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Disentangling the effect of Trust on Bank Lending

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ABSTRACT

This paper studies the effect of trust on bank lending using a sample of commercial banks in 34 countries around the world. We distinguish between two forms of trust: In-group trust, which we define as the trust in people we know, and Out-group trust, which we define as the trust in people we meet for the first time. We find that Out-group trust is positively and significantly associated with bank lending. A closer look shows that this effect only holds in countries with relatively lower levels of formal institutional and judicial development. As for In-group trust, we find that its influence on bank lending is dependent on the level of informal lending available in each country. Overall, this paper provides novel evidence on the importance of trust and the different mechanisms by which it influences bank lending around the world.

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1. Introduction

Over the last two decades, trust has evolved to become a prominent concern in various fields. However, the essential role of trust as an important driver of any economic activity has been documented decades ago (Arrow, 1972), and a rich literature exists on the role of trust in financial and economic development (Bjornskov, 2012; Gennaioli et al., 2015a) as well as macroeconomic stability (Sangnier, 2013).

Economic and social well-being are found to prosper in societies with high levels of trust (Arrow, 1972; Fukuyama, 1995). Thus, trust is widely considered an essential lubricant for any economic activity. In that respect, there is a broad literature on the role of trust in the success of different economic phenomena. The focus of this literature has been mainly on general trust and its contribution to financial development, economic growth, and prosperity (Knack and Keefer, 1997; Guiso, 2004, 2008, 2010; Bjornskov, 2012; Gennaioli et al., 2015a). The literature provides solid evidence on the positive effect of trust on economic growth (Putnam, 1993, Shleifer and Vishny, 1997; Zak and Knack, 2001) and stock market development (Guiso et al., 2008; El-Attar and Poschke, 2011; Georgarakos and Pasini, 2011).

A growing strand of literature links how changes in subjective beliefs and trust in banking affect the financial industry in general (see Guiso, 2010; Gennaioli et al., 2013, Gennaioli et al., 2015b; Thakor and Merton, 2018; Saiedi et al., 2020).

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For instance, Thakor and Merton (2018) develop a theory of trust in lending. They find that investors' trust in banking enables lenders to have secure access to financing, whereas a loss in trust makes access to financing conditional on market conditions and the lender's reputation. Guiso (2010) finds that the loss of trust in financial institutions is likely to have a very strong negative impact on investors' eagerness to bear risk and on the availability and cost of equity financing. Courbage and Nicolas (2021) argue that building trust by providing positive experiences is one of the most important management strategies that should be adopted in the insurance industry. Saiedi et al. (2020) find evidence that distrust in banks leads individuals to use alternative financing tools and to stay away from banks.

While the importance of trust is well recognized, surprisingly, apart from the aforementioned papers, little has been documented on the role of trust in bank lending relationships. In this paper, we investigate the effect of trust on bank lending.[1] Arrow (1972) states that an element of trust is observed in every commercial transaction. This is especially relevant when analyzing lending decisions. In effect, contracting a loan highly depends on the perceived repayment probability. When confronted with a loan demand, a banker faces a situation of information asymmetry involving adverse selection and moral hazard (Shapiro and Stiglitz 1984). Trust, in this sense, may influence the outcome of the loan contracting decision of the banker by reducing the uncertainty in both the borrower's reliability and the viability of the project. The literature documents an important role played by trust in reducing adverse selection and moral hazard (Nooteboom et al., 1997).

It follows that bank lending is highly dependent on trust in several different ways. Nevertheless, trust remains a behavioral aspect that has gained important attention in experimental studies. Bohnet and Zeckhauser (2004) find that individuals are much more inclined to take risks (that is, to trust) when the outcome is merely driven by chance than when the outcome depends on the trustworthiness of the other player. Hence, trust, which highly depends on the trustworthiness of the trustee, will highly differ depending on the type of trustee: a person we know or someone we have not previously met. This implies that the effect of trust on lending is much more complex than one might expect.

Consequently, we conduct our study to specifically examine the mechanisms by which trust drives or deters bank lending by focusing on two sub-components of trust: In-group trust (also dubbed private or particularized trust) and Out-group trust (also dubbed public or generalized trust). We follow Lei and Vesely (2010) and define In-group trust as the trust we have in people we know, such as friends, family, relatives, or neighbors. Consequently, we refer to trust in people we do not know (or people we meet for the first time) as Out-group trust. By doing so, we aim to disentangle the interplay between the two subcomponents of trust and bank lending.

As for Out-group trust, the trust in individuals unknown to the trusting party (the credit officer in this case), we predict a direct positive influence on bank lending. The more the population is endowed with higher levels of trust, the more confident credit officials will be in contracting loans, and hence bank lending is expected to grow at a higher pace, ceteris paribus.

For In-group trust, the impact on bank lending might be less clear. On the one hand, the relationship banking literature argues that banks can have relationships with borrowers, implying that in-group trust would positively affect bank lending (Petersen and Rajan, 1994; Petersen and Rajan, 1995; Boot, 2000; Boot and Thakor, 2000). On the other hand, since In-group trust incorporates the trust in individuals we already know, it might have no significant impact on bank lending because these are the people credit officials already know well and have less concern in terms of loan defaults. As such, we argue that In-group trust might not directly influence bank lending but might influence it indirectly depending on the level of development of informal lending in a country. Viewed as such, informal lending is defined as borrowing money from someone we know, being a friend or relative for example. One cannot overlook informal lending when studying the influence of In-group trust on bank lending. The literature documents that there is a potential substitution between bank lending and informal lending, depending on the purpose of the loan, social costs, different stages of financing, etc. (Casey and O'Toole, 2014; Lee and Persson, 2016). Moreover, individuals and businesses might prefer to rely on informal lending, especially if they distrust the formal system. But even if their trust in their family members and friends is very high, they might still prefer not borrowing from them if the formal system is sufficiently developed and/or if they are culturally less inclined to ask for family and friends' support and prefer borrowing from the bank.

Informal lending is available to a larger extent in some countries compared to others. Savings might not be sufficiently channeled by the formal system and hence more available for family members or friends when informal contracts are a common practice. In other countries, the formal system is sufficiently developed even if in-group trust is high, leaving less space for informal lending. In-group trust is more likely to impact bank lending when banks are the main lenders and informal lending less practiced. We could indeed expect a banker to more easily grant a loan to a customer when he/she is more likely to obtain support from family members or friends in case of repayment problems. Thus, we expect In-group trust to be a stronger determinant of bank lending when informal lending is relatively low in a country.

In the literature, we find some studies linking lending to trustworthiness. Duarte et al. (2012) use photographs of borrowers from a peer-to-peer lending website in their paper. They find that borrowers who appear more trustworthy in their pictures have higher chances of having their loans accepted. The authors conclude that trustworthiness highly matters in lending decisions. Cornett et al. (2018) study the effect of social capital on bank behavior in the United States. They find that higher social capital is associated with lower loan rates. Likewise, Howorth and Moro (2012) provide evidence of a negative

[1] In this paper, we focus on the effect of trust on bank lending, trust being an explanatory variable. For studies on the determinants of trust in banks (trust as a dependent variable), see Fungáčová et al. (2019).

effect of trustworthiness on interest rates charged to SMEs in Italy. Hasan et al. (2017) show that banks in U.S. counties having higher social capital levels have lower bank loan spreads. Moro and Fink (2013) show that higher levels of trust are associated with higher lending to SMEs. The particular role of trust is more pronounced for relatively smaller firms whose profiling is less developed in terms of facts and figures.

Other studies point out that the effect of trust might also depend on the regulatory and institutional environments (Gächter et al., 2004). Nguyen et al. (2006) show that the role of trust in determining bank lending to SMEs in Vietnam is much more important in countries with relatively lower institutional development and judicial efficiency. Likewise, Meng and Yin (2019) find that the effect of trust on the cost of debt is much more pronounced in countries with lower regulatory and judicial efficiency.

In a more recent paper, Levine et al. (2018) use data from 34 countries to study the effect of trust on firm resiliency to banking crises. They find that in high trust economies, firms are more resilient. They attribute this finding to the fact that bank lending is restrained during banking crises. Consequently, higher societal trust, which facilitates informal lending, makes firms suffer less compared to similar firms in economies endowed with lower societal trust.

Despite the above literature, we still know little about the mechanisms by which trust influences bank-lending growth around the world. In this paper, we make several steps to improve our understanding of how different forms of trust affect lending. First, we use a diversified world sample of banks operating in 34 countries worldwide. This provides geographic and cultural heterogeneity in our empirical analysis. Second, we take into consideration different elements of trust and disentangle their effect on lending. Our study is the first to distinguish the mechanisms by which different trust measures influence bank lending directly and indirectly. We do so by distinguishing between two forms of trust. Third, we also focus on the role of informal lending and its interplay with bank lending and trust. Fourth, we go further in our analysis by studying how the impact of trust differs according to formal institutional development. Finally, we examine the possible reasons why trust is positively associated with bank lending by conducting channel analysis. As potential channels, we explore the impact of trust on deposits, liquid assets, total assets, interest expense on deposits, and interest income on loans.

To conduct our empirical analysis, we use a sample of bank-level and country-level data from 34 countries around the world for the period extending from 2005 to 2015. We use the World Value Survey data, Waves 5 and 6, to construct our trust variables. We construct a lending model with the annual loan growth rate as the dependent variable and the mechanisms by which trust levels influence bank lending. We control for various bank-level and macroeconomic factors that might influence bank lending. Our results provide evidence of a significant positive association between Out-group trust and bank lending. Regarding the impact of In-group trust, we find that the relationship between In-group trust and bank lending is dependent on the level of informal lending available in each country. Specifically, In-group trust plays a more important role when informal lending is lower in a country and is positively associated with bank lending. However, when informal lending is already high, the positive association between In-group trust and bank lending deteriorates. We thus document that trust, depending on its form, exhibits both a direct and an indirect effect on bank lending. Our findings are robust to the inclusion of alternative aspects of ethical values and the inclusion of various country-level institutional and cultural characteristics that might influence credit decisions. The results are also robust when accounting for a battery of alternative estimation techniques.

In further investigations, we find that the significant positive association between Out-group trust and bank lending holds in countries with relatively low institutional and judicial development. Next, our channel analysis estimations document that changes in bank financing affect banks' ability to supply loans. We also find that bank lending rises together with significantly more interest revenues on loans, and less interest expenses on deposits, implying an increase in borrowers' trust.

The remainder of the paper is organized as follows. Section 2 is devoted to the presentation of the sample employed, the variables used as well as the econometric model and methodology. Section 3 discusses the main results and presents robustness checks and further investigations. Finally, Section 4 offers some concluding remarks.

2. Sample and Methodology

2.1. Sample

The data we employ in this analysis comes from different sources. Bank-level variables are extracted from the Bureau Van Dijk (BvD) BankScope Database, a global database containing information on public and private banks. Trust data is sourced from the World Value Survey waves 5 and 6. Other macroeconomic data is extracted from the World Bank. We initially extract bank-level data on banks worldwide from the Bureau Van Djik (BvD) BankScope database. Our sample consists of commercial banks operating in 34 countries around the world for the period extending from 2005 to 2015. The sample selection is based on the availability of adequate and sufficient bank-level as well as country-level data. First, we have excluded US banks from the sample. This is because, compared to other countries, the number of banks in the US is extremely high, which can bias the results towards the US in a cross-country comparison[2]. Moreover, there is a higher

[2] The initial data extraction from BankScope has resulted in 10915 banks, of which 6824 are US banks, constituting 63% of the sample.

proportion of small banks in the US that have very different business models (more relationship banking oriented) than the rest of the world, which would likely distort the findings[3]. Second, we have excluded countries that do not have available data on trust and informal lending variables[4]. Third, we have filtered the dataset to ensure that data for our main variables of interest (i.e., growth of loans, trust, and informal lending variables) are available each year for each bank, which leaves a final sample of 1075 banks[5].

2.2. Variables

This section presents the main variables employed in the analysis. Table A1 in the Appendix briefly describes the variables, their data sources, and whether they are at the bank- or country-level.

2.2.1. Dependent Variable

The main dependent variable employed is the annual growth rate of total gross loans (*GGL*) from t-1 to t, following Gambacorta and Mistrulli (2004), Berrospide and Edge (2010), and Foos et al. (2010). Total loans include mortgage loans (residential and other mortgage loans), consumer and retail loans, corporate and commercial loans, and other loans to the non-financial sector.

2.2.2. Independent variables

2.2.2.1. Trust and Informal Lending. We extract trust variables from Waves 5 and 6 of the World Value Survey. The trust variables do not exhibit time-series variation within a country; they are stable across time. There is however considerable heterogeneity in the trust variables between countries (see Table 2). Due to the high correlation of trust variables between the two waves, we use only values from Wave 6 (which is more complete) when a country is present in both. If a country is present in one of both, the only available value is used. This also allows the inclusion of a larger number of countries.

We distinguish between two forms of trust: In-group trust[6], or particularized trust, which we define as individuals' trust in people they know (INGRP_TRUST). Specifically, this variable measures the percentages of respondents who answer: "completely trust in the family, in the neighborhood, and in people you know." The other form of trust is generalized trust or Out-group trust (OUTGRP_TRUST). This form of trust measures individuals' trust in people they meet for the first time (percentage of those who respond completely trust).

To account for the level of informal lending in a country, we add to the model the variable, informal_lending, which is extracted from the Global financial indicators of the World Bank. This variable is equal to the percentage of respondents who answer "yes" when questioned whether they have previously borrowed money from a friend or relative.

2.2.2.2. Bank Specific variables. We use a set of bank-level variables to control for other aspects that might influence bank credit supply decisions. Time-varying bank-specific variables are lagged one year in order to deal with possible endogeneity issues. TCR is the total capital adequacy ratio. This ratio, as per Basel III rules, is the ratio of the sum of Tier 1 and Tier 2 capital (hybrid capital, subordinated debt, reserves for loan losses, and valuation reserves) to total risk-weighted assets and off-balance sheet items. The reason behind using regulatory capital ratios and not simple leverage non-weighted ratios is mainly because risk-weighted capital ratios better reflect a bank's solvency (Gambacorta et al., 2011). While some papers document a significant negative effect of capital ratios on lending (Berger and Udell, 1994; Gambacorta et al., 2011), others find a positive effect (Furlong, 1992; Holmstrom and Tirole, 1997; Berrospide and Edge, 2010; Brei et al., 2013; Bridges et al., 2014; Košak et al., 2015). On the one hand, an increase in capital ratios increases a bank's solvency. In other words, the higher the capital ratios, the more the bank will be willing to extend credit since capital serves as a cushion against unforeseen adverse shocks. On the other hand, since raising capital is expensive, many banks might increase their capital ratios by cutting down on their lending or shifting some of their loans from high credit risk (e.g., commercial loans) to risk-free treasuries. In this perspective, a decrease in lending is observed when studying only commercial bank loans. We control for banks' risk appetite using the ratio of non-performing loans to total loans (NPLGL) as in Fiordelisi et al. (2011) and Distinguin et al. (2013). We expect risk to negatively influence loan growth. Banks' lending desire is expected to decrease when facing a higher credit risk due to a worsened loan quality (Berrospide and Edge, 2010; Cucinelli, 2015). We proxy for liquidity using the ratio of loans to total assets (NLTA) as in Valverde and Fernandez (2007). This ratio indicates what percentage of the bank's assets are tied up in loans. The higher the ratio, the less liquid the bank will be. Less liquid banks are expected to exhibit lower loan growth rates as liquidity is considered a major constraint to credit supply. Finally, since large banks might behave differently compared to smaller banks, we control for bank size using the logarithm of total assets held by banks (log_TA).

[3] We have also conducted our estimations by including banks from the US and find that our main findings are not altered. The results are available upon request.

[4] When we exclude countries that do not have available data on trust and informal lending variables, we are left with a sample of 2091 banks.

[5] This filtration has led to decreases in the number of banks in some developed countries such as France. To check that our results are not driven by this filtering process, we have also conducted our estimations by using the broader sample of 2091 banks. Our results remain the same and are available upon request.

[6] We follow Lei and Vesely (2010) in the terminology: In-group and Out-group trust.

2.2.2.3. Macroeconomic variables and other independent variables. Controlling for country-level macroeconomic factors is essential when studying bank loan growth. Many studies have shown that macroeconomic variables explain credit growth to a very large extent (Brei et al., 2013; Gambacorta, 2005). Macroeconomic data is sourced from the World Bank databases.

To control for the macroeconomic environment, two measures accounting for the nominal GDP growth rate and the prevailing interest rate are included in the model. The GDP growth (GDP_Gr) is the annual growth rate of the domestic product in a given economy. During an economic boom, investment rises, and demand for credit is expected to increase as well (Talavera et al., 2012; Chen et al., 2010). Banks in upturns are encouraged to lend more as the demand for credit also increases. GDP growth is expected to positively influence loan growth.

To control for the interest rate and inflation in a given country and consequently the effect of the central bank's monetary policy on lending, we use the real interest rate (RIR) from the World Bank database, which is the annual nominal lending rate after accounting for the annual inflation rate. Due to the high correlation between inflation and the nominal interest rate, including these two variables would generate collinearity issues.

Moreover, bank lending might be dependent on the relative development of capital markets. Consequently, we proxy for stock market development by using the stock market capitalization to GDP ratio. Due to the high correlation of this variable with other variables, we only include in our model a dummy variable (MK_GDPdum) which is equal to one if the country exhibits stock market development to GDP higher than the sample median and zero otherwise. This dummy variable thus controls whether banks in countries with highly developed stock markets behave differently compared to countries with less developed stock markets. MK_GDPdum is expected to negatively influence bank lending as reliance on bank lending is lower in countries with more developed capital markets.

Another element that might influence bank lending is bank concentration. For this purpose, we add to our model the variable BANK_CONC, which is the ratio of the total assets of the five largest banks to total country banking assets expressed in percentage. Higher concentration implies lower competitiveness, which might push banks to increase their lending rates, leading to lower demand for bank credit (Beck et al., 2004). Thus, bank concentration is expected to have a negative effect on lending.

Finally, we add a dummy variable accounting for mergers and acquisitions (M&A) to the model. M&As are usually associated with an external peak in credit growth. We aim to control for any spurious loan growth that might be simply reflecting a larger loan portfolio originating from an acquisition. As in Roulet (2018), we use a dummy variable to account for M&As (dum_GTA) and deal with the important noise that such effects might bring to the regression. This variable takes the value of 1 for an asset growth higher than 35% and zero otherwise.

2.3. Empirical Model

The econometric model we aim to estimate is the following:

$$\mathrm{GGL}_{ijt} = \alpha_0 + \beta_1\ \mathrm{TRUST}_{jt} + \beta_2\ \mathrm{informal\_lending}_{jt} + \beta_3\ \mathrm{Bank}_{ijt} + \beta_4\ \mathrm{Macro}_{jt} + \mathrm{Date}_{t} + \varepsilon \quad (1)$$

Where GGL_{ijt} is the growth rate of bank loans of bank i in country j at year t. TRUST_{jt} denotes the World Values Survey Trust indicators for country j at year t. Due to the high correlation between the two sub-components of trust, we only include one trust variable per regression, hence TRUST_{jt} represents either Out-Group or In-Group trust. Informal_lending is a measure of the importance of informal credit in country j at year t. We include a set of bank characteristics $Bank_{ijt}$ which includes measures of capital ratio, size, risk, and liquidity. $Macro_{jt}$ is a vector of macroeconomic variables controlling for GDP growth, the real interest rate, bank concentration, and stock market capitalization. This vector also includes a dummy variable accounting for a sharp increase in total assets capturing mergers and acquisitions.

We also focus on unraveling how informal lending can affect the impact of trust on bank loan growth. For this purpose, we add to Model (1) an interaction term between Trust and Informal lending as follows:

$$\mathrm{GGL}_{ijt} = \alpha_0 + \beta_1\ \mathrm{TRUST}_{jt} + \beta_2\ \mathrm{informal\_lending}_{jt} + \beta_3\ \mathrm{TRUST}_{jt}{*}\mathrm{informal\_lending} + \beta_4\ \mathrm{Bank}_{ijt} + \beta_5\ \mathrm{Macro}_{jt} + \mathrm{Date}_{t} + \varepsilon \quad (2)$$

2.4. Estimation Methodology

In our econometric approach, we employ a static panel regression model. This is in accordance with previous studies (e.g., Kanagaretnam et al., 2004, 2014) utilizing static specifications. We use the Woolridge test (Woolridge, 2002) to validate that for the case of our data, using a static model is appropriate. The null hypothesis under which there is no first-order autocorrelation cannot be rejected. Hence, there is no serial correlation in the idiosyncratic error term, which confirms the appropriateness of using the static regression model on our data. We believe that we capture a fair amount of heterogeneity across banks, countries, and time across the panel by using a set of bank-level and country-level variables as well as year dummies, respectively, thus minimizing any bias in the parameters. In addition, we correct for heteroskedasticity and serial dependence in our data by using robust standard errors clustered at the bank level (Petersen, 2009). Considering the panel nature of our sample as well as the absence of the time dimension in the main independent variables of interest, we use the random effects estimator to estimate our model, which is validated by using the Breusch and Pagan Lagrange-multiplier

Table 1
Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GGL	5087	13.64	21.09	-43.71	214.05
Informal_lending	5087	18.82	13.58	3.28	71.19
INGRP_TRUST	5087	39.24	8.40	29.36	67.63
OUTGRP_TRUST	5087	2.788	3.32	0.33	20.73
TCR	4857	15.25	6.45	8.32	62.36
log_TA	5066	15.76	1.60	10.34	18.59
NPLGL	4874	4.306	4.53	0	32.9
NLTA	5087	58.43	17.05	0.42	98.93
GDPgr	5087	3.610	3.88	-7.79	15.24
MK_GDP	5087	69.26	46.07	0.87	299.57
RIR	5087	3.377	3.21	-9.04	22.32
BANK_CONC	5087	63.89	13.58	39.37	99.46
dum_GTA	5087	0.087	0.28	0	1

This table displays the descriptive statistics for the whole sample for the period 2005-2015. GGL is the annual growth rate of gross loans. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. log_TA is the log of total banking assets. NPLGL is the first lag of the ratio of non-performing loans to gross loans. NLTA is the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is the stock market development to GDP ratio. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%) assets. All the ratios are expressed in percentages.

test[7]. Random effects estimation assumes that the variation across banks is random and uncorrelated with the independent variables and that there are significant differences across countries, making the use of Random Effects more appropriate. We cluster standard errors at the bank level to properly account for the correlations of errors at the bank level, which might be missing in a random-effects model (Green, 2008; Bell and Jones, 2015)[8]. Moreover, we use the growth rates for the dependent variable, bank lending, and not level values. We also use the first lag of all bank-specific variables in order to deal with possible endogeneity issues.

3. Results

3.1. Descriptive statistics

Table 1 presents the descriptive statistics of the full sample. Table 2 displays variable means by country. The highest number of banks in our sample are from Japan (167), China (154), and Indonesia (97). The average size of banks seems to be quite similar across countries. The sample average of loan growth is 13.8%, with the lowest rate observed in Japan (3.5%). The highest level of In-group trust is recorded in Egypt (67.6%), while France records the highest level of Out-group trust (20.7%). It is also worth noting that Japan records the lowest levels of trust for both indicators: 29.34% for In-group trust and 0.33% for Out-group trust. As such, Japanese individuals appear to be the least trusting among all respondents on the basis of both trust measures.

Table 3 displays the correlation matrix. No major correlation exists between independent variables, which implies that our regression does not suffer from possible multicollinearity issues. We also perform the variance inflation factor (VIF) to further confirm this. We obtain a mean VIF equal to 1.3 (considerably lower than 10), which further alleviates multicollinearity issues.

3.2. Baseline regression results

The results of the baseline regressions are presented in Table 4. Due to the high correlation between the two sub-components of trust, we initially include one trust variable per regression. Column 1 displays the findings using Equation (1) when we include only In-Group trust, and Column 2 shows when we include only Out-Group trust, respectively. Column 3 includes both trust variables simultaneously to consider that excluding one of them might result in an omitted

[7] We reject the null (under which the variance of the unobserved fixed effects is null) and thus conclude that the random effects estimator is more appropriate; significant differences across countries exist which makes the use of Random Effects more appropriate.

[8] Considering that clustering at the bank level might underestimate the standard errors of country-level variables (Levine et al., 2018; Kanagaretnam et al., 2019), as a robustness check, we also perform our estimations by clustering the standard errors at the country level. We find that our baseline findings continue to hold, and they are available upon request.

Table 2
Main Descriptive statistics by country

Country	Number of Banks	Log_TA	GGL	INGRP_TRUST	OUTGRP_TRUST	Informal_lending
ARGENTINA	7	15.47	25.29	49.25	7.93	6.77
ARMENIA	12	12.18	38.75	43.53	1	30.43
BULGARIA	17	14.26	21.54	45.16	3.3	21.08
CANADA	31	14.60	10.87	50.1	3.36	16.32
CHILE	20	15.84	16.92	38.48	3.51	8.53
CHINA	154	16.13	20.70	41.6	1.06	24.95
COLOMBIA	13	15.57	22.37	34.2	2.26	17.38
CYPRUS	11	15.86	16.66	42.6	2	14.58
EGYPT	22	15.54	12.28	67.63	3.46	24.00
FRANCE	14	16.28	4.62	61.26	20.73	5.29
GERMANY	36	14.74	4.53	37.51	2.2	8.99
HUNGARY	11	16.09	6.16	48	10.03	11.10
INDIA	58	16.05	20.23	50.66	8.83	23.98
INDONESIA	97	14.42	24.52	38.26	1.46	41.97
ITALY	83	15.21	10.53	34.63	0.73	8.87
JAPAN	167	16.90	3.50	29.36	0.33	5.38
JORDAN	10	14.94	8.39	54.03	3.85	23.17
LEBANON	27	14.88	20.64	36	8.83	12.24
MALAYSIA	23	15.94	14.54	38.38	1.43	26.49
NETHERLANDS	14	16.39	15.24	33.9	1.4	8.97
PERU	6	15.85	23.26	31.13	1.13	13.13
PHILIPPINES	32	15.19	17.32	41.13	3.4	42.58
POLAND	31	15.80	13.02	29.5	1.18	13.05
ROMANIA	16	14.99	20.103	31.46	1.63	22.32
SINGAPORE	9	15.95	19.15	43.5	4.63	12.72
SLOVENIA	15	14.95	7.15	39.85	2.33	14.02
SOUTH AFRICA	14	15.07	14.10	41.56	9.7	46.10
SPAIN	18	16.62	7.83	51.7	4.91	15.07
SWITZERLAND	41	14.27	6.36	44.76	3.76	11.14
THAILAND	20	16.23	12.21	42.9	3.88	16.5
U.K	22	16.06	16.18	52.26	6.76	13.49
VIETNAM	15	15.41	23.79	42.9	0.9	30.64
ZAMBIA	4	12.77	26.42	30.76	4.33	46.04
Total Sample	**1075**	**15.76**	**13.76**	**39.26**	**2.76**	**19.19**

This table displays the averages of main variables by country for the period 2005-2015. The first two columns show the number of banks in each country and their average size (log_TA). GGL is the annual loan growth rate. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time.

variable issue and might make the estimation of the remaining trust variable biased. Columns 4-6 use Equation (2) and add interaction terms between In-Group and Out-Group Trust and Informal lending variables. In the rest of the paper, we use Models 2 and 4 as our baseline models when we perform additional analysis on the impact of Out-group and In-group trust on bank lending, respectively. Nevertheless, our findings for the rest of the paper continue to hold when we choose Model 6 (which includes all In-Group, Out-Group Trust, and Informal lending variables in the same regression) as the baseline model. The results show a significant positive link between Out-group trust and bank loan growth. Bank managers in countries where generalized trust is higher might be willing to provide a higher number of bank loans because they suspect that agents in such countries are more likely to honor their fiduciary obligations and to follow social norms of behavior, which makes them more trustworthy. Hence, we observe the positive effect of Out-group trust on bank lending. Moreover, higher societal trust reduces the cost of obtaining information and increases the quality of available information, which gives bank managers more visibility of their debtors. Hence, by enhancing loan repayment probability and reducing selection bias, Out-group trust boosts bank lending. As for In-group trust, we find that it is positively associated with bank lending when informal lending is not important. Still, this positive association weakens when informal lending is more important. This is portrayed by the significant negative sign of the interaction term between In-group trust and informal lending. This finding is consistent with our hypothesis that the influence of In-group trust on bank lending is dependent on the level of informal lending available. Higher In-group trust is positively associated with bank lending when informal lending is low since, in this case, bank lending would be the main borrowing instrument, and In-group trust plays a more important role. When the level of informal lending in a country is already high, the positive association between In-group trust and bank lending might weaken because informal lending is available to a large extent. Hence, informal lending mitigates the relationship between In-group trust and bank lending. However, as observed in Column 5, informal lending does not affect the relationship between Out-group trust and bank lending.

As a further investigation, instead of adding interaction terms between In-group and Out-group Trust and Informal lending, we investigate the impact of both In-group and Out-group trust on informal lending as a first stage analysis. The findings

Table 3
Correlation matrix

	GGL	TCR	INGRP_TRUST	OUTGRP_TRUST	log_TA	NPLGL	NLTA	GDPgr	MK_GDP	RIR	BANK_CONC	Dum_GTA	Informal lending
GGL	1												
TCR	0.0791	1											
INGRP_TRUST	0.1328	0.1697	1										
OUTGRP_TRUST	0.0639	0.0684	0.6556	1									
log_TA	-0.1701	-0.4181	-0.1718	-0.0686	1								
NPLGL	-0.2401	0.0029	0.0267	0.1242	-0.1126	1							
NLTA	-0.0831	-0.2339	-0.1647	-0.0797	0.0143	-0.0089	1						
GDPgr	0.3073	0.0538	0.316	0.1703	-0.0845	-0.2255	-0.2398	1					
MK_GDPdum	0.0178	0.1013	0.1786	0.1806	-0.1239	-0.1069	0.0189	0.102	1				
RIR	0.0128	0.0571	-0.0131	0.134	-0.0957	0.1244	0.0622	-0.0971	-0.0854	1			
BANK_CONC	-0.0501	0.1668	0.1798	0.0483	-0.1887	0.1	0.0476	-0.213	0.4612	-0.0379	1		
dum_GTA	0.5119	0.105	0.0695	-0.0223	-0.1437	-0.1111	-0.1211	0.1761	0.0044	-0.002	0.0025	1	
Informal_lending	0.0839	0.078	0.3575	0.1179	-0.0038	-0.0011	-0.068	0.2643	0.0083	0.0622	0.096	0.063	1

This table displays pairwise correlation coefficients for all variables. GGL is the annual growth rate of gross loans. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. log_TA is the log of total banking assets. NPLGL is the ratio of non-performing loans to gross loans. NLTA is the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages.

Table 4
Trust and Bank lending: OLS Main Regression

	(1) GGL	(2) GGL	(3) GGL	(4) GGL	(5) GGL	(6) GGL
informal_lending	-0.0146	-0.0165	-0.007	0.748***	-0.0121	0.663***
	(-0.43)	(-0.49)	(-0.21)	(3.44)	(-0.23)	(3.00)
INGRP_TRUST	0.00626		-0.107	0.304***		0.180*
	(0.14)		(-1.50)	(3.22)		(1.68)
OUTGRP_TRUST		0.261**	0.421**		0.278*	0.330**
		(2.41)	(2.51)		(1.68)	(2.13)
INGRP_TRUST*informal_lending				-0.0191***		-0.0168***
				(-3.58)		(-3.10)
OUTGRP_TRUST*informal_lending					-0.00103	
					(-0.14)	
L.TCR	0.226**	0.224**	0.225***	0.218**	0.224**	0.218**
	(2.48)	(2.46)	(4.59)	(2.38)	(2.44)	(2.38)
L.log_TA	-1.448***	-1.451***	-1.457***	-1.338***	-1.448***	-1.358***
	(-5.21)	(-5.24)	(-5.49)	(-4.80)	(-5.22)	(-4.88)
L.NPLGL	-0.624***	-0.637***	-0.643***	-0.619***	-0.637***	-0.635***
	(-6.41)	(-6.53)	(-9.85)	(-6.35)	(-6.53)	(-6.49)
L.NLTA	-0.262***	-0.259***	-0.261***	-0.262***	-0.259***	-0.261***
	(-8.18)	(-8.12)	(-12.26)	(-8.19)	(-8.11)	(-8.17)
GDPgr	0.774***	0.758***	0.778***	0.746***	0.755***	0.753***
	(7.04)	(6.98)	(7.62)	(6.78)	(6.75)	(6.82)
MK_GDPdum	-2.718**	-2.964**	-3.017**	-2.591*	-2.950**	-2.840**
	(-1.96)	(-2.11)	(-2.55)	(-1.88)	(-2.07)	(-2.02)
RIR	-0.00913	-0.0248	-0.0337	-0.0381	-0.0257	-0.0540
	(-0.10)	(-0.26)	(-0.38)	(-0.40)	(-0.27)	(-0.57)
BANK_CONC	-0.0369	-0.0358	-0.0278	-0.0595	-0.0358	-0.0496
	(-1.06)	(-1.04)	(-0.86)	(-1.64)	(-1.04)	(-1.36)
dum_GTA	29.32***	29.41***	29.43***	29.27***	29.41***	29.35***
	(15.47)	(15.52)	(33.21)	(15.41)	(15.49)	(15.45)
Constant	48.76***	48.29***	51.55***	37.40***	48.19***	40.97***
	(7.25)	(7.47)	(8.61)	(5.25)	(7.50)	(5.63)
Observations	5087	5087	5087	5087	5087	5087
Banks	1075	1075	1075	1075	1075	1075
R^2	0.287	0.287	0.287	0.288	0.287	0.288

This table displays the main regression results using OLS with the random effects estimators. GGL is the annual growth rate of gross loans and is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

are presented in Table A2 in the Appendix, showing that In-group trust is positively and significantly associated with informal lending in a country after the level of Out-group is controlled for. In addition, we observe that Out-group trust has a weak or negative impact on informal lending. This supports our hypothesis that In-group trust's influence on bank lending depends on the level of informal lending available.

Concerning bank-level variables in Table 4, we find that larger and riskier banks exhibit lower loan growth while more liquid and more capitalized banks exhibit higher loan growth, consistent with existing literature. Bank concentration, on the contrary, doesn't seem to impact bank lending. Among macroeconomic variables, we find a positive and significant link between GDP growth and bank lending, which is expected since bank lending flourishes during upturns. The coefficient of the proxy of stock market development, on the contrary, is significantly negative, consistent with the fact that countries with less developed stock markets are more reliant on bank lending.

3.3. Robustness Checks

In this section, we perform various robustness checks. First, we conduct marginal analysis to shed light on the exact impact of trust on formal bank lending at different values of informal lending. We display the results in Table 5. Results show that the negative link between In-Group trust and bank lending becomes more pronounced as informal lending increases. For the highest percentile of informal lending, In-group trust has the strongest negative link with bank lending, as shown by the value of the regression coefficient, which continuously declines across the different percentiles from -0.173 to -0.651, -1.127, and -1.413.

Table 5
Trust and Bank lending at different levels of informal lending development

	INGRP_TRUST	OUTGRP_TRUST
25th percentile	-0.173**	0.252**
	(0.067)	(0.121)
50th percentile	-0.651***	0.226
	(0.189)	(0.254)
75th percentile	-1.127***	0.201
	(0.320)	(0.422)
90th percentile	-1.414***	0.185
	(0.400)	(0.525)

INGRP_TRUST is the trust in people we know. OUTGRP_TRUST is the trust in people we meet for the first time. Both measures are the percentage of the population who respond "completely trust." Standard errors are reported in parentheses below the coefficient estimates. * is the statistical significance at the 10% level, ** is the statistical significance at the 5% level, and *** is the statistical significance at the 1% level.

To ensure that our results are robust to the inclusion of other aspects of ethical values and well-being that might influence credit decisions, we add to our model the following three variables: the general levels of satisfaction (SATISFAC), altruism (ALTRUISM), and happiness (HAPPY). These three variables are extracted from the World Value Survey. Results are displayed in Table 6. Among the three traits of character considered, altruism seems to significantly boost loan supply. More importantly, our findings show that controlling for these behavioral measures does not alter our main results, which further confirms the robustness of our findings.

Differences in country-level institutional and cultural characteristics also affect bank behaviors, and many of these characteristics are correlated with trust (Zheng et al., 2013; Levine et al., 2018; Kanagaretnam et al., 2019). Specifically, Levine et al. (2018) suggest that the differences in the formal legal system protection and the institutional development between countries could affect the ability to draw inferences from social trust. Moreover, previous research documents that culture influences bank risk-taking and financial transparency (Kanagaretnam et al., 2019). Zheng et al. (2013) document that firms located in collectivist countries experience a higher level of corruption in bank lending than firms in individualist countries. This implies that culture influences corruption in bank lending. We conduct additional robustness checks to check that our results are robust to the inclusion of country-level institutional and cultural characteristics. Specifically, we extract data from World Bank Governance Indicators on political stability (PS), control of corruption (CC), government effectiveness (GE), the rule of law (RL), and regulatory quality (RQ). Furthermore, we gather data on the Creditor rights index (CR) from Djankov et al. (2007) and data on Hofstede's cultural dimensions, such as individualism (IND) and power distance (PD) (Hofstede, 2001; Hofstede et al., 2010). We perform our baseline estimations by additionally controlling for these country-level institutional and cultural characteristics, adding them one at a time in our regressions since they are highly correlated. The findings are presented in Tables 7 and 8. Table 7 shows the relationship between Out-group trust and bank lending. Table 8 shows how informal lending mitigates the relationship between In-group trust and bank lending after controlling for these institutional and cultural variables. We find that our baseline findings continue to hold under these specifications.

Since the sample observations are not evenly distributed across countries, another concern in the analysis is the disproportionately large number of banks from some countries in the sample. To account for this, the observations are weighted by the inverse of the total number of banks in a country, which is known as weighted least squares analysis. We conduct this alternative estimation regression method and find that our findings continue to hold. The findings are displayed in Appendix Table A3.

3.4. Further Investigations

In this section, we go further in our analysis by studying how the impact of trust on bank lending differs according to formal institutional development. Next, we perform channel analysis to examine the possible reasons why trust might be positively associated with bank lending.

Nguyen et al. (2006) show that the role of trust in determining bank lending is much more important in countries with relatively lower institutional development and judicial efficiency. We thus study whether the relationship between trust and loan growth is conditional on the level of formal institutional development. This can be excepted since bank managers in countries with lower institutional development might rely more on trust when deciding to provide a loan. Hence, Out-group trust is expected to boost lending more in countries with lower institutional development compared to countries that already have effective institutions. To test this empirically, we split our sample into two sub-samples: above and below the median value of an index measuring institutional development following Alraheb et al. (2019)[9]. Results are

[9] The index is based on principal component analysis of different measures of formal institutional indicators. It is the first principal factor of the following indicators: political stability, corruption, regulatory quality, voice and accountability, creditors' rights, and economic freedom. For further insights on this indicator please see Alraheb et al (2019).

Table 6
Controlling for traits of character

	(1) GGL	(2) GGL	(3) GGL	(4) GGL
informal_lending	-0.0924**	-0.0909**	1.028***	-0.0852
	(-2.13)	(-2.05)	(3.21)	(-1.17)
INGRP_TRUST	-0.111		0.275**	
	(-1.46)		(2.22)	
OUTGRP_TRUST		0.273*		0.290
		(1.37)		(1.23)
INGRP_TRUST*informal_lending			-0.0275***	
			(-3.63)	
OUTGRP_TRUST*informal_lending				-0.00129
				(-0.14)
SATISFAC	-8.163	-4.851	-20.31**	-5.121
	(-0.89)	(-0.54)	(-2.03)	(-0.56)
ALTRUISM	19.03***	9.498	16.65**	9.651
	(2.82)	(1.16)	(2.46)	(1.19)
HAPPY	-3.873	1.357	-3.756	1.397
	(-0.47)	(0.18)	(-0.46)	(0.18)
L.TCR	0.343***	0.338***	0.335***	0.337***
	(3.11)	(3.07)	(3.03)	(3.04)
L.log_TA	-1.229***	-1.330***	-1.067***	-1.326***
	(-3.64)	(-3.92)	(-3.21)	(-3.94)
L.NPLGL	-0.540***	-0.540***	-0.524***	-0.541***
	(-4.78)	(-4.81)	(-4.59)	(-4.81)
L.NLTA	-0.301***	-0.294***	-0.294***	-0.294***
	(-7.65)	(-7.51)	(-7.48)	(-7.51)
GDPgr	0.836***	0.817***	0.768***	0.813***
	(7.02)	(6.92)	(6.38)	(6.31)
MK_GDPdum	-2.060	-2.352	-1.742	-2.339
	(-1.26)	(-1.44)	(-1.07)	(-1.41)
RIR	-0.0871	-0.108	-0.0957	-0.108
	(-0.92)	(-1.13)	(-1.02)	(-1.13)
BANK_CONC	0.0293	0.00175	0.0234	0.00253
	(0.56)	(0.03)	(0.45)	(0.05)
dum_GTA	28.07***	28.06***	27.99***	28.06***
	(14.26)	(14.25)	(14.20)	(14.23)
Constant	53.84***	47.15***	44.95***	47.12***
	(5.71)	(5.93)	(4.87)	(5.96)
Observations	4077	4077	4077	4077
Banks	870	870	870	870
r^2	0.306	0.306	0.306	0.306

This table displays the regression results when individual traits of character are included as covariates. GGL, the annual growth rate of gross loans, is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. SATISFAC is a measure of life satisfaction. ALTRUISM is a proxy for the level of participation in the associative activity. HAPPY proxies for the level of self-reported happiness of individuals. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. Both measures are the percentage of the population who respond "completely trust." L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

presented in Table 9. Columns (1) and (2) show results for the sample of banks operating in countries with high institutional development, while columns (3) and (4) display results for banks in countries with relatively lower levels of institutional development. Findings show that Out-group trust is highly significant in explaining bank loan growth (at the 1% confidence level) but only for banks in countries with low institutional development. We do not find any significance for the sub-sample of banks operating in countries with high institutional development. This confirms the findings of Nguyen et al. (2006), whereby the importance of the effect of trust on bank lending is much more pronounced in countries where institutions are relatively developed. It follows that reliance on trust when making lending decisions in economies where institutions are deficient is usually higher.

We next investigate the possible reasons why trust is positively associated with bank lending by conducting channel analysis. Specifically, we aim to understand whether it is more the borrower's trust in the bank that affects whether a loan is made (demand side) or the bank loan officer's trust in the borrower (supply side). In our channel analysis estimations, we focus only on Out-group trust as an explanatory variable because of its direct positive impact on bank lending. As potential

Table 7
Out-group Trust and Bank Lending: Controlling for country-level institutional and cultural characteristics

	(1) GGL	(2) GGL	(3) GGL	(4) GGL	(5) GGL	(6) GGL	(7) GGL	(8) GGL
informal_lending	-0.0159	-0.0117	-0.0656	-0.0506	0.0226	-0.0117	-0.0202	-0.00152
	(-0.41)	(-0.25)	(-1.60)	(-1.14)	(0.52)	(-0.35)	(-0.55)	(-0.04)
OUTGRP_TRUST	0.262**	0.262**	0.241**	0.273**	0.281**	0.271**	0.284**	0.284***
	(2.25)	(2.41)	(2.27)	(2.52)	(2.55)	(2.44)	(2.29)	(2.63)
L.TCR	0.224**	0.224**	0.226**	0.225**	0.222**	0.214**	0.199**	0.200**
	(2.46)	(2.46)	(2.50)	(2.47)	(2.43)	(2.35)	(2.14)	(2.15)
L.log_TA	-1.451***	-1.457***	-1.326***	-1.404***	-1.481***	-1.482***	-1.471***	-1.461***
	(-5.24)	(-5.19)	(-4.74)	(-5.07)	(-5.29)	(-5.30)	(-5.09)	(-5.07)
L.NPLGL	-0.637***	-0.634***	-0.665***	-0.651***	-0.622***	-0.664***	-0.648***	-0.639***
	(-6.52)	(-6.28)	(-6.64)	(-6.53)	(-6.29)	(-6.63)	(-6.36)	(-6.25)
L.NLTA	-0.259***	-0.259***	-0.252***	-0.253***	-0.267***	-0.263***	-0.255***	-0.260***
	(-7.73)	(-7.93)	(-7.74)	(-7.59)	(-7.91)	(-8.01)	(-7.78)	(-7.63)
GDPgr	0.759***	0.764***	0.694***	0.707***	0.830***	0.722***	0.757***	0.801***
	(6.52)	(6.75)	(6.16)	(6.11)	(7.05)	(6.60)	(6.96)	(7.20)
MK_GDPdum	-2.972**	-3.016**	-2.150	-2.590*	-3.369**	-2.759*	-2.756*	-2.724*
	(-2.09)	(-2.13)	(-1.51)	(-1.84)	(-2.41)	(-1.93)	(-1.94)	(-1.91)
RIR	-0.0251	-0.0236	-0.0545	-0.0353	-0.0319	-0.0350	-0.0613	-0.0536
	(-0.27)	(-0.25)	(-0.56)	(-0.37)	(-0.34)	(-0.37)	(-0.63)	(-0.55)
BANK_CONC	-0.0362	-0.0382	-0.0109	-0.0204	-0.0633	-0.0433	-0.0459	-0.0598
	(-1.05)	(-1.05)	(-0.31)	(-0.58)	(-1.62)	(-1.22)	(-1.26)	(-1.58)
dum_GTA	29.41***	29.41***	29.36***	29.38***	29.46***	29.28***	29.04***	29.05***
	(15.53)	(15.55)	(15.50)	(15.52)	(15.58)	(15.21)	(14.78)	(14.79)
PS	0.0238							
	(0.03)							
CC		0.134						
		(0.18)						
GE			-1.987**					
			(-2.35)					
RL				-1.130				
				(-1.34)				
RQ					1.625			
					(1.53)			
CR						-0.683		
						(-1.15)		
IND							0.00241	
							(0.09)	
PD								-0.0431
								(-1.11)
Constant	48.32***	48.41***	46.89***	47.61***	48.98***	51.16***	49.52***	52.83***
	(7.46)	(7.42)	(7.28)	(7.37)	(7.48)	(7.57)	(7.43)	(7.04)
Observations	5087	5087	5087	5087	5087	5048	5009	5009
Banks	1075	1075	1075	1075	1075	1065	1050	1050
r2	0.287	0.287	0.286	0.286	0.288	0.283	0.280	0.280

This table displays the regression results of the relationship between Out-group trust and bank lending after controlling for additional country-level institutional and cultural characteristics. GGL, the annual growth rate of gross loans, is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). PS is the Political Stability and Absence of Violence/Terrorism index. CC is the Control of Corruption index. GE is the Government Effectiveness index. RL is the Rule of Law index. RQ is the Regulatory Quality index. CR is the Creditor rights index. IND and PD stand for Hofstede's cultural indices on individualism and power distance, respectively. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

channels, we explore the impact of trust on deposits, liquid assets, total assets, interest expense on deposits, and interest income on loans. We use Equations 1 and 2, except that the dependent variables now are the channel variables. The rest of the explanatory variables are as in Equations 1 and 2. Table 10 presents our findings. First, since deposits are the most important funding source for banks, we consider the impact on deposits. DEPTA, the share of deposits in total assets, and DEPOSITS GRW, the annual growth rate of deposits, are used as dependent variables in columns 1and 2. We find a significant positive link between Out-group trust and bank deposits. This indicates that changes to bank financing affect banks' ability to supply loans, i.e., an increase in deposits helps to explain the positive association between trust and bank lending. Next, we consider the impact on other components of the balance sheet, such as liquidity and total assets in columns 3 and 4. We find that higher trust is associated with less liquid assets and an increase in total assets. Thus, higher deposits, the

Table 8
In-group Trust and Bank Lending: Controlling for country-level institutional and cultural characteristics

	(1) GGL	(2) GGL	(3) GGL	(4) GGL	(5) GGL	(6) GGL	(7) GGL	(8) GGL
informal_lending	0.737***	0.777***	0.662***	0.698***	0.805***	0.726***	0.825***	0.856***
	(3.35)	(3.34)	(3.03)	(3.05)	(3.61)	(3.30)	(3.55)	(3.65)
INGRP_TRUST	0.294***	0.315***	0.259***	0.289***	0.340***	0.287***	0.316***	0.343***
	(2.91)	(3.13)	(2.69)	(2.96)	(3.39)	(2.98)	(3.29)	(3.47)
INGRP_TRUST* informal_lending	-0.0189***	-0.0195***	-0.0181***	-0.0183***	-0.0195***	-0.0184***	-0.0207***	-0.0211***
	(-3.54)	(-3.55)	(-3.42)	(-3.37)	(-3.62)	(-3.40)	(-3.69)	(-3.77)
L.TCR	0.218**	0.218**	0.221**	0.219**	0.216**	0.209**	0.193**	0.192**
	(2.38)	(2.37)	(2.43)	(2.39)	(2.34)	(2.27)	(2.06)	(2.05)
L.log_TA	-1.334***	-1.354***	-1.220***	-1.314***	-1.366***	-1.373***	-1.335***	-1.329***
	(-4.80)	(-4.80)	(-4.34)	(-4.71)	(-4.85)	(-4.88)	(-4.59)	(-4.57)
L.NPLGL	-0.621***	-0.611***	-0.648***	-0.627***	-0.603***	-0.645***	-0.630***	-0.613***
	(-6.37)	(-6.05)	(-6.45)	(-6.31)	(-6.08)	(-6.45)	(-6.16)	(-6.00)
L.NLTA	-0.260***	-0.263***	-0.256***	-0.258***	-0.270***	-0.265***	-0.261***	-0.266***
	(-7.76)	(-8.05)	(-7.85)	(-7.76)	(-8.00)	(-8.03)	(-7.92)	(-7.78)
GDPgr	0.737***	0.760***	0.690***	0.719***	0.815***	0.716***	0.793***	0.810***
	(6.36)	(6.71)	(6.12)	(6.23)	(6.94)	(6.47)	(7.29)	(7.31)
MK_GDPdum	-2.517*	-2.738**	-1.773	-2.362*	-3.030**	-2.404*	-2.425*	-2.335*
	(-1.81)	(-1.96)	(-1.26)	(-1.70)	(-2.19)	(-1.71)	(-1.74)	(-1.67)
RIR	-0.0374	-0.0352	-0.0672	-0.0427	-0.0453	-0.0449	-0.0725	-0.0644
	(-0.40)	(-0.37)	(-0.69)	(-0.45)	(-0.48)	(-0.47)	(-0.75)	(-0.66)
BANK_CONC	-0.0558	-0.0667*	-0.0311	-0.0491	-0.0914**	-0.0653*	-0.0779**	-0.0924**
	(-1.51)	(-1.71)	(-0.83)	(-1.30)	(-2.17)	(-1.75)	(-2.07)	(-2.30)
dum_GTA	29.27***	29.28***	29.22***	29.25***	29.32***	29.14***	28.90***	28.89***
	(15.41)	(15.46)	(15.39)	(15.42)	(15.48)	(15.11)	(14.67)	(14.68)
PS	-0.233							
	(-0.30)							
CC		0.377						
		(0.49)						
GE			-1.991**					
			(-2.23)					
RL				-0.675				
				(-0.79)				
RQ					1.740			
					(1.53)			
CR						-0.528		
						(-0.89)		
IND							0.0310	
							(1.29)	
PD								-0.0645
								(-1.63)
_cons	37.57***	37.35***	37.57***	37.60***	36.93***	40.53***	36.86***	42.04***
	(5.24)	(5.22)	(5.33)	(5.29)	(5.15)	(5.36)	(5.01)	(5.44)
Observations	5087	5087	5087	5087	5087	5048	5009	5009
Banks	1075	1075	1075	1075	1075	1065	1050	1050
r2	0.288	0.289	0.287	0.288	0.290	0.284	0.281	0.282

This table displays the regression results of the relationship between In-group trust and bank lending after controlling for additional country-level institutional and cultural characteristics. GGL, the annual growth rate of gross loans, is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). PS is the Political Stability and Absence of Violence/Terrorism index. CC is the Control of Corruption index. GE is the Government Effectiveness index. RL is the Rule of Law index. RQ is the Regulatory Quality index. CR is the Creditor rights index. IND and PD stand for Hofstede's cultural indices on individualism and power distance, respectively. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

subsequent increase in the balance sheet size, and lower liquidity might lead banks in countries with higher levels of Out-group trust to increase lending. We also consider the impact on the pricing behavior and investigate the impact of trust on interest expense on deposits and interest income on loans. We find that as levels of trust in a country increase, interest expense on deposits tends to decrease, while interest income on loans seems to increase. Bank lending increases together with significantly more interest revenues on loans, and less interest expenses on deposits, suggesting borrowers' increased level of trust and a potential demand channel.

Table 9
Trust and Bank Lending: The effect of institutional development

	high inst		low inst	
	GGL	GGL	GGL	GGL
informal_lending	-0.255	-0.256	0.0197	0.0119
	(-1.36)	(-1.37)	(0.41)	(0.25)
INGRP_TRUST	-0.0114		-0.105	
	(-0.11)		(-1.55)	
OUTGRP_TRUST		-0.0823		0.519***
		(-0.45)		(2.89)
L.TCR	0.0305	0.0311	0.332***	0.330***
	(0.17)	(0.17)	(2.74)	(2.76)
L.log_TA	-1.552***	-1.542***	-0.884**	-0.918**
	(-3.35)	(-3.33)	(-2.23)	(-2.35)
L.NPLGL	-0.417**	-0.414**	-0.500***	-0.543***
	(-2.44)	(-2.42)	(-3.08)	(-3.31)
L.NLTA	-0.265***	-0.266***	-0.251***	-0.233***
	(-4.44)	(-4.42)	(-5.57)	(-5.32)
GDPgr	1.114***	1.117***	0.556***	0.520***
	(4.80)	(4.81)	(3.20)	(2.99)
MK_GDPdum	-1.914	-1.891	-6.202**	-8.422***
	(-0.93)	(-0.92)	(-2.46)	(-3.06)
RIR	0.208	0.216	0.00555	0.0107
	(0.85)	(0.88)	(0.04)	(0.07)
BANK_CONC	0.0863	0.0901	-0.0930*	-0.0265
	(1.09)	(1.28)	(-1.79)	(-0.46)
dum_GTA	37.53***	37.53***	27.43***	27.65***
	(7.30)	(7.31)	(13.22)	(13.40)
Constant	0	0	46.51***	36.67***
	(.)	(.)	(4.28)	(3.90)
Observations	1979	1979	2501	2501
Banks	444	444	647	647
R^2	0.279	0.280	0.317	0.313

This table displays the regression results by institutional development using OLS with the random effects estimator. GGL, the annual growth rate of gross loans, is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

4. Conclusion

We investigate the relationship between trust and bank lending using a sample of commercial banks in 34 countries around the world for the period extending from 2005 to 2015. Specifically, we disentangle the complex link between trust and bank lending by dissociating trust into two different forms: In-group trust and Out-group trust where In-group trust represents the trust in people we know while Out-group trust defines the trust in people we do not know or meet for the first time.

Our findings offer some interesting insights into how trust is associated with bank lending. Precisely, we find evidence of a significant positive link between Out-group trust and bank lending. Out-group trust is the form of trust which the credit officer exhibits in regard to his/her client. When higher levels of Out-group trust prevail, loan repayment probability is enhanced and selection bias reduced, which results in higher loan acceptance rates; thus, bank lending levels are expected to be higher. A closer look at the relationship between Out-group trust and bank lending shows that the significant positive effect on lending only holds in countries with relatively low levels of institutional and judicial development. Thus, as formal institutions develop, the importance of the link between trust and formal bank lending diminishes.

As for In-group trust, we find that informal lending mitigates the relationship between In-group trust and bank lending. In-group trust is positively associated with bank lending when informal lending is lower in a country. Thus, In-group trust plays a more important role when informal lending is lower in a country. Meanwhile, when informal lending is already high, the positive association between In-group trust and bank lending diminishes.

It follows that trust seems like a complex key element. Thus, dissociation of different forms of trust seems indispensable when studying how it can influence credit supply. Additionally, in our channel estimations we have shown that bank financing affect banks' ability to supply loans. An increase in deposits, the subsequent increase in balance sheet size, and holding

Table 10
Channel Estimations

	(1) DEPTA	(2) DEPOSITS GRW	(3) LATA	(4) LNTA	(5) INT EXP ON DEPOSITS	(6) INT INC ON LOANS
OUTGRP_TRUST	0.633***	0.860**	-24.59***	8.220***	0.0449***	-12.39***
	(10.56)	(2.42)	(-4.56)	(13.97)	(6.69)	(-20.31)
L.TCR	-0.00283***	-0.000760	0.0506	-0.0143***	-0.00372**	-0.00763**
	(-5.51)	(-0.20)	(1.33)	(-7.33)	(-2.16)	(-2.05)
informal_lending	0.00157***	0.00143	0.0183	0.00174	0.0115***	0.00931***
	(5.10)	(0.66)	(0.69)	(1.00)	(7.96)	(4.52)
L.log_TA	-0.000840	0.908***	-1.264***		-0.0677***	-0.0253
	(-0.25)	(56.83)	(-5.49)		(-6.56)	(-1.13)
L.NPLGL	0.00238***	-0.00660	-0.0982**	-0.0108***	-0.00378**	-0.00121
	(5.31)	(-1.44)	(-2.11)	(-4.46)	(-2.43)	(-0.41)
L.NLTA	-0.000365	0.000277	-0.363***	0.000617	-0.000256	0.00342*
	(-1.45)	(0.15)	(-14.73)	(0.37)	(-0.34)	(1.88)
GDPgr	0.000852*	0.0756***	-0.145**	0.00699***	0.000689	-0.0295***
	(1.65)	(10.53)	(-2.33)	(3.08)	(0.34)	(-8.23)
MK_GDPdum	-0.0131	-0.187**	1.423**	-0.0874**	-0.167***	-0.253***
	(-1.47)	(-2.50)	(2.12)	(-2.50)	(-4.36)	(-3.91)
RIR	0.000414	-0.0190***	-0.0844**	0.00714***	0.0128***	0.0135***
	(1.22)	(-3.12)	(-2.08)	(3.63)	(5.91)	(3.91)
BANK_CONC	0.00103***	-0.000442	0.0231	-0.0112***	-0.0101***	-0.0135***
	(3.59)	(-0.26)	(0.95)	(-6.13)	(-7.53)	(-6.48)
dum_GTA	0.0133**	1.165***	2.095***	0.109***	-0.101***	-0.110**
	(2.34)	(18.49)	(3.65)	(3.72)	(-5.08)	(-2.20)
_cons	0.489***	-1.947***	69.11***	11.92***	-1.487***	2.277***
	(7.90)	(-4.93)	(14.33)	(39.91)	(-7.11)	(5.22)
Nbr. of obs.	4890	3304	4902	4994	4719	4374
Nbr. of groups	933	836	930	936	945	816
r2_w	0.0773	0.155	0.152	0.515	0.210	0.349

This table displays channel estimations regarding the impact of OUTGRP_TRUST on bank deposits, liquid assets, total assets, interest expense on deposits, and interest income on loans. DEPTA, the share of deposits in total assets, and DEPOSITS GRW, the annual growth rate of deposits, are the dependent variables in Columns 1&2. LATA, the share of liquid assets in total assets, and LNTA, the natural logarithm of total assets, are the dependent variables in Columns 3&4. INT EXP ON DEPOSITS, the natural logarithm of interest expense on deposits divided by total deposits, and INT INC ON LOANS, the natural logarithm of interest income on loans divided by total loans, are the dependent variables in Columns 5&6. Informal_lending is the percentage of individuals in a country who have responded that they have taken informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

less liquid assets help banks in higher trust countries to increase lending. Besides, bank lending in higher trust countries increases together with significantly more interest revenues on loans, and less interest expenses on deposits, suggesting borrowers' increased trust and a potential demand channel. Finally, trust must not be disregarded, especially when studying lending in countries with underdeveloped institutions. We have shown that the link between trust and formal bank lending is more important in countries with lower formal institutional development.

Our work constitutes a first approach towards a better understanding of the exact role played by trust in bank lending development and may also provide a prelude for further research in this field.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix

Table A1
Variables

Variable	Descriptions	Data frequency	Source
Dependent variable			
GGL	The annual growth rate of total gross loans from t-1 to t	Bank-level	BankScope
Trust and Informal Lending variables			
INGRP_TRUST	The percentages of respondents who answer: “completely trust in the family, in the neighborhood, and in people you know" as "yes".	Country-level	World Value Survey
OUTGRP_TRUST	The percentage of respondents who completely trust people they meet for the first time.	Country-level	World Value Survey
informal_lending	The percentage of respondents who answer “yes” when questioned whether they have previously borrowed money from a friend or relative.	Country-level	World Bank Global Financial Indicators
Bank-Level Control Variables			
TCR	The total capital adequacy ratio is the ratio of the sum of Tier 1 and Tier 2 capital (hybrid capital, subordinated debt, reserves for loan losses, and valuation reserves) to total risk-weighted assets and off-balance sheet items.	Bank-level	BankScope
NPLGL	The ratio of non-performing loans to total loans.	Bank-level	BankScope
NLTA	The ratio of loans to total assets.	Bank-level	BankScope
log_TA	The natural log of total assets.	Bank-level	BankScope
dum_GTA	A dummy variable to account for M&As that takes the value of 1 for an asset growth higher than 35% and zero otherwise.	Bank-level	BankScope
Country Controls			
GDP_Gr	The annual GDP growth.	Country-level	World Bank World Development Indicators
RIR	The real interest rate (RIR) is the annual nominal lending rate after accounting for the annual inflation rate.	Country-level	World Bank World Development Indicators
MK_GDPdum	It is an indicator variable equal to one if the country exhibits stock market development to GDP (stock market capitalization to GDP ratio) higher than the sample median and zero otherwise.	Country-level	World Bank World Development Indicators
BANK_CONC	The ratio of the total assets of the five largest banks to total country banking assets.	Country-level	World Bank Global Financial Indicators
Other Country Controls for Robustness Checks			
SATISFAC	It is a general measure of life satisfaction, a 10-point item indicating to what extent people are satisfied with their life.	Country-level	World Value Survey
ALTRUISM	It is a proxy for respondents’ share of participation in the associative activity.	Country-level	World Value Survey
HAPPY	It proxies for the level of self-reported happiness of individuals.	Country-level	World Value Survey
PS	Political Stability and Absence of Violence/Terrorism index measures the probability of political instability and/or politically motivated violence, including terrorism in a country, ranging from approximately -2.5 to 2.5.	Country-level	World Bank World Governance Indicators
CC	Control of Corruption index measures the extent to which public power is used in a country for private gain and corruption, ranging from approximately -2.5 to 2.5.	Country-level	World Bank World Governance Indicators
GE	Government Effectiveness index measures the quality of public and civil services, policy implementations, and whether these are independent of political pressures. It ranges from -2.5 to 2.5.	Country-level	World Bank World Governance Indicators
RL	Rule of Law index measures captures whether agents have confidence in the rules of society, such as the quality of contract enforcement, the police, the courts, etc. It ranges from -2.5 to 2.5.	Country-level	World Bank World Governance Indicators
RQ	Regulatory Quality index measures the government’s ability to implement sound policies and regulations, ranging from -2.5 to 2.5.	Country-level	World Bank World Governance Indicators
CR	Creditor rights index ranges from zero to four, with a higher value indicating stronger creditor protection.	Country-level	Djankov et al. (2007)
IND	Hofstede’s cultural index on individualism. It varies between 0 and 1, with higher (lower) values indicating more individualistic (collectivist) countries.	Country-level	Hofstede (2001), Hofstede et al. (2010)
PD	Hofstede’s cultural index on power distance. It expresses the degree to which individuals accept that power is distributed unequally among people.	Country-level	Hofstede (2001), Hofstede et al. (2010)

Table A2
Trust and Informal Lending

	(1) informal_lending	(2) informal_lending	(3) informal_lending
INGRP_TRUST	0.464***	0.340***	
	(8.51)	(9.96)	
OUTGRP_TRUST	-0.475***		0.217
	(-2.73)		(1.73)
L.TCR	0.0252	0.0253	0.0267
	(1.14)	(1.14)	(1.21)
L.log_TA	-1.402***	-1.403***	-1.429***
	(-7.05)	(-7.08)	(-7.17)
L.NPLGL	-0.0238	-0.0288	-0.0331
	(-0.69)	(-0.84)	(-0.97)
L.NLTA	0.00915	0.00960	0.00603
	(0.73)	(0.77)	(0.48)
GDPgr	0.264***	0.264***	0.283***
	(8.75)	(8.60)	(9.12)
MK_GDPdum	2.155***	2.115***	2.209***
	(5.32)	(5.21)	(5.60)
RIR	0.0572*	0.0531*	0.0558*
	(1.86)	(1.73)	(1.80)
BANK_CONC	-0.118***	-0.115***	-0.110***
	(-6.32)	(-6.27)	(-5.94)
dum_GTA	0.182	0.195	0.183
	(1.03)	(1.10)	(1.03)
Constant	25.88***	29.31***	42.44***
	(6.07)	(7.25)	(11.35)
Observations	5392	5392	5392
Banks	1103	1103	1103
R2	0.171	0.171	0.170

This table displays the regression results on how In-group and Out-group trust affects informal lending using OLS with the random effects estimators. Informal_lending is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy variable controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Table A3
Trust and Bank Lending: WLS regressions

	(1) GGL	(2) GGL	(3) GGL	(4) GGL
informal_lending	0.0860***	0.0818***	0.898***	0.104***
	(4.08)	(2.92)	(4.89)	(3.46)
INGRP_TRUST	0.0133		0.323***	
	(0.40)		(3.97)	
OUTGRP_TRUST		0.184**		0.278**
		(2.11)		(2.29)
INGRP_TRUST*informal_lending			-0.0206***	
			(-4.40)	
OUTGRP_TRUST*informal_lending				-0.00511
				(-1.05)
L.TCR	0.155***	0.154*	0.137*	0.149***
	(3.89)	(1.90)	(1.69)	(3.73)
L.log_TA	-0.820***	-0.835***	-0.704***	-0.819***
	(-4.84)	(-4.18)	(-3.57)	(-4.82)
L.NPLGL	-0.447***	-0.463***	-0.456***	-0.465***
	(-8.58)	(-4.88)	(-4.78)	(-8.83)
L.NLTA	-0.137***	-0.136***	-0.143***	-0.135***
	(-9.40)	(-5.47)	(-5.77)	(-9.26)
GDPgr	0.944***	0.919***	0.891***	0.892***
	(10.26)	(8.19)	(7.63)	(9.49)
MK_GDPdum	-1.852**	-2.252	-1.483	-2.042**
	(-1.97)	(-1.60)	(-1.09)	(-2.09)
RIR	0.139*	0.110	0.0712	0.105
	(1.78)	(1.23)	(0.79)	(1.33)
BANK_CONC	-0.00820	-0.00910	-0.0362	-0.00942
	(-0.37)	(-0.33)	(-1.22)	(-0.43)
dum_GTA	33.86***	33.97***	33.62***	33.94***
	(36.20)	(14.65)	(14.53)	(36.23)
_cons	26.03***	26.55***	15.44***	26.11***
	(6.80)	(5.54)	(3.10)	(6.96)
Observations	5087	5087	5087	5087
Banks	1075	1075	1075	1075
R2	0.3545	0.3551	0.3574	0.3552

This table displays the main regression results using Weighted Least Squares (WLS) estimations. GGL, the annual growth rate of gross loans, is the dependent variable in all regressions. Informal_lending is the percentage of individuals in a country who have responded that they have taken an informal credit. INGRP_TRUST is the percentage of individuals who have responded that they completely trust people they know. OUTGRP_TRUST is the percentage of individuals who have responded that they completely trust people they meet for the first time. TCR is the total regulatory capital ratio. L.log_TA is the first lag of the log of total banking assets. L.NPLGL is the first lag of the ratio of non-performing loans to gross loans. L.NLTA is the first lag of the ratio of net loans to total assets. GDPgr is the growth rate of the Gross domestic product. MK_GDP is equal to 1 if the country exhibits stock market development to GDP higher than the sample median and 0 otherwise. RIR is the real interest rate. BANK_CONC is a measure of bank concentration calculated as the ratio of the assets of the 5 largest banks in a given country to total banking assets. Dum_GTA is a dummy controlling for spurious asset growth (beyond 30%). All the ratios are expressed in percentages. Reported beneath each coefficient estimate is the t-statistic adjusted for clustering at the bank level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

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