Corporate Resilience to Banking Crises:

The Roles of Trust and Trade Credit

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Abstract

Are firms more resilient to systemic banking crises in economies with higher levels of social trust? Using firm-level data in 34 countries from 1990 through 2011, we find that liquidity-dependent firms in high-trust countries obtain more trade credit and suffer smaller drops in profits and employment during banking crises than similar firms in low-trust economies. The results are consistent with the view that when banking crises block the normal banking-lending channel, greater social trust facilitates access to informal finance, cushioning the effects of these crises on corporate profits and employment.

JEL codes: G32; G21; G01; Z13; D21.

Keywords: Banking crises; Trade credit; Social trust; Corporate finance; Firm employment

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1. Introduction

Systemic banking crises are costly, common, and heavily researched. Boyd, Kwak, and Smith (2005), Kroszner, Laeven, and Klingebiel (2007), Claessens, Tong, and Wei (2012), and others show that banking crises shrink output and employment. Reinhardt and Rogoff (2009) document the ubiquitousness of financial crises throughout history, and Laeven and Valencia (2012) find that most countries experienced a systemic banking crisis between 1970 and 2011. Unsurprisingly, therefore, an active line of research examines the causes of banking crises (e.g., see, recent reviews by Claessens et al., 2014 and Laeven, 2011).

What has received less attention is the resilience of firms—and hence economies—to systemic banking crises. While many countries experience crises, not all experience similar reductions in output and employment. Levine, Lin, and Xie (2016) show that well-developed stock markets mitigate the adverse effects of banking crises by providing an alternative source of financing when crises curtail the flow of bank credit to firms. But, other factors might also shape the ability of firms to obtain financing during systemic banking crises.

In this paper, we examine whether social trust affects (a) the ability of firms to obtain financing through informal channels when crises reduce the flow of bank loans to firms and (b) the resilience of corporate profits and employment to systemic banking crises. As defined by Fukuyama (1995, p. 27) and Putnam (2000, p. 19), social trust means the expectations within a community that people will behave in honest and cooperative ways and the extent to which human interactions are governed by the norms of reciprocity and trustworthiness. By informal finance, we mean credit provision that occurs beyond the scope of a country's formal financial and regulatory institutions. For example, firms often receive trade credit that does not involve collateral or promissory notes subject to formal judicial enforcement mechanisms (Ayyagari, Demirgüç-Kunt, and Maksimovic, 2010). Trade credit represents a large proportion of debt financing, accounting for 25% of the average firm's total debt liabilities in our sample of over 3500 firms across 34 countries from 1990 to 2011.

Existing research suggests how social trust could enhance corporate resilience to systemic banking crises. First, when a systemic banking crisis impedes the normal bank-lending channel (Cornett, McNutt, Strahan, and Tehranian, 2011), access to trade credit could partially offset the reduction in bank loans and ameliorate the impact of the crisis on corporate profits and employment (Campello, Graham, Harvey, 2010). Indeed, Garcia-Appendini and Montoriol-Garriga (2013) show that the 2007-2008 banking crisis triggered a surge in between-firm liquidity provision. Second, social trust could facilitate access to trade credit during a banking crisis. Karlan (2005) shows that people who view their communities as more trustworthy are more likely to lend money and payback loans even when there are no formal enforcement mechanisms in place. While firms might prefer bank loans (Ayyagari, Demirgüç-Kunt, and Maksimovic, 2010, 2011) and choose banks as their primary liquidity providers during normal times (Gatev, Schuermann, and Strahan, 2009), high social trust can increase firms' access to trade credit when bank loans are unavailable (Allen, Qian, and Qian, 2005).[1]

Using a difference-in-differences methodology, we first assess the relation between social trust and firms' use of trade credit, profitability, and employment during systemic banking crises. We use a sample of about 3,600 manufacturing firms across 34 countries over the years from 1990 through 2011. Data on trade credit received, profitability, employment, and other firm-level information come from *Worldscope*. Our key explanatory variable is the interaction term between a measure of social trust (*Trust*) and a crisis dummy that equals one in the start-year of a systemic banking crisis and remains one for the three years after the crisis (*Crisis*). To date systemic banking crises, we rely on Laeven and Valencia (2012). To measure social trust, we follow previous studies (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997a) and compute the percentage of survey respondents who answer "most people can be trusted" in response to the question in World Values Survey (WVS), "*Generally speaking, would you say*

[1] As shown by Carlin, Dorobantu, and Viswanathan (2009), the relation between trust and formal rules and regulations is complex, such that they might be complements under some conditions and substitutes under other conditions. Thus, social trust can also affect bank lending. In this paper, we evaluate the particular condition of a banking crisis and assess whether social trust mitigates the adverse effects of a banking crisis on the economy.

that most people can be trusted, or that you can't be too careful in dealing with people?" We measure *Trust* three years before the start of a country's systemic banking crisis. We interpret greater values of the trust measure as suggesting that suppliers of trade credit are more confident about the trustworthiness of the demanders of such credit. If the key interaction term—*Trust*Crisis*—enters positively, this suggests that, on average, social trust mitigates the fall in trade credit financing, firm profitability, and firm employment during systemic banking crises.

We then explore whether the relation between social trust and firm trade credit, profits, and employment differs across industries in a theoretically predictable manner. In particular, since trade credit is a closer substitute for a firm's short-run liquidity needs than it is for long-term capital investments (Klapper, Laeven, and Rajan, 2012), the resilience-enhancing effects of social trust should be greatest among firms that depend heavily on liquid funds. Thus, we not only assess whether corporations are more resilient to banking crises in higher-trust countries, we examine differences in the cross-industry resilience to such crises. To measure an industry's short-run liquidity needs, we follow Raddatz (2006) and use the proportion of working capital financed by ongoing sales, so that higher values indicate greater dependence on short-run liquidity.

The empirical findings are consistent with the predictions that (1) social trust facilitates access to trade credit during systemic banking crises, (2) social trust dampens the harmful effects of the crisis on firm profits and employment, and (3) the resilience-enhancing effects of social trust are largest among firms that rely heavily on liquidity funds. The analyses control for both firm fixed effects to condition out all time-invariant, firm-specific features that might account for a firm's resilience to a banking crisis and year effects to control for the evolution of corporate performance, access to trade credit, and resilience to shocks. The regressions also control for an assortment of time-varying and firm characteristics discussed below. We discover that firms in higher-trust countries receive more trade credit financing and suffer smaller reductions in profits and employment than firms in lower-trust countries during systemic banking crises. Moreover, the relation between social trust and trade credit, profitability, and employment is more

pronounced among industries that depend heavily on external liquidity provision. The evidence is consistent with the view that social trust improves the resiliency of firms to banking crises.

The connections between social trust and corporate financing, profits, and employment are economically meaningful. Consider a hypothetical "average" country that has the sample average value of social trust (0.328), and a "high-trust" country, where its *Trust* value is one standard deviation higher than the sample average (0.496), and set the other country characteristics constant at their sample average values for both hypothetical countries. The coefficient estimates from our baseline regressions suggest that in liquidity dependent firms, trade credit financing drops by 43% less in the high-trust country than it falls in the average country during a systemic banking crisis. In terms of firm performance and employment, the coefficient estimates indicate that corporate profits drop by 52% less and firm employment drops by 18% less in the high-trust country than they drop in the average country during a crisis.

We address several potential challenges to identifying the impact of social trust on corporate resilience to banking crises. First, if social trust shapes the size of systemic banking crises, then our findings might reflect differences in the severity of crises, not the resilience of firms to similarly-sized banking crises. Our analyses, however, suggest that the results do not simply reflect the impact of social trust on crisis size. In particular, trust does not explain cross-country differences in the sizes of banking crises, as measured by the reduction of bank credit. Moreover, all of the results in the paper hold when controlling for the size of the banking crisis, or other features of the economy that could account for differences in the severity of the crisis, such as the size of banks, the level of stock market development, and the overall level of legal and institutional development.

Second, social trust could be correlated with national policies and institutions that account for differences in corporate performance following banking crises. For example, if social trust is highly correlated with economic development, bank and stock market development, the degree to which the formal legal system protects creditors and shareholders, the effectiveness of the legal system in enforcing contracts, and the overall level of institutional development, this

could hinder our ability to draw sharp inferences about social trust. Consequently, our baseline regressions control for the interaction between the crisis dummy variable and (a) Gross Domestic Product (GDP) per capita, (b) the size of the financial intermediary sector, (c) stock market capitalization as a share of GDP, (d) the contraction of bank credit during the crisis, (e) the legal rights of creditors, and (f) the legal protection of minority shareholders. Furthermore, we extend these analyses and also control for the interaction between the crisis dummy and (1) a measure of the rule of law that corresponds to the extent to which agents have confidence in the operation of the formal mechanisms for enforcing laws and contracts and (2) a measure of overall institutional quality that equals the first principal component of property rights, voice of accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. In addition, social trust might be correlated with employment protection laws and trust in government that shape the response of firms to a banking crisis. For instance, a more rigid labor market might make it more costly for companies to adjust labor forces, and if managers in an economy believe the government will resolve the banking crisis, they might lay off fewer workers. To further isolate the effects of social trust on the resilience of corporate employment and profits, we account for the interaction between the crisis dummy and (1) an index of labor market regulations, and (2) a measure of the confidence that people have in the government. When controlling for all of these interaction terms, firm and year fixed effects, and time-varying firm traits, such as firm size, long-term debt, and Tobin's Q, we continue to find that social trust has a statistically significant and economically large association with corporate resilience to banking crises only in liquidity dependent industries. This is consistent with existing research suggesting that trade credit relies more on social trust (e.g., Allen, Qian, and Qian, 2005, and Ayyagari, Demirgüç-Kunt, and Maksimovic, 2010), whereas formal financial arrangements rely more on legal institutions (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997b, 1998).

A third challenge to identifying the impact of social trust on corporate resilience to banking crises involves differential trends across countries, industries, and firms. Specifically,

firms in high trust countries might have different trends in performance from those in low trust countries, firms in high liquidity dependent industries might have different trends in performance from those in low liquidity dependent industries in the same country, and firms in high (and low) liquidity dependent industries in high trust countries might have different trends in firm performance from corresponding firms in low trust countries. We address these concerns by adding to the explanatory variables described above (a) country-level time trends for 34 countries in our sample to account for potential differences in time trends across countries, (b) country-industry time trends for 1151 country-industry pairs to account for potential differences in time trends across industries in different countries, or (c) firm-level time trends for 3603 sample firms to control for potential differences in time trends across individual firms. The core results hold.

Fourth, there might be concerns that banking crises influence trust, which could hinder our ability to draw sharp inferences from the coefficient estimates on the interaction term, *Trust*Crisis*. We address this concern by (a) using pre-existing measures of trust that are calculated before each country's systemic banking crisis and while controlling for country and firm fixed effects, (b) showing that the results hold when measuring *Trust* at the beginning of the entire sample period, and (c) showing that systemic banking crises do not explain changes in trust in our sample. This is consistent with the view that trust, or more broadly embedded social norms and beliefs, change very slowly in the long run and exhibit high persistence across generations (Williamson, 2000). In line with this view, Nunn and Wanchekon (2011) show that African descendent of those heavily exposed to the slave trades almost 100 years ago displays low trusting of others today. They stress that people's internal beliefs and values that tend to be transmitted over generations are essential to the mechanism through which historical slave trades affect current interpersonal trust. Focusing on eight countries in Europe, Tabellini (2010) finds that distant history of education and urbanization in a region fostered the formation of social trust, which propagates over time and influences economic outcomes today. Guiso, Sapienza, and

Zingales (2016) review the recent works on the short- and long-run persistence of social trust and show the long-term persistence of social capital in Italy.

This study relates to several strands of research. First, it complements a large number of studies of how social trust, and social capital more generally, influence economic behavior. Glaeser, Laibson, Scheinkman, and Soutter (2000) discover that an individual's broad views of trust, as garnered from attitudinal surveys, predict trustworthy behavior within experimental settings. Karlan (2005) shows that attitudes towards trust influence an individual's willingness to lend based on the trustworthiness of the borrower and to repay loans even when such loans are not enforceable in court. And, more broadly, Knack and Keefer (1997) show that social trust is associated with faster economic growth, while La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997a) document the link between trust and corporate performance. Our paper shows that social trust influences corporate resilience to systemic banking crises.

Second, our study helps reconcile the mixed findings on the relation between trade and bank credit. In a study of the recent U.S. financial crisis, Garcia-Appendini and Montoriol-Garriga (2013) show that nonfinancial firms extend substantial trade credit to their customers when bank credit is scarce. However, in a study of six emerging economies that experienced banking crises, Love, Preve, and Sarria-Allende (2007) find that trade credit does not compensate much for the contraction in bank credit due to crises. Focusing on the financing patterns of 48 countries in 1999, Beck, Demirgüç-Kunt, and Maksimovic (2008) show that while firms that are financially constrained can partially substitute trade for bank finance, the availability of trade credit is more limited in developing economies. Our findings suggest that cross-country differences in social trust shape cross-country differences in the degree to which firms substitute trade credit for bank credit during banking crises.

Third, our findings add to a growing literature on finance and employment. By allocating resources efficiently, well-developed financial markets can improve labor markets (Pagano and Volpin, 2008; Beck, Levine, and Levkov, 2010). Our findings are consistent with the view that

social trust helps mitigate the impact of banking crises on unemployment by making it easier for firms to access alternative, informal sources of financing.

The rest of this paper proceeds as follows. Section 2 defines the data, Section 3 describes the empirical methodology, Section 4 presents the empirical results on social trust and financing during systemic banking crises, Section 5 gives the results on trust and firm profits and employment during crises, and Section 6 concludes.

2. Data

2.1 Sample

Our initial sample begins with the 65 countries that both have data on social trust in the *World Values Survey* and experienced at least one systemic banking crisis during the period from 1990 through 2011 according to Laeven and Valencia (2012). For this initial sample, we obtain firm-level data from the *Worldscope* database by *Thomson Reuters*. We then further restrict the sample of countries and firms based on the following criteria. First, we focus on publicly listed firms in manufacturing industries (U.S. Standard Industrial Classification (SIC) code between 2000 – 3999). Second, a firm needs to have complete financial information in the *Worldscope* database over the seven-year crisis window, [t-3, t+3], where t equals the start year of a systemic crisis as defined by Laeven and Valencia (2012). Third, we eliminate observations with negative assets, negative book equity, or negative cost of goods sold. Fourth, a country needs to have at least three firms with complete information. Fifth, a country must be covered in (a) Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), so that we have information on shareholder protection laws, and in (b) Djankov, McLiesh, and Shleifer (2007), so that we have information on the creditor protection laws. Finally, we exclude firms in the U.S. from our analyses because we rely on the U.S. firms to benchmark industries.

These selection criteria yield a sample of over 3500 firms across 34 countries over the period from 1990 through 2011. In total, the sample contains over 22,500 firm-year observations.

The average firm in our sample has six years of data. Appendix Table A1 describes all of variables in detail.

2.2 Social trust measure

The *World Values Survey* (WVS) aims to measure the "beliefs, values, and motivations of people" across countries and has been widely used in prior studies to capture cross-country variations in trust (e.g., Knack and Keefer, 1997; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997a). From the WVS, we use the answer to the following to measure trust.

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

The WVS offers three possible responses: (1) most people can be trusted; (2) you can't be too careful in dealing with other people; and (3) I don't know. Following La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997a), we calculate *Trust* within a country as the percentage of respondents who reply that most people can be trusted.

Critically, we use the pre-crisis level of trust in each country. Specifically, given that WVS was conducted close to every five years since 1990, we use *Trust* in period *t*-3 or the earliest available year before *t*, where *t* represents the start year of a banking crisis in the country. Summary statistics in Table 1 show that the average level of trust in our sample is 0.328 with a standard deviation of 0.168. Denmark has the highest level of trust, 0.665, while Philippines and Turkey have the lowest, 0.055 (see Table IA1 in the Internet Appendix).

To further alleviate concerns that crises influence trust, we perform two robustness tests. First, we find that crises do not explain trust. To do this, we use the most relevant wave of the WVS to assign the value of trust in each period for a country to test whether the systemic banking crises are associated with significant changes in trust. As shown in Internet Appendix Table IA11, we find no evidence that trust changes following a banking crisis.[2] This is consistent

[2] This result is robust to alternative ways of linking data from the six waves of the WVS to particular years. The WVS collects the trust data in six waves, 1981-1984, 1990-1994, 1995-1998, 1999-2004, 2005-2009, and 2010-2014, and we use these data to assign a value of trust to the relevant years over the seven-year crisis window, [*t*-3,

with the view that norms of social trust persist over time (Williamson, 2000). Second, we show that all of the results hold when using the initial value of trust in our sample period, i.e., the value in 1990 for all countries. Internet Appendix Table IA12 provides these results.

2.3 Systemic banking crises

We use the database compiled by Laeven and Valencia (2012) to determine the start year of each crisis in a country. It is a comprehensive database of banking crisis episodes during the period from 1970 through 2011 across more than 100 countries. They define the start year of a systemic banking crisis as the first year when the overall banking system exhibits significant symptoms of financial distress, including bank runs and bank liquidations, and when the government intervenes in the banking sector in response to significant losses in the banking sector. Importantly, the crises episodes based on Laeven and Valencia (2012) identify periods with financial distress in the entire banking sector, as opposed to problems with individual banks.

For each crisis event, we focus on a seven-year window, [*t*-3, *t*+3], centered on the start year of the crisis *t*, during which [*t*-3, *t*-1] is defined as the pre-crisis period and [*t*, *t*+3] is defined as the crisis period. We define *Crisis* as a dummy variable that equals one if a country is in a crisis period and zero during the pre-crisis period. Internet Appendix Table IA1 lists the start years of systemic banking crises for the 34 countries. As shown, 18 countries suffered systemic crises during the recent global financial crisis, and six had crises during the East Asian financial crisis. Over the years from 1990 through 2011, all of the countries in our sample had one systemic crisis except Argentina, which had two. In dating the two Argentine crises, we follow Kroszner, Laeven, and Klingebiel (2007). The start years of the first and second banking crisis in Argentina are 1995 and 2001 respectively. We define the pre-crisis period for both crises as [1992, 1994]. The crisis period for the first crisis is [1995, 1998], while it is [2001, 2004] for the

t+3], for each country. Since, a wave can span several years over a country's *t*-3 to *t*+3 period, we considered alternative ways of linking the WVS to particular years. For example, we use early waves for the years before a crisis and/or later waves for the years after the crisis. In no case do we find that crises account for change in trust in a statistically significant manner.

second crisis. The paper's conclusions hold when excluding Argentina. Furthermore, we also conducted all of the paper's analyses using a narrower window [*t*-1, *t*+1]. All of the results hold.

2.4 Firm-level variables

Using data from *Worldscope*, we construct measures of trade credit. We begin with the balance sheet item, *Account payable*, which equals the amount of good and services that a purchasing firm receives from suppliers before paying for them. Account payable is not a formal legal instrument, and the purchasing firm does not sign a promissory note. While *Account payable* is a stock entry on the firm's balance sheet, *Trade credit financing* equals the change in *Account payable* during a particular time period. *Trade credit financing* is positive if the firm receives more goods and services than it pays. Trade credit financing will be negative if the firm not only pays for the goods and services that it receives but it also pays down at least some of the stock of accounts payable.

Based on these components, we construct and examine two measures of trade credit: (1) *Trade credit financing/CoGS* equals *Trade credit financing* divided by the cost of goods sold (CoGS), during the period and (2) *Trade credit financing/total assets* equals *Trade credit financing* divided by the book value of total assets at the beginning of period *t*. Table 1 provides summary statistics for these variables. *Trade credit financing/CoGS* has a sample mean of 0.007 and a standard deviation of 0.076, meaning that the average increase in trade credit obtained from the suppliers equals 0.7 percentage points of a firm's cost of goods sold, with a corresponding standard deviation of 7.6 percentage points.

Besides these informal financing measures, we also examine two measures of formal financing. Following Baker, Stein, and Wurgler (2003), we infer the amount of new equity issuance from a firm's balance sheet items, and define *Equity issuance* as the change in the book value of common equity plus the change in the deferred taxes minus the change in the retained earnings during year *t*, scaled by the book value of total asset at the beginning of period *t*. *Debt issuance* equals the change in the *Total debt* during a particular year *t*, scaled by total assets at

the beginning of year *t*. *Total debt* is the sum of short-term debt and long-term debt excluding capitalized leases. Table 1 shows that *Equity issuance* ranges from -0.289 to 1.305 with a sample mean of 0.031, and *Debt issuance* ranges from -0.232 to 0.618 with a sample mean of 0.021.

To assess firm performance, we consider both measures of operating profitability and employment. *EBIT* equals the ratio of earnings before interest and tax during a period to the book value of total assets at the start of the period. In robustness tests reported in Internet Appendix Table IA8, we use two additional profitability indicators. *Net income* equals the ratio of earnings after interest and taxes to the book value of total assets at the start of the period. We use *Net income* to account for variations in interest and tax expenses across countries. The other measure of profitability is *Cash flow*, which equals the ratio of net earnings plus depreciation and amortization to the book value of assets at the start of the period. *Cash flow* helps address concerns that differences in earnings management account for differences in the firm profitability measures. Finally, *Firm employment* equals the natural logarithm of the total number of employees in a firm. Since *Worldscope* provides employment data in units of 1,000, *Firm employment* equals zero when a firm has 1,000 or fewer employees.

Table 1 shows that there is considerable variation in firm performance during banking crises. The values of *EBIT* range from -0.527 to 0.493, with a sample mean of 0.057 and a standard deviation of 0.12. The values of *Firm employment* range from 0 to 13 with a standard deviation of 1.8, suggesting that the number of workers in our sample of firms ranges from one thousand to over 500,000.

We use data on several other time-varying, firm-level characteristics in our analyses, including firm size, long-term debt, and Tobin's Q. Table A1 provides the definitions of these variables, which we discuss when we present the analyses below. We winsorize all firm-level financial variables at the 1% and 99% levels to reduce the impact of outliers.

Figures 1 and 2 illustrate the changes in trade credit financing, profits, and employment during banking crises. The figures suggest that *Trade credit financing/CoGS*, *EBIT*, and *Firm employment* drop less in countries with higher levels of *Trust*. First, for each firm, we calculate

the difference between (a) the outcome variable averaged over the crisis period, [*t*, *t*+3] and (b) the outcome variable averaged over the pre-crisis period, [*t*-3, *t*-1], where *t* denotes the start year of the country's banking crisis. Then we average the differences across all of the firms within the same country. Finally, we plot each country-level change against its pre-crisis level of trust. The fitted line in Figure 1 is upward-sloping, suggesting that while the amount of new trade credit that purchasers receive during banking crises falls in most countries (as the country averages for the change in *Trade credit financing/CoGS* are mostly below zero), it falls less in countries with higher levels of *Trust*, which, as defined above, is measured before the crisis. Similarly, Figure 2 exhibits an upward-sloping relationship between *Trust* and firm performance over banking crisis. In particular, firm profits and firm employment tend to fall less during banking crises in countries with higher *Trust*.

2.5 Industry-level liquidity needs measures

In most of our analyses, we seek to differentiate industries by the degree to which technology shapes their reliance on external liquidity, such as trade credit. Industries that require large amounts of working capital to finance their operations for technological reasons, such as the length of the production process, the mode of production (batch vs. continuous), the importance of smoothing investments over long periods, and the structure of the adjustment costs associated with altering investment plans, tend to rely more heavily on the provision of external liquidity. As argued by Raddatz (2006), among the different components of working capital, inventories are a particularly suitable proxy for the technological demand for liquid funds.

Thus, our proxy for an industry's technological reliance on trade credit, or more broadly short-term liquidity, equals the ratio of inventories to sales and is calculated across U.S. companies at the three-digit SIC industry level (*Liquidity needs*).[3] It measures the extent to which inventories cannot be financed by current revenue, such that higher values of *Liquidity*

[3] We use *Compustat* to obtain financial data of the U.S. companies, and *CRSP* to collect information on the U.S. Standard Industrial Classification (SIC) because *CRSP* provides time-varying data on the SIC of firms.

needs indicate a greater reliance on external liquidity. In using data from the United States to create this proxy of the technological reliance of industries on external liquidity, we follow Rajan and Zingales (1998) in assuming that U.S. financial markets and institutions are relatively developed, so that the cross-industry differences in the external liquidity needs of U.S. industries primarily reflect technological differences across industries in the demand for such funds. Furthermore, using one country to benchmark the technological liquidity needs of industries is advantageous because the liquidity needs of an industry may vary across countries due to differences in capital market development. We thus use U.S. *Liquidity needs* as a proxy for the technology-driven demand for trade credit across industries around the world.

For a country *c* that experienced a crisis starting in year *t*, we construct its *Liquidity needs* using U.S. industry data over the period from *t*-10 through *t*-1. For instance, given that a systemic banking crisis occurred in Japan in 1997, we use the U.S. data over the period of 1987 – 1996 to calculate the *Liquidity needs* of each industry in Japan. More specifically, for each U.S. firm *i* within the ten-year window corresponding to crisis year *t*, we use *Compustat* to compute the ratio of inventories to sales in each year and we then take the median value of this ratio over the ten-year window and call it L_i. Next, we calculate the median value of L_i across U.S. firms with the same three-digit SIC code and call this value the *Liquidity needs* of that industry in crisis country *c*. Thus, *Liquidity needs* (a) is time-invariant for each crisis country and (b) differs across countries that experience systemic crises in different years.

In robustness tests reported in the Appendix, we consider two alternative proxies for an industry's technological dependence on external liquidity. First, we examine *Inventories/CoGS*, which equals inventories divided by the cost of goods sold. Dividing inventories by the cost of sales, as opposed to the revenue of sales, is a common indicator of inventory turnover. A higher value of *Inventories/CoGS* suggests a lower speed of inventory turnover. With greater inventories and slower turnover, companies typically need more liquid funds for working capital. Second, we calculate for each industry the extent to which it uses trade credit. Ng, Smith, and Smith (1999) show that trade credit tends to exhibit considerable variation across industries, but

little intertemporal variation within an industry, and Fisman and Love (2003) find a strong industry-specific element to accessing trade credit. Thus, we construct *Trade credit reliance* as the ratio of *Accounts payable* to *Total debt*. We calculate both *Inventories/CoGS* and *Trade credit reliance* for industries in the crisis countries using the same procedure as in the construction of *Liquidity needs*. Appendix Table A1 provides detailed descriptions on how we construct these measures. We show that the results hold when using each of the three proxies for an industry's technological dependence on liquidity provision. We focus on *Liquidity needs*, i.e., *Inventories/Sales*, because it is the most direct proxy for firms' dependence on liquid funds, as it is defined as the proportion of inventories (or working capital more broadly) that are financed by current sales.

Table 1 shows that there is considerable cross-industry variation in the three proxies for an industry's technological dependence on liquidity provision. The values of *Liquidity needs* vary from 0.012 to 0.364. This range is similar to that reported in Raddatz (2006), where the measure of liquidity needs is calculated using U.S. data over the 1980s. The other measure, *Inventories/CoGS*, exhibits a similar magnitude of variation. *Trade credit reliance* has a minimum value of 0.055 and a maximum value of 2.717. This means that the ratio of trade payable to total debt ranges from 5.5% to 271.7%.

Figures 3 and 4 indicate that trade credit financing, firm profits, and firm employment fall less during banking crises in high-trust countries than they fall in low-trust countries and this difference is larger among industries with higher *Liquidity needs*. The figures plot the simple changes in firm outcome variables while differentiating between countries with high and low trust and between industries with high and low liquidity needs. For each firm, we calculate the difference between the outcome variables (trade credit financing, earnings before interest and tax, and employment, all scaled by the book value of total assets) averaged over the crisis period, [t, t+3], and the corresponding pre-crisis period, [t-3, t-1]. We then average the differences across firms in four groups: high (low) liquidity needs industries in countries with high trust, and high (low) liquidity needs industries in countries with low trust. We classify a country into the high

(low) trust group if its level of trust lies above (below) the median value of the sample countries. We classify an industry into the high (low) liquidity needs group if its measure of *Liquidity needs* lies above (below) the median of the sample of industries. Figure 3 shows that among high liquidity needs industries, *Trade credit financing* drops, on average, by 0.85% of total assets during a banking crisis in high-trust countries and drops by 1.6% in low-trust countries. In contrast, the difference in the drop in *Trade credit financing/Total assets* between high- and low-trust countries is negligible when focusing on low liquidity needs industries. Figure 4 shows that the changes in firm profits and employment during crises exhibit similar patterns, suggesting that firm profits and employment among high-liquidity needs industries drop less in high-trust countries.

2.6 Country controls

In assessing the association between social trust and firm outcomes, we control for time-varying country characteristics, such as macroeconomic conditions, financial development, and investor protection laws and call these *Macro controls*. In the analyses, we interact each of these controls with *Crisis*. First, to control for the possibility that firms in more developed economies perform relatively better during a crisis, we use *GDP per capita*, which equals the natural logarithm of GDP per capita measured three years before a country's crisis, *t*-3. Second, we use two variables to control for the development of financial intermediaries and markets. *Financial institutions development* equals the private credit by banks and other financial institutions divided by GDP. *Stock market development* equals stock market capitalization divided by GDP. We use the values measured three years before the crisis. Third, we control for the size of a crisis, by computing the contraction in the growth rate of credit. Specifically, *Private credit contraction* equals the average annual growth rate of bank credit over the pre-crisis period, [*t*-3, *t*-1], minus the *minimum* annual growth rate of bank credit over the crisis period, [*t*, *t*+3], where *t* is the start year of a banking crisis. By definition, larger *Private credit contraction* means a greater reduction in bank credit growth, and hence a more severe banking crisis. Fourth, we control for

two types of investor protection laws since investor protection laws might affect firm performance during a banking crisis. *Creditor rights* is an index constructed by Djankov, McLiesh, and Shleifer (2007) based on bankruptcy and reorganization laws across countries. It measures the ability of creditors to voice their opinions, get repaid, and affect the process of reorganizing delinquent corporations. The overall index ranges from zero to four, with higher value indicating greater creditor power. *Anti-self-dealing* is an index constructed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) to measure the extent to which minority shareholders are protected by the law from being expropriated by corporate insiders via self-dealing transactions. The index ranges from zero to one, with larger value indicating that it is more difficult for large shareholders to engage in self-dealing transactions. Appendix Table A1 provides additional details on these *Macro controls,* and Table 1 reports summary statistics.[4]

3. Empirical Methodology

To assess whether firms in countries with higher levels of social trust receive more financing and perform better during a banking crisis than similar firms in other countries, we begin with the following specification.

$$Firm\ Outcome_{i,c,t} = \alpha_0 + \alpha_i + \alpha_t + \boldsymbol{\beta} * Trust_c * Crisis_{c,t} + \theta * Crisis_{c,t} + \boldsymbol{\varphi}' * Macro_c * Crisis_{c,t} + \boldsymbol{\gamma}' * Firm_{i,t-1} + \varepsilon_{i,c,t}, \quad (1)$$

where $Firm\ Outcome_{i,c,t}$ refers to either trade credit received, equity issued, debt issued, profitability, or employment by firm i, in country c, during year t; α_i and α_t are firm and year fixed effects; and $Firm_{i,t-1}$ represents a set of time-varying firm characteristics (e.g., *Firm size*, *Long-term debt*, and *Tobin's q*). The variable of focus is $Trust_c * Crisis_{c,t}$, which is the

[4] In robustness tests, we control for additional country-level measures of the rule of law and institutional quality. We discuss these below. Appendix Table A1 provides detailed variable definitions, and Internet Appendix Table IA1 lists these macro variables by each country.

interaction of the social trust measure for country c and the systemic crisis dummy variable, $Crisis_{c,t}$. Recall that $Crisis_{c,t}$ equals one for country c in years t through t+3 and zero otherwise, where t is the start-year of the systemic banking crisis. The estimated coefficient on the interaction between $Trust_c$ and $Crisis_{c,t}$, β, measures the differential outcome during a crisis of firms operating in countries with different levels of social trust. The error term is denoted as $\varepsilon_{i,c,t}$. We employ ordinary least squares (OLS) to estimate the coefficients in equation (1). Heteroskedasticity robust standard errors are clustered at the country level. Our results hold when using two-way clustering at the country and year levels, as shown in Internet Appendix Table IA3.

In equation (1), we control for several factors to better isolate the independent association between social trust and firm outcomes. We allow firm outcomes during crises to vary by (a) the level of economic development, (b) the level of development of financial intermediaries, (c) the size of national stock exchanges, (d) the size of the banking crisis, (e) the degree to which the legal system protects small investors from self-dealing by corporate insiders, and (f) the strength of the legal rights of creditors. Thus, equation (1) includes the interactions between $Crisis_{c,t}$ and a vector of macro-country variables, which we call $Macro_c$, where $Macro_c$ includes *GDP per capita*, *Financial institutions development*, *Stock market development*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. These macro-country variables, except *Private credit contraction* and *Anti-self-dealing*, are measured at *t*-3.

We then build on equation (1) to assess additional implications of the view that social trust increases corporate resilience to systemic banking crises. According to this view, social trust will exert a disproportionately positive impact on firms that—for technological reasons—rely comparatively heavily on liquid funds. To test this prediction, we first divide industries into those that depend heavily on liquidity for technological reasons and those that are less reliant on liquidity. We then evaluate whether firms in industries that depend heavily on liquidity perform comparatively better in countries with high levels of social trust during crises than similar firms in countries with lower levels of social trust and whether firms in liquidity-dependent industries

perform comparatively better than other firms in the same country. As described in the data section above, we distinguish industries by their natural degree of dependence on short-term liquidity (or trade credit) using three measures that all use the U.S. to benchmark industries. Specifically, we use (a) *Liquidity needs*, which equals the ratio of inventories to sales among U.S. firms in each industry, (b) *Inventories/CoGS*, which equals the ratio of inventories to cost of goods sold among U.S. firms in each industry, and (c) *Trade credit reliance*, which equals the ratio of accounts payable to total debt among U.S. firms in each industry.

We address several challenges to identifying the impact of social trust on corporate resilience to systemic banking crises. First, we were concerned that social trust might be correlated with the size of banking crises. If this were the case, then our analyses might capture differences in the severity of crises, not the resilience of firms to crises of similar sizes. As reported in Internet Appendix Table IA2, however, there is not a statistically significant relation between banking crisis size (*Private credit contraction*) and *Trust*. Moreover, as noted above, our analyses control for country fixed effects and the interaction between *Private credit contraction* and *Crisis* to condition out differences in the size of banking crises.

Second, to address the concern that our findings on corporate resilience to banking crises reflect other features of economies besides social trust, we do the following. In addition to controlling for firm and year fixed effects and an assortment of time-varying firm characteristics, we control for the interaction between social trust and measures of the size of the crisis, economic development, bank and stock market development, the degree to which the formal legal system protects creditors and shareholders, the effectiveness of the legal system in enforcing contracts, and the overall level of institutional development. Additionally, we augment these analyses and further difference by industry. We assess the differential response of high and low liquidity needs industries to systemic crises in economies with different levels of social trust. In this way, we evaluate narrower, industry-specific predictions about the mechanisms through which social trust shapes corporate resilience to crises.

A third challenge to our identification strategy is pre-trends. We were concerned that there might be trends in corporate profits, employment, and trade credit that vary systematically across high and low trust countries and that even vary systematically across industries in high and low trust economies. To address this we conduct three additional tests. First, we include $Country_c * Trends$ into Equation (1), where $Country_c$ represents a vector of 34 country dummy variables, and $Trends$ is a time trend indicator that equals one in *t*-3, two in *t*-2, … and seven in *t*+3. Second, we include $Country\_Industry_{c,j} * Trends$, where $Country\_Industry_{c,j}$ represents a vector of 1151 country-industry dummies at the three-digit SIC level. These interaction terms account both for different trends across industries within the same country and for different trends between industries with the same SIC code across different countries. Third, we include $Firm_i * Trends$, where $Firm_i$ is a set of 3603 individual firm dummies. These additional terms remove differential trends across individual firms.

4. Trust and Financing during Banking Crises

Table 2 reports regression results evaluating whether social trust facilitates trade credit financing when an economy experiences a systemic banking crisis. We use two measures of trade credit. In columns (1) – (3), the dependent variable is changes in trade credit received relative to the cost of goods sold (*Trade credit financing/CoGS*), while the dependent variable in columns (4) – (6) is the ratio of changes in trade credit received to total assets (*Trade credit financing/Total assets*). For both measures of trade credit, Table 2 provides results on the full sample firms, on the subsample of firms with above the median value of *Liquidity needs* (*High Liquidity needs*), and on the subsample of firms with below the median value of *Liquidity needs* (*Low Liquidity needs*). The variable of interest is the interaction term, *Trust*Crisis*, which captures the extent to which social trust facilitates trade credit when bank credit contracts during a crisis.

The results are consistent with the view that social trust improves firms' access to trade finance during systemic banking crises. Specifically, columns (2) and (5) of Table 2 show that (a)

the coefficient on *Trust*Crisis* is positive and statistically significant at the 1% level among firms in industries that rely heavily on trade credit for technological reasons, i.e., in *High Liquidity needs* industries, and (b) this positive association between social trust and trade credit financing during crises holds when using either measure of trade credit (*Trade credit financing/CoGS* and *Trade credit financing/Total assets*). Furthermore, and consistent with theory, columns (3) and (6) show that *Trust*Crisis* enters insignificantly among firms in *Low Liquidity needs* industries. Moreover, the difference in the coefficients on *Trust*Crisis* between the *High*- and *Low-Liquidity-needs* groups is statistically significant at least at the 5% level as shown at the bottom of the table.

The economic magnitudes are meaningful. To see this, consider a hypothetical "average" country with the sample average value of *Trust* (0.328), and a hypothetical "high-trust" country with a value of *Trust* that is one standard deviation higher than the average (0.496=0.328+0.168). Furthermore, hold everything constant about these countries. The coefficient estimates reported in column (2) indicate that a banking crisis is associated with a reduction in trade credit financing among *High liquidity needs* firms of 1.4% of the firms' cost of goods sold for the average country, and a reduction of only 0.8% among comparable firms in high-trust countries.[5] Thus, among firms in industries that depend heavily on liquid funds, those in the high-trust country experience a 43% (= (0.8-1.4)/1.4) smaller contraction in trade credit than those in the average country during a systemic banking crisis. These results are robust to using the alternative measure of trade credit (*Trade credit financing/Total assets*). We find that both the statistical significance and the economic magnitudes of the estimated effects are very similar when using *Trade credit financing/Total assets*.

[5] We calculate this figure using the coefficient estimates from column (2) in Table 2, and the corresponding sample means in Table 1. For the high liquidity needs industries, the trade credit financing received from suppliers falls by 1.4% of the CoGS in the hypothetical 'average' country [-0.01435 = (0.0369*0.328) – 0.0012 – (0.00321*9.211) – (0.0121*0.807) + (0.00858*0.579) + (0.00111*0.287) + (0.00448*0.440) + (0.00331*2.059)], and by 0.8% of the CoGS in the 'high-trust' country [-0.008157 = (0.0369*0.496) – 0.0012 – (0.00321*9.211) – (0.0121*0.807) + (0.00858*0.579) + (0.00111*0.287) + (0.00448*0.440) + (0.00331*2.059)]. Thus, firms in the high-trust country experience a 43% (= (1.4-0.8)/1.4) smaller drop in trade credit financing than those in the average country over a banking crisis.

The results are robust to controlling for other factors. There might be concerns that the impact of a systemic crisis on the economy, including on the provision of trade credit, could reflect other features of the economy, such as the level of economic development, the size of financial institutions, the development stock markets, and the degree to which the legal system protects creditors and small shareholders. Thus, the regressions control for the interaction between the *Crisis* dummy and *GDP per capita, Financial institutions development, Stock market development, Creditor rights* index, and *Anti-self-dealing* index. As shown in Table 2, the results hold when conditioning on these country characteristics. We were also concerned that social trust might influence the size of banking crises, which would confound our ability to assess the impact of social trust on trade credit. Thus, we also include the interaction between *Crisis* and *Private credit contraction.* Again, the results on the response of trade credit to a systemic crisis are robust to controlling for the contraction in bank credit, further emphasizing the positive connection between trust and trade credit following systemic banking crises.

The results are also robust to using two alternative proxies for the liquidity dependence of industries. The first alternative proxy is *Inventories/CoGS*, which differs from *Liquidity needs* in that it scales inventories by the cost of goods sold rather than by sales. The second alternative is *Trade credit reliance*, which equals accounts payable divided by total debt. The analyses in Internet Appendix Table IA4 are similar to those in Table 2, except that Table IA4 partitions by high and low values of *Inventories/CoGS* in columns (1) – (2) and by high and low values of *Trade credit reliance* in columns (3) – (4). As shown, we continue to find that firms in liquidity dependent industries receive considerably more trade credit during banking crises in high-trust countries than comparable firms in low-trust countries. That is, *Trust*Crisis*, enters positively and significantly among liquidity dependent firms, but insignificantly among firms that depend less on external liquidity for their operations. These results are consistent with the view that social trust facilitates the provision of trade credit when there is a contraction in bank credit during systemic crises.

We were concerned that *Trust* might be correlated with the quality of formal legal, regulatory, and political institutions, which might confound our ability to identify the impact of social trust on corporate resilience. To address this concern, we control for the interaction between *Crisis* and the *Rule of law* and *Institutional quality* in Table 3. *Rule of law* measures the extent to which agents have confidence in and abide by the rules of society, particularly the enforcement quality of private and official contracts. *Institutional quality* is an index that aggregates information on (a) the legal protection of private property, (b) the freedom of speech and accountability of government officials, (c) political stability, (d) government effectiveness, (e) the ability of the government to implement regulatory policies, (f) the *Rule of law*, and (g) the extent to which institutions control corruption. Similar to Table 2, Table 3 splits the sample based on the median value of industrial *Liquidity needs*.

Table 3 shows that after controlling for the quality of formal institutions, all of the results hold. The coefficients on *Trust*Crisis* in the high *Liquidity needs* industry group remain statistically significant and economically meaningful after controlling for these additional interactions, whereas those in the low *Liquidity needs* industry group remain insignificant. Moreover, the estimated coefficients for the high *Liquidity needs* industry group do not fall when controlling for institutional quality. These results are consistent with our conjecture that it is the mutual trust between firms, not the rule of law or the quality of institutions, that plays a significant role in facilitating trade credit as a substitute to bank credit during a crisis.[6]

We were also concerned that (1) firms in high trust countries might have different time trends in trade credit from those in low trust countries, (2) firms in high liquidity dependent industries might have different trends in trade credit from those in low liquidity dependent industries in the same country, and (3) firms in high (and low) liquidity dependent industries in high trust countries might have different trends in this alternative financing from corresponding firms in low trust countries. To address these concerns, we include *Trends* interacted with (a) 34

[6] As shown in Internet Appendix Table IA5, all of these results hold when using the two alternative metrics for differentiating between high- and low-liquidity needs industries: *Inventories/CoGS* and *Trade credit reliance*.

country dummies, (b) 1151 country-industry dummies, or (c) 3603 individual firm dummies. By adding these additional trend controls, we explicitly account for the preexisting time trends across countries, country-industries, and firms.

As shown in Table 4, the results hold when accounting for these different trends. Columns (1), (4), and (7) indicate that *Trust*Crisis* enters positively and statistically in the trade credit financing regression after controlling for individual country, country-industry, or firm trends, respectively, and while continuing to control for firm and year fixed effects as well as the time-varying macro interaction and firm controls. Moreover, when we partition the overall sample into high and low liquidity needs industries and control for individual country/country-industry/firm trends, the results indicate that the resilience-enhancing effects of social trust on trade credit are more profound among industries that depend heavily on short-term liquidity. These results are fully consistent with the main findings in Table 2. While Table 4 uses *Trade credit financing/CoGS* as the dependent variable throughout the columns, all the results hold when using the other measure, *Trade credit financing/Total assets*.

We were also concerned that the results might be distorted by trade credit provided by foreign suppliers. International trade credit would reflect trust across countries, rather than trust within the crisis country. To address this concern, we construct two subsamples of firms that are unlikely to receive trade credit from foreign suppliers during banking crises and then redo the analyses. Specifically, we form one subsample that only includes firms that have no reported foreign assets and a second subsample that only includes firms that have no documented foreign suppliers in recent years. For data on whether firms have foreign assets, we use the *Worldscope* database. To compile data on whether firms have supply chain relations with foreign supplies, we use the *Revere* database, which provides supply chain information on publicly listed firms. The *Revere* data uncover business relationships for more than 21,000 companies globally with over 300,000 supply chain relations. As the data start in 2003, we use each firm's supply chain relations since 2003 to infer whether a firm has any foreign suppliers. As shown in Internet Appendix Table IA6, the results hold when examining these two subsamples of firms. Although

the sample sizes fall by about 20% – 40%, the coefficient estimates on *Trust*Crisis* remain economically and statistically robust and the estimated coefficients on *Trust*Crisis* are similar in magnitude to those reported in Tables 2 and 3. These results reduce concerns that the results are influenced by the provision of foreign trade credit.

We next explore whether greater social trust is also associated with corporations issuing more equity and debt during banking crises. As discussed in the Introduction, several existing studies suggest that social trust exerts a larger impact on informal transactions, such as the extension of trade credit, than it does on more formal financing channels, such as equity and debt issuance. From this perspective, trust will primarily affect corporate resilience through the trade credit channel rather than by influencing equity and debt issuance that rely on formal legal arrangements.

The results reported in Table 5 indicate that *Trust* does not affect a firm's issuance of equity and debt during banking crises. As shown, *Trust*Crisis* enters insignificantly in both the *Equity Issuance* and *Debt Issuance* regressions, whether examining the full sample or when splitting the sample into high and low *Liquidity needs* industries. The results suggest that social trust does not affect corporate resilience by shaping a firm's access to equity and debt.

We further explore whether a firm's access to equity and debt markets affects the connection between trust and trade credit during banking crises. For each firm, we construct two measures of a firm's access to equity and debt during crises. First, we calculate *Accessibility to equity and debt*, which equals the average issuance of equity and debt (*Equity issuance* + *Debt issuance*) during crisis periods, [t, t + 3], minus the average issuance of equity and debt (*Equity issuance* + *Debt issuance*) before the crisis, [t – 3, t – 1]. Second, we calculate *Accessibility to equity and debt (dummy)*, which equals one if *Accessibility to equity and debt* is greater than the sample median and zero otherwise. We then redo the analyses while adding two additional interactions terms. When using the *Accessibility to equity and debt* measure, we include both the triple interaction term, *Trust*Crisis*Accessibility to equity and debt*, and *Accessibility to equity and debt*Crisis* into the baseline specification. We use an analogous specification when

examining *Accessibility to equity and debt (dummy)*. As shown in Internet Appendix Table IA7, all of the earlier results are robust to including these additional interaction terms to control for the firms' access to equity and debt markets.

5. Trust and Firm Profitability and Employment during Banking Crises

We now evaluate whether corporate profits and employment are more resilient to banking crises in economies with greater social trust. Social trust might shape corporate performance during crises through several mechanisms, including through trade credit. Specifically, by easing the ability of firms to access trade credit when bank credit dries up, social trust can mitigate the impact of banking crises on corporate profits and employment. There are other potential mechanisms. For example, economies with higher social trust might also be economies in which individuals and firms have strong trust in the ability of their government to manage banking crises. This mechanism suggests that trust could be linked to corporate resiliency to banking crises in a manner that does not involve trade credit. As another example, high social trust countries might also tend to have stronger labor protections laws, so that crises have less of an adverse impact on employment in such economics. In this section, we do not rule out all potential mechanisms linking social trust and corporate resiliency. Rather, our objectives are to assess (1) whether corporate profits and employment are more resilient to banking crises in economies with greater social trust and (2) whether the relations between corporate profits and employment and social trust vary in a manner that is consistent with the trade credit mechanism.

To conduct these examinations, we begin with equation (1) and use corporate profits and employment as dependent variables. Furthermore, we divide the sample into firms with high and low *Liquidity needs*. If *Trust* influences the resiliency of corporate profits and employment to a banking crisis by easing access to trade credit, then *Trust*Crisis* should only enter the regression positively and significantly when examining firms with high *Liquidity needs*. In addition to splitting the sample by *Liquidity needs* and controlling for the array of macroeconomic and institutional controls discussed above, we also account for two other potential mechanisms

linking social trust and corporate profits and employment. We control for the interaction between the crisis dummy variable and (a) an indicator of labor market protections and (b) an indicator of trust in the government. We first present the core results and then define these additional indicators and present the corresponding regression results.

As shown in Table 6, firms in high *Liquidity needs* industries in high-trust economies enjoy a smaller drop in profits (*EBIT*) than similar firms in low-trust countries. For example, consider column (2) for high *Liquidity needs* firms. The crisis dummy itself enters the regression negatively and significantly, meaning that banking crises on average lead to a reduction in firm profitability. However, the adverse effects of banking crises on profitability are less pronounced in high-trust economies, and especially among firms with high liquidity needs, as shown by the positive and significant coefficient on *Trust*Crisis*.

The economic magnitude of the estimated impact of trust on firm profitability is substantial. Consider the coefficient estimates on the sample of firms in high *Liquidity needs* industries (column (2) of Table 6). The estimates suggest that a one standard deviation increase in the measure of trust (0.168) leads to a two-percentage-point (=0.168*0.126) increase in *EBIT*. This amount is equivalent to 37% of the sample mean of *EBIT* (0.057), as shown in Table 1), and 18% of the standard deviation of *EBIT* (0.12). To further illustrate the economic size, consider (1) an "average" country that has average values of *Trust*, *GDP per capita*, *Financial institutions development*, *Stock market development*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*, and (2) a "high-trust" country with the same levels of all country characteristics except that *Trust* is one-standard deviation higher than the sample average, 0.496 (=0.328+0.168). According to the coefficient estimates in column (2), a banking crisis reduces *EBIT* on average by about 4% for the average country, and by 2% for the high-trust country.[7]

[7] We calculate the average effect of a banking crisis on *EBIT* by plugging the sample means of the macro variables and the corresponding coefficient estimates from column (2) of Table 6: -4.09% (= 0.126*0.328 - 0.28 + 0.0208*9.211 - 0.03*0.807 + 0.00000148*0.579 - 0.0275*0.287 + 0.0894*0.44 - 0.000518*2.059). In similar fashion, we calculate the effect of a banking crisis for the high-trust country using the corresponding coefficients in column (2): -1.97% (= 0.126*0.496 - 0.28 + 0.0208*9.211 - 0.03*0.807 + 0.00000148*0.579 - 0.0275*0.287 + 0.0894*0.44 - 0.000518*2.059).

Thus, *EBIT* among firms in high *Liquidity needs* industries in the high-trust country falls by about 50% less during banking crises than similar firms in countries with average levels of social trust.

Besides profits, social trust could also affect employment. If social trust eases a firm's access to trade credit when bank credit contracts during a crisis, then this could reduce the adverse effects of banking crises on firm employment. Thus, we test whether firms in high *Liquidity needs* industries in higher social trust economies have a smaller drop in employment during a banking crisis than similar firms in countries with lower social trust.

We find that high *Liquidity needs* firms in high-trust countries experience a smaller drop in *Firm employment* during banking crises than similar firms in low-trust countries. As shown in column (5) of Table 6, the interaction term, *Trust*Crisis*, enters positively and significantly at the 5% level in the high *Liquidity-needs* industries, indicating that trust helps mitigate the adverse shock of a crisis on *Firm employment* among industries that rely heavily on liquidity provisions. In contrast—and consistent with the theory of how social trust influences corporate resilience by facilitating access to trade credit, column (6) shows that the coefficient estimate on *Trust*Crisis* is insignificant in the low *Liquidity-needs* industries.

The estimated magnitudes are large.[8] Again, consider an "average" country and a "high-trust" country with *Trust*, which is the same as the average country except that it has one-standard deviation higher *Trust*. According to the OLS estimates in column (5) of Table 6, a banking crisis reduces corporate employment among high *Liquidity needs* firms by 25% in the average country, but by 20% in the high-trust country.[9] Thus, among high *Liquidity needs* firms, employment falls by almost 20% less during a systemic banking crisis in the high-trust country.

[8] Note that we can interpret the coefficients in percentage changes because *Firm employment* is defined as the natural logarithm of the total number of employees in a firm.

[9] We calculate the average effect of a systemic banking crisis by plugging in the sample average values and the corresponding coefficient estimates using column (5) of Table 6: -24.6% (=0.257*0.328 – 1.574 + 0.126*9.211 + 0.0818*0.807 – 0.0583*0.579 + 0.155*0.287 + 0.191*0.44 – 0.0377*2.059). Similarly, for the high-trust country, We plug in *Trust* with a value that is one standard deviation above the sample mean while holding other country characteristics with their mean values: -20.3% (=0.257*0.496 – 1.574 + 0.126*9.211 + 0.0818*0.807 – 0.0583*0.579 + 0.155*0.287 + 0.191*0.44 – 0.0377*2.059).

These results on corporate profits and employment are robust to many factors. First, the Table 6 regressions condition on the *Macro interaction controls*, i.e., the regressions include the interactions between *Crisis* and (a) *GDP per capita*, (b) *Financial institutions development*, (c) *Stock market development*, (d) *Private credit contraction*, (e) *Anti-self-dealing*, and (f) *Creditor rights*. Furthermore, the regressions include firm and year fixed effects, as well as time-varying *Firm controls* (*Firm size*, *Long-term debt*, and *Tobin's Q*). Second, Table 7 shows that the results are robust to controlling for the level of development of formal institutions. As in Table 3, Table 7 (columns (1) – (4) of Panel A and B) controls for the interaction between *Crisis* and *Rule of law* and *Institutional quality* and demonstrates that all of the results hold.[10] Third, the results are robust to examining alternative measures of firm performance, such as *Net income* and corporate *Cash flow* (Internet Appendix Table IA8), or to using alternative measures of the technological level of liquidity needs, such as *Inventories/CoGS* and *Trade credit reliance* (Internet Appendix Table IA9).

As discussed above, we were concerned that social trust might be correlated with labor protection laws and that it is these labor protection laws, not social trust per se, that shape the resilience of corporate employment during banking crisis. To address this concern, we use data on the degree to which each country's labor laws and regulations restrict the ability of firms to dismiss individuals or groups of workers. These data are from the *OECD Employment Protection Database*, but also cover non-OECD countries. *Labor protection laws* is an index between zero and six, where higher values indicate greater labor market protections. The index includes information on (1) procedural impediments employers face when starting to fire workers, such as notification procedures; (2) the length of the notice period and the generosity of severance pay; (3) the difficulty of dismissal, as determined by the circumstances in which it is justifiable to fire a worker and the compensation and possibilities of reinstatement following unfair dismissal; and (4) additional costs and impediments to dismissing a large number of workers. Thus, in addition

[10] As shown in Internet Appendix Table IA10, all of these results hold when using the two alternative metrics for differentiating between high- and low-liquidity needs industries: *Inventories/CoGS* and *Trade credit reliance*.

to all of the controls included in Table 6, we also include the interaction between *Crisis* and *Labor protection laws* in Table 7 (columns (5) – (6) of Panel A and B), where we continue to split the sample based on the median value of the industrial *Liquidity needs*.

As shown in Table 7, all of the results reported in Table 6 hold when controlling for *Labor protection laws*. In the high *Liquidity needs* sample, *Trust*Crisis* enters positively and significantly in both the corporate profit and employment regressions. Furthermore, the estimated coefficients are similar to those reported above. The results also highlight the role of labor regulations during crises. As reported in Panel B of Table 7 (column (5)), the coefficient on *Labor protection*Crisis* enters positively and significantly. This finding suggests that stringent labor regulations are associated with smaller reductions in corporate employment during banking crises.

We also explore whether the results are driven by a strong correlations between social trust and trust in government's ability to resolve a banking crisis. As noted, if firms and individuals have greater trust that the government will quickly and effectively fix the banking crisis, then corporate profits and employment may tend to fall less than if the public has less trust in the competency of the government. Thus, our results might reflect trust in government rather than social trust and potential linkages through trade credit. We partially address this concern by showing that the results only hold for high *Liquidity needs* firms and by controlling for the interaction between *Crisis* and many country traits. But, we also push this further by including a separate interaction term: *Trust in government*Crisis*, where *Trust in government* is a measure of the degree to which people trust the government that is taken from the *World Values Survey*. It measures the degree of confidence people have in the government and is based on asking people: "How much confidence do you have in the government: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?" We use the value in year at *t*-3, where *t* is the start year of a banking crisis.

As shown in Table 7 (columns (7) – (8) of Panel A and B), all of the results hold when controlling for *Trust in government*Crisis*. That is, *Trust*Crisis* enters positively and

significantly in both the corporate profit and employment regressions in the sample of firms with high *Liquidity needs*. Furthermore, the estimated coefficients are in similar magnitude to those reported in Table 6. These findings suggest that the results in Table 6 are not simply driven by people's confidence in the government.

Finally, we also note that the results are robust to controlling for differential trends, as shown in Table 8. In a series of sensitivity analyses, we add to the regressions the interactions between time trends (*Trends*) and (1) country effects, (2) country-industry effects, and (3) firm effects. Panel A provides the results on profits, while Panel B provides the results on firm employment. All of the results on both profits and employment from Table 6 hold when conditioning on either *Country dummy*Trends* or *Country-Industry dummy*Trends* as shown Table 8. The results on profits also hold when including for *Firm dummy*Trends* effects. When examining employment and controlling for *Firm dummy*Trends*, as well as the other control variables, we continue to find that (1) the *Trust*Crisis* interaction terms enter positively and significantly, inducting that corporate employment is more resilient to systemic banking crises in high trust economies and (2) the point estimates for the high *Liquidity needs* industries are greater than those in low *Liquidity needs* industries, but the difference between these high and low *Liquidity needs* industries in these employment regressions when controlling for individual firm trends is not statistically significant. With this caveat, the results on the connection between social trust and corporate resilience to systemic banking crises are quite robust to controlling for trends.

6. Conclusion

In this paper, we investigate whether social trust improves corporate resilience to systemic banking crises. Although there are enormous bodies of research on both financial crises and social trust, we are unaware of any previous research on the role of social trust in affecting the response of firms and economies to systemic banking crises.

The results suggest that (1) social trust facilitates access to trade credit during systemic banking crises that impede the normal bank-lending channel, (2) social trust makes corporate profits and employment more resilient to banking crises, and (3) the impact of social trust on trade credit financing and corporate performance is more pronounced among firms that for technological reasons rely heavily on short-term liquidity. The findings are not explained by other country characteristics including (a) the severity of a banking crisis, (b) the development of financial institutions and stock markets, (c) the legal protections pertaining to creditors and shareholders, (d) the overall economic conditions, (e) the general legal rules and institutional quality. The results emphasize the heterogeneous response of firms and economies to systemic banking crises. Along with Levine, Lin, and Xie (2016), this paper shows that economies and firms that facilitate nonbank forms of finance increase resiliency to failures in the banking system.

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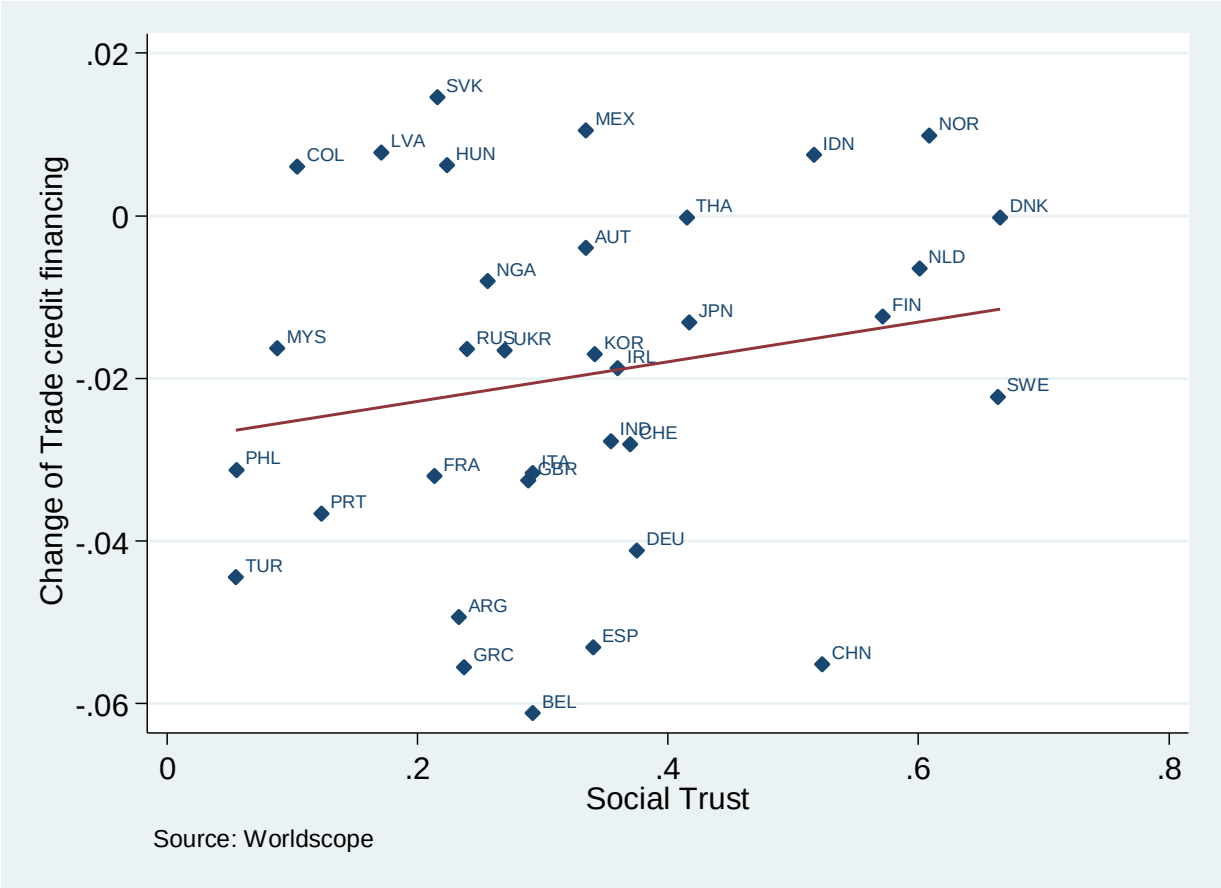

Figure 1. Trade credit financing during a banking crisis, by country

Each dot in the figure represents the average change in the ratio of *Trade credit financing/CoGS* for firms in a country, against the level of social trust in the country. Specifically, we first calculate for each firm the difference between *Trade credit financing/CoGS* during a crisis, [*t*, *t*+3], and before the crisis, [*t*-3, *t*-1]. We then average this difference across all of the firms within each individual country, and plot the averaged difference in a country against its level of social trust.

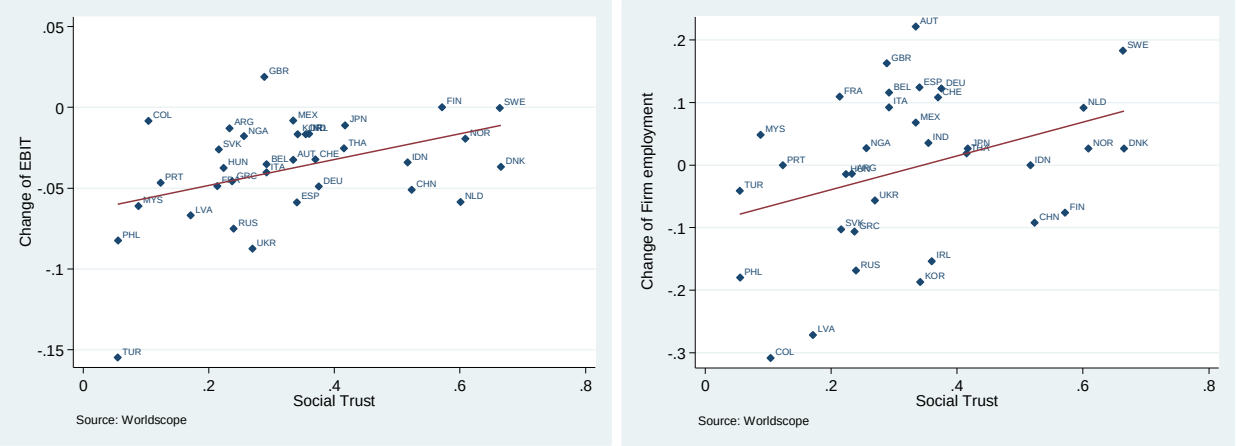

Figure 2. Firm performance during a banking crisis, by country

Each dot in the figure represents the average change in the ratio of earnings before interest and taxes (EBIT) to total assets (*EBIT/Total assets*) in the left panel, and the average change in the number of employees (*Ln(Employees)*) in the right panel, for firms in a country, against the level of social trust in the country. Specifically, we first calculate for each firm the difference between *EBIT/Total assets* (*Ln(Employees)*) during a crisis, [*t*, *t*+3], and before the crisis, [*t*-3, *t*-1]. We then average this difference across all of the firms within each individual country, and plot the averaged difference in a country against its level of social trust.

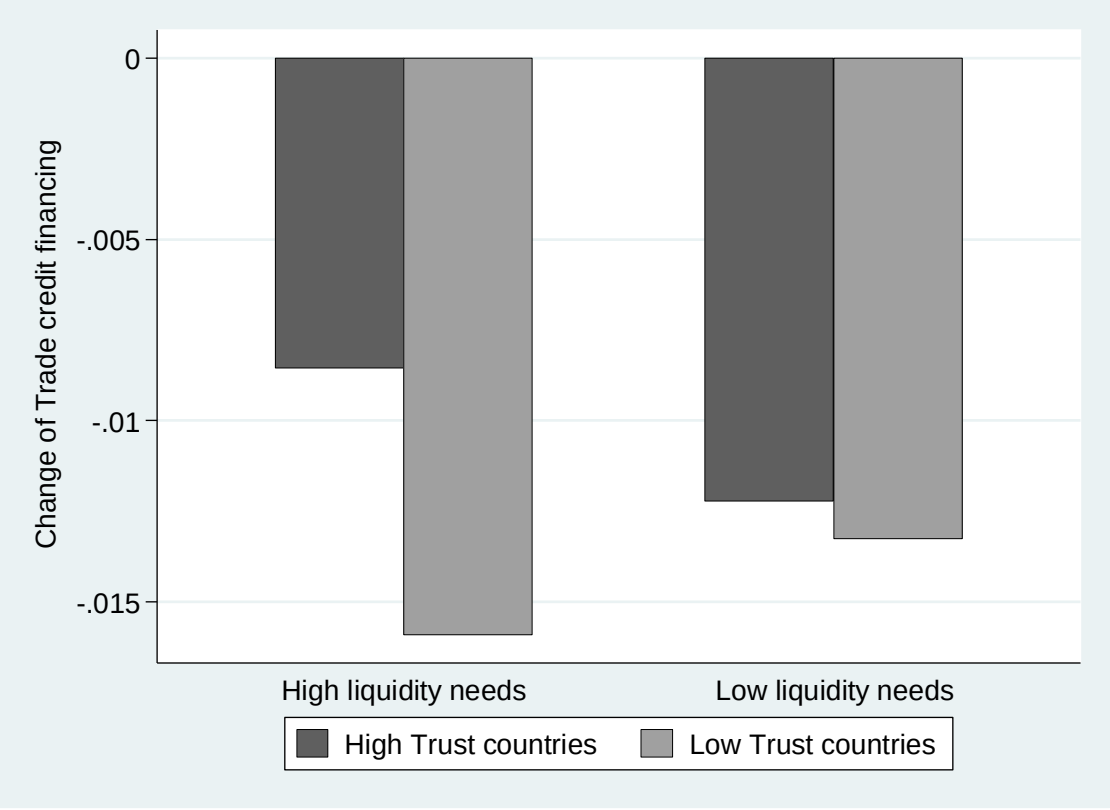

Figure 3. Trade credit financing during a banking crisis, differentiating between high- and low-trust countries in high-liquidity-needs industries, and in low-liquidity-needs industries

Each bar in the figure represents the average change in the ratio of trade credit financing to total assets (*Trade credit financing/Total assets*). Specifically, we first calculate for each firm the difference between *Trade credit financing/ Total assets* during a crisis, [*t*, *t*+3], and before the crisis, [*t*-3, *t*-1]. We then average this difference across firms for four groups: high-liquidity-needs industries among high- vs. low-trust countries, and low-liquidity-needs industries among high- vs. low-trust countries.

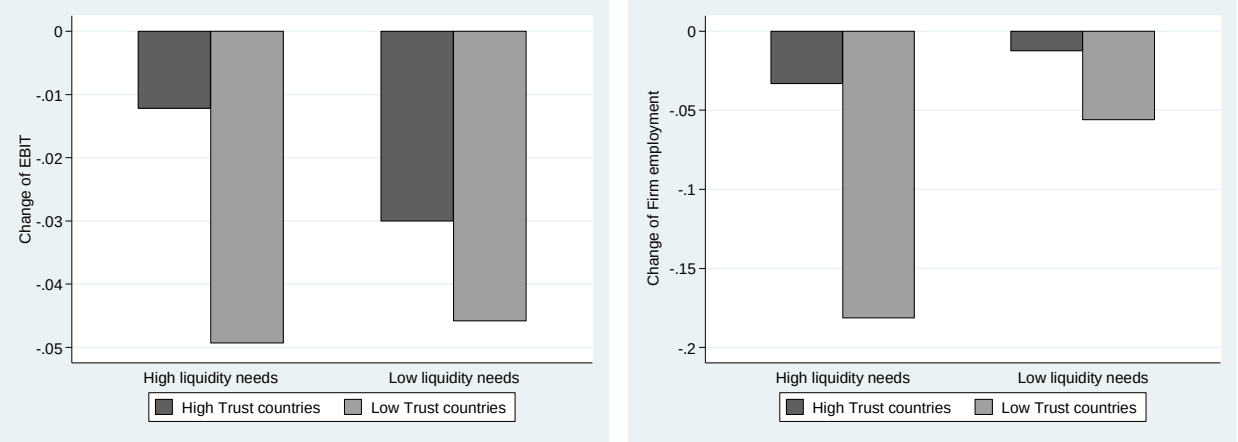

Figure 4. Firm performance during a banking crisis, differentiating between high- and low-trust countries in high-liquidity-needs industries, and in low-liquidity-needs industries

Each bar in the figure represents the average change in the ratio of earnings before interests and taxes to total assets (*EBIT/Total assets*) in the left panel, and the average change in the ratio of the total number of employees to total assets (*Employees/Total assets*) in the right panel. Specifically, we first calculate for each firm the difference between *EBIT/Total assets* (*Employees/Total assets*) during a crisis, [*t*, *t*+3], and before the crisis, [*t*-3, *t*-1]. We then average this difference across firms for four groups: high-liquidity-needs industries among high- vs. low-trust countries, and low-liquidity-needs industries among high- vs. low-trust countries.

Table 1 Summary statistics

Variable	N	MEAN	SD	MIN	P25	P50	P75	MAX
Trust	34	0.328	0.168	0.055	0.223	0.313	0.415	0.665
GDP per capita	34	9.211	1.455	5.999	8.295	9.570	10.492	10.854
Financial institutions development	34	0.807	0.511	0.121	0.323	0.737	1.132	1.997
Stock market development	34	0.579	0.592	0.049	0.193	0.416	0.774	2.792
Private credit contraction	34	0.287	0.226	0.018	0.101	0.217	0.468	0.780
Anti-self-dealing	34	0.440	0.219	0.081	0.282	0.425	0.544	0.950
Creditor rights	34	2.059	1.099	0	1	2	3	4
Rule of law	34	0.698	0.967	-1.081	-0.005	0.764	1.623	1.945
Institutional quality	34	-0.088	2.514	-4.833	-2.623	0.102	2.499	3.277
Crisis	237	0.586	0.494	0	0	1	1	1
Trade credit financing/CoGS	22599	0.007	0.076	-0.317	-0.019	0.005	0.031	0.366
Trade credit financing/total assets	22775	0.008	0.047	-0.123	-0.011	0.003	0.021	0.256
Equity issuance	19892	0.031	0.159	-0.289	-0.006	0.001	0.019	1.305
Debt issuance	21776	0.021	0.111	-0.232	-0.025	0.000	0.042	0.618
EBIT	23177	0.057	0.120	-0.527	0.018	0.051	0.103	0.493
Net income	23493	0.021	0.102	-0.539	0.001	0.021	0.059	0.352
Cash flow	22136	0.063	0.109	-0.486	0.025	0.061	0.109	0.429
Firm employment	20982	7.078	1.841	0.000	5.969	6.958	8.167	13.126
Firm size	23386	12.736	1.925	7.773	11.479	12.645	13.902	17.929
Long-term debt	23386	0.121	0.117	0.000	0.014	0.096	0.195	0.523
Tobin's Q	23386	0.255	0.442	-0.664	-0.015	0.185	0.441	1.891
Liquidity needs	2079	0.151	0.053	0.012	0.116	0.147	0.182	0.364
Inventories/CoGS	2079	0.228	0.092	0.021	0.169	0.211	0.288	0.650
Trade credit reliance	2079	0.404	0.239	0.055	0.276	0.361	0.464	2.717

Table 2 Social trust and trade credit over banking crises, [*t*-3, *t*+3]

This table reports regression results of the relation between social trust and firms' trade credit received during banking crisis episodes [*t*-3, *t*+3], where *t* is the start-year of a systemic banking crisis defined in Laeven and Valencia (2012). The dependent variables are the net increase in trade credit financing as a share the cost of goods sold (*Trade credit financing/CoGS*) in columns (1)-(3) and the net increase in trade credit financing as share of total assets (*Trade credit financing/Total assets*) in columns (4)-(6). For each dependent variable, there are three columns corresponding, in turn, to overall sample, high liquidity needs industries, and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*, which is defined as the ratio of inventories to total sales calculated at the three-digit SIC level (Raddatz, 2006). *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. *GDP per capita* equals the natural logarithm of real gross domestic product (GDP) per capita, measured three years before the start-year of the banking crisis. *Financial institutions development* equals the ratio of private credit by deposit money banks and other financial institutions to GDP, measured three years before the start-year of the banking crisis. *Stock market capitalization* equals the ratio of stock market capitalization to GDP, measured three years before the start-year of the banking crisis. *Private credit contraction* equals the average annual growth rate in bank credit to private firms between *t*-3 and *t*-1, where *t* is the start-year of the crisis, minus the minimum annual growth rate of bank credit to private firms during the period between *t* and *t*+3. *Anti-self-dealing* is an index of the extent to which minority shareholders are protected by the laws from being expropriated by the insiders through self-dealing transactions. *Creditor rights* is an index of the laws provide creditors the legal ability to voice their opinions, get repaid, and affect the reorganization process. *Firm size (lag)* equals the logarithm of total assets lagged one year. *Long-term debt (lag)* equals long-term debt divided by total assets lagged one year. *Tobin's q (lag)* equals Ln [(Market value of equity + Book value of assets - Book value of equity) / Book value of assets] lagged one year. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

	Trade credit financing/CoGS			*Trade credit financing/Total assets*		
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)
Trust*Crisis	**0.0162**	**0.0369*** **	**-0.00907**	**0.0132***	**0.0274*** **	**-0.00307**
	(1.367)	**(4.044)**	**(-0.551)**	**(2.024)**	**(4.316)**	**(-0.246)**
Crisis	-0.00436	-0.00120	-0.00316	0.00167	-0.00477	0.00863
	(-0.166)	(-0.0544)	(-0.115)	(0.0812)	(-0.286)	(0.353)
*GDP per capita*Crisis*	-0.00145	-0.00321	-0.000390	-0.00158	-0.000642	-0.00246
	(-0.579)	(-1.543)	(-0.149)	(-0.764)	(-0.365)	(-1.000)
*Financial institutions development*Crisis*	-0.00725	-0.0121**	-0.00151	-0.00673***	-0.0139***	-0.000267
	(-1.625)	(-2.619)	(-0.288)	(-2.754)	(-4.086)	(-0.0885)
*Stock market development*Crisis*	0.00706**	0.00858***	0.00489	0.00362**	0.00612***	0.00127
	(2.207)	(4.528)	(1.032)	(2.414)	(4.171)	(0.637)
*Private credit contraction*Crisis*	0.0196	0.00111	0.0327**	0.00711	-0.00499	0.0139
	(1.609)	(0.0900)	(2.706)	(0.679)	(-0.484)	(1.211)
*Anti-self-dealing*Crisis*	-0.00961	0.00448	-0.0210*	-0.00128	0.00800	-0.00924
	(-1.058)	(0.425)	(-1.897)	(-0.268)	(1.376)	(-1.623)
*Creditor rights*Crisis*	0.00338**	0.00331**	0.00377**	0.00259***	0.00245***	0.00303***
	(2.504)	(2.496)	(2.289)	(4.678)	(3.638)	(3.466)
Firm size (lag)	-0.0464***	-0.0481***	-0.0450***	-0.0381***	-0.0415***	-0.0355***
	(-11.89)	(-9.215)	(-10.65)	(-13.49)	(-10.24)	(-11.39)
Long-term debt (lag)	0.0251*	0.00851	0.0379**	0.0186**	0.0102	0.0257**
	(1.883)	(0.469)	(2.726)	(2.226)	(1.120)	(2.730)

Tobin's Q (lag)	0.0134***	0.0130***	0.0137**	0.00795***	0.00999***	0.00565*
	(2.792)	(3.053)	(2.121)	(3.737)	(4.348)	(1.815)
Constant	0.541***	0.547***	0.546***	0.451***	0.502***	0.427***
	(10.58)	(8.206)	(9.726)	(12.76)	(9.463)	(11.53)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,599	11,296	11,303	22,775	11,365	11,410
Country cluster	34	33	34	34	33	34
Adjusted R2	0.0629	0.0782	0.0532	0.0904	0.102	0.0837
F-statistic (β_High-β_Low=0)		10.43***			4.92**	
Prob > chi2		(0.0012)			(0.0266)	

Table 3 Social trust and trade credit: Additional controls

This table reports regression results of the relation between social trust and firms' trade credit received during banking crisis episodes, while controlling for measures of legal and institutional development. The dependent variables are the net increase in trade credit financing as a share the cost of goods sold (*Trade credit financing/CoGS*) in columns (1)-(4) and the net increase in trade credit financing as share of total assets (*Trade credit financing/Total assets*) in columns (5)-(8). For each dependent variable, results are provided for both high and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*, which equals the ratio of inventories to total sales calculated at the three-digit SIC level (Raddatz, 2006). *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. Columns (1)-(2) and (5)-(6) control for the interaction between *Crisis* and the *Rule of law*, which measures the quality of contract enforcement, property rights, and control over crime and violence. Columns (3)-(4) and (7)-(8) control for the interaction between *Crisis* and *Institutional quality*, which is a broad index of institutional quality, including Property rights, Voice of accountability, Political stability and absence of violence, Government effectiveness, Regulatory quality, Rule of law, and Control of corruption. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, and *Tobin's q (lag)*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

	Trade credit financing/CoGS				*Trade credit financing/Total assets*			
	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trust*Crisis	**0.0381*** **	**-0.00842**	**0.0359*** **	**-0.0124**	**0.0323*** **	**-0.000275**	**0.0306*** **	**-0.00291**
	(4.113)	**(-0.493)**	**(3.979)**	**(-0.760)**	**(4.780)**	**(-0.0211)**	**(4.602)**	**(-0.229)**
Crisis	-0.00486	-0.00486	0.00239	0.0114	-0.0190	0.00129	-0.0174	0.00793
	(-0.219)	(-0.149)	(0.0980)	(0.275)	(-0.952)	(0.0527)	(-0.728)	(0.271)
*Rule of law*Crisis*	-0.00119	-0.000744			-0.00461	-0.00320		
	(-0.313)	(-0.125)			(-1.149)	(-0.911)		
*Institutional quality*Crisis*			0.000341	0.00151			-0.00119	-0.0000716
			(0.185)	(0.472)			(-0.592)	(-0.0368)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,296	11,303	11,296	11,303	11,365	11,410	11,365	11,410
Country cluster	33	34	33	34	33	34	33	34
Adjusted R2	0.0782	0.0531	0.0782	0.0531	0.102	0.0838	0.102	0.0837
F-statistic (β_High-β_Low=0)	10.87***		12.44***		5.92**		6.30**	
Prob > chi2	(0.0010)		(0.0004)		(0.0150)		(0.0120)	

Table 4 Social trust and trade credit over banking crises, controlling for time trends

This table reports regression results of the relation between social trust and firms' newly obtained trade credit during banking crisis episodes, while controlling for different trends within country, country-industry, and individual firms. The dependent variables are the net increase in trade credit financing as a share the cost of goods sold (*Trade credit financing/CoGS*) throughout the columns. For each set of time trends there are three columns corresponding to the overall sample, high liquidity needs industries, and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*, which equals the ratio of inventories to total sales calculated at the three-digit SIC level (Raddatz, 2006). *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. Columns (1)-(3) control for the interaction between country dummy and the time trends variable, *Trends*, indicating one of the years over [*t*-3, *t*+3]. In particular, *Trends* is set to one for *t*-3, two for *t*-2, three for *t*-3, four for *t*, five for *t*+1, six for *t*+2, and seven for *t*+3. Columns (4)-(6) control for the interaction between country-industry (at the three-digit SIC level) dummy and *Trends*. Columns (7)-(9) control for the interaction between individual firm dummy and *Trends*. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, and *Tobin's q (lag)*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

	Trade credit financing/CoGs								
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Trust*Crisis	**0.0719*** **	**0.102*** **	**0.0342**	**0.0692** **	**0.102*** **	**0.0268**	**0.0661** **	**0.108*** **	**0.0163**
	(2.894)	**(4.572)**	**(1.022)**	**(2.666)**	**(4.336)**	**(0.803)**	**(2.343)**	**(4.067)**	**(0.464)**
Crisis	0.0361	0.0177	0.0680	0.0388	0.0230	0.0727	0.0489	0.0463	0.0783
	(0.755)	(0.412)	(1.051)	(0.751)	(0.499)	(1.049)	(0.774)	(0.832)	(0.955)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummy*Trends	Yes	Yes	Yes						
Country-Industry dummy*Trends				Yes	Yes	Yes			
Firm dummy*Trends							Yes	Yes	Yes
Observations	22,599	11,296	11,303	22,599	11,296	11,303	22,599	11,296	11,303
Country cluster	34	33	34	34	33	34	34	33	34
Adjusted R2	0.0686	0.0837	0.0588	0.0845	0.0907	0.0832	0.115	0.102	0.133
F-statistic (β_High-β_Low=0)		5.60**			8.14***			12.56***	
Prob > chi2		(0.0179)			(0.0043)			(0.0004)	

Table 5 Social trust and formal finance over banking crises

This table reports regression results of the relation between social trust and firms' issuances of equity and debt during banking crises. The dependent variables are *Equity issuance* in columns (1)-(3) and *Debt issuance* in columns (4)-(6). For each dependent variable, there are three columns corresponding, in turn, to overall sample, high liquidity needs industries, and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*. *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, *Tobin's q (lag)*, and *Cash flow*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

	Equity issuance			*Debt issuance*		
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)
Trust*Crisis	**0.0335**	**0.0455**	**0.0254**	**0.0195**	**0.0439**	**-0.00939**
	(1.037)	**(1.279)**	**(0.979)**	**(0.674)**	**(1.347)**	**(-0.285)**
Crisis	0.0400	0.0465	0.0154	-0.00421	0.00589	-0.00590
	(0.681)	(0.446)	(0.266)	(-0.0559)	(0.0660)	(-0.0813)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,892	9,939	9,953	21,776	10,773	11,003
Country cluster	34	32	33	34	33	34
Adjusted R2	0.114	0.119	0.120	0.116	0.0966	0.138
F-statistic (β_High-β_Low=0)		0.74			3.07*	
Prob > chi2		(0.3910)			(0.0799)	

Table 6 Social trust and firm performance over banking crises

This table reports regression results of the relation between social trust and firms' profits and employment. The dependent variables are earnings before income and taxes (*EBIT*) in columns (1) – (3) and the natural logarithm of the number of one thousand employees (*Firm employment*) in columns (4) – (6). For each dependent variable, there are three columns corresponding, in turn, to overall sample, high liquidity needs industries, and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*. *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, and *Tobin's q (lag)*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

	EBIT			*Firm employment*		
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)
Trust*Crisis	**0.0716*** (2.924)**	**0.126*** (6.929)**	**0.0269 (1.008)**	**0.104 (0.858)**	**0.257** (2.377)**	**-0.0583 (-0.465)**
Crisis	-0.159*** (-4.694)	-0.280*** (-7.820)	-0.0798* (-1.896)	-0.774** (-2.108)	-1.574*** (-5.824)	-0.214 (-0.555)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,177	11,572	11,605	20,982	10,463	10,519
Country cluster	34	34	34	34	32	34
Adjusted R2	0.115	0.127	0.111	0.221	0.262	0.186
F-statistic (β_High-β_Low=0)		28.39***			10.44***	
Prob > chi2		(0.0000)			(0.0012)	

Table 7 Social trust and firm performance: Additional controls

This table reports regression results of the relation between social trust and profits and employment during banking crises episodes, while controlling for laws and institutions, namely the interaction of *Crisis* and (a) *Rule of law*, (b) *Institutional quality*, (c) *Labor protection laws*, and (d) *Trust in government*. The dependent variables are the earnings before income and taxes (*EBIT*) in Panel A and the natural logarithm of the number of one thousand employees (*Firm employment*) in Panel B. For each dependent variable, results are provided for both high and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*, which equals the ratio of inventories to total sales calculated at the three-digit SIC level (Raddatz, 2006). *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. *Rule of law* measures the quality of contract enforcement, property rights, and control over crime and violence; *Institutional quality* is a broad index of institutional quality, including Property rights, Voice of accountability, Political stability and absence of violence, Government effectiveness, Regulatory quality, Rule of law, and Control of corruption; *Labor protection laws* measures the costs and impediments employers face when dismissing workers; and *Trust in government* measures the average degree of confidence people have in their government. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, and *Tobin's q (lag)*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

Panel A: Firm profits

	EBIT							
	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trust*Crisis	**0.109*** **	**0.0198**	**0.103*** **	**0.0210**	**0.129*** **	**0.0390**	**0.148*** **	**0.0443**
	(5.052)	**(0.735)**	**(5.092)**	**(0.806)**	**(6.645)**	**(1.669)**	**(6.189)**	**(1.382)**
Crisis	-0.230***	-0.0618	-0.192***	-0.0556	-0.243***	-0.0795	-0.301***	-0.110**
	(-6.531)	(-1.485)	(-5.760)	(-1.277)	(-3.042)	(-1.307)	(-7.980)	(-2.172)
*Rule of law*Crisis*	0.0159**	0.00752						
	(2.673)	(1.369)						
*Institutional quality*Crisis*			0.00823***	0.00242				
			(3.612)	(0.857)				
*Labor protection laws*Crisis*					-0.00718	-0.00682		
					(-0.631)	(-0.840)		
*Trust in government*Crisis*							0.0289	0.0217
							(1.350)	(1.132)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,572	11,605	11,572	11,605	11,404	11,448	11,572	11,605
Country cluster	34	34	34	34	31	31	34	34
Adjusted R2	0.128	0.111	0.128	0.111	0.121	0.116	0.127	0.112
F-statistic (β_High-β_Low=0)	15.48***		12.79***		43.00***		17.11***	
Prob > chi2	(0.0001)		(0.0003)		(0.0000)		(0.0000)	

Panel B: Firm employment

	Firm employment							
	High *Liquidity Needs* (1)	Low *Liquidity Needs* (2)	High *Liquidity Needs* (3)	Low *Liquidity Needs* (4)	High *Liquidity Needs* (5)	Low *Liquidity Needs* (6)	High *Liquidity Needs* (7)	Low *Liquidity Needs* (8)
Trust*Crisis	**0.293*** **	**-0.107**	**0.269** **	**-0.121**	**0.242** **	**-0.0209**	**0.407*** **	**0.00830**
	(2.771)	**(-0.791)**	**(2.557)**	**(-0.843)**	**(2.309)**	**(-0.181)**	**(4.595)**	**(0.0430)**
Crisis	-1.705***	-0.0346	-1.628***	0.0803	-2.512***	-0.616	-1.698***	-0.308
	(-5.491)	(-0.0823)	(-4.650)	(0.162)	(-6.101)	(-0.954)	(-8.309)	(-0.780)
*Rule of law*Crisis*	-0.0370	0.0623						
	(-0.801)	(0.712)						
*Institutional quality*Crisis*			-0.00484	0.0284				
			(-0.256)	(0.790)				
*Labor protection laws*Crisis*					0.159**	0.0344		
					(2.475)	(0.411)		
*Trust in government*Crisis*							0.178*	0.0744
							(1.948)	(0.448)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,463	10,519	10,463	10,519	10,314	10,399	10,463	10,519
Country cluster	32	34	32	34	29	31	32	34
Adjusted R2	0.262	0.187	0.262	0.187	0.265	0.189	0.263	0.186
F-statistic (β_High-β_Low=0)	15.98***		12.37***		7.42***		5.67**	
Prob > chi2	(0.0001)		(0.0004)		(0.0065)		(0.0173)	

Table 8 Social trust and firm performance over banking crises, controlling for time trends

This table reports regression results of the relation between social trust and firms' profits and employment during banking crisis episodes, while controlling for differential trends within country, country-industry, and individual firms. The dependent variables are the earnings before income and taxes (*EBIT*) in Panel A and the natural logarithm of the number of one thousand employees (*Firm employment*) in Panel B. For each set of time trends control, there are three columns corresponding to the overall sample, high liquidity needs industries, and low liquidity needs industries, where we partition industries by the median value of *Liquidity needs*, which equals the ratio of inventories to total sales calculated at the three-digit SIC level (Raddatz, 2006). *Crisis* equals one in the start-year of a crisis and for the three years afterward, [*t*, *t*+3], and zero otherwise, [*t*-3, *t*-1]. For both Panels, Columns (1)-(3) control for the interaction between country dummy and the time trends variable, *Trends*, indicating one of the years over [*t*-3, *t*+3]. In particular, *Trends* is set to one for *t*-3, two for *t*-2, three for *t*-3, four for *t*, five for *t*+1, six for *t*+2, and seven for *t*+3. Columns (4)-(6) control for the interaction between country-industry (at the three-digit SIC level) dummy and *Trends*. Columns (7)-(9) control for the interaction between individual firm dummy and *Trends*. The *Macroeconomic interaction controls* include *Crisis* interacted with: *GDP per capita*, *Financial institutions development*, *Stock market capitalization*, *Private credit contraction*, *Anti-self-dealing*, and *Creditor rights*. The *Firm controls* include: *Firm size (lag)*, *Long-term debt (lag)*, and *Tobin's q (lag)*. Table A1 provides variable definitions. Regression coefficients are estimated using ordinary least squares (OLS). T-statistics are reported in parenthesis and calculated using robust standard errors clustered at the country level. *, **, and *** represent significant levels at 10%, 5%, and 1%, respectively.

Panel A: Firm profits

	EBIT								
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Trust*Crisis	**0.0550**	**0.126*** **	**-0.0134**	**0.0565***	**0.129*** **	**-0.0129**	**0.0440**	**0.104*** **	**-0.0172**
	(1.691)	**(3.985)**	**(-0.419)**	**(1.726)**	**(3.946)**	**(-0.402)**	**(1.242)**	**(2.940)**	**(-0.521)**
Crisis	0.0234	-0.0381	0.0835	0.0414	-0.0314	0.0984	0.0586	0.00255	0.0959
	(0.332)	(-0.431)	(1.286)	(0.573)	(-0.345)	(1.510)	(0.777)	(0.0268)	(1.420)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummy*Trends	Yes	Yes	Yes						
Country-Industry dummy*Trends				Yes	Yes	Yes			
Firm dummy*Trends							Yes	Yes	Yes
Observations	23,177	11,572	11,605	23,177	11,572	11,605	23,177	11,572	11,605
Country cluster	34	34	34	34	34	34	34	34	34
Adjusted R2	0.125	0.138	0.123	0.196	0.214	0.181	0.338	0.349	0.332
F-statistic (β_High-β_Low=0)		26.30***			24.40***			18.48***	
Prob > chi2		(0.0000)			(0.0000)			(0.0000)	

Panel B: Firm employment

	Firm employment								
	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*	All	High *Liquidity Needs*	Low *Liquidity Needs*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Trust*Crisis	**0.283*** **	**0.274***	**0.262*** **	**0.313** **	**0.326** **	**0.284*** **	**0.300** **	**0.316***	**0.281** **
	(2.792)	**(1.852)**	**(3.608)**	**(2.728)**	**(2.079)**	**(3.060)**	**(2.227)**	**(1.772)**	**(2.589)**
Crisis	0.375**	0.0889	0.564**	0.440**	0.203	0.587**	0.583***	0.460	0.652**
	(2.109)	(0.309)	(2.403)	(2.411)	(0.749)	(2.170)	(3.022)	(1.535)	(2.285)
Macro interaction controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummy*Trends	Yes	Yes	Yes						
Country-Industry dummy*Trends				Yes	Yes	Yes			
Firm dummy*Trends							Yes	Yes	Yes
Observations	20,982	10,463	10,519	20,982	10,463	10,519	20,982	10,463	10,519
Country cluster	34	32	34	34	32	34	34	32	34
Adjusted R2	0.248	0.279	0.225	0.366	0.383	0.352	0.530	0.528	0.538
F-statistic (β_High-β_Low=0)		0.01			0.13			0.12	
Prob > chi2		(0.9221)			(0.7153)			(0.7281)	

Appendix: Table A1 Variable definitions and sources

Variable	Definition	Source
Social capital		
Trust	It is assessed by asking people the following question: "*Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?*" We calculate as the level of trust the percentage of respondents in each nation choosing the option of "*most people can be trusted*". We use the trust level at *t*-3, where *t* is the start year of a banking crisis.	World Values Survey (WVS)
Systemic banking crises		
Crisis	Equals one at the start year of a crisis and *three* years after, [*t*, *t*+3]. The start year of a systemic banking crisis shows significant signs of banking sector distress, and significant policy intervention.	Laeven and Valencia (2013), IMF
Firm-level variables		
Trade credit financing/CoGS	Accounts payable at the end of period *t* minus Accounts payment at the beginning of period *t* / Cost of goods sold during period *t*.	Worldscope
Trade credit financing/Total assets	Accounts payable at the end of period *t* minus Accounts payment at the beginning of period *t* / Book value of total assets at the beginning of period *t*.	Worldscope
Debt issuance	Total debt at the end of period *t* minus Total debt at the beginning of period *t* /Book value of total assets at the beginning of period *t*, where total debt equals the sum of short-term debt and long-term debt excluding capitalized leases.	Worldscope
Equity issuance	(ΔCommon equity + ΔDeferred tax - ΔRetained earnings) /Book value of total assets at the beginning of period *t*, where ΔCommon equity equals Common equity at the end of period *t* minus Common equity at the beginning of period *t*, ΔDeferred tax equals Deferred tax at the end of period *t* minus Deferred tax at the beginning of period *t*, ΔDeferred tax is treated as zero when missing, and ΔRetained earnings equals Retained earnings at the end of period *t* minus Retained earnings at the beginning of period *t*.	Worldscope
EBIT	Earnings before interest and tax during period *t* / Book value of total assets at the beginning of period *t*.	Worldscope
Net income	Net income after dividends / Book value of total assets at the beginning of period *t*.	Worldscope
Cash flow	(Net Income after dividends + Depreciations & Amortizations) during period *t* / Book value of total assets at the beginning of period *t*.	Worldscope
Firm employment	Natural logarithm of the number of one thousand employees, so for a firm with 1,000 or fewer employees *Firm employment* equals zero.	Worldscope
Firm size	Natural logarithm of the book value of total assets.	Worldscope
Long-term debt	Long-term debt / Book value of total assets.	Worldscope
Tobin's Q	Natural logarithm of market value of total assets / book value of total assets, where market value	Worldscope

	of total assets equals market value of equity plus book value of assets minus book value of equity, and market value of equity equals the stock price at the end of period *t* multiplied by the total number outstanding shares.	
Industry-level characteristics		
Liquidity needs	We use the U.S. data over a ten-year window, [*t*-10, *t*-1], for each crisis country to construct the index, where *t* is the start year of the crisis. We first compute the ratio of inventories to sales for each U.S. manufacturing firm, and obtain in each firm the median value of the ratio over its ten-year window. Then we take the median ratio across firms with the same three-digit U.S. SIC code as the proxy for that industry.	Calculated by the authors using data from Compustat and CRSP, Raddatz (2006)
Inventories/CoGS	An alternative measure of liquidity needs. Similar to the procedure above, we use a ten-year window, [*t*-10, *t*-1], for each crisis country to construct the index, where *t* is the start year of the crisis. We first compute the ratio of inventories to the cost of goods sold for each U.S. manufacturing firm, and obtain in each firm the median value of the ratio over its ten-year window. Then we take the median ratio across firms with the same three-digit U.S. SIC code as the proxy for that industry.	Calculated by the authors using data from Compustat and CRSP, Raddatz (2006)
Trade credit reliance	An alternative measure of liquidity needs that captures the industrial reliance on trade credit. Similar to the procedure above, we use a ten-year window, [*t*-10, *t*-1], for each crisis country to construct the index, where *t* is the start year of the crisis. We first compute the ratio of trade payable to the total debt for each U.S. manufacturing firm, and obtain in each firm the median value of the ratio over its ten-year window. Then we take the median ratio across firms with the same three-digit U.S. SIC code as the proxy for that industry.	Calculated by the authors using data from Compustat and CRSP, Fisman and Love (2003)
Country-level characteristics		
GDP per capita	Natural logarithm of real GDP per capita measured at three years before the start year of a banking crisis	World Development Indicators (WDI)
Financial institutions development	Private credit by deposit money banks and other financial institutions to GDP measured at three years before the start year of a banking crisis	Čihák, Demirgüç-Kunt, Feyen, and Levine (2013)
Stock market development	Stock market capitalization to GDP measured at three years before the start year of a banking crisis	
Private credit contraction	The average annual growth rate of bank credit over the pre-crisis period, [*t*-3, *t*-1], minus the *minimum* annual growth rate of bank credit over the crisis period, [*t*, *t*+3], where *t* is the start year of a banking crisis.	Calculated by the authors using data from World Development Indicators (WDI)
Creditor rights	It captures the power of creditors in bankruptcy consists of four components: whether (1) creditor approval is required before a debtor files for reorganization (*reorganization restrictions*), (2) creditors are guaranteed to take possession of their collateral if the reorganization is approved (*no automatic stay*), (3) secured creditors are the first to get compensated from the liquidation proceeds (*secured creditors first*), and (4) an administrator	Djankov, McLiesh, and Shleifer (2007), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998)

	assigned by either the creditors or the court, rather than the incumbent manager, is operating the firm in the process of reorganization (*Management does not stay*). Each item takes the value of one when the answer is yes according to the bankruptcy and reorganization laws in a certain country. The overall index ranges from zero to four, with higher value indicating more powerful creditor rights in the case of bankruptcy.	
Anti-self-dealing	The index represents the extent to which minority shareholders are protected by laws from being expropriated by the insiders. It equals the average of ex-ante and ex-post private control of self-dealing. The ex-ante component is the average of permission of disinterested shareholders and ex-ante disclosure requirements for the transaction purchasing company, the main owner of the selling company, and the independent review by a professional third party, while the ex-post component is the average of requirements for periodic detailed disclosure on the transaction and the ease of proving wrongdoing. It ranges from zero to one, with higher value indicating stronger minority shareholder protection against self-dealing transactions.	Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)
Rule of law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	World Bank; Kaufmann, Kraay, and Mastruzzi (2011)
Institutional quality	The first principal component of Property rights and the six elements of Worldwide Governance Indicators, namely Voice of accountability, Political stability and absence of violence, Government effectiveness, Regulatory quality, Rule of law, and Control of corruption. *Property rights* are defined as a score that measures the legal protection of people's privately-owned property. The score ranges from 1 to 10, with higher value representing stronger property rights.	Calculated by the authors using data from World Bank; Kaufmann, Kraay, and Mastruzzi (2011); Economic Freedom Worlds (EFW) datasets, Fraser Institute
Labor protection laws	The strictness of regulation on dismissals of individuals or groups of workers. Specifically, it incorporates (1) procedural impediments employers face when starting to fire workers, such as notification procedures; (2) the length of the notice period and the generosity of severance pay; (3) the difficulty of dismissal, as determined by the circumstances in which it is justifiable to fire a worker and the compensation and possibilities of reinstatement following unfair dismissal; and (4) additional costs and impediments to dismissing a large number of workers. The index ranges from 0 to 6 with higher values indicating greater labor market protection.	OECD Employment Protection Database
Trust in government	The degree of confidence people have in the government. It is assessed by asking people the following question: "How much confidence do you have in the government: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?" For each nation, we calculate the average responses to this question as the level of trust in government. We use the level of trust at t-3, where t is the start year of a banking crisis.	World Values Survey (WVS)