; 0 for female.	Hand-collected.	0.80	0.40	0	1
VIETNAMESE	Dummy = 1 if the firm's CEO is Vietnamese; 0 otherwise.	Hand-collected.	0.92	0.26	0	1
LNAGE	Logarithm of firm age.	Hand-collected.	2.2	0.85	0	4.262
LISTED	Dummy = 1 if the firm is listed on stock markets; 0 otherwise.	Hand-collected.	0.09	0.28	0	1
PRIVATE	Dummy = 1 if the firm is privately owned; 0 otherwise.	Hand-collected.	0.90	0.30	0	1
EXIM	Dummy = 1 if the firm has import/export activities; 0 otherwise.	Hand-collected.	0.32	0.47	0	1
CAPITAL	Total capital (in hundreds of millions of USD).	ORBIS	0.13	1.05	0	20
ROA	Return on assets (ROA = Net income/Total assets).	ORBIS	-3.57	68.80	-1403.99	356.85
LEVERAGE	Leverage ratio (Leverage ratio = Total debt/Total equity).	ORBIS and author's own calculation.	0.45	1.35	-4.90	31.25

Table 1.1: The description and descriptive statistics of the variables (Continued).

Variables	Definitions	Sources	Mean	Std Dev	Min	Max
Panel E: Firm's main bank characteristics						
BSIZE	Main bank's size in terms of the natural logarithm of total assets (in billions of USD).	ORBIS	2.79	1.18	-5.05	3.94
BLISTED	Dummy = 1 if the main bank is listed on stock markets; 0 otherwise.	Hand-collected.	0.89	0.31	0	1
SBANK	Dummy = 1 if the main bank is state-owned; 0 otherwise.	Hand-collected.	0.43	0.50	0	1
Panel F: Bank concentration (HHI index)						
HHI	Herfindahl-Hirschman index measures bank concentration of cities where firms are headquartered. HHI = $\sum_{i=1}^{n} s_i^2$ where n is the number of banks in the city and s is the size of each bank.	ORBIS and author's own calculation.	0.07	0.002	0.05	0.07

Table 1. 2: Correlation matrix of the variables

	RL1	RL2	RL3	gentrust1	tradecredit	bborrowing	male	vietnamese
RL1	1							
RL2	0.777	1						
RL3	0.893	0.422	1					
gentrust1	-0.124	-0.0935	-0.111	1				
tradecredit	-0.0667	-0.0814	-0.0209	0.0433	1			
bborrowing	-0.239	-0.151	-0.247	0.139	-0.0389	1		
male	-0.0729	-0.0114	-0.0856	0.0645	0.0319	0.0112	1	
vietnamese	-0.0303	-0.0310	-0.0204	0.106	-0.0255	0.0503	-0.0835	1
lnage	-0.158	-0.159	-0.113	-0.0105	0.0152	0.202	0.0891	0.00870
listed	-0.149	-0.178	-0.0769	0.0570	0.0897	0.131	0.0989	0.0881
private	0.102	0.105	0.0587	-0.0424	-0.137	-0.0993	-0.139	-0.0935
exim	0.000590	-0.00960	0.00228	0.0336	0.0896	0.0617	-0.00214	-0.0983
capital	-0.0337	-0.0695	0.00819	0.00183	0.342	0.0483	0.0396	-0.104
roa	0.00185	-0.0118	0.0144	0.0393	0.00628	-0.0494	0.0122	-0.0151
leverage	0.0533	0.0250	0.0606	-0.0567	-0.0302	-0.0655	-0.0921	0.0238
bsize	-0.00115	0.0155	-0.0158	0.000153	0.0317	-0.0273	0.0174	0.195
blisted	0.00245	0.0123	-0.0121	0.0608	0.0211	0.0519	-0.0199	0.280
sbank	-0.0137	-0.0207	-0.00361	0.0495	0.0734	0.0178	0.0401	0.0982
HHI	0.0581	-0.00186	0.0868	-0.0108	0.00188	-0.0843	-0.0368	0.0778

	lnage	listed	private	exim	capital	roa	leverage	bsize	blisted	sbank	HHI
lnage	1										
listed	0.314	1									
private	-0.298	-0.470	1								
exim	0.104	0.00180	0.0686	1							
capital	0.0677	0.0461	-0.126	0.0414	1						
roa	0.0485	-0.00363	-0.0349	-0.0294	0.0140	1					
leverage	0.00139	0.0147	0.0253	-0.0340	-0.0101	0.0150	1				
bsize	-0.0311	0.0787	-0.0532	-0.0556	-0.0135	-0.00535	0.0471	1			
blisted	-0.0535	0.0325	0.0110	-0.0681	-0.0890	-0.0234	0.0279	0.426	1		
sbank	0.0750	0.143	-0.0959	-0.00457	0.0204	0.00894	0.0507	0.510	0.0795	1	
HHI	-0.0680	-0.0819	0.0920	0.00674	-0.210	-0.0286	0.00990	-0.0894	0.0404	-0.118	1

Table 1. 3: Herfindahl-Hirschman index (HHI) of 41 cities in the sample for 2019.

The higher HHI index indicates the more concentrated banking system

City	HHI (2019)	City	HHI (2019)
Northeast		**South Central Coast and Central Highlands**	
Ha Giang	0,0495	Binh Dinh	0,0660
Thai Nguyen	0,0655	Phu Yen	0,0637
Northwest		Khanh Hoa	0,0679
Lao Cai	0,0637	Dak Lak	0,0667
Yen Bai	0,0509	**Southeast**	
Red River Delta		Binh Thuan	0,0647
Hanoi	0,0685	Lam Dong	0,0649
Vinh Phuc	0,0637	Binh Phuoc	0,0637
Bac Ninh	0,0678	Tay Ninh	0,0639
Quang Ninh	0,0523	Binh Duong	0,0682
Hai Duong	0,0675	Dong Nai	0,0681
Hai Phong	0,0680	Ba Ria - Vung Tau	0,0678
Hung Yen	0,0638	Ho Chi Minh City	0,0685
Ha Nam	0,0626	**Mekong Delta River**	
Nam Dinh	0,0648	Long An	0,0674
Ninh Binh	0,0638	Tien Giang	0,0676
North Central		Dong Thap	0,0677
Thanh Hoa	0,0522	An Giang	0,0679
Nghe An	0,0679	Kien Giang	0,0680
South Central Coast and Central Highlands		Can Tho	0,0680
Hue	0,0653	Soc Trang	0,0636
Danang	0,0682	Bac Lieu	0,0638
Quang Nam	0,0650	Ca Mau	0,0666
Quang Ngai	0,0639		

Table 1. 4: Univariate analysis.

For each variable of interest, this table displays the sample's mean for two sub-samples: one where there is relationship lending (RL2 = 1) and another without relationship lending (RL2 = 0). The last columns of the table indicate the difference in means between the two groups. *, **, and *** indicate that the coefficient is significant at 10%, 5%, and 1% respectively. The description of the variables is presented in Table 1.1.

	RL2 = 0		RL2 = 1		
Variables	**Obs**	**Mean**	**Obs**	**Mean**	**MeanDiff**
GENTRUST1	285	0.561	325	0.468	0.094**
GENTRUST2	285	0.298	325	0.197	0.101***
BBORROWING	285	0.765	325	0.625	0.140***
MALE	285	0.800	325	0.791	0.009
VIETNAMESE	285	0.933	325	0.917	0.016
PRIVATE	285	0.870	325	0.932	-0.062***
LNAGE	285	2.378	325	2.106	0.272***
EXIM	285	0.323	325	0.314	0.009
LISTED	285	0.140	325	0.040	0.100***
CAPITAL	285	0.206	325	0.060	0.146*
ROA	285	-2.701	325	-4.329	1.628
LEVERAGE	285	0.412	325	0.480	-0.068
BSIZE	285	2.767	325	2.804	-0.037
BLISTED	285	0.888	325	0.895	-0.008
HHI	285	0.068	325	0.068	0.000
SBANK	285	0.442	325	0.422	0.021

Table 1. 5: The link between generalized trust and relationship lending.

RL1 and RL2 are dependent variables and two proxies for relationship lending. RL1 is measured by the number of bank relationships (1/NUMBANK). RL2 is a dummy variable coded 1 if firms have only 1 or 2 bank relationships; 0 otherwise. GENTRUST1 is a generalized trust measure. The interaction term GENTRUST1×BBORROWING captures the aggregate impacts of generalized trust and whether firms already had bank credit or not on relationship lending. The variable description is shown in Table 1.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	RL1 Model 1 (1)	RL1 Model 2 (2)	RL2 Model 1 (3)	RL2 Model 2 (4)
GENTRUST1	-0.039*	-0.113***	-0.048	-0.153**
	(0.074)	(0.005)	(0.238)	(0.036)
GENTRUST1×BBORROWING		0.104**		0.149*
		(0.026)		(0.082)
BBORROWING	-0.100***	-0.147***	-0.079*	-0.146**
	(0.000)	(0.000)	(0.073)	(0.013)
MALE	-0.023	-0.024	0.038	0.036
	(0.399)	(0.378)	(0.451)	(0.467)
VIETNAMESE	-0.049	-0.043	-0.117	-0.108
	(0.271)	(0.332)	(0.152)	(0.183)
PRIVATE	-0.027	-0.032	-0.074	-0.081
	(0.527)	(0.452)	(0.349)	(0.304)
LNAGE	-0.018	-0.021	-0.038	-0.042
	(0.197)	(0.142)	(0.148)	(0.113)
EXIM	0.016	0.020	-0.008	-0.003
	(0.550)	(0.464)	(0.871)	(0.953)
LISTED	-0.040	-0.043	-0.139*	-0.144*
	(0.388)	(0.345)	(0.097)	(0.085)
CAPITAL	0.007	0.008	-0.013	-0.012
	(0.519)	(0.478)	(0.518)	(0.550)
ROA	0.000	0.000	-0.000	-0.000
	(0.997)	(0.960)	(0.759)	(0.786)
LEVERAGE	0.006	0.005	0.006	0.005
	(0.434)	(0.498)	(0.680)	(0.742)
BSIZE	-0.003	-0.003	0.010	0.010
	(0.806)	(0.804)	(0.647)	(0.647)
BLISTED	0.006	0.006	-0.007	-0.007
	(0.885)	(0.878)	(0.919)	(0.924)
HHI	9.757	9.227	0.328	-0.432
	(0.170)	(0.194)	(0.980)	(0.974)
SBANK	0.012	0.012	-0.002	-0.001
	(0.656)	(0.639)	(0.965)	(0.979)
Constant	0.037	0.103	0.847	0.943
	(0.941)	(0.833)	(0.347)	(0.295)
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Economic Area FE	Yes	Yes	Yes	Yes
Observations	610	610	610	610
Adjusted R^2	0.088	0.094	0.090	0.094

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 1. 6: The joint effect of generalized trust and relationship lending on bank credit availability.

Trade credit is the dependent variable and a proxy for credit availability (TRADECREDIT = ACCOUNT PAYABLE – ACCOUNT RECEIVABLE). The lower trade credit indicates higher bank credit availability. The interaction term GENTRUST1 × RL2 captures the joint effect of generalized trust and relationship lending on bank credit availability. The interaction term GENTRUST1×BBORROWING captures the aggregate impacts of trust and whether firms already had bank credit or not. The variable description is shown in Table 1.1 in the main part ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	TRADECREDIT Model 3 (1)	TRADECREDIT Model 4 (1)
RL2	0.501	-2.234
	(0.839)	(0.204)
GENTRUST1	4.159*	5.653*
	(0.092)	(0.067)
GENTRUST1 × RL2	-5.746*	
	(0.089)	
GENTRUST1 × BBORROWING		-6.411*
		(0.079)
BBORROWING	-3.756**	-1.130
	(0.047)	(0.651)
MALE	0.135	-0.048
	(0.949)	(0.982)
VIETNAMESE	-1.835	-2.143
	(0.595)	(0.535)
PRIVATE	-7.291**	-6.626**
	(0.029)	(0.048)
LNAGE	-1.525	-1.309
	(0.170)	(0.240)
EXIM	3.806*	3.530*
	(0.071)	(0.094)
LISTED	1.599	2.185
	(0.654)	(0.539)
CAPITAL	7.194***	7.109***
	(0.000)	(0.000)
ROA	0.002	-0.000
	(0.897)	(0.989)
LEVERAGE	-0.498	-0.431
	(0.417)	(0.482)
BSIZE	-0.499	-0.501
	(0.588)	(0.586)
BLISTED	4.703	4.359
	(0.130)	(0.159)
HHI	1512.730***	1596.532***
	(0.006)	(0.004)
SBANK	3.489*	3.375*
	(0.082)	(0.092)
Constant	-89.905**	-95.499**
	(0.019)	(0.013)
Size FE	Yes	Yes
Sector FE	Yes	Yes
Economic Area FE	Yes	Yes
Observations	610	610
Adjusted R^2	0.136	0.136

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 1. 7: The two robustness tests on the link between generalized trust and relationship lending.

For the first test, we replaced GENTRUST1 with an alternative trust measure GENTRUST2. For the second test, we used another measure of relationship lending RL3 while keeping GENTRUST1.The interaction terms GENTRUST1×BBORROWING and GENTRUST2×BBORROWING capture the aggregate impacts of generalized trust and whether firms already had bank credit or not on relationship lending. The variable description is shown in Table 1.1 in the main part. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	RL1 Model 1 (1)	RL1 Model 2 (2)	RL3 Model 1 (3)	RL3 Model 2 (4)
GENTRUST1			-0.052*	-0.147***
			(0.091)	(0.008)
GENTRUST1 × BBORROWING				0.135**
				(0.039)
GENTRUST2	-0.039	-0.117**		
	(0.127)	(0.030)		
GENTRUST2 × BBORROWING		0.100*		
		(0.099)		
BBORROWING	-0.101***	-0.119***	-0.167***	-0.228***
	(0.000)	(0.000)	(0.000)	(0.000)
MALE	-0.023	-0.023	-0.057	-0.059
	(0.393)	(0.390)	(0.131)	(0.122)
VIETNAMESE	-0.048	-0.045	-0.025	-0.017
	(0.279)	(0.317)	(0.689)	(0.780)
PRIVATE	-0.029	-0.030	-0.023	-0.029
	(0.503)	(0.479)	(0.708)	(0.627)
LNAGE	-0.018	-0.020	-0.019	-0.023
	(0.200)	(0.156)	(0.335)	(0.258)
EXIM	0.013	0.014	0.031	0.036
	(0.633)	(0.609)	(0.413)	(0.346)
LISTED	-0.038	-0.038	0.001	-0.004
	(0.409)	(0.413)	(0.989)	(0.953)
CAPITAL	0.007	0.008	0.023	0.024
	(0.513)	(0.443)	(0.139)	(0.124)
ROA	-0.000	-0.000	0.000	0.000
	(0.931)	(0.926)	(0.790)	(0.757)
LEVERAGE	0.007	0.006	0.010	0.009
	(0.408)	(0.414)	(0.383)	(0.439)
BSIZE	-0.004	-0.005	-0.013	-0.013
	(0.742)	(0.690)	(0.438)	(0.436)
BLISTED	0.006	0.005	0.011	0.012
	(0.873)	(0.896)	(0.841)	(0.834)
HHI	10.233	10.277	20.162**	19.473*
	(0.151)	(0.149)	(0.043)	(0.050)
SBANK	0.012	0.013	0.027	0.028
	(0.647)	(0.619)	(0.459)	(0.445)
Constant	-0.005	0.009	-0.896	-0.809
	(0.991)	(0.986)	(0.193)	(0.240)
Size FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Economic Area FE	Yes	Yes	Yes	Yes
Observations	610	610	610	610
Adjusted R^2	0.087	0.089	0.058	0.063

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Essay 2: How trust shapes the structure of banks?[25]

Abstract

Studies on the influence of trust on credit activity focus mainly on its impact on relationships between loan officers and firms. But trust also influences relationships within the bank: between loan officers and their superiors. However, how trust shapes a bank's organizational structure is an issue that has not yet been addressed. In this paper we bridge this gap. Using bank-specific indicators of trust built from EBRD surveys, we show that this structure is more centralized (resp. decentralized) in areas where generalized trust is high (resp. low).

JEL Codes: G21, L14

Keywords: Organizational structure in banks, Generalized Trust.

[25] In this essay, I wrote with Prof Fréderic Lobez **(**frederic.lobez@univ-lille.fr) and Prof Jean-Christophe Statnik (jean-christophe.statnik@univ-lille.fr) from Université de Lille. The most updated version entitled "How trust shapes the structure of banks" was published in the Finance Journal. The previous version entitled "Trust and arm's length: Lessons from SME financing" was presented at the 38th International Conference of the French Finance Association (AFFI), the 4th Asia Conference on Business and Economic Studies, and Research Seminar at School of Banking, UEH in Vietnam in March 2023. We thank Prof Armin Schwienbacher from SKEMA Business School Lille Campus, Dr. Jamel Saadaoui from Université de Strasbourg, anonymous referees and others for their helpful comments at the conferences and peer-review process of the Finance Journal.

2.1. Introduction

A firm can be seen as a nexus of contracts (Jensen & Meckling, 1976) whose organization can take a wide range of forms, from the most centralized (hierarchical) to the most decentralized (flat) structure. While the choice of a given structure can be explained by supervisory and incentive constraints (see Holmstrom & Tirole (1989) for a review), the flow of information that a firm needs for its decision-making process is also important. For instance, the pyramid structure allows for an efficient communication network within the company and thus saves costs (Bolton & Dewatripont, 1994). Stein (2002) renews this field of research by discerning specificities of soft and hard information. He shows that decentralized organizations better manage soft information than "hierarchy", a conclusion also reached by Liberti and Mian (2009). While Stein (2002) considers any kind of firm, Liberti (2018) empirically complements his approach by only focusing on banks, specifically studying corporate lending business in Argentina. He observes that loan officers with greater delegation authority and reduced monitoring by higher levels rely more on soft information in their decisions than those with lower delegation powers, who, because they need to convince their superiors (which is costly in terms of effort), prefer to collect hard information. Skreasting and Vig (2019) also observe that decentralized structures generate more comprehensive information than hierarchical ones.

Hence, following these different authors, banks with a decentralized structure appear to be efficient at processing soft information: first, locally organized loan committees allow loan officers to participate; second, loan officers receive more authority to accept or reject loan applications. The information they collect (soft and hard) is thus fully integrated into the credit decision process. Conversely, in a hierarchical bank, the loan officer has little delegation, hence low incentives to collect soft information and a strong interest in collecting hard information, which requires less effort and, unlike soft information, is transmitted without loss and cost through the different hierarchical layers. It then becomes possible to deduce the best organizational structure contingent on the banks' information environment: a decentralized structure when their client firms mainly issue soft information (typically small firms); and a centralized structure when they mainly issue hard information (typically large firms).

However, this analysis ignores the influence of socio-cultural parameters, which are likely to influence the choice of organizational structure that a bank will adopt in a given environment. This article aims to fill this gap in part by analyzing the effect of trust on the bank's structure: more or less decentralized.

Trust impacts a bank's organizational structure in two contradictory ways. If we look at the relationship between the loan officer at the periphery of the bank and the manager of the company requesting a loan, a higher level of interpersonal trust will enrich the soft information set that the loan officer collects on his client. This argument is in favor of a decentralized bank structure. But if we focus on the relationships within the bank between the loan officer and the various levels of decision-making up to the credit committee, the effect is ambiguous. On the one hand, a high level of trust decreases the need for monitoring of the loan officer's decisions, which tends to make the decentralized model more desirable; but on the other hand, a higher level of interpersonal trust argues in favor of a centralized structure since information flows more easily through the hierarchical layers. Which of these effects dominates? Does trust induce a more decentralized bank structure or rather a more centralized one? This is an empirical issue that we are the first to address to our knowledge. More specifically, we investigate the link between trust, measured at the geographical level, and the bank's organizational structure: more or less decentralized.

In this article, we refer mainly to the notion of generalized trust whose most common measure (e.g. Knack & Keefer, 1997; Bjørnskov, 2007; Bloom et al. (2012)) is obtained through the answers to the question: "*In general, do you think that most people can be trusted, or that you can't be too careful in dealing with people?*". The main challenge that we have to address in this international empirical study is that almost all available proxies of trust are indicators calculated at the country level; however, by its very nature, trust is a stable phenomenon over time (Algan & Cahuc, 2013). It is therefore almost impossible to control for national invariants which could, in our case, strongly influence trust and bank lending technology. We solve this issue by determining a specific measure of generalized trust for each bank. Specifically, we calculate an average of the responses to the above question, which characterizes generalized trust in a geographical area centered on the bank. This methodology has two advantages. First, as the measure obtained is

bank-specific, it will be different for each value of our dependent variable. Second, it provides us with a measure of trust that is not determined at the country level. Thus, we can control for the available country invariants.

We study the link between generalized trust and the organizational structure of banks mainly using two sets of surveys conducted by the European Bank for Reconstruction and Development (EBRD). The first is BEPS II (Banking Environment and Performance Survey),[26] which was conducted on 611 banks operating in 32 developing countries in Eastern Europe, Central Asia, and the southern and eastern Mediterranean. This survey allowed us to collect the information needed to set up an indicator that captures the organizational structure of banks (more or less centralized or decentralized). The second survey set is LITS II (Life in Transition Survey), whose objective is to assess public attitudes, well-being and the impact of economic change. Based on some questions dealing with trust in households, we were able to establish indicators of the average level of generalized trust that prevails in areas where the banks (surveyed in BEPS II) are located.

From our empirical design, we highlight the link between trust and the organizational structure of banks. More precisely, we show that the higher the level of generalized trust in an area, the greater the probability that banks present a strong hierarchical structure. This result is confirmed when we use alternative trust variables and instrumental variables.

The paper is structured as follows: Section 2.2 presents a literature review, Section 2.3 develops the hypothesis, describes the data and details the econometric methodology. Sections 2.4 and 2.5 report the results and robustness tests respectively, and Section 2.6 concludes the paper.

2.2. Related literature on trust

2.2.1. Definition of trust

[26] Data source: Beck et al. (2018).

Trust plays an important role in human lives. One of the well-known definitions of trust is *"the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party"* (Mayer et al., 1995, p. 712). The willingness to take risks is a common characteristic of all trust situations (Johnson-George and Swap, 1982). Interestingly, Yamagishi and Yamagishi (1994) define a trusting person as "*one who overestimates the benignity of the partner's intentions beyond the level warranted by the prudent assessment of the available information*" (Yamagishi & Yamagishi, 1994, p. 136).

Trust is a complex concept that can carry various meanings. The first distinction to make is between trust between individuals and between organizations. According to Zaheer et al. (1998), interpersonal trust is an agent's trust in its counterpart in the partner organization, while interorganizational trust is that placed by members of a focal organization in the partner organization. For example, in the banking system, while interpersonal trust arises between bank officers and their usual contact persons in the borrowing companies, interorganizational trust arises from the institutional relationships between banks and their clients (Hirsch et al., 2018). Interpersonal trust, which is of interest to us in this study, also includes various dimensions. An important distinction is that between generalized and particularized trust. Generalized trust is referred to as social trust (Hardin, 2001; Rothstein & Uslaner, 2005; Taylor et al., 2007), where people trust others even though they are different from themselves. In contrast, particularized trust refers to people trusting only others similar to themselves (Yamagishi & Yamagishi, 1994). Consequently, generalized trust allows people with different backgrounds (nationality, religion, etc.) to live together, while particularized trust tends to oppose those differences. Rothstein and Uslaner (2005) note that the latter might be strong while the former might be weak.

2.2.2. Trust and transaction costs

At the end of the last century, R. Putman's book, published in 1993, and F. Fukuyama's, published in 1995, highlighted the central role of trust in the structuring of our societies. Both authors point out that trust reduces transaction costs. Distinguishing between ex-ante transaction costs (negotiation costs) and ex-post transaction costs (monitoring and enforcement costs), Dyer

and Chu (2003) show that, by studying automaker-supplier relations in the US, Korea and Japan, while trust reduces ex-post transaction costs, it seems to have no effect on ex-ante transaction costs. Bloom et al. (2012) theoretically explain the influence of trust on this kind of transaction cost by showing how trust can increase delegation authority between the CEO and the plant managers. In a large cross-country study, Gur and Bjørnskov (2017) confirm the positive effect of trust on authority delegation.

An important dimension in transaction costs (ex_post and ex_ante) is the information asymmetry between agents, which can lead to the failure of the contract negotiation itself (Akerlof, 1970). Again, interpersonal trust can improve exchanges between informed and uninformed people. Özer et al. (2011) model a game between manufacturers and suppliers where the latter can use forecast information provided by their clients to secure production capacity. In the absence of trust, the only equilibrium is suboptimal, where no information is transmitted from the manufacturer to suppliers. On the other hand, if a certain level of trust is introduced into the game, then the information held by the manufacturer can credibly be shared. This theoretical conclusion is empirically confirmed by Dier and Chu (2003) who, following on from their work on transaction costs, investigated the influence of trust on information sharing.

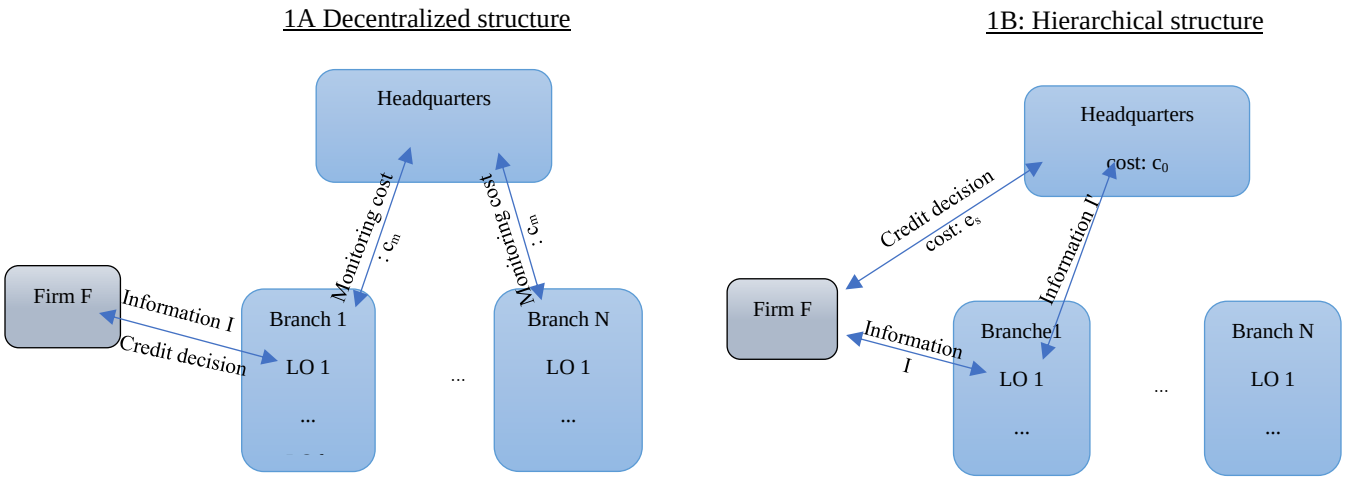
Finally, the study by Bloom et al. (2012), already cited, is the closest to ours. Interestingly, our conclusion regarding the positive link between generalized trust and hierarchical structure seems to be the opposite to these authors, who observe that firms headquartered in a high-trust region are more decentralized. However, there are significant differences between their analysis and ours. First, they model only one potential effect of trust on firm structure, that on delegation authority, whereas we consider two different effects of trust: on delegation and the organization's level of centralization/decentralization. Second, they focus only on manufacturing firms. And it is not surprising that such different kinds of businesses as manufacturing firms and banks do not react to a certain level of generalized trust with the same organizational structures. Banks process information, which is not the main job of manufacturing firms. Processing information requires a specific organization which in turn highly depends on trust. Therefore, we think our work complements that of Bloom et al. (2012) by showing that for banks the effect of trust on the transmission of soft information dominates that on the delegation of authority.

2.3. Hypothesis, data and methodology

2.3.1. Hypothesis

Figure 1: Two kinds of organizational structure

(LO stands for Loan Officer; c_0 for cost of loan committee set up)



In the introduction we highlighted two potential opposite effects of trust on the organizational structure of banks. In this section, through a simple model based on just two polarized cases of bank organization, we more precisely explain these two effects and the hypothesis that we test in what follows.

First, let us analyze the specificities of decentralized and hierarchical structures without taking trust into account. In a decentralized structure (Figure 1A), headquarters delegates all credit decisions to the branches. Thus, when firm F requests a loan from this bank, the final decision will be taken by a loan committee in which the loan officer who oversees the firm's credit file, for example LO1, participates. Since he does not need to submit any file to his superiors, the loan officer will be able to use all the information (soft and hard) that he can obtain during his negotiation with the firm, which minimizes the risk of error by making the wrong credit decision. To simplify our model, we assume that the probability of error is zero. As shown in Figure 1A, this whole structure bears, for each branch, loan committee costs c_o and monitoring costs c_m for

the decisions made by these loan committees. Thus, if we assume that the bank is structured with N branches, the overall cost of this structure is $N \times (c_o + c_m)$.

Let us now analyze the hierarchical structure (Figure 1B). In contrast to the previous structure, even though firm F negotiates with a loan officer (LO1 in branch 1), the final credit decision is taken by a central loan committee at headquarters. As this committee bases its decision on the credit file compiled by the loan officer and as soft information is difficult to transmit, the loan officer prioritizes hard information in his credit file. Thus, the information I' available to the loan committee to make its decision is less comprehensive than the information I available on firm F (Figure 1B). This lower-quality information may lead the loan committee to either refuse or wrongly accept the required credit, which causes a cost to the bank noted e_s. Thus, if we assume that the bank is structured with N branches, the overall cost of this structure is $c_o + N \times e_s$.

From this very simple model, it follows that a bank will adopt a decentralized structure if the overall cost of organizing loan committees and their monitoring is lower than that of a hierarchical structure (inequality 1).

$$N \times (c_o + c_m) < c_o + N \times e_s \qquad (1)$$

It can thus be deduced that if the bank is in an area where firms issue a low level of hard information compared to soft information, it will prefer to adopt a decentralized structure.

Let us now look at the influence of generalized trust on the organizational structure in this simple model. First, generalized trust improves information sharing, so it allows soft information to be transmitted more credibly to the higher echelons. Hence, the loan officer will incorporate more of this type of information into his file, which will improve the decision making of headquarters and thus decrease the cost e_s of a wrong decision by the loan committee of the hierarchical structures. But generalized trust decreases the need for monitoring of decisions made by branches and therefore it decreases the cost c_m. As the consequence, trust decreases both sides of inequality 1. The influence of trust on the organizational structure of banks is therefore ambiguous and depends on the dominance of one of the following two effects over the other:

improved information sharing and lower monitoring costs. To disentangle these opposite effects, we test a following hypothesis:

Hypothesis: In areas with higher (resp. lower) levels of generalized trust, banks adopt a more (resp. less) centralized structure.

2.3.2. Data

The dataset for this study is constructed using banks' audited financial reports and three different databases, namely BEPS II, LITS II, and Bankscope. The *Banking Environment and Performance Survey* (BEPS) II is a survey of 611 banks conducted in 2010 by the European Bank for Reconstruction and Development (EBRD) in 32 countries, involving the same questionnaire given to each bank's CEO in a face-to-face interview. The survey's objectives are to compare the conditions for banking activities between the different countries. This survey allows us to build our measure of the bank's organizational structure (decentralized or hierarchical). For this, we use Question 5: "*Where are the applications of SME Customers typically finally approved?"*[27]

It is important that SMEs are interviewed. This is because the delegation of authority given to loan officers in the bank branches rarely allows them to process credit applications from large firms. Credit requests from these kinds of firms would often be processed at higher decision-making levels, biasing our results in favor of "hierarchical". Conversely, a credit request from an SME may be answered by the loan officer (in a decentralized structure) or at a higher level (in a hierarchy).

The *Life in Transition Survey* (LITS) II, which was also conducted in 2010 by the EBRD, involved around 39,000 households in cities/towns across 34 countries. The survey's objectives are to assess public attitudes, well-being and the impact of economic change. It allows us to determine our indicators of trust in the areas where the banks (surveyed in BEPS II) are located. To do this, we use the GPS coordinates of each place where both the BEPS II and LITS II surveys

[27] Answers are "Headquarters (foreign)", "Headquarters (domestic)", "Regional Office/Branch" and "Local Office/Branch".

were conducted. The idea underpinning our methodology is the following: for each bank in BEPS II, we determine an average of answers regarding trust obtained from the interviews of LITS II. The interviewees live within a given distance (100 km[28]) of the bank. Let us explain our methodology through the example of Albania, and suppose a bank in this country has specific location. Placing the bank in the center, we determine that there are 506 Albanian households surveyed in LITS II living within a distance of 100 km. We consider which of the questions in LITS II are relevant to our study. Next, we calculate an average of the 506 responses to those questions. These average values are our indicators of trust. They are specific for each bank and therefore allow us to study the link between trust and the bank's use of relationship lending.

Using the 100 km dataset, we create a final sample of 443 observations across 25 countries.[29] From LITS II, we also extract control variables for the environment where the banks are located. Finally, we control for bank characteristics, using the Bankscope database of Bureau van Dijk and banks' audited financial reports. The description and descriptive statistics of these variables are presented in Table 2.1 in the Appendices. Table 2.2 shows the correlation matrix of the variables.

2.3.3. Methodology

Model

To test our hypothesis, we estimate the following generic regression for the individual bank i. Depending on the characteristics of the variable to be explained, our regressions use ordinary least square (OLS), ordered PROBIT and PROBIT models. We also have fixed effects of country.

$$\mathrm{OS_i} = \alpha + \beta_1 \mathrm{TRUST_i} + \beta_2 \mathrm{BANK_i} + \beta_3 \mathrm{ENVIRONMENT_i} + FE(Country) + \mu_i \quad (1)$$

[28] The choice of distance responds to two constraints. First of all, the geographical area must be large enough to integrate a large number of observations from LITS II and thus allow the calculated averages to be representative of characteristics measured. But at the same time this distance must not be too large so that within the same country there can be differences in the different averages calculated. It seemed to us that 100 km met these two constraints. To check that our results are not dependent on a given distance, we used two other distances: 50 km and 150 km as robustness tests.

[29] Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Mongolia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey and Ukraine.

where

- OS_i is a generic variable measuring the kind of organizational structure set up by bank i.
- $TRUST_i$ is a generic variable that measures trust in the area where bank i is located.
- $BANK_i$ is a generic variable corresponding to bank i's characteristics.
- $ENVIRONMENT_i$ is a generic variable representing the characteristics of the area where bank i is located.
- μ_i is an error term.

Measures of organizational structure set up by bank

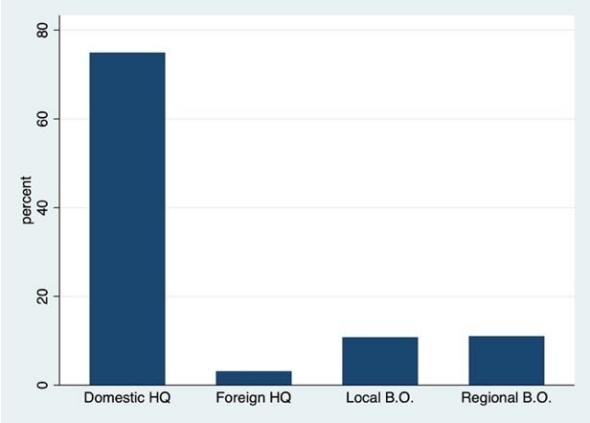
In this study, we use hierarchical distance as a measure of the organizational structure, as introduced by Cotugno et al. (2013). This distance is that between the operating branch in which the credit is granted and the location of the hierarchical level making loan decisions. The greater the hierarchical distance, the less decentralized the bank is. As mentioned previously, we use Question 5 of BEPS II to measure hierarchical distance: "*Where are the applications of SME Customers typically finally approved?*" The possible answers are "*Local Branch/Office*", "*Regional Branch/Office*", "*Headquarters (domestic)*" and "*Headquarters (foreign)*". We create the first variable named DECENT by coding these answers as follows:

- 4: Local Office/Branch
- 3: Regional Office/Branch
- 2: Headquarters (domestic)
- 1: Headquarters (foreign)

A higher DECENT value indicates a shorter hierarchical distance, and therefore a more decentralized structure. As Figure 2 shows, even if the demand for credit is mostly studied by the headquarters (domestic), each modality presents answers.

Finally, based on DECENT, we also create a second variable named DECENT_du. It is a dummy variable equaling 1 if the DECENT values are 3 or 4, and 0 otherwise.

Figure 2: *"Where are the applications of SME customers applications are typically finally approved?"*

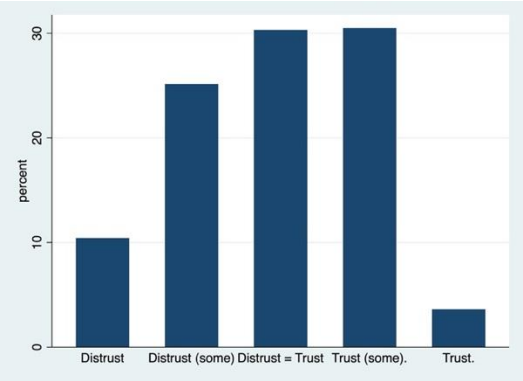


Measures of trust

To measure generalized trust, we follow Knack and Keefer (1997), Bjørnskov (2007) and Bloom et al. (2012) and use Question 3.02 from LITS II: "*Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?*".[30] Answers can take integer values from 1 to 5, where 1 means "*complete distrust*" and 5 means "*complete trust*". The distribution of the answers is displayed in Figure 3. As described in Section 3.2, the LITS variables correspond to an average of the answers to this survey. The average is calculated for a specific area. Thus, our variable TRUST_G measuring generalized trust corresponds to the average (within a 100 km radius of the banks) of the answers obtained to the previous question.

[30] The question of the validity of results from LITS-type surveys for measuring trust is discussed by Bloom et al. (2012) on pages 1682 and 1683. They conclude that the responses from these surveys are "appropriate for this task".

Figure 3: "*Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people"*



One question that can be asked is the following: Is our measure of trust accurate? We obviously cannot answer this question because we would have to calculate the correlation between our measures for each bank and generalized trust for the same geographical area, which are obtained differently. What we can do, however, is to aggregate our country-level trust measures and compare them to known trust indexes. Again unfortunately, it appears impossible to find such indexes for all, or some, of the countries in our study during the period under consideration (2010). To solve this issue, we decided to use results from the international research program World Values Survey (WVS), specifically wave 6 covering the period 2010–2014. In these surveys the WVS asks the following question (Question V34): "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people*?" But if the question is the same as in LITS, there are only two possible answers "Most people can be trusted" and "Need to be careful". From these answers and for all countries in our study that are surveyed in this wave, we calculate an average measure of trust (coding 1 for the first answer and 0 for the second). Table 2.3 shows the results obtained from the two types of surveys. As we can see, we only have 11 countries in common and the time periods do not quite coincide. In any case, it can be seen that in these 11 countries the correlation between the two measures is 0.58. We believe that given the relatively small number of common countries, the non-identical responses, and the fact that the time periods do not exactly coincide, this result shows that our trust measure correctly captures the measured characteristic.

Control variables

We include control variables for the bank characteristics (BANK) and environment (ENVIRONMENT) where the bank is located. For the former (BANK), we control for size (SIZE, the natural log of total assets), list status on stock market (LISTED, a dummy variable), age (LNAGE, the natural log of age), return on assets ratio (ROA), local bank (LOCALB), having audited financial reports (AUDITED, a dummy variable).

We are well aware that political, cultural and economic environmental variables can influence trust and the organizational structure of banks. For example, economic equality and equal opportunities are important determinants of trust (Rothstein & Uslaner, 2005), and these characteristics could also influence the organizational structure of firms. Similarly, economic growth, which is also correlated with trust (Knack & Keefer, 1997; Beugelsdijk et al., 2004), could play a role in the trade-off between the two organizational structures. In this work, we control for these in two ways. First, our bank-specific measure of trust allows us to control for all economic, cultural and legal factors inherent to the country where the bank is located by using fixed effects at country level. Second, the LITS II database also allows us to control for factors that might be different within the same country. These control variables, determined in the same way as those for trust (by averaging the answers of households within a 100 km radius of the banks), are as follows:

- LOWCORRUPT: a variable for the corruption level. It is based on Question 3.01i: "*To what extent do you agree with the following statement: there is less corruption now than around 4 years ago?*"[31]
- RELIG: a variable regarding the strength of religion. It is based on Question 7.16: "*What is your religion?*"[32]
- POL_EVOL: a variable regarding the environment's political situation. We use answers to Question 3.01b: "*To what extent do you agree with the following statement: the political situation*

[31] Answers are on a scale from 1 "*Strongly disagree*" to 5 "*Strongly agree*".
[32] We build a dummy variable equaling 0 if respondents answered "none" and 1 otherwise.

in our country is better today than around 4 years ago?" The higher values present more positive attitudes.

- RISK_LEVEL: a variable controlling "risk appetite". Question 5.37[33] is used to determine an average measure.

Third, some of the questions asked in the BEPS II database also control for environmental factors that may affect the organizational structure of banks. These variables are as follows:[34]

- LEG_EFF: a variable measuring the bank's perception of the effectiveness of the court system (question 58[35] of BEPS II is used).
- REG_BURDEN: a variable measuring the bank's perception of the regulatory environment (question 78e[36] of BEPS II is used).
- URBAN: a dummy variable with a value of 1 if the bank is operating in an urban area.[37]

Finally, as our database includes many countries that were once a republic of the former USSR and common characteristics might still exist, we control for that through the variable EX_USSR (a dummy variable with a value of 1 if the bank belongs to a country in the former Soviet Union).

2.4. Empirical results

2.4.1. Univariate Analysis

[33] "*Please rate your willingness to take risks, in general, on a scale from 1 to 10, where 1 means that you are not willing to take risks at all, and 10 means that you are very much willing to take risks*".

[34] Question 36 of BEPS II gives us information on the burden of interbank competition felt by banks. Unfortunately, the inclusion of this variable resulted in 118 observations (25% of the sample) being lost. As the results were very similar to those we obtained without this variable, we preferred not to integrate it (results are available on request).

[35] "*How often do you associate "quick and efficient" with the court system in resolving business disputes?*". Answers are on a scale from 1 "*Almost never*" to 5 "*Very frequently*".

[36] "*To what degree do you agree with this statement: in 2011, direct instructions from the regulator over and beyond published laws and regulations presented my bank with a significant burden?*". Answers are on a scale from 1 "*Strongly disagree*" to 5 "*Strongly agree*".

[37] We define an urban area as one where the bank operates in a city with more than 20,000 inhabitants.

We begin with a univariate analysis in which we compare the mean of our main variables in two sub-samples: the first includes banks operating in an environment of high trust (TRUST_G > 2.98) and the second those operating in an environment of low trust (TRUST_G < 2.98). The results, given in Table 2.4, show that variables measuring hierarchical distance (DECENT and DECENT_du) display a mean significatively weaker (significant at 5%) in an environment where trust is high than the one with low levels of trust (2.22 against 2.38). Hence, it appears that banks operating in environments where trust is high present a more hierarchical organization. Regarding other variables, we note that on the one hand, religiosity and the level of risk are greater in trusting environments (respectively significant at 1% and 5%), and on the other hand, banks perceive a greater burden of regulation in low-trust environments (significant at 5%).

2.4.2. Main results

To test our hypothesis, we use Equation 1 in which the dependent variable, measuring the level of decentralization implemented by the bank, is either the discrete measure DECENT or the binary measure DECENT_du. In this equation, we adopt the generalized trust measure between individuals (TRUST_G) as the trust proxy. The results are displayed in Table 2.5 where, for both versions of the dependent variable (DECENT and DECENT_du), we run the regressions with (Columns 5 to 8) and without country fixed effects (Columns 1 to 4). When the dependent variable is ordered (DECENT) we perform both a linear model (Columns 1 and 5) and ordered Probit model (Columns 2 and 6). When the dependent variable is binary (DECENT_du) we use both linear (Columns 3 and 7) and Probit models (Columns 4 and 8).

As the results are very stable, we focus only on Columns 5 and 8 of Table 2.5 (the OLS and Probit regressions with country fixed effects and standard errors clustered at the country level). Column 5 shows that our variable TRUST_G is negatively correlated with the dependent variable DECENT. This highly significant result means that in areas where trust between people is strong, the organizational structure of banks is more centralized. This result is further confirmed when the dependent variable is the binary one DECENT_du (see Column 8).

Regarding the control variables, being audited (variable AUDITED) is negatively related to decentralized organizational structure. On the contrary, hierarchical structure appears to be less frequent when the political situation and legal efficiency are getting better (these results are highly significant for all regressions in Table 2.5).

The results obtained in Table 2.5 clearly indicate that there is a strong correlation between a bank's propensity to set up a centralized organizational structure and the level of generalized trust prevailing in the area where it operates. More specifically, the higher (resp. lower) the level of trust is, the more we observe a hierarchical structure.

2.4.3. Addressing the endogeneity bias

As explained in the literature review, trust is a complex concept that can have various meanings, so it is difficult to measure. Therefore, such measurement errors could be a source of endogeneity. Moreover, our results could also be biased by omitted variables that would affect both trust and bank organizational structure. To address these biases, we construct instrumental variables in the following way.

For each bank in each country of our sample, we calculate the average of the generalized trust observed for all other banks in the country having no common answer to the LITS survey used for the bank considered. Remember that our measures of generalized trust are determined within a 100 km radius of the bank. Consequently, to make sure that no observation used to calculate this proxy (variable TRUST_G) is also included in its instrumental variable, we must only take into account the measures of generalized trust determined for banks located more than 200 km away (in the same country) from the bank being considered. The instrumental variable is the average of these measures of generalized trust. Let us again look at our methodology through the example of Albania. Our sample consists of 13 banks in this country. The bank located in the city of Gjirokastër is more than 200 km away from only two places where other banks are surveyed: Qafa E thanes (238.5km) with a generalized trust of 3.296 and Shkoder (227.2 km) with a generalized trust of 3.318. Thus, our instrument for the generalized trust of the bank located in Gjirokastër is 3.31 (midway between 3.296 and 3.318).

In using this process, we construct an instrumental variable for our measure of generalized trust: TRUST_G. We believe that these two variables are relevant instruments because they are clearly related to our measure of trust, but they are stripped of any local influences that may affect trust and the level of bank decentralization at the same time.

We apply the two-stage least squares method (2SLS) to run the regressions for our four main models: DECENT and DECENT_du as dependent variables and TRUST_G as measures of generalized trust. The correlations between TRUST_G and the instrumental variable (IV_TRUST_G) are 0.47. The odd columns in Table 2.6 regarding the first-stage regressions confirm that the instruments are highly significant (p_value of less than 1%) to explain the endogenous variables they replace. These two first stage regressions for IV_TRUST_G respectively display t_stat values of 5.74 and 7.44, thus F-statistics are very large and greater than 10. The even columns of Table 2.6 report the results of each second stage (using OLS and PROBIT model respectively). They confirm our finding that in areas where trust between people is strong, banks prefer to set up a hierarchical structure.

2.5. Robustness tests

In this section, we test the robustness of our results through two sets of new regressions. First, we use other questions from LITS II to construct alternative measures of generalized trust. Second, we use two other distances (50 km and 150 km) instead of 100 km to calculate the average of trust.

2.5.1. Alternative measures of trust

The richness of the LITS II database provides alternative measures of trust that we use to check the robustness of our main results. From Question 3.03, "*To what extent do you trust the following institution?*", we construct a proxy of trust in banks, and using Question 3.04, "*To what extent do you trust people from the following groups?*", we construct three other measures of generalized trust:

- TRUST_BANK measuring trust in banks;[38]

-TRUST_OREL measuring trust in people of another religion;[39]

-TRUST_FOREIGN measuring trust in people of foreign nationality;[40]

-TRUST_PEOPLE measuring trust in people you meet for the first time.[41]

These three proxies for trust are based on the same methodology as previous ones: they correspond to an average of answers calculated within a 100 km radius of each bank.

As shown in Table 2.7, the results of the four alternative measures are similar to those obtained for the variables TRUST_G. The signs of all three variables are negative and significant.

The results obtained from various measures of generalized trust give us confidence that the link uncovered in the main section between the level of trust and a more or less decentralized organization is not the consequence of a given choice of a measure of trust but rather reflects a more general reality.

2.5.2. Other geographical areas

As noted above, we construct the trust variables by averaging responses to LITS II within 100 km of the bank. This approach results in the creation of a different measure of trust for each bank. To check whether our results are not only linked to the choice of a given distance (100 km), we re-calculated the values of our main generalized trust measures (TRUST_G) for both a shorter distance (50 km) and a longer distance (150 km). Table 2.8 displays the results. We observe that the results remain significant and that the signs of these new variables are similar to those obtained for a distance of 100 km.

[38] We use answers to question 3.03 when "group" is "*Banks and financial system*".
[39] We use answers to question 3.04 when "group" is "*People of another religion*".
[40] We use answers to question 3.04 when "group" is "*People of another nationality*".
[41] We use answers to question 3.04 when "group" is "*People you meet for the first time*".

2.6. Conclusion and discussion

In this study, we examine the link between generalized trust and the organizational structure of banks in 25 developing countries. To get around the pitfall of using country-level trust indices, we followed an original methodology to construct bank-specific trust indicators by determining an average of the trust within the bank's area of operations. Our results show that when banks conduct their credit activities in an area where generalized trust is high (resp. low), there is a strong propensity for them to set up a hierarchical (decentralized) structure. These conclusions are robust when we use alternative measure of trust. Moreover, we checked that our main result is not affected by endogeneity by using two instrumental variables. This last point allows us to conclude that our result goes beyond a simple correlation but can be interpreted in a causal way: when the bank's area of operations has a high (resp. low) level of generalized trust, it adopts a centralized (decentralized) organizational structure.

As mentioned above, our study focuses on developing countries, (mainly in Eastern Europe), and our conclusion on the link between trust and the organizational structure of banks may not be generalizable to all countries. For example, generalized trust may be higher in countries with a weak legal framework or a high level of corruption It would therefore be interesting to complement this by studying whether in developed countries we also observe a strong propensity for banks to set up a hierarchical structure in areas with higher generalized trust.

In the literature review, we point out that our results complement those of Bloom et al. (2012) and it appears that, depending on the industrial sector studied (manufacturing in the case of Boom et al. (2012) and banking in the case of our study), trust has a different influence on organizational structure. It would therefore be interesting to study whether this relationship between more or less decentralized organizational structure and trust holds in the same way in industries other than banking. A priori, this relationship could be exploited for economic sectors processing a substantial mass of information, a significant part of which is qualitative. We are thinking in particular of the extra-financial rating industry. This sector is set for significant development, due to the climate disorders that need to be contained and, more generally, the impact of human activities on the ecosystem in which they take place, and therefore ultimately on

mankind. How can we best structure firms whose mission is to carry out a non-financial assessment that integrates a considerable amount of both quantitative and qualitative information? How can the costs of this evaluation be limited while respecting the truth of the evaluation? Should the level of decentralization of the firms participating in this evaluation be based on trust? These are vital questions that would benefit from being addressed from the perspective of the research we have conducted.

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2.7. Appendix

Table 2. 1: Description and descriptive statistics of variables

Variable	Definition	Source	Mean	Std Dev	Min	Max
Panel A: Bank Organizational structure						
DECENT	Measure of hierarchical distance between the bank and SME.	Q5 in BEPS II	2.29	0.69	1	4
DECENT_du	Dummy variable is coded 1 if the values of DECENT are more than or equal to 3; 0 otherwise.	Q5 in BEPS II	0.3	0.46	0	1
Panel B: Generalized Trust variables						
TRUST_G	Average Generalized trust.	Q3.02 in LITS II	2.91	0.33	1.93	3.95
TRUST_BANK	Average Trust in the banks and financial system.	Q3.03j in LITS II	0.35	0.14	0	0.76
TRUST_PEOPLE	Average Trust in people you meet for the first time.	Q3.04 in LITS II	0.2	0.09	0	0.52
TRUST_FOREIGN	Average Trust in people of another nationality	Q3.04 in LITS II	0.32	0.13	0	0.65
TRUST_OREL	Average Trust in people of another religion	Q3.04 in LITS II	0.32	0.13	0	0.65

Table 2.1: Description and descriptive statistics of variables (Cont.)

Variable	Definition	Source	Mean	Std Dev	Min	Max
Panel C: Environment						
LOWCORRUPT	Average measure of low corruption.	Q3.01i in LITS II	0.29	0.14	0	0.69
RISK_LEVEL	Average measure of "risk appetite"	Q5.37 in LITS II	4.78	0.55	3.23	6.65
RELIG_D	Average measure of strength of religion.	Q7.16 in LITS II	0.51	0.14	0	1
LEG_EFF	Effectiveness of the court system	Q58 in BEPS II	2.24	.93	1	5
REG_BURDEN	Regulatory environment	Q78e in BEPS II	3.08	1.09	1	5
EX_USSR	Country in the former Soviet Union	Hand collected	.45	.50	0	1
URBAN	Urban area	Hand collected	.83	.37	0	1
Panel D: Bank						
SIZE	Logarithm of total assets	Bankscope & Financial reports	20.48	1.83	12.4	26.21
ROA	Return on assets ratio	Bankscope & Financial reports	-0.004	0.11	-2.27	0.22
LOCALB	Dummy variable for being local banks. Coded 1 if local bank; 0 if foreign bank.	Bankscope & Financial reports	0.55	0.49	0	1
LNAGE	Logarithm of bank's age.	Bankscope & Financial reports	2.77	0.82	0	5.24
LISTED	Dummy variable for being listed on the stock market. Coded 1 if listed; 0 otherwise.	Bankscope & Financial reports	0.21	0.41	0	1
AUDITED	Dummy variable for financial reports being audited. Coded 1 if audited; 0 otherwise.	Bankscope & Financial reports	0.28	0.45	0	1

Table 2. 2: Correlation matrix of the variables

	DECENT	DECENT_du	SIZE	LISTED	LNAGE	ROA	LOCALB
DECENT	1						
DECENT_du	0.9087	1					
SIZE	0.0807	0.1276	1				
LISTED	0.1011	0.0896	0.0493	1			
LNAGE	0.1461	0.1539	0.2497	0.0919	1		
ROA	0.0471	0.0484	0.2558	0.0205	0.0392	1	
LOCALB	0.1383	0.0949	-0.1867	0.1182	0.0779	0.0684	1
AUDITED	-0.0897	-0.0701	0.1197	-0.2103	0.001	-0.0884	-0.1187
LOWCORRUPT	-0.1103	-0.1215	-0.0534	0.0781	-0.0302	-0.0092	-0.0392
RELIG	0.0432	0.0898	0.1187	-0.1397	0.026	0.0097	0.0352
POL_EVOL	0.2015	0.2068	-0.0567	0.0043	-0.0037	0.1127	0.1343
RISK_LEVEL	0.0192	0.0322	-0.0417	0.0611	-0.0309	0.0717	-0.0093
LEG_EFF	0.1469	0.1256	0.0112	0.008	0.0692	0.0713	0.0806
REG_BURDEN	-0.0439	-0.011	0.0086	-0.0127	0.0353	-0.0092	0.0066
EX_USSR	0.0569	0.0315	-0.1752	-0.0625	-0.0888	0.0597	0.2106
URBAN	-0.0752	-0.0171	-0.0632	0.0062	-0.1456	-0.0187	-0.0712

	AUDITED	LOWCORRUPT	RELIG	POL_EVOL	RISK_LEVEL	LEG_EFF	REG_BURDEN	EX_USSR	URBAN
AUDITED	1								
LOWCORRUPT	-0.1053	1							
RELIG	-0.093	0.1729	1						
POL_EVOL	-0.0067	-0.4662	0.1224	1					
RISK_LEVEL	-0.0869	0.243	0.3565	0.0532	1				
LEG_EFF	-0.0233	-0.0666	0.007	0.1597	0.0286	1			
REG_BURDEN	0.0432	0.0654	-0.085	-0.222	-0.0131	-0.0684	1		
EX_USSR	-0.1309	-0.3793	0.0238	0.3604	-0.2162	0.0085	-0.1159	1	
URBAN	0.0464	-0.0614	0.0514	0.1111	-0.0161	-0.0236	-0.0788	0.0305	1

Table 2. 3: Trust comparison

This table displays the average generalized trust calculated at the country level for the countries present in both WVS 6 and LITS II and for similar periods. The correlation between both is 0.58.

	WVS 6		LITS II	
Country	Survey year	TRUST_G	Survey year	TRUST_G
Armenia	2011	**0.10138249**	2010	**2.167368**
Azerbaijan	2011	**0.16649538**	2010	**2.458802**
Belarus	2011	**0.3516561**	2010	**3.151222**
Estonia	2011	**0.39570758**	2010	**3.115505**
Hungary	2009	**0.28441296**	2010	**2.839758**
Poland	2012	**0.22751323**	2010	**3.123531**
Romania	2012	**0.07123656**	2010	**2.783495**
Russia	2011	**0.29234043**	2010	**2.362961**
Slovenia	2011	**0.20113314**	2010	**3.034315**
Turkey	2012	**0.12426036**	2010	**2.123829**
Ukraine	2011	**0.24946543**	2010	**3.071719**

Table 2. 4: Univariate analysis

For each variable of interest, this table displays the sample's mean for two sub-samples: one where the level of trust is low (TRUST_G < 2.98) and another where it is high (TRUST_G > 2.98). The last columns of the table indicate the difference in means between the two groups. *, **, and *** indicate that the coefficient is significant at 10%, 5%, and 1% respectively. The description of the variables is provided in Table 2.1.

	Low level of trust		High level of trust		
Variables	**Observations**	**Mean**	**Observations**	**Mean**	**MeanDiff**
DECENT	205	2.380	238	2.223	0.158**
DECENT_du	205	0.263	238	0.181	0.083**
SIZE	230	20.555	261	20.429	0.127
LISTED	230	0.243	261	0.188	0.056
LNAGE	230	2.847	261	2.701	0.146**
ROA	230	-0.010	261	0.001	-0.011
LOCALB	230	0.543	261	0.563	-0.020
AUDITED	230	0.283	261	0.291	-0.009
LOWCORRUPT	230	0.303	237	0.290	0.013
RELIG	230	0.498	237	0.540	-0.042***
POL_EVOL	230	0.209	237	0.219	-0.010
RISK_LEVEL	230	4.721	237	4.840	-0.119**
LEG_EFF	224	2.246	258	2.240	0.005
REG_BURDEN	228	2.952	256	3.191	-0.240**
EX_USSR	230	0.430	261	0.467	-0.037
URBAN	226	0.814	261	0.851	-0.036

Table 2. 5: Link between Trust and Bank organizational structure

DECENT and DECENT_du are the dependent variables proxying for bank organizational structure. The first four columns are without country fixed effects. Columns 1 and 3 use a probability linear model and columns 2 and 4 use Ordered Probit and Probit model respectively. The trust variable is generalized trust TRUST_G. The description of the variables is provided in Table 2.1. Standard errors are clustered at the country level. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DECENT OLS	DECENT OPROBIT	DECENT_du OLS	DECENT_du PROBIT	DECENT OLS	DECENT OPROBIT	DECENT_du OLS	DECENT_du PROBIT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TRUST_G	-0.273**	-0.449**	-0.135**	-0.427**	-0.582***	-1.301***	-0.269**	-1.065***
	(0.017)	(0.032)	(0.027)	(0.047)	(0.009)	(0.000)	(0.024)	(0.004)
SIZE	0.027	0.045	0.025**	0.085*	0.024	0.030	0.018	0.069
	(0.216)	(0.265)	(0.044)	(0.071)	(0.462)	(0.618)	(0.305)	(0.289)
LISTED	0.158*	0.274*	0.087*	0.278	0.124	0.221	0.049	0.138
	(0.060)	(0.059)	(0.083)	(0.113)	(0.302)	(0.317)	(0.490)	(0.602)
LNAGE	0.075**	0.160**	0.053**	0.207**	0.061	0.146*	0.042	0.157
	(0.044)	(0.028)	(0.028)	(0.031)	(0.156)	(0.092)	(0.138)	(0.179)
ROA	-0.061	-0.078	-0.059	-0.115	-0.018	0.079	-0.051	-0.275
	(0.612)	(0.767)	(0.395)	(0.810)	(0.889)	(0.788)	(0.425)	(0.374)
LOCALB	0.103	0.255*	0.031	0.134	0.096	0.261	0.017	0.068
	(0.144)	(0.059)	(0.457)	(0.398)	(0.296)	(0.150)	(0.734)	(0.750)
AUDITED	-0.154**	-0.378**	-0.094**	-0.365**	-0.158**	-0.444***	-0.103**	-0.563**
	(0.044)	(0.017)	(0.030)	(0.042)	(0.046)	(0.003)	(0.045)	(0.012)
LOWCORRUPT	-0.471*	-0.811	-0.351**	-1.290*	0.138	0.368	0.002	1.176
	(0.098)	(0.164)	(0.035)	(0.070)	(0.776)	(0.735)	(0.995)	(0.425)
RELIG_D	0.212	0.326	0.256	0.707	0.238	0.475	0.153	0.236
	(0.416)	(0.502)	(0.121)	(0.250)	(0.391)	(0.420)	(0.465)	(0.784)
POL_EVOL	0.629**	0.970*	0.388**	1.356**	1.378***	2.984***	0.839***	3.905***
	(0.041)	(0.088)	(0.025)	(0.032)	(0.002)	(0.000)	(0.000)	(0.000)
RISK_LEVEL	-0.003	-0.025	0.001	0.002	-0.070	-0.159	-0.002	-0.011
	(0.964)	(0.851)	(0.981)	(0.990)	(0.292)	(0.243)	(0.954)	(0.951)
LEG_EFF	0.058**	0.144***	0.026*	0.133*	0.060**	0.156***	0.030**	0.161*
	(0.022)	(0.006)	(0.051)	(0.086)	(0.020)	(0.007)	(0.020)	(0.069)
REG_BURDEN	0.015	0.032	0.019*	0.079	0.015	0.037	0.012	0.061
	(0.391)	(0.377)	(0.072)	(0.162)	(0.421)	(0.389)	(0.354)	(0.392)
EX_USSR	-0.012	-0.019	-0.014	-0.024	0.014	0.246*	0.034	0.219
	(0.879)	(0.901)	(0.771)	(0.897)	(0.872)	(0.069)	(0.443)	(0.625)
URBAN	-0.125	-0.260	-0.010	-0.095	-0.130	-0.264*	-0.020	-0.138
	(0.221)	(0.135)	(0.859)	(0.638)	(0.163)	(0.089)	(0.667)	(0.477)
CONSTANT	2.108***		-0.278	-2.739*	3.060***		0.110	-1.859
	(0.003)		(0.477)	(0.074)	(0.005)		(0.836)	(0.340)
COUNTRY F.E.	NO	NO	NO	NO	YES	YES	YES	YES
Observations	418	418	418	418	418	418	418	381
Adjusted R^2	0.102		0.102		0.117		0.125	
pseudo R-sq		0.088		0.129		0.139		0.184

Table 2. 6: Instrumental variable results

Columns 1 to 4 report the results from the first and second stages regarding the variable TRUST_G. Standard errors are clustered at the country level. The variables description is shown in Table 2.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DECENT First stage	DECENT Second stage OLS	DECENT_du First stage	DECENT_du Second stage PROBIT
	(1)	(2)	(3)	(4)
TRUST_G		-1.156*		-2.420**
		(0.068)		(0.017)
SIZE	-0.007	0.010	-0.0085377	0.042
	(0.335)	(0.740)	(0.251)	(0.499)
LISTED	-0.000	0.011	0.0004327	-0.230
	(0.977)	(0.933)	(0.99)	(0.401)
LNAGE	-0.002	0.076	0.0041266	0.254**
	(0.912)	(0.101)	(0.785)	(0.049)
ROA	0.201***	0.089	0.0213709	0.259
	(0.000)	(0.560)	(0.398)	(0.212)
LOCALB	0.021	0.157	0.214**	-0.068
	(0.311)	(0.116)	(0.013)	(0.943)
AUDITED	0.050*	-0.138	0.058567	-0.518*
	(0.076)	(0.147)	(0.042)	(0.067)
LOWCORRUPT	-0.385*	-0.033	-0.433***	0.918
	(0.058)	(0.944)	(0.004)	(0.569)
RELIG_D	0.391*	0.402	0.424374	0.669
	(0.062)	(0.233)	(0.000)	(0.517)
POL_EVOL	0.369**	1.847***	0.353**	4.909***
	(0.032)	(0.001)	(0.016)	(0.000)
RISK_LEVEL	-0.119	-0.134	-0.1210193	-0.108
	(0.192)	(0.167)	(0.000)	(0.708)
LEG_EFF	-0.002	0.079***	-0.0023517	0.222**
	(0.853)	(0.010)	(0.811)	(0.042)
REG_BURDEN	0.004	0.016	0.003251	0.022
	(0.787)	(0.531)	(0.724)	(0.788)
EX_USSR	-0.127***	0.104	1.790***	2.005
	(0.007)	(0.243)	(0.00)	(0.145)
URBAN	0.022	-0.089	0.0244817	-0.154
	(0.654)	(0.322)	0.487	(0.588)
CONSTANT	5.199**	6.933***	2.026*	1.314
	(0.039)	(0.000)	(0.075)	(0.720)
COUNTRY FIXED EFFECTS	YES	YES	YES	YES
IV_TRUST_G	-0.969***		-0.961***	
	(0.000)		(0.000)	
Observations	317	317	276	276
Adjusted R^2	0.731	0.105	0.713	

Table 2. 7: First robustness test on the association between trust and the bank's organizational structure
DECENT is the dependent variable proxying for the bank's organizational structure. The trust variables are TRUST_BANK, TRUST_OREL, TRUST_FOREIGN and TRUST_PEOPLE. The description of the variables is provided in Table 2.1. Standard errors are clustered at the country level. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DECENT OLS (1)	DECENT OLS (2)	DECENT OLS (3)	DECENT OLS (4)
TRUST_BANK	-0.890***			
	(0.008)			
TRUST_OREL		-0.713*		
		(0.075)		
TRUST_FOREIGN			-0.844**	
			(0.015)	
TRUST_PEOPLE				-1.665***
				(0.000)
SIZE	0.031	0.027	0.027	0.019
	(0.355)	(0.428)	(0.436)	(0.572)
LISTED	0.142	0.130	0.121	0.150
	(0.241)	(0.280)	(0.320)	(0.213)
LNAGE	0.071*	0.065	0.071*	0.069*
	(0.092)	(0.113)	(0.075)	(0.099)
ROA	-0.146	-0.153	-0.197	-0.121
	(0.281)	(0.245)	(0.129)	(0.328)
LOCALB	0.088	0.077	0.078	0.086
	(0.337)	(0.405)	(0.393)	(0.364)
AUDITED	-0.197***	-0.177**	-0.187**	-0.189**
	(0.010)	(0.032)	(0.021)	(0.016)
LOWCORRUPT	0.539	0.170	0.110	-0.119
	(0.340)	(0.730)	(0.819)	(0.810)
RELIG_D	0.058	-0.124	-0.069	0.079
	(0.874)	(0.780)	(0.879)	(0.810)
POL_EVOL	1.243***	1.152***	1.125***	1.192***
	(0.008)	(0.008)	(0.007)	(0.003)
RISK_LEVEL	-0.004	0.052	0.057	-0.036
	(0.972)	(0.666)	(0.646)	(0.715)
LEG_EFF	0.055**	0.060	0.054**	0.058**
	(0.025)	(0.136)	(0.026)	(0.027)
REG_BURDEN	0.010	0.009	0.010	0.012
	(0.582)	(0.615)	(0.559)	(0.468)
EX_USSR	-0.192	0.075	0.179	0.158*
	(0.112)	(0.411)	(0.110)	(0.055)
URBAN	-0.142	-0.154	-0.142	-0.126
	(0.158)	(0.106)	(0.132)	(0.182)
CONSTANT	1.149	0.930	0.861	1.541*
	(0.120)	(0.242)	(0.266)	(0.051)
COUNTRY FIXED EFFECTS	YES	YES	YES	YES
Observations	418	418	418	418
Adjusted R^2	0.102	0.096	0.106	0.124

p-values in parentheses

Table 2. 8: Second robustness test on the link between trust and the bank's organizational *structure*
DECENT is the dependent variable proxying for the bank's organizational structure. The 50 km (column 1) and 150 km (column 2) datasets are used. The trust variable is TRUST_G. The description of the variables is provided in Table 2.1. Standard errors are clustered at the country level. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DECENT OLS (50 km) (1)	DECENT OLS (150km) (2)
TRUST_G	-0.322*	-0.693**
	(0.075)	(0.012)
SIZE	0.023	0.028
	(0.510)	(0.384)
LISTED	0.098	0.130
	(0.424)	(0.253)
LNAGE	0.070	0.042
	(0.136)	(0.296)
ROA	0.027	-0.104
	(0.868)	(0.421)
LOCALB	0.068	0.090
	(0.444)	(0.323)
AUDITED	-0.155**	-0.167**
	(0.047)	(0.029)
LOWCORRUPT	-0.432	-0.315
	(0.152)	(0.489)
RELIG_D	0.272	0.028
	(0.370)	(0.950)
POL_EVOL	0.627	1.890***
	(0.158)	(0.000)
RISK_LEVEL	0.032	-0.098
	(0.600)	(0.411)
LEG_EFF	0.057**	0.052**
	(0.023)	(0.034)
REG_BURDEN	-0.003	0.018
	(0.865)	(0.344)
EX_USSR	0.180	-0.070
	(0.123)	(0.372)
URBAN	-0.109	-0.131
	(0.271)	(0.146)
CONSTANT	1.949*	3.700**
	(0.062)	(0.016)
COUNTRY FIXED EFFECTS	YES	YES
Observations	403	424
Adjusted R^2	0.124	0.090

p-values in parentheses

Essay 3: Credit availability and borrower discouragement, lessons from enterprise financing will tell[42]

Abstract

Firms, especially SMEs, need to access credit for their growth but two dysfunctions which are credit rationing for the supply side and borrower discouragement for the demand side are difficulties for them. The literature shows that trust has played an important role in mitigating these problems and therefore allowing firms to access bank credit availability and reducing their borrowing discouragement. Using the recent survey BEEPS round VI of the European Bank for Reconstruction and Development (EBRD) and the World Values Survey (WVS) joint (2017-2020), we find that in regions with strong generalized trust, firms access greater bank credit. Another important finding is that in regions with the strong generalized trust, firms are less discouraged from applying for bank credit.

JEL Codes: G21, L14

Keywords: Borrower discouragement, Credit availability, Generalized trust.

[42] In this essay, I wrote with Prof Jean-Christophe Statnik (jean-christophe.statnik@univ-lille.fr) and Dr Vu Thi Le Giang (thilegiang.vu@univ-lille.fr) from Université de Lille. It was presented for BAR's Inaugural Annual Conference 2023 in Harvard University (Boston, USA). We thank Dr Simon Xu from Harvard Business School for his discussion and comments.

3.1. Introduction

The role of financing in the development of enterprises has been crucial and well documented in the existing literature. It allows firms to expand operations, and invest in research, innovation, human resources and production facilities (OECD, 2006). However, not all of them could obtain enough amount and this is a main obstacle to the firm growth (Malhotra et al., 2007). The literature points out two dysfunctions that impact the firm financing, namely credit rationing and borrower discouragement. The former relates to the supply-side problem while the latter refers to the demand-side one. Credit rationing has been studied for over 40 years and is the problem where banks reject credit applications instead of rising interest rates or requiring others when information is asymmetric. Meanwhile, borrower discouragement has caught more attention since 2003 when its first definition is introduced by Kon and Storey (2003) as follows: *"a good borrower may not apply for a loan to a bank, because they feel they will be rejected"*.

According to the existing literature, the impact of trust on economic development has been studied theoretically and empirically for a long time but its role in credit activities has been taken into account in recent years. In addition, most of the studies focus only on the impact of trust on loan characteristics (i.e. cost and credit availability) (see Hernandez-Canovas & Martinez-Solano, 2010; Moro & Fink, 2013; Alvarez-Botas & Gonzalez, 2021). Furthermore, some study the link between trust and credit availability but most of them work on only SMEs (i.e. Kautonen et al., 2020; Namara et al., 2019). Besides that, the empirical work on the relation between trust and borrower discouragement is still limited (see Tang et al., 2017). To enrich the existing research, we examine the roles of generalized trust in credit availability and borrower discouragement. This study uses credit availability as a measure of credit rationing in the sense that the greater bank credit firms can access, the less rationed they are. It is important and interesting to study the impacts of generalized trust on both credit availability and borrower discouragement because when mentioning credit constraint, there are not only the case where firms applied for credit and are granted or rejected (on the supply side) but also the one where they decide not to apply for it due to their rejection anticipation (on demand side) (Tang et al., 2017). To the best of our knowledge, this paper is the first one to examine the influences of generalized trust on both of the two dysfunctions. More importantly, we are also the first one to determine the level of generalized trust

at regional level rather than at country level in the previous studies. As explained previously, the levels of generalized trust vary across regions in the same country so when using the trust measures at the regional level, we can investigate its impacts more properly.

To meet the study objectives mentioned earlier, we pose a following research question: *"Does generalized trust, defined at the level of the region in which the firm operates, have an influence, on the one hand, on the availability of credit and, on the other hand, on borrower discouragement?".* Using the firm dataset obtained from the Business Environment and Enterprise Performance Survey Round VI (BEEPS VI) of the European Bank for Reconstruction and Development (EBRD) and the generalized trust measures built from the World Values Survey (WVS) Joint 2017-2020, we find that in regions with strong generalized trust, firms access greater bank credit. Another important finding is that in regions with strong generalized trust, firms are less discouraged from applying for credit. We also conduct two robustness tests by using new generalized trust indicators measured within the radius of 70 km and 150 km of the firm location. In particular, knowing the GPS coordinates of a firm allows us to figure out the number of households living within the radius of 70 km and their answers to the trust question. Then, we take average of their answers to obtain the specific trust indicator for the firm. We do the same for 150 km. The robustness tests show that the main results remain unchanged.

The structure of this paper is as follows: Section 3.2 shows the literature review, Section 3.3 discusses the research questions, hypotheses development, data description and methodology. Sections 3.4 and 3.5 report empirical results and robustness checks respectively, and Section 3.6 concludes the study.

3.2. Related Literature

3.2.1. Generalized trust and its measures

As mentioned before, trust has played an important role and appeared in every aspect in human lives. It is a complex concept and therefore can have various definitions and measures. The existing literature makes a clear distinction between generalized and particularized trust.

Generalized trust refers to social trust (Hardin, 2001; Rothstein & Uslaner, 2005; Taylor et al., 2007) in which people trust others despite any differences between them. Generalized trust also is the one where people have trust in strangers (Dincer & Uslaner, 2010; Knack, 2001) whom they have not known before. On the other hand, particularized trust relates to the one in which people have trust in only others having similarities (Yamagishi & Yamagishi, 1994). As a result, generalized trust makes people having different backgrounds (nationality, religion, etc.) live together whereas particularized trust opposes the differences. What is more, generalized trust is a social norm which is inherited from the past to next generations (Uslaner, 2008, Algan & Cahuc, 2010). Thus, it is stable from time to time. However, it should be noted that as discussed earlier, the levels of generalized trust might vary greatly from one place to another in the same country. Therefore, trust levels should be determined at the region level rather than the country level like most of the prior studies.

Generalized trust has various specific methods to measure. One of the common questions is "*Generally speaking, would you say that most people can be trusted, or that you can't be too careful when dealing with others"* and the answers are in a scale from *"You can't be too careful"* to *"Most people can be trusted"*. It is first introduced by Almond and Verba (1963) and then widely used in various surveys (i.e. the General Social Survey, World Values Survey, etc.) and prior empirical studies. The common question is also used in this study.

3.2.2. Generalized Trust and credit availability on the supply side

As discussed above, generalized trust reduces information asymmetries, uncertainty and risks. It also facilitates decision makings when information is scarce (Luhmann, 2000). In this regard, generalized trust allows banks to compensate for information asymmetries and examine the creditworthiness of enterprises. Therefore, firms are more likely to access bank credit. Credit availability is widely defined as how likely enterprises access or extend credit (Lehmann & Neuberger, 2001) or whether their loan applications are granted or rejected (Kano et al, 2010). In this regard, generalized trust plays a role in allowing firms to access greater bank credit.

Prior empirical studies find the positive link between trust and credit availability for SMEs (see Hernandez-Canovas & Martinez-Solano, 2010; Kautonen et al., 2020; Moro & Fink, 2013; Namara et al., 2019). More specifically, Hernandez-Canovas and Martinez-Solano (2010) investigate the relationship between SMEs and banks in Europe and find that trust between firms and banks gains access to credit. This is in line with the study by Kautonen et al. (2020) when they analyze 160 SMEs in Finland. However, their findings also highlight that trust does its role when formal information for examining the creditworthiness of SMEs is not sufficient. Moro and Fink (2013) argue that studies on the relationship lending between firms and banks still have limited attention to the impact of the loan manager's trust in the SME's manager. They therefore analyze nine banks in Italy during 2005-07 and their results report that when the loan manager's trust is high, SMEs have access to more credit. It should be noticed that in these studies, the kind of trust is particularized trust. Interestingly, Namara et al. (2019) focus on generalized trust but it is determined at the country level[43]. They analyze the dataset of 13,957 SMEs of eleven countries in Europe. Their results show that in countries having more efficient judicial systems, less efficient bankruptcy systems and higher levels of generalized trust, SMEs are less likely to have credit rationed. In other words, they can access greater bank credit.

3.2.3. Generalized trust and borrower discouragement on the demand side

Some enterprises need credit but they might refrain from applying for it. They have profitable projects and sufficient collateral but do not submit credit applications because they anticipate that they will be rejected (Levenson & Willard, 2000; Kon & Storey, 2003). The levels of the discouragement depend on imperfect screening in lending markets, application costs, bank's screening issues, and interest rate differences between banks and other lenders. Han et al. (2009) also emphasize that imperfect information is at the heart of borrower discouragement besides market conditions, informational problems, application costs and firm characteristics. In addition, Diagne (1999) highlights that another reason is due to the firms' expectations towards the credit limit granted. Notably, Han et al. (2009) expand its definition by including both bad and good

[43] The authors use the answers to the *question 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"* in the European Social Survey 2012 and World Values Survey 2018.

borrowers. Thus, no matter having good investment projects or sufficient collateral, those borrowers might be discouraged from applying for despite their need for credit.

Generalized trust can play its important role in reducing borrowing discouragement because with the existence of trust, firm managers or owners have more confidence in banks in which bank credit officers are supportive and the firm conditions are screened properly and transparently by the bank. Then, they believe that it is more likely that their loan applications will be approved. Despite the importance of studying the relationship between trust and borrower discouragement, there has been limited empirical work (Tang et al., 2017). Previous empirical work finds that trust reduces borrower discouragement (see Tang et al., 2017). More specifically, using the dataset of small firms in China during 2014-15, the authors rely on a structural equation model and then find that firm manager's trust in the loan manager impacts the enterprise's decision to submit a credit application by decreasing its risk of discouragement. However, it should be noted that in their study, the kind of trust is particularized trust.

3.3. Research questions, Hypotheses development, Data, and Methodology

3.3.1. Research questions and Hypotheses development

In this study, we aim to examine the link between generalized trust and firms' credit availability[44]. As mentioned earlier, generalized trust reduces information asymmetries and foster exchanges of private and credible information between banks and borrowers. More and accurate information can help banks process credit applications more easily and properly. Moreover, with the existence of strong trust, banks also trust borrowing firms and this supports the former's credit decision process, especially in case information is scarce. In this regard, when banks and firms operate in regions with higher levels of generalized trust, we expect that firms are more likely to access bank credit. In addition, the levels of generalized trust can be various between regions in the same country. Therefore, we determine the measure of generalized trust at the regional level rather than the country level. Collectively, we test the following hypothesis for credit availability:

[44] Our research question is *"Does generalized trust, defined at the level of the region in which the firm operates, have an influence, on the one hand, on the availability of credit and, on the other hand, on borrower discouragement?"*.

Hypothesis 1a: In regions with higher (resp. lower) levels of generalized trust, the firm accesses greater (resp. lower) credit availability.

Moreover, generalized trust also affects the firm's decision to apply or not for bank credit. If firms trust that loan officer correctly analyzes and evaluates the quality of their project, they will be more likely to submit loan applications. In this regard, we expect that in regions with stronger generalized trust, firms are more confident and therefore more likely to apply for bank loans, indicating less borrowing discouraged. As the result, we test the following hypothesis for borrower discouragement:

Hypothesis 1b: In regions with higher (resp. lower) levels of generalized trust, the firm is less (resp. more) discouraged from applying for bank credit.

3.3.2 Data

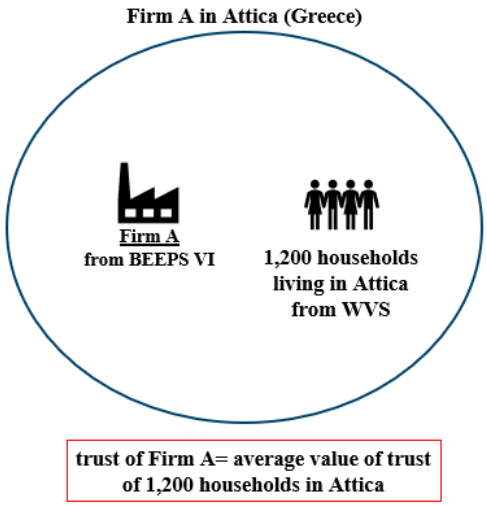
The dataset is built using two databases, namely the BEEPS VI and World Values Survey (WVS) Joint 2017-2020. Business Environment and Enterprise Performance Survey round VI (BEEPS VI) is a survey conducted by the European Bank for Reconstruction and Development (EBRD) and World Bank. They surveyed approximately 28,000 enterprises through face-to-face interviews with their managers in 41 countries [45] during 2018-2020. The purpose of the survey is to study the quality of the business environment. The database allows us to construct measures of credit availability and borrower discouragement, and build three sets of control variables: (i) the firm's entrepreneur characteristics, (ii) firm characteristics and (iii) firm's perceptions towards the operating environment.

World Values Survey (WVS) Joint 2017-2020 is conducted jointly by the European Values Survey (EVS) and World Values Survey (WVS). The joint version combined the EVS' wave 5 (2017-2020) and the WVS' wave 7 (2017-2021) and therefore covered 81 countries[46] during 2017-2020. The purposes of the WVS survey are to examine cultural values, attitudes and beliefs

[45] They are of the EU, Eastern Europe, Central Asia and Middle East and North Africa.
[46] They are of the EU, U.S., South America, Asia, Africa and Oceania.

towards various areas (such as gender, family, religion, trust, institutions, governance, corruption, media etc.). Thus, they allow us to construct our indicators of trust in regions where the firms (surveyed in BEEPS VI) are operated. For example, Firm A from BEEPS VI operates in Attica (Greece). From WVS' dataset, there are 1,200 households living in Attica and their responses to the trust question are taken average. Thus, we can obtain the value of trust for Firm A (see Graph 1)

Graph 1: Our methodology on creating specific trust indicator for each firm.



As a result, we obtain a sample of 21,729 observations across 28 countries in Europe, Asia and Africa over three years[47].

3.3.3 Methodology

Models

To answer the research question *"Does generalized trust, defined at the level of the region in which the firm operates, have an influence, on the one hand, on the availability of credit and,*

[47] Three years are from 2018 to 2020. 28 countries are Albania, Azerbaijan, Belarus, Bosnia and Herz., Bulgaria, Croatia, Czech Rep., Egypt, Georgia, Greece, Hungary, Italy, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Lithuania, Poland, Portugal, Romania, Russia, Serbia, Slovak Rep., Slovenia, Tajikistan, Tunisia, Turkey, and Ukraine.

on the other hand, on borrower discouragement?", we use the following estimation regressions for the individual firm i in the region c. They have ordinary least squares (OLS) and Logit as method. The first and second models are for credit availability and borrower discouragement respectively. We also control for fixed effects of industry, country, and year[48]. Standard errors are clustered at the country level.

$$\mathrm{CREAVAIL_i} = \alpha + \beta_1\mathrm{TRUST_C} + \beta_2\mathrm{TOPMANAGER_i} + \beta_3\mathrm{FIRM_i} + \beta_4\mathrm{ENVIRONMENT_i} + FE(Industry, country, year) + \mu_i \ (1)$$

$$\mathrm{DB_i} = \alpha + \beta_1\mathrm{TRUST_C} + \beta_2\mathrm{TOPMANAGER_i} + \beta_3\mathrm{FIRM_i} + \beta_4\mathrm{ENVIRONMENT_i} + FE(Industry, country, year) + \mu_i \ (2)$$

where

- $\mathrm{CREAVAIL_i}$is a dependent variable measuring the credit availability of the firm i.
- $\mathrm{DB_i}$ is a dependent variable measuring the borrower discouragement of the firm i.
- $\mathrm{TRUST_c}$ is a variable of interest, measuring generalized trust of the region c where the firm i operates.
- $\mathrm{TOPMANAGER_i}$ is a set of control variables for the firm i's top manager characteristics.
- $\mathrm{FIRM_i}$ is a set of control variables corresponding to the firm i 's characteristics.
- $\mathrm{ENVIRONMENT_i}$ is a set of control variables for the firm i's perceptions towards operating environment.
- μ_i is an error term.

The description and descriptive statistics of this study's variables are presented in Tables 3.1 and 3.2 respectively in Appendix. Table 3.3 shows the correlation matrix of the variables.

[48] For the firm's industry, we code 1,2 and 3 for *"Manufacturing", "Retailing Services"* and *Other services"* respectively. For the country, we code 1-28 for 28 countries in the sample. For the year, we code 1,2 and 3 for 2018, 2019 and 2020 respectively.

Indicators of credit availability

For measuring credit availability, we adopt the definition by Kano et al (2010) in which credit availability is defined as the firm applies for credit and its application is accepted. To obtain the data, we use answers to the two question K.20 of BEEPS VI *"Referring only to this most recent application for a line of credit or loan, what was the outcome of that application?"*[49]. Then, we create CREAVAIL as the credit availability variable. CREAVAIL is a dummy variable coded 1 if the firm had applied for credit and received full as the outcome; 0 if the firm had applied for loan but the application was rejected or only partial credit amount was granted.

Indicators of borrower discouragement

As discussed before, we use the common definition (see Kon & Storey, 2003; Han et al., 2009) to create a variable of borrower discouragement. For the data, we use answers to the two questions of BEEPS VI, namely K16 *"Referring again to the last fiscal year, did this establishment apply for any lines of credit or loans?*[50]*"* and K.17 *"What was the main reason why this establishment did not apply for any line of credit or loan?*[51]*"*. Next, we construct DB as a dummy variable coded 1 if the firm did not apply for credit because it thought the loan application would not be approved by the bank; 0 if it did apply for bank credit.

Indicators of generalized trust

Using the WVS, we create two indicators of generalized trust: TRUST_G and TRUST_Gbis. The first uses the common question of trust like what we already mentioned above. For the second, we construct it based on how respondents trust other people with whom they interact in daily live, namely family, friends, neighbors, etc. The two indicators are described as follows:

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[49] The answers include *"Application was approved in full", "Application was approved in part", "Application was rejected", "Application was withdrawn", "Application still in process",* and *"Don't know"*

[50] The answers are "Yes", "No", and "Don't know"

[51] The answers consist of *"No need for a loan - establishment had sufficient capital", "Application procedures were complex", "Interest rates were not favorable", "Collateral requirements were too high", "Size of loan and maturity were insufficient", "Did not think it would be approved", "Other",* and "*Don't know"*

- TRUST_G: a variable of generalized trust in which respondents were asked whether most people can be trusted using Question Q57 *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"* We code it 1 for the answer *"Most people can be trusted*" and 0 for the answer *"Need to be very careful"*. Then, we take average of all responses to get the region's trust level.

- TRUST_Gbis**:** a variable of having trust in groups of people[52], using Questions Q58 – Q63 of WV7 where respondents were asked *"I 'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all?"*. Respondents have trust when choosing (1) Trust completely or (2) Trust somewhat, and do not have trust when selecting (3) Do not trust very much or (4) Do not trust at all. We code based on the number of groups that the respondents have trust in and therefore the values range between 6 (strongest trust) and 0 (no trust). It is coded 6 if they trust all of six groups; 5 if they trust five groups; 0 if they do not trust all of six groups. Next, we take average of all responses to obtain the region's trust level.

The higher value indicates stronger generalized trust of people living in the region.

Control variables for the firm's top manager characteristics

The prior studies highlight that the characteristics of firms and their owners/top managers influence credit availability and borrowing discouragement. The previous studies also highlight the link between entrepreneur characteristics and borrowing discouragement, namely female-led (Aristei & Gallo, 2021; Ongena & Popov, 2016), older (Cole & Sokolyk, 2016). Female-led enterprises are found to be more discouraged from applying for loans. Basiglio et al. (2022) analyze a sample of Italian firms for the year 2015 and find that female is less likely to ask for bank loan. This therefore impacts credit availability and discouragement. We therefore have control variables for gender of the top manager (FEMALE, a dummy variable). The experience of

[52] Your family; Your neighborhood; People you know personally; People you meet for the first time; People of another religion; People of another nationality.

the top manager also impacts credit availability and borrowing discouragement and therefore we control for years of working experience the top manager has (EXPERIENCE, the natural log of number of years). We construct these control variables using the BEEPS VI.

Control variables for the firm characteristics

The firm-bank relationship is a key factor influencing borrower discouragement (Chakravarty & Yilmazer, 2009; Chakravarty & Xiang, 2013) and SMEs having existing banking relationships are less discouraged (Freel et al., 2012). Furthermore, the firm-bank relationship is important to credit availability because firms having close relationships with their banks are more likely to obtain credit (Berger & Udell, 2002; Stein, 2002). This, in turn, impacts the firm's discouragement because it anticipates that its loan application is more likely to be approved. Moreover, firms that have existing relationships with bank can be less discouraged from applying for credit. Therefore, we include two variables: OVERDRAFT (having an overdraft facility, a dummy variable) and CREDITLINE (having a credit line or loan from a financial institution, a dummy variable). We also construct a variable of whether the firm is located in a business main city (MAINCITY, a dummy variable).

In addition, bigger enterprises might need more financing and they are less risky and have more negotiation power (Moro & Fink, 2013). Thus, they are more likely to obtain more bank credit. They are more confident that their application will be accepted so they are less discouraged from applying for loans. When firms have more export activities, they are likely to have wider business network. They might suffer lower information asymmetries and therefore are less discouraged (Nguyen et al., 2020). Due to less information asymmetries, they might also access more credit. Being listed on stock markets allows firms to have more financing channels and mitigate information asymmetries, thereby impacting their credit access and discouragement. Moreover, innovative SMEs are less likely to access bank credit (Freel, 2007; Hall & Lerner, 2010; Lee et al., 2015). Hence, the borrowing discouragement of SMEs might also be influenced by the innovation activities through introducing new and improved methods or processes. Furthermore, the financial performance of the firm also affects credit availability and borrower discouragement. When the firm's financial performance is in good shape and expected to be good in coming years,

it is more likely to repay the loans, thereby influencing the bank's loan decisions. Meanwhile, due to the good financial performance, the firm anticipate that its credit application is more likely to be accepted by the bank and therefore it is less discouraged. Moreover, when the firm's financial report is audited or it has any internationally-recognized quality certification, it indicates that the firm's performance is good and reliable and therefore will impact the bank's loan decisions and borrower discouragement. As a result, we also have following control variables: firm size (SIZE[53]), being listed on stock markets (LISTED, a dummy variable), the percentage of the firm's sales were direct exports (DIEXPORT, the percentage), having new or improved products/services (INNOVATION, a dummy variable), an internationally-recognized quality certification (CERTIFICATE, a dummy variable), external audit (EXTERAUDIT, a dummy variable), and expected increase in revenue of next year (INCSALES, a dummy variable).

All of these control variables are created from BEEPS VI.

Control variables for the firm perceptions towards operating environment

Last but not least, firm top manager's perceptions towards operating environment are also included in our estimation regressions, namely corruption and obstacle to access finance. Most of previous studies find the negative impact of corruption on economic activities (see Glaeser & Saks, 2006; Mauro, 1995; Park, 2012). Thus, the operating environment with high corruption also affects credit availability and borrower discouragement of the firm. When firms feel that access to finance is an obstacle in operating environment, they will be less likely to obtain bank credit. They also refrain from applying for loans because they believe that their applications will be rejected. The two control variables, namely corruption (CORRUPT, a dummy variable) and obstacle to access finance (ACCESS, a dummy variable), are obtained from BEEPS VI.

[53] Firm size is coded based on the number of employees: 1 for small (5-19 staff), 2 for medium (20-99 staff) and 3 for large (more than 100 staff).

3.4. Empirical results

3.4.1. Univariate analysis

We begin with two univariate analyses in which we compare the means of our main variables between two sub-samples: Firms having greater credit availability (CREAVAIL= 1) and others having lower credit availability (CREAVAIL = 0); and firms are not discouraged borrowers (DB = 0) and others are discouraged ones (DB = 1).

Table 3.4A shows that the group of firms accessing greater credit availability is located in regions with higher levels of generalized trust compared to the counterpart (3.6 against 3.469 for CREAVAIL, difference significance at 1 percent) when the measure of generalized trust is built by trust in six groups of people[54] (TRUST_Gbis).

In addition, firms accessing higher credit are also found to have stronger relationships with banks through having credit lines (CREDITLINE) and overdraft facilities (OVERDRAFT), larger size (SIZE), more direct exports (DIEXPORT), innovation (INNOVATION), internationally-recognized quality certification (CERTIFICATE), external audit (EXTERAUDIT), experienced top manager (EXPERIENCE), expected increase in sales of next year (INCSALES), list status on stock markets (LISTED) and smaller city as location (MAINCITY). Moreover, firms with greater credit availability think that access to finance (ACCESS) and corruption (CORRUPT) are less obstacles regarding the operating environment.

Regarding borrower discouragement, Table 3.4B presents that the group of firms having less borrowing discouragement is located in regions with stronger generalized trust (0.205 against 0.173 for TRUST_G and 3.579 against 3.404 for TRUST_Gbis, difference significance at 1 percent).

[54] Trust in family, neighborhood, people you know personally, people met for the first time, people of another religion, and people of another nationality

Moreover, the group of firms having less discouragement is found to have stronger relationships with banks through having credit lines (CREDITLINE) and overdraft facilities (OVERDRAFT), larger size (SIZE), more direct exports (DIEXPORT), innovation (INNOVATION), an internationally-recognized quality certification (CERTIFICATE), external audit (EXTERAUDIT), experienced top managers, (EXPERIENCE), male top managers (FEMALE), and expected increase in sales of next year (INCSALES). Firms with lower discouragement think that access to finance (ACCESS) and corruption (CORRUPT) are less obstacles regarding the operating environment.

To sum up, the results in the univariate analysis provide an overview picture on the potential links between generalized trust and the dysfunctions in credit markets (credit availability and borrower discouragement). In particular, in regions with higher levels of generalized trust, firms are likely to access greater bank credit. Another key overview is that in regions with higher levels of generalized trust, firms are less likely to be discouraged from applying for bank loan.

3.4.2. Multivariate analysis

The link between generalized trust and credit availability

To test the first hypothesis, we use Model 1 in which the dependent variable is CREAVAIL and trust in most people (TRUST_G) as the generalized trust indicator. OLS (Column 1) and Logit (Column 2) are applied as the method. We control for fixed effects of industry, country and year, and the standard errors are clustered at the country level.

Table 3.5 shows that the trust variable (TRUST_G) are positively correlated with credit availability (CREAVAIL). This implies that in regions where generalized trust is strong, firms are more likely to access bank credit. The key finding is consistent with the previous findings on trust and bank credit availability (i.e. Hernandez-Canovas & Martinez-Solano, 2010; Kautonen et al., 2020; Moro & Fink, 2013; Namara et al., 2019), thereby supporting the first hypothesis.

For the control variables, Table 3.5 presents that firms feeling access to finance as great obstacles obtain lower credit. Moreover, the coefficients of having credit line (CREDITLINE) and overdraft facilities (OVERDRAFT) are statistically significant and positive. These indicate when firms have relationships with their bank through having credit lines and overdraft, they are more likely to access bank credit. The empirical results also show that greater bank credit is found in firms having audited financial reports. Firms that are located in main business cities are less likely to obtain credit.

The link between generalized trust and borrower discouragement

We use Model 2, where the dependent variable is DB as the borrower discouragement indicator, to test the second hypothesis. In this equation, trust in most people (TRUST_G) is the indicator of generalized trust. Similar to the ones of credit availability, we control for fixed effects of industry, country and year, and standard errors are clustered at the country level. OLS (Column 1) and Logit (Column 2) are applied as the method.

Table 3.6 presents that the indicator of generalized trust (TRUST_G) is negatively associated with borrower discouragement. In other words, firms that are located in regions with strong trust, are less likely to refrain from applying for bank credit. This is in line with the study by Tang et al. (2017) and therefore supports the second hypothesis.

For the control variables, we find that access to finance as great obstacle is positively related to borrower discouragement. In addition, having relationship with the bank reduces borrower discouragement as the results show that the coefficients of having credit line (CREDITLINE) and overdraft facilities (OVERDRAFT) are statistically significant and negative. Female top manager (FEMALE) is positively related to being discouraged. This is consistent with previous studies (see Aristei & Gallo, 2021; Basiglio et al., 2022; Ongena & Popov, 2016). Firms with export activities (DIEXPORT), improved products/ services (INNOVATION), and expected increase in sales for next year (INSALES) are found to be less discouraged. In addition, firms with list status are related positively to borrower discouragement (see Column 2).

3.5. Robustness tests

To test whether our main results remain robust, we conduct two robustness tests for credit availability and borrower discouragement.

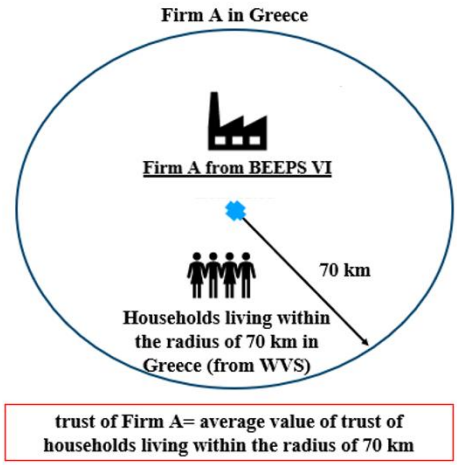
For the first robustness check of credit availability, we construct an alternative measure of credit availability named CREAVAIL_bis using Question K.20 of BEEPS VI *"Referring only to this most recent application for a line of credit or loan, what was the outcome of that application?".* We code it as 1 if the firm had applied for credit and received full or partial amount; 0 if its application was rejected. To do so, we can obtain an alternative measure of credit availability because in the main analysis, we create the measure CREAVAIL by coding 1 for only receiving full amount of credit and 0 for partial amount or being rejected. For the second test, we create new generalized trust variables for TRUST_G by computing them within the radius of 70 km[55] of each firm's location. Let us explain the methodology as follows. As been shown in Graph 2 below, a firm named A in an area of Greece has a specific location. Taking the location of Firm A into the center, we go to the WVS and figure out a specific number of households living within the radius of 70 km of Firm A. Then, we compute an average of these households' trust measure and therefore this average value is the indicator of trust for Firm A. This method is interesting because the measure of generalized trust is specific for each firm and therefore different for each dependent variable in the estimation regressions. In addition, as discussed before, the levels of generalized trust are different between locations in the same country and this method allows us to control for the available differences. However, the size of a country and the selection of a radius distance should be taken into account when using this method. If a country is large enough like the U.S., Canada or China, the radius of 70 km can work. But it should be careful when applying to small countries like Malta (an island with 27 km long and 14.5 km wide) because the radius of 70 km covers more than whole country and all firms in Malta will have the same level of generalized trust. When using the radius of 70 km, we also double check all of the values of generalized trust

[55] The selection of distance of 70 km needs to meet two conditions. The first is that the geographical area must be large enough to include a large number of observations from WVS. Thus, it allows the computed averages to be representative of characteristics measured. The second is that the distance, at the same time, must not be too large so in the same country there can be differences in the different averages calculated. The radius of 70 km meets the two conditions. To check that our results are not dependent on a given distance, we also create another radius number (150 km) and the main results also remain robust. To simplify, we do not show the results of 150 km in Appendix.

in each country of the sample and there is not any case where all of the firms in a country have the same level of generalized trust. Hence, the distance and size of the country meet the requirements.

Regarding the first robustness test of borrower discouragement, we use alternative trust variable (TRUST_Gbis). For the second, we use the new trust variable TRUST_G that is computed within the radius of 70 km of each firm's location. This is similar to credit availability's one.

Graph 2: An example describing how we create new trust variables for the robustness tests.



The key findings of the main analysis remain robust. In particular, when using the alternative credit availability indicator (CREAVAIL_bis), we find that the generalized trust (TRUST_G) is positively associated with credit availability (see Table 3.7). This is the same when we adopt the 70 km dataset (see Table 3.9). Regarding borrower discouragement, the coefficients of the alternative generalized trust (TRUST_Gbis) and trust measured within the radius of 70 km (TRUST_G) are negatively related to borrowing discouragement (see Tables 3.8 and 3.10). We also adopt generalized trust measured within the radius of 150 km and the main results still remain unchanged[56]. To simplify, we do not show those of 150 km in Appendix.

[56] For the radius of 150 km, we double check all of the values of generalized trust in each country and there is not any case in which all of the firms in a country have the same value of generalized trust. Thus, the distance and size of the country meet the requirements.

As the result, these results confirm the robustness of the main findings.

3.6. Conclusion and discussion

In this study, we examine the links between generalized trust and credit availability and between generalized trust and borrowing discouragement. To overcome the pitfall of using country-level trust indices, we determine an average of the trust within the firm's operation region. Our study is the first one to analyze the influence of generalized trust in both credit availability and borrower discouragement. In addition, generalized trust indicators in this study are measured at the regional level rather than at the country level in all of prior studies. This is crucial because as discussed previously, the levels of generalized trust vary significantly across not only countries but also regions in the same country. To achieve the measures of trust at the regional level, we take average of all generalized trust levels of respondents living in a region where firms operate. Ours reports that in regions with stronger generalized trust, firms have greater access to bank credit. Another important finding is that in regions with stronger generalized trust, firms are less discouraged from applying for bank credit. These results remain robust when we have two robustness checks by using alternative measures of credit availability and generalized trust computed within the radius of 70 km and 150 km of the area where the firm is located.

The key results of this study provide several important implications. Firstly, policymakers need to take into account sociological parameters such as trust when making credit policies because trust is the root of the society. Besides that, they should be aware that generalized trust is a social norm and stable over time while the tenure of policymakers often lasts several years. Changing levels of generalized trust takes a long period of time so it is not an easy task for the policymakers. Secondly, for researchers who studying the influences of generalized trust, they should measure trust at the regional level rather than country level. The reason is that the levels of trust can be various notably between regions in each country so the trust level at the country level might be not the correct one in which a firm faces. Determining trust at the regional level allows the researchers to control for country and take the variation within country into account. Last but not least, this study could be interesting and beneficial for foreign enterprises and foreign banks that want to enter new markets. In particular, between two countries, they could choose the one that has a higher

level of generalized trust. For foreign enterprises, they understand that in areas with higher levels of generalized trust, they can be more likely to access bank credit. Thus, they will not need to adopt alternative ways which are costly. For foreign banks, they know that borrowers could be less discouraged from applying for bank loans in areas having higher levels of generalized trust. Thus, they will be able to provide loans to more clients with good investment projects to develop their businesses.

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3.8. Appendix

Table 3. 1: Data description

Name	Definition	Source
DEPENDENT VARIABLES		
CREAVAIL	Dummy =1 for the firm received full as the credit application outcome; and 0 for the firm was rejected or just received partial.	BEEPS VI
CREAVAIL_bis	Dummy =1 for the firm received full or partial as the credit application outcome and 0 for the application being rejected.	BEEPS VI
DB	Dummy =1 for the firm did not apply for loan because it thinks the loan application would not be approved through the answer *"Did not think it would be approved"*; and 0 for the firm did apply for loans.	BEEPS VI
INDEPENDENT VARIABLES		
Trust		
TRUST_G	Dummy =1 for "most people can be trusted" and 0 for "need to be careful". Then take average to obtain the trust measure of the region where the firm is located.	WVS Joint
TRUST_Gbis	Range from 1 to 6, 1 for trust in one of 6 groups (family, neighbor, knew-person, first meet person, people of another religion, people of another nationality) and 6 for trust in all 6 groups. Then take average to obtain the trust measure of the region where the firm is located.	WVS Joint
Firm top manager's characteristics		
FEMALE	Dummy=1 if the firm's top manager is female; 0 otherwise.	BEEPS VI
EXPERIENCE	Number of years of experience in the sector for the firm's top manager.	BEEPS VI
Firm characteristics		
OVERDRAFT	Dummy =1 if the firm has an overdraft facility; 0 otherwise.	BEEPS VI
MAINCITY	Dummy = 1 if the firm is located in a main business city; 0 otherwise.	BEEPS VI
SIZE	Coded by number of employees: 1 for small size (5-19 staff), 2 for medium size (20-99 staff) and 3 for large size (>100 staff).	BEEPS VI
INCSALES	Dummy =1 if the firm's sale of next year is expected to increase; 0 otherwise.	BEEPS VI
LISTED	Dummy = 1 if the firm is listed in the stock market; 0 otherwise.	BEEPS VI
DIEXPORT	Direct export as a percentage of the firm's sale.	BEEPS VI
INNOVATION	Dummy =1 if the firm has new/improved products/services; 0 otherwise.	BEEPS VI
CERTIFICATE	Dummy =1 if the firm got internationally recognized quality certification; 0 otherwise.	BEEPS VI
EXTERAUDIT	Dummy =1 if the firm's annual financial statement is checked and certified by an external auditor; 0 otherwise.	BEEPS VI
CREDITLINE	Dummy = 1 if the firm has a line of credit or loan from a financial institution; 0 otherwise.	BEEPS VI
Firm's perception about the operating environment		
CORRUPT	Dummy =1 if corruption is major obstacle and very severe obstacle; 0 otherwise.	BEEPS VI
ACCESS	Dummy =1 if access to finance is major obstacle and very severe obstacle; 0 otherwise.	BEEPS VI

Table 3. 2: Descriptive statistics of the variables

Variable	Obs	Mean	Std. Dev.	Min	Max
CREAVAIL	3,679	0.87	0.34	0	1
CREAVAIL_bis	3,679	0.93	0.26	0	1
DB	4,251	0.08	0.27	0	1
TRUST_G	21,580	0.19	0.11	0	0.79
TRUST_GBIS	21,580	3.55	0.44	2.29	5.11
CORRUPT	20,010	0.26	0.44	0	1
OVERDRAFT	21,225	0.40	0.49	0	1
FEMALE	21,702	0.16	0.36	0	1
SIZE	21,259	1.74	0.77	1	3
DIEXPORT	21,454	10.04	24.30	0	100
INNOVATION	21,595	0.22	0.41	0	1
CERTIFICATE	21,353	0.28	0.45	0	1
EXTERAUDIT	21,387	0.40	0.49	0	1
EXPERIENCE	21,198	20.85	11.54	1	70
INCSALES	20,810	0.52	0.50	0	1
LISTED	21,729	0.07	0.26	0	1
CREDITLINE	21,337	0.34	0.47	0	1
MAINCITY	21,729	0.16	0.37	0	1
ACCESS	21,251	0.19	0.39	0	1

Table 3. 3: Correlation matrix of the variables

Table 3.3A: For credit availability

	creavail_bis	trust_g	corrupt	overdraft	gender	size	diexport
creavail_bis	1						
trust_g	0.0155	1					
corrupt	-0.0705	-0.154	1				
overdraft	0.185	-0.0253	0.0280	1			
gender	-0.0245	0.0140	0.00262	-0.0307	1		
size	0.139	0.0278	-0.0378	0.0665	-0.0383	1	
diexport	0.0835	-0.0280	-0.0603	0.0502	-0.00724	0.289	1
innovation	0.0362	0.101	-0.0264	0.00164	0.0313	0.129	0.0968
certificate	0.111	-0.0324	-0.0654	0.121	-0.0446	0.377	0.273
exteraudit	0.102	-0.127	0.0131	0.0230	-0.0128	0.363	0.158
experience	0.0872	-0.0998	0.0355	0.150	-0.0658	0.104	0.111
incsales	0.0412	0.0714	-0.0979	-0.0430	0.0180	0.0971	0.0828
listed	0.0381	0.0599	-0.0371	0.00764	-0.0410	0.246	0.0934
creditline	0.460	0.0803	-0.0493	0.174	0.0233	0.0973	0.0921
maincity	-0.0200	0.0338	-0.0330	-0.0351	-0.000606	-0.00635	-0.0802
access	-0.224	-0.0482	0.251	-0.0341	-0.0366	-0.0886	-0.0436

	innovation	certificate	exteraudit	experience	incsales	listed	creditline	maincity	access
innovation	1								
certificate	0.123	1							
exteraudit	0.0176	0.249	1						
experience	-0.0197	0.146	0.109	1					
incsales	0.152	0.0688	0.00517	-0.0442	1				
listed	0.0600	0.133	0.147	0.0769	0.0610	1			
creditline	0.0755	0.109	0.0426	0.0519	0.0274	0.0399	1		
maincity	0.110	-0.0228	-0.00722	-0.0550	0.0332	0.00480	0.00713	1	
access	-0.0671	-0.0479	-0.00309	-0.00342	-0.128	-0.0208	-0.0859	-0.0270	1

Table 3.3B: For borrower discouragement

	db	trust_g	corrupt	overdraft	gender	size	diexport	innovation
db	1							
trust_g	-0.0812	1						
corrupt	0.0466	-0.159	1					
overdraft	-0.147	-0.0163	0.0261	1				
gender	0.0578	0.0185	-0.00963	-0.0473	1			
size	-0.122	0.0388	-0.0342	0.103	-0.0365	1		
diexport	-0.0875	-0.0166	-0.0583	0.0630	-0.00845	0.294	1	
innovation	-0.106	0.111	-0.0151	0.0224	0.0210	0.147	0.108	1
certificate	-0.0768	-0.0249	-0.0507	0.148	-0.0526	0.378	0.276	0.137
exteraudit	-0.0599	-0.134	0.0184	0.0390	-0.0235	0.345	0.156	0.0155
experience	-0.0651	-0.105	0.0258	0.145	-0.0708	0.111	0.124	-0.00354
incsales	-0.0797	0.0848	-0.104	-0.0288	0.0191	0.0956	0.0895	0.159
listed	-0.0101	0.0635	-0.0319	0.0180	-0.0355	0.243	0.0851	0.0667
creditline	-0.290	0.0844	-0.0493	0.230	-0.0117	0.152	0.117	0.102
maincity	0.00916	0.0414	-0.0356	-0.0321	0.00683	-0.0301	-0.0724	0.100
access	0.125	-0.0679	0.245	-0.0484	-0.0125	-0.0983	-0.0459	-0.0632

	certificate	exteraudit	experience	incsales	listed	creditline	maincity	access
certificate	1							
exteraudit	0.235	1						
experience	0.151	0.112	1					
incsales	0.0760	0.00936	-0.0485	1				
listed	0.124	0.146	0.0677	0.0640	1			
creditline	0.134	0.0591	0.0936	0.0395	0.0586	1		
maincity	-0.0254	-0.0135	-0.0545	0.0420	-0.00359	-0.0114	1	
access	-0.0521	-0.0156	-0.0133	-0.136	-0.0232	-0.103	-0.0246	1

Table 3. 4: The first univariate analysis

Table 3.4A: For each variable of interest, this table displays the sample's means for two sub-samples: Firms obtain less bank credit (CREAVAIL = 0) and greater credit (CREAVAIL = 1) The last column of the table indicates the difference in means between the two groups. *, **, and ***indicate that the coefficient is significant at 10%, 5%, and 1% respectively. The description of the variables is provided in Table 3.1.

	CREAVAIL = 0		**CREAVAIL = 1**		
Variables	**Obs**	**Mean**	**Obs**	**Mean**	**MeanDiff**
TRUST_G	474	0.211	3170	0.205	0.007
TRUST_Gbis	474	3.469	3170	3.6	-0.131***
CORRUPT	434	0.343	2923	0.217	0.127***
OVERDRAFT	468	0.374	3168	0.614	-0.240***
FEMALE	474	0.16	3204	0.136	0.024
SIZE	463	1.752	3164	2.004	-0.252***
DIEXPORT	464	10.101	3176	17.299	-7.198***
INNOVATION	470	0.311	3178	0.352	-0.041*
CERTIFICATE	464	0.254	3147	0.401	-0.147***
EXTERAUDIT	467	0.366	3170	0.502	-0.136***
EXPERIENCE	454	19.791	3137	22.84	-3.050***
INCSALES	457	0.516	3130	0.57	-0.054**
LISTED	474	0.061	3205	0.1	-0.039***
CREDITLINE	472	0.519	3193	0.918	-0.399***
MAINCITY	474	0.167	3205	0.143	0.024
ACCESS	468	0.496	3182	0.198	0.297***

Table 3.4: The univariate analysis (Cont.)

Table 3.4B: For each variable of interest, this table displays the sample's means for two sub-samples: Firms are not discouraged borrowers (DB = 0) and others are discouraged ones (DB = 1). The last column of the table indicates the difference in means between the two groups. *, **, and ***indicate that the coefficient is significant at 10%, 5%, and 1% respectively. The description of the variables is provided in Table 3.1.

		DB = 0		DB = 1	
Variables	**Obs**	**Mean**	**Obs**	**Mean**	**MeanDiff**
TRUST_G	3886	0.205	329	0.173	0.032***
TRUST_Gbis	3886	3.579	329	3.404	0.175***
CORRUPT	3585	0.238	315	0.337	-0.099***
OVERDRAFT	3871	0.578	325	0.302	0.276***
FEMALE	3920	0.14	330	0.203	-0.063***
SIZE	3866	1.96	319	1.589	0.371***
DIEXPORT	3878	15.985	329	7.134	8.851***
INNOVATION	3889	0.346	329	0.164	0.181***
CERTIFICATE	3848	0.377	323	0.235	0.142***
EXTERAUDIT	3870	0.484	328	0.39	0.094***
EXPERIENCE	3826	22.218	323	19.176	3.041***
INCSALES	3817	0.562	314	0.417	0.145***
LISTED	3921	0.092	330	0.082	0.011
CREDITLINE	3904	0.837	329	0.407	0.430***
MAINCITY	3921	0.147	330	0.173	-0.026
ACCESS	3890	0.242	329	0.438	-0.195***

Table 3. 5: The link between generalized trust and credit availability

CREAVAIL is the dependent variables proxying for credit availability. The generalized trust variable is TRUST_G. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	CREAVAIL Model 1 (1)	CREAVAIL Model 1 (2)
TRUST_G	0.127**	2.240*
	(0.022)	(0.066)
CORRUPT	-0.025	-0.272
	(0.140)	(0.138)
OVERDRAFT	0.036*	0.411
	(0.083)	(0.146)
FEMALE	-0.026	-0.304
	(0.179)	(0.123)
SIZE	0.017	0.198
	(0.151)	(0.110)
DIEXPORT	0.000	0.001
	(0.766)	(0.625)
INNOVATION	0.000	0.021
	(0.985)	(0.891)
CERTIFICATE	0.010	0.154
	(0.515)	(0.451)
EXTERAUDIT	0.031*	0.424**
	(0.072)	(0.034)
EXPERIENCE	0.000	0.002
	(0.731)	(0.810)
INCSALES	-0.001	-0.047
	(0.945)	(0.777)
LISTED	0.005	0.129
	(0.723)	(0.588)

Table 3.5: The link between generalized trust and credit availability (Cont.)

	CREAVAIL Model 1 (1)	CREAVAIL Model 1 (2)
CREDITLINE	0.331***	2.198***
	(0.000)	(0.000)
MAINCITY	-0.027*	-0.361**
	(0.088)	(0.017)
ACCESS	-0.138***	-1.360***
	(0.000)	(0.000)
Constant	0.561***	0.128
	(0.000)	(0.770)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Cluster country	Yes	Yes
Method	OLS	Logit
Observations	2958	2958
Adjusted R^2	0.241	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. 6: The link between generalized trust and borrower discouragement

DB is the dependent variable proxying for borrower discouragement. The generalized trust variable is TRUST_G. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DB Model 2 (1)	DB Model 2 (2)
TRUST_G	-0.207**	-5.295**
	(0.016)	(0.045)
CORRUPT	-0.000	-0.009
	(0.991)	(0.963)
OVERDRAFT	-0.044***	-0.774***
	(0.007)	(0.002)
FEMALE	0.032**	0.364**
	(0.034)	(0.047)

Table 3.6: The link between generalized trust and borrower discouragement (Cont.)

	DB Model 2 (1)	DB Model 2 (2)
SIZE	-0.012	-0.191
	(0.134)	(0.133)
DIEXPORT	-0.000**	-0.008**
	(0.012)	(0.017)
INNOVATION	-0.039**	-0.782***
	(0.016)	(0.002)
CERTIFICATE	-0.014	-0.222
	(0.290)	(0.356)
EXTERAUDIT	-0.014	-0.267
	(0.234)	(0.174)
EXPERIENCE	-0.001	-0.015
	(0.101)	(0.125)
INCSALES	-0.025*	-0.325**
	(0.082)	(0.038)
LISTED	0.034	0.710*
	(0.186)	(0.081)
CREDITLINE	-0.158***	-1.578***
	(0.000)	(0.000)
MAINCITY	0.034	0.535
	(0.221)	(0.149)
ACCESS	0.051**	0.646***
	(0.024)	(0.006)
Constant	0.459***	1.749***
	(0.000)	(0.000)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Cluster country	Yes	Yes
Method	OLS	Logit
Observations	3423	3294
Adjusted R^2	0.143	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. 7: The first robustness test on the link between generalized trust and credit availability

CREAVAIL_bis is the dependent variable proxying for credit availability. Generalized trust variable is TRUST_G. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	CREAVAIL_bis Model 1 (1)	CREAVAIL_bis Model 1 (2)
TRUST_G	0.100**	3.709**
	(0.019)	(0.047)
CORRUPT	-0.011	-0.120
	(0.524)	(0.754)
OVERDRAFT	0.035***	0.822***
	(0.007)	(0.006)
FEMALE	-0.022*	-0.530**
	(0.063)	(0.025)
SIZE	0.017*	0.399**
	(0.067)	(0.033)
DIEXPORT	0.000	0.003
	(0.987)	(0.391)
INNOVATION	-0.002	0.024
	(0.794)	(0.904)
CERTIFICATE	-0.000	0.085
	(0.990)	(0.776)
EXTERAUDIT	0.025**	0.672***
	(0.012)	(0.005)
EXPERIENCE	0.000	0.010
	(0.305)	(0.258)
INCSALES	0.010	0.176
	(0.365)	(0.501)

Table 3.7: The first robustness test on the link between generalized trust and credit availability (Cont.)

	CREAVAIL_bis Model 1 (1)	CREAVAIL_bis Model 1 (2)
LISTED	-0.005	-0.351
	(0.720)	(0.438)
CREDITLINE	0.316***	3.136***
	(0.000)	(0.000)
MAINCITY	-0.017	-0.419*
	(0.181)	(0.060)
ACCESS	-0.110***	-1.892***
	(0.000)	(0.000)
Constant	0.609***	-0.246
	(0.000)	(0.693)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Cluster country	Yes	Yes
Method	OLS	Logit
Observations	2958	2901
Adjusted R^2	0.278	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. 8: The first robustness test on the link between generalized trust and borrower discouragement

DB is the dependent variable proxying for borrower discouragement. The generalized trust variable is an alternative one TRUST_Gbis. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DB Model 2 (1)	DB Model 2 (2)
TRUST_Gbis	-0.075***	-1.173***
	(0.008)	(0.002)
CORRUPT	-0.001	-0.007
	(0.951)	(0.972)
OVERDRAFT	-0.041**	-0.744***
	(0.013)	(0.005)
FEMALE	0.032**	0.368*
	(0.037)	(0.055)
SIZE	-0.011	-0.176
	(0.151)	(0.174)

Table 3.8: The first robustness test on the link between generalized trust and borrower discouragement (Cont.)

DB is the dependent variable proxying for borrower discouragement. The generalized trust variable is an alternative one TRUST_Gbis. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DB Model 2 (1)	DB Model 2 (2)
DIEXPORT	-0.000**	-0.007**
	(0.016)	(0.025)
INNOVATION	-0.039**	-0.778***
	(0.017)	(0.002)
CERTIFICATE	-0.013	-0.222
	(0.314)	(0.373)
EXTERAUDIT	-0.014	-0.237
	(0.233)	(0.224)
EXPERIENCE	-0.001	-0.016
	(0.106)	(0.104)
INCSALES	-0.023*	-0.315**
	(0.091)	(0.050)
LISTED	0.034	0.720*
	(0.175)	(0.079)
CREDITLINE	-0.159***	-1.609***
	(0.000)	(0.000)
MAINCITY	0.031	0.524
	(0.280)	(0.169)
ACCESS	0.049**	0.619***
	(0.026)	(0.007)
Constant	0.648***	4.650***
	(0.000)	(0.000)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Cluster country	Yes	Yes
Method	OLS	Logit
Observations	3423	3294
Adjusted R^2	0.145	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. 9: The second robustness test on the link between generalized trust and credit availability

CREAVAIL is the dependent variables proxying for credit availability. The 70 km dataset is used. The generalized trust variable is TRUST_G. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	CREAVAIL Model 1 (1)	CREAVAIL Model 1 (2)
TRUST_G	0.162*	2.043*
	(0.058)	(0.053)
CORRUPT	-0.032*	-0.340*
	(0.085)	(0.077)
OVERDRAFT	0.046*	0.466
	(0.073)	(0.141)
FEMALE	-0.024	-0.270
	(0.314)	(0.277)
SIZE	0.013	0.161
	(0.229)	(0.169)
DIEXPORT	0.000	0.001
	(0.503)	(0.629)
INNOVATION	0.001	0.019
	(0.937)	(0.904)
CERTIFICATE	0.011	0.162
	(0.498)	(0.428)
EXTERAUDIT	0.036*	0.422*
	(0.083)	(0.057)
EXPERIENCE	0.000	0.004
	(0.544)	(0.648)
INCSALES	0.002	0.022
	(0.923)	(0.910)
LISTED	0.008	0.133
	(0.759)	(0.749)

Table 3. 9: The second robustness test on the link between generalized trust and credit availability (Cont.)

	CREAVAIL Model 1 (1)	CREAVAIL Model 1 (2)
CREDITLINE	0.321***	2.139***
	(0.000)	(0.000)
MAINCITY	-0.019	-0.260
	(0.305)	(0.173)
ACCESS	-0.143***	-1.373***
	(0.000)	(0.000)
Constant	0.564***	0.254
	(0.000)	(0.567)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Cluster country	Yes	Yes
Method	OLS	Logit
Observations	2421	2354
Adjusted R^2	0.231	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. 10: The second robustness test on the link between generalized trust and borrower discouragement

DB is the dependent variable proxying for borrower discouragement. The 70 km dataset is used. The generalized trust variable is TRUST_G. The description of the variables is provided in Table 3.1. ∗, ∗∗, and ∗∗∗ indicate that the coefficient is significant at 10%, 5%, and 1% respectively.

	DB Model 2 (1)	DB Model 2 (2)
TRUST_G	-0.094**	-0.093**
	(0.047)	(0.037)
CORRUPT	0.009	0.006
	(0.559)	(0.707)
OVERDRAFT	-0.038**	-0.037**
	(0.031)	(0.040)
FEMALE	0.027	0.027
	(0.140)	(0.133)
SIZE	-0.016	-0.012
	(0.100)	(0.238)
DIEXPORT	-0.000*	-0.000*
	(0.060)	(0.076)

Table 3.10: The second robustness test on the link between generalized trust and borrower discouragement (Cont.)

	DB Model 2 (1)	DB Model 2 (2)
INNOVATION	-0.041**	-0.040**
	(0.029)	(0.033)
CERTIFICATE	-0.015	-0.008
	(0.342)	(0.608)
EXTERAUDIT	-0.022*	-0.023**
	(0.050)	(0.029)
EXPERIENCE	-0.001	-0.001
	(0.134)	(0.175)
INCSALES	-0.014	-0.013
	(0.410)	(0.459)
LISTED	0.027	0.028
	(0.182)	(0.197)
CREDITLINE	-0.143***	-0.139***
	(0.000)	(0.000)
MAINCITY	0.032	0.032
	(0.207)	(0.184)
ACCESS	0.046*	0.041
	(0.072)	(0.101)
Constant	0.435***	0.119**
	(0.000)	(0.013)
Industry FE	Yes	
Country FE	Yes	
Year FE	Yes	
Cluster country	Yes	Yes
Method	OLS	OLS
Observations	2830	2832
Adjusted R^2	0.132	0.149

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Conclusion Générale

Cette thèse examine l'influence de la confiance généralisée sur la structure des banques et leur activité. Nous nous concentrons sur la confiance généralisée parce qu'à l'opposé de la confiance particulière, il s'agit d'une norme sociale qui impacte toutes les relations humaines. La banque étant un intermédiaire financier, elle se trouve au cœur des relations entre les personnes. Ainsi, son activité est exposée à des variations de confiance généralisée. De prime abord, Il peut paraître un peu surprenant de parler de « variations de niveau de confiance généralisée » puisque c'est une norme sociale stable dans le temps. Mais si ce type de confiance est stable dans le temps, il ne l'est pas dans l'espace. En effet, il existe une grande disparité des niveaux de confiance généralisée entre les différents pays mais aussi au sein même d'un pays.

Dans notre thèse, nous étudions l'influence de la confiance généralisée sur les banques à travers trois niveaux d'analyse. Le premier niveau, le plus général, traite de l'influence de la confiance généralisée sur la structure organisationnelle des banques (le deuxième essai de la thèse). Le second niveau d'analyse s'intéresse au rôle que joue la confiance généralisée sur le « business model » des banques et plus précisément sur leur choix entre un financement de type relationnel ou un financement transactionnel (le premier essai de la thèse). Enfin, le troisième niveau d'analyse porte l'activité même de crédit et plus particulièrement sur l'offre et la demande de crédit. Ainsi, dans le troisième chapitre de cette thèse, nous nous interrogeons sur l'impact de la confiance généralisée sur, d'une part, la disponibilité du crédit et, d'autre part, sur le découragement des emprunteurs à demander un crédit.

Ces trois niveaux d'analyse se concrétisent par trois essais. Le premier essai examine l'effet de la confiance généralisée sur le choix par l'entreprise entre un financement relationnel ou transactionnel. Dans cet essai la confiance généralisée est mesurée un niveau de l'entreprise à travers des réponses faites à un questionnaire que nous avons administré. Nos résultats montrent que lorsque la confiance généralisée est forte, le financement relationnel est plus faible ce qui valide un phénomène de substitution entre la confiance généralisée et le financement relationnel. Par ailleurs, lorsque les entreprises ont déjà des prêts bancaires, ce lien de substitution devient plus

faible. Ce résultat s'explique par le coût induit par le financement relationnel (hold-up informationnel, temps de construction de la relation). Ainsi, lorsque cette relation n'existe pas le coût de sa création est d'autant plus ressenti comme perte que la confiance généralisée est forte. Cependant, lorsque cette relation est déjà en partie établie, le coût du financement relationnel est plus faible, rendant moins intéressant la substitution du financement relationnel par la confiance. Dans cet essai, nous nous intéressons aussi au crédit fournisseur comme proxy du rationnement du crédit. Nous observons, que la confiance généralisée à deux effets contraires sur ce type de crédit. D'une part, une forte confiance généralisée facilite les échanges entre les vendeurs et les acheteurs. Le crédit commercial s'en trouve ainsi facilité, ce qui se traduit par une utilisation plus importante de ce type de crédit. Mais d'autre part, nous savons qu'une entreprise ayant des relations privilégiées avec sa banque obtient plus facilement un crédit et cela est d'autant plus vraie que la confiance généralisée est forte. Le crédit bancaire peut être alors être plus attractif que le crédit commercial. En d'autres termes, un niveau de confiance généralisée important peut induire une diminution de l'utilisation du crédit commercial par l'entreprise. Le deuxième essai traite de l'impact de la confiance sur les banques au niveau le plus général : sur leur structure organisationnelle. Dans ce travail, nous déterminons un niveau de confiance spécifique à chaque banque en mesurant la confiance généralisée moyenne dans la zone d'activité de la banque. Les résultats empiriques montrent que lorsque les banques mènent leurs activités de crédit dans une zone où la confiance généralisée est élevée (resp. faible), elles ont une forte propension à mettre en place une structure centralisée (resp. décentralisée). Nous expliquons ce résultat par le fait que le traitement de l'information est une des activités principales des banques. Or ce traitement est facilité lorsque le niveau de confiance généralisée est important. Le troisième essai porte sur l'activité de crédit des banques et plus précisément sur l'influence de la confiance généralisée sur les deux dysfonctionnements majeurs du marché du crédit : le rationnement du crédit et le découragement de l'emprunteur à demander un crédit. Dans ce travail nous mesurons la confiance au niveau de la région où l'entreprise à son siège. Nous observons que dans les régions où la confiance généralisée est forte, d'une part, les entreprises accèdent davantage au crédit bancaire, et d'autre part, elles sont moins découragées à demander un crédit. Ces deux résultats s'expliquent, d'une part, par la diminution des effets négatifs de l'asymétrie d'information dans les zones où la confiance est forte, et d'autre part, par une conviction plus forte que les demandes de crédit seront correctement traitées dans ces zones.

Le fait d'analyser l'influence de la confiance généralisée sur les banques sur trois niveaux nous a conduit à utiliser un large éventail de sources de données. Pour le premier essai, où nous examinons le lien entre la confiance généralisée et le recours au financement relationnel dans le contexte du Vietnam, les données dans ce pays n'étant pas disponibles, nous avons dû constituer notre propre base de données en envoyant un questionnaire aux entreprises vietnamiennes en 2019-2020. Une fois l'enquête terminée, nous avons combiné ces données avec celles issues de la base ORBIS du Bureau van Dijk, du portail national vietnamien d'enregistrement des entreprises et des sites web des entreprises pour constituer l'échantillon final. Dans le deuxième essai, où nous examinons l'impact de la confiance généralisée sur la structure organisationnelle des banques nous avons utilisé les données issues des enquêtes sur l'environnement et les performances bancaires (BEPS II) pour appréhender, en autres, la structure des banques et celles issues de « Life in Transition » (LITS II) pour obtenir des mesures de la confiance généralisée. Ces deux ensembles de données proviennent de la Banque européenne pour la reconstruction et le développement (BERD). La base BEPS II n'étant pas disponibles publiquement, nous avons contacter la BERD et avons obtenu son accord pour accéder à ces données. Enfin, pour obtenir l'échantillon final, nous avons fusionné ces deux jeux de données avec celles issues de la base Bankscope du Bureau van Dijk. Dans le cas du troisième essai où nous étudions l'impact de la confiance généralisée sur le marché du crédit, nous avons aussi utilisé des données sur plusieurs pays. L'échantillon final est le résultat de la fusion de deux enquêtes : BEEPS VI de la BERD et World Values Survey (WVS). Nous pensons que la constitution de ces bases permettant d'étudier l'impact de la confiance généralisée à différents niveaux (banques, entreprises et régions) est une contribution non négligeable de notre thèse que nous comptons faire fructifier dans le futur. En particulier, nous mettons volontiers à disposition les résultats que nous avons obtenu dans l'enquête que nous avons administrée eu Viêt Nam. Nous prévoyons d'ailleurs de compléter prochainement les résultats obtenus par une seconde vague de questionnaires. Nous espérons par ce biais, contribuer, à notre échelle, au développement des questions de recherche sur le Viêt Nam.

Indépendamment de la constitution de ces bases de données, les trois essais de notre thèse mettent aussi en relief l'importance de la prise en compte de la dimension « locale » de la confiance généralisée. En effet, comme nous l'avons observé à travers tous nos résultats cette norme sociale

est très variable dans l'espace puisqu'au sein même d'un pays sa variation peut être très forte. Cette forte variabilité montre en particulier qu'une mesure trop large, par pays par exemple, pourrait conduire à négliger ou au contraire à exagérer le rôle de la confiance généralisée. Nous espérons que les différents mesures « locales » de la confiance généralisée que nous avons construites dans cette thèse pourront servir comme point de départ pour des développements futurs.

Enfin, notre second essai a mis en lumière un résultat qui nous semble intéressant sur l'impact de la confiance généralisée sur la structure organisationnelle des banques. Plus précisément nous montons que cet impact peut être totalement diffèrent suivant le secteur industriel : si Bloom et al. (2012) montre que dans le secteur industriel la confiance généralisée pousse à une structure décentralisée, nous observons l'opposé dans le secteur bancaire. Comme nous l'avons expliqué précédemment, nous pensons que ce résultat est lié au rôle primordial que joue l'information dans le secteur bancaire. Il pourrait alors être très intéressant de vérifier si cette relation entre confiance et centralisation/décentralisation se retrouve dans d'autres industries où l'information est aussi une denrée primordiale. Ainsi, comme nous le soulignons en conclusion du deuxième essai, cette relation pourrait être exploitée dans le secteur de la notation extra-financière, secteur appelé à un développement important, en raison des désordres climatiques à contenir. Comment structurer au mieux les cabinets dont la mission est de réaliser une évaluation extra-financière qui intègre un volume important d'information ? Comment limiter les coûts de cette évaluation tout en respectant la vérité de l'évaluation ? Le niveau de décentralisation des entreprises participant à cette évaluation doit-il être basé sur la confiance généralisée ? Autant de questions essentielles qui pourraient être abordées à la suite des recherches que nous avons menées.

General conclusion

This thesis examines the influence of generalized trust on the structure of banks and their activity. We focus on generalized trust because, unlike particularized trust, it is a social norm that impacts all human relationships. As a financial intermediary, the bank is at the heart of relationships between people. Therefore, its business is exposed to variations in generalized trust. At the first sight, it may seem a little surprising to talk about "variations in the level of generalized

trust", since this is a social norm that is stable over time. But while this type of trust is stable over time, it is not stable in space. In fact, there is a wide disparity in the levels of generalized trust between different countries, but also within a country itself.

In our thesis, we study the influence of generalized trust on banking at three levels of analysis. The first and most general level deals with the influence of generalized trust on the organizational structure of banks (the second essay of the thesis). The second level of analysis focuses on the role that generalized trust played in the banks' business model, and more specifically in their choice between relationship and transactional lending (the first essay of the thesis). Finally, the third level of analysis focuses on the lending activity itself, and more specifically on the supply and demand for credit. Thus, in the third essay of this thesis, we examine the impact of generalized trust on the availability of credit on one hand, and on the discouragement of borrowers from applying for credit on the other.

These three levels of analysis are embodied in three essays. The first essay examines the effect of generalized trust on the choice made by a firm between relationship or transactional lending. In this, generalized trust is measured at the firm level through the responses to a questionnaire that we administered. Our results show that when generalized trust is high, relationship lending is lower, which validates a substitution phenomenon between generalized trust and relationship lending. On the other hand, when firms already have bank loans, this substitution link becomes weaker. This result can be explained by the cost of relationship lending (informational hold-up, time required to build the relationship). Thus, when this relationship does not exist, the cost of creating it is like as a loss when there is a high level of generalized trust. However, when this relationship is already partly established, the cost of relationship lending is lower, making it less attractive to replace relationship lending with trust. In this essay, we also look at trade credit as a proxy for credit rationing. We observe that generalized trust has two opposing effects on this type of credit. On one hand, a high level of generalized trust fosters exchanges between sellers and buyers. This facilitates trade credit, which indicates greater use of this type of credit. But on the other hand, we know that a firm with a privileged relationship with its bank obtains credit more easily, and this is all the more correct when there is a high level of generalized trust. Bank credit can therefore be more attractive than trade credit. In other words, a

high level of generalized trust can lead to a reduction in the use of trade credit by the firm. The second essay deals with the impact of trust on banks at the most general level: on their organizational structure. In this study, we determine a level of trust specific to each bank by measuring the average generalized trust in the bank's area of activity. The empirical results show that when banks conduct their lending activities in an area where generalized trust is high (resp. low), they have a strong propensity to set up a centralized (resp. decentralized) structure. We explain this result by the fact that information processing is one of the main activities of banks. This processing is facilitated when the level of generalized trust is high. The third essay focuses on banks' lending activity and, more specifically, on the influence of generalized trust on the two major dysfunctions of the credit market: credit rationing and borrower discouragement from applying for credit. In this work, we measure trust at the level of the region where the firm is based. We observe that in regions where the level of generalized trust is high, businesses have greater access to bank credit and are less discouraged from applying for credit. These two results can be explained, on one hand, by a reduction in the negative effects of asymmetric information in areas where trust is high, and on the other hand, by a stronger belief that credit applications will be correctly processed in these areas.

Analyzing the influence of generalized trust on banking at three levels led us to use a wide range of data sources. For the first essay, we examine the link between generalized trust and the use of relationship lending in the Vietnamese context. Data in Vietnam was not available so we had to build our own database by sending a questionnaire to Vietnamese firms during 2019-2020. Once the survey was completed, we combined this data with data from Bureau van Dijk's ORBIS database, Vietnam's national business registration portal and company websites to form the final sample. In the second essay, we examine the impact of generalized trust on the organizational structure of banks. We used data from the Banking Environment and Performance Surveys (BEPS II) to capture, among other things, the structure of banks and data from the Life in Transition (LITS II) to obtain measures of generalized trust. Both sets of data come from the European Bank for Reconstruction and Development (EBRD). As the BEPS II database was not publicly available, we contacted the EBRD and obtained its agreement to access the data. Finally, to obtain the final sample, we merged these two datasets with those from the Bureau van Dijk's Bankscope database. In the third essay, we study the impact of generalized trust on the credit market and also used data

from several countries. The final sample is the result of merging two surveys: the BEEPS VI from the EBRD and the World Values Survey (WVS).

We believe that the creation of these databases to study the impact of generalized trust at different levels (banks, firms, regions) is a significant contribution to our thesis that we intend to build on in the future. In particular, we are happy to make available the results we obtained from the survey we administered in Vietnam. We also plan to supplement the results obtained with the second wave of the questionnaire in the near future. In this way, we hope to contribute, in our own way, to the development of research questions on Vietnam.

Besides the creation of these databases, the three essays in our thesis also highlight the importance of taking into account the "local" dimension of generalized trust. Indeed, as we have observed in all our results, this social norm is highly variable in space, since it can vary considerably even within a single country. This high degree of variability shows in particular that too broad a measure, by country for example, could lead to neglecting or, on the contrary, exaggerating the role of generalized trust. We hope that the various "local" measures of generalized trust that we have constructed in this thesis can serve as a starting point for future developments.

Finally, our second essay has brought to light a result that we find interesting on the impact of generalized trust on the organizational structure of banks. More precisely, we show that this impact can be totally different depending on the industrial sector: While Bloom et al (2012) show that in the industrial sector generalized trust leads to a decentralized structure, we observe the opposite in the banking sector. As we explained earlier, we believe that this result is linked to the primordial role played by information in the banking sector. It could then be very interesting to check whether this relationship between trust and centralization/decentralization is found in other industries where information is also a key commodity. For example, as we pointed out in the conclusion to the second essay, this relationship could be exploited in the extra-financial rating sector, a sector destined for major development, given the climatic disorders to be contained. How can we best structure firms whose mission is to carry out a non-financial assessment that incorporates a large volume of information? How can the costs of this assessment be limited while

respecting the truth of the assessment? Should the level of decentralization of firms participating in this assessment be based on widespread trust? These are all key questions that could be addressed as a result of the research we have carried out.

Trois essais sur la relation entre la confiance et la disponibilité du crédit

La thèse étudie les influences de la confiance généralisée sur les prêts relationnels, la structure organisationnelle des banques, la disponibilité du crédit et le découragement des emprunteurs. Pour ce faire, nous posons les trois questions de recherche suivantes. La première est la suivante : *"Quel est le lien entre la confiance généralisée et le prêt relationnel ?"* La deuxième est "*La confiance généralisée induit-elle une structure bancaire plus décentralisée ou plus centralisée ?"* et la dernière est *"La confiance généralisée, définie au niveau de la région dans laquelle l'entreprise opère, a-t-elle une influence, d'une part, sur la disponibilité du crédit et, d'autre part, sur le découragement de l'emprunteur* ?". Pour traiter ces trois questions, nous utilisons différents ensembles de données, à savoir notre propre enquête au Viêt Nam, les trois différentes enquêtes de la BERD (BEPS II, LITS II et BEEPS VI), la World Values Survey (WVS) Joint 2017-2020, de Bankscope et de ORBIS du Bureau van Dijk. Notre premier résultat est que la confiance généralisée et le prêt relationnel sont des substituts en ce sens qu'une forte confiance entraîne un moindre recours au prêt relationnel. Cela s'explique par le fait que les prêts relationnels sont coûteux et qu'il faut du temps pour les développer. Les entreprises peuvent estimer que le prêt relationnel est trop cher alors qu'une confiance forte permet d'atténuer les asymétries d'information. Par conséquent, elles peuvent avoir moins recours au prêt relationnel lorsque la confiance généralisée est forte. Dans le cas où les entreprises disposaient déjà de prêts bancaires, les coûts des prêts relationnels ont été payés et le lien de substitution est donc statistiquement plus faible. Le second résultat est que lorsque la zone d'opérations de la banque présente un niveau élevé (resp. faible) de confiance généralisée, elle adopte une structure organisationnelle centralisée (resp. décentralisée). Cela s'explique par le fait que lorsque la confiance généralisée est forte, l'information peut être transmise facilement entre les différents niveaux hiérarchiques de la banque. Le troisième résultat de notre thèse est double puisque nous montrons que lorsque la confiance généralisée est forte, les entreprises accèdent plus facilement au crédit bancaire et sont moins découragées à le demander. En effet, la confiance atténue les effets négatifs de l'asymétrie d'information.

Mots clés: Structure organisationnelle de la banque, Bancaire, Prêts relationnels, Confiance généralisée.

Three essays on the relationship between trust and credit availability

The thesis studies the influences of generalized trust on relationship lending, bank organizational structure, credit availability and borrower discouragement. To do so, we pose the following three research questions. The first one is *"What is a link between generalized trust and relationship lending?".* The second is "*Does generalized trust induce a more decentralized or centralized bank structure*? and the last is *"Does generalized trust, defined at the level of the region in which the firm operates, have an influence, on the one hand, on the availability of credit and, on the other hand, on borrower discouragement?".* To get the interesting findings, we use various datasets, namely our own survey in Vietnam, the three different surveys of the EBRD (BEPS II, LITS II and BEEPS VI), World Values Survey (WVS) Joint 2017-2020, Bankscope and ORBIS of the Bureau van Dijk. Our first key result is that generalized trust and relationship lending are substitutes in the sense that strong trust sees less use of relationship lending. The reason is that relationship lending has costs (i.e. time to build up). Firms might find relationship lending costly while strong trust helps mitigate information asymmetries. If firms already had bank loans, the costs of relationship lending were paid and therefore the substitute link is statistically weaker. The second finding is when the bank's area of operations has a high (resp. low) level of generalized trust, it adopts a centralized (resp. decentralized) organizational structure. This is due to when generalized trust is strong, information can be transmitted easily across hierarchical layers of the bank. The third one is that when generalized trust is strong, firms are more likely to access bank credit and less likely to be discouraged from applying for bank loans. It is because trust helps mitigate information asymmetries.

Keywords: Bank organizational structure, Banking, Relationship lending, Generalized trust.

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