The Effects of Cultural Values on Bank Failures around the World*

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Abstract

We conduct the first broad-based international bank failure study – using bank-level data in 92 countries over 2000-2014 – and introduce national culture elements as potential failure determinants. We find individualism and masculinity are positively associated with bank failure, but operate through different channels. Managers in individualist countries assume more portfolio risk, while governments in masculine countries allow banks to operate with less capital and liquidity and less often bail out troubled institutions. Findings are robust to accounting for endogeneity, alternative econometric techniques, different culture measures, and numerous additional controls. Results have implications for prudential policies, including regulation, supervision, and bailout strategies.

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1. Introduction

This paper conducts the first broad-based international study of bank failures – using a unique bank-level failure dataset covering 92 nations over 2000-2014 – and investigate national culture elements as potential failure determinants for the first time. We find that the cultural dimensions of individualism and masculinity are significantly positively associated with bank failure, even after accounting for a broad set of other economic, financial, regulatory, political, and legal determinants of bank failure. The findings are robust to accounting for endogeneity, using alternative econometric techniques, including different culture measures as well. We also investigate how these cultural elements may affect bank failure and find very striking differences. Managers in more individualist nations take more portfolio risk, while governments in more masculine countries appear to allow banks to operate with less capital and liquidity and less often bail out troubled institutions. Our results have implications for prudential policies, including bailout strategies, regulation, and supervision.

Banks play critical roles in national and global economies, so bank failures can have widespread costs. These failures may result in significant negative externalities for 1) other financial institutions that suffer losses through interconnections and contagion; 2) governments that often get involved in costly bailouts; and 3) borrowers, creditors, and other counterparties in the real economy that depend on the failed institutions and other parties that are harmed by these failures (e.g., Barth, Bartholomew, and Bradley, 1990; James, 1991; Lang and Stulz, 1992; Ashcraft, 2005; Reinhart and Rogoff, 2009; Acharya, Cooley, Richardson, and Walter, 2011; Kupiec and Ramirez, 2013; Kang, Lowery, and Wardlaw, 2014). When significant proportions of banking assets are involved in failures, systemic risk is heightened, and financial crises, deep recessions, and long-lasting economic growth problems are often the consequences (e.g., Reinhart and Rogoff, 2009; Laeven and Valencia, 2012). It is therefore crucial that prudential policymakers, regulators, and supervisors be aware of the major causes of bank failures to tailor their policies, regulations, and supervision, respectively, to target the sources of potential banking problems. Even when some failure causes cannot be directly countered or eliminated – such as may be the case with long-lasting national cultural characteristics – information about these causes is key to designing financial architectures that are resistant to the problems created by these causes.

Bank failures occur under all economic conditions, but they often accelerate during financial crises, which give rise to many studies of the determinants of bank failure during these time periods. To illustrate, a large number of studies investigate the causes of bank failures during the recent global financial crisis (e.g., Aubuchon and Wheelock, 2010; Cole and White, 2012; Berger and Bouwman, 2013; DeYoung and

Torna, 2013; Ng and Roychowdhury, 2014; Berger, Imbierowicz and Rauch, 2016). These studies build on earlier bank failure studies (e.g., Martin, 1977; Lane, Looney, and Wansley, 1986; Espahbodi, 1991; Cole and Gunther 1995, 1998; Helwege, 1996; Schaeck, 2008). The studies in both categories generally focus on a single developed nation, usually the U.S., and identify a number of determinants of bank failure, including the influence of financial accounting variables, such as capital ratios, loan performance problems, and earnings; certain risky investments, such as commercial real estate; and corporate governance factors, such as foreign and government ownership. There are very few multi-country bank failure studies, and these focus on developing economies only (e.g., Bongini, Claessens, and Ferri, 2001; Brown and Dinc, 2005, 2011).

In this paper, we directly address two substantive and related omissions in this literature. The first is that there are no empirical studies of bank failure using bank data from many developed and developing nations together.[1] It is difficult to draw general conclusions about the causes of bank failures and develop prudential best practices to predict, prevent, and deal with these failures and their systemic consequences using results drawn mostly from failures in a single developed nation or from a few developing nations only. The lack of broad international evidence means that the important differences across countries, including differences in national culture, are not well understood.

Second, the effects of national culture have been neglected in the bank failure literature. National culture is defined as the values, beliefs, and norms learned in early childhood that differentiate one group of people from another (e.g., Beck and Moore, 1985; Hofstede, Hofstede, and Minkov, 1991, 2010), and is shown to be a relatively stable component of countries (e.g., Newman and Nollen, 1996; Adler, 1997; Hofstede, 1983, 1984, 2001; Williamson, 2000; Hofstede, Hofstede, and Minkov, 2010). National culture is deeply embedded in everyday life and resistant to change. National culture invades everything in a society, including the corporate culture of banks (e.g., Guiso, Sapienza, and Zingales, 2015a).

Because of its pervasive nature, it would be surprising if national culture did *not* have strong effects on the probability of bank failure, but these effects have not been investigated, likely for two reasons. First, according to Zingales (2015), most financial economists ignore the role of culture because it is difficult to observe, define, and measure. Second, national culture is inherent to a nation and does not vary significantly over time, so its effects cannot be addressed in most of the studies that use data from a single nation. This paper addresses these issues and is the first to our knowledge to study bank failure in a large number of developed and developing economies with a very broad distribution of cultures, and the first to focus on

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[1] Some studies (e.g., Caprio and Klingebiel, 1996; Barth, Caprio, and Levine, 2004) discuss some of the causes of international bank fragility and insolvencies, but they do not conduct a bank-level study of international failures like we do.

national cultural elements as key drivers of bank failure. The results add to the research knowledge about the causes of bank failure and may assist in the formulation of prudential best practices.

Specifically, we formulate and test hypotheses about how several dimensions of national culture may affect the likelihood of bank failure using a unique dataset with 1,541 banks and bank holding companies (BHCs) and 470 failures for 92 countries over 2000-2014, built using BankScope, Zephyr M&A, and LexisNexis. The dataset generally covers the largest 25 banking organizations in each of the countries, covering the vast majority of banking assets in each nation. We combine the bank data with Hofstede's measures of four main national culture dimensions – individualism, masculinity, power distance, and uncertainty avoidance – and estimate failure probability models. We include a comprehensive set of bank, country, and time variables in the models to control for the other potential causes of bank failure found in the literature. We also investigate the channels through which the various dimensions of culture influence the probability of bank failure and find plausible results.

By way of preview, we find that individualism – which stresses independence, personal achievement, and is linked with overconfidence and overoptimism – increases the probability of bank failure. The channel through which this appears to occur is that bank managers in individualistic societies put themselves in the position to fail by taking on relatively large portfolio risks. This is consistent with research on nonfinancial firms, which suggests that individualism can be associated with higher risk-taking incentives (e.g., Kanagaretnam, Lim, and Lobo, 2011; Griffin, Yue, and Zhao, 2013; Mihet, 2013; Shao, Kwok, and Zhang, 2013). Second, we find that masculinity – which stresses competitiveness and achievements, material success, and little sympathy for the weak – also increases the probability of bank failure. The channel through which this appears to occur is that government authorities in masculine countries allow banks to operate with less capital and liquidity, and less often bail out troubled institutions, allowing them to fail. Other national culture dimensions, power distance and uncertainty avoidance, do not have consistent effects on the likelihood of bank failure. Our results suggest that prudential policies, regulation, and supervision might be tailored to individual countries' cultures. For more individualist countries, managerial risk taking might be curbed through prudential actions such as tighter supervision, increased transparency of bank conditions, and/or bail-in mechanisms to induce more capital market monitoring. For more masculine nations, enforcement of capital and/or liquidity guidelines, or their bailout policies might be rebalanced.

Our evidence is robust to a variety of tests, including an instrumental variable analysis to mitigate potential endogeneity concerns, different estimation techniques, alternative sample compositions, different culture measures, and additional bank and country controls.

The remainder of the paper is organized as follows. Section 2 reviews the bank failure, national culture, and culture and finance literature. Section 3 develops the empirical hypotheses. Section 4 explains our empirical approach. Section 5 describes the data and key variables used in the analysis. Section 6 discusses the main results. Section 7 reports the robustness tests, and Section 8 concludes. Appendices A, B, and C provide summary statistics by country, greater description of the culture measures, and additional robustness checks, respectively.

2. Literature Review

2.1 Bank Failures

A large literature focuses on the determinants of bank failures in a single nation, typically the U.S., and generally finds that banks fail due to weak fundamentals, as proxied by financial accounting variables such as capital, performance, loan quality (e.g., Lane, Looney, and Wansley, 1986; Espahbodi, 1991; Cole and Gunther, 1995, 1998; Helwege, 1996; Wheelock and Wilson, 1995, 2000; Calomiris and Mason, 1997, 2003; Molina, 2002; Schaeck, 2008; Cole and White, 2012; Berger and Bouwman, 2013; Berger, Imbierowicz, and Rauch, 2016), risky bank activities (investment banking, private equity) and lack of experience with new financial products (e.g., DeYoung and Torna, 2013), ownership and corporate governance issues (e.g., Berger and Bouwman, 2013; Berger, Imbierowicz, and Rauch, 2016; Calomiris and Carlson, forthcoming), regional economic conditions (e.g., Aubuchon and Wheelock, 2010), political factors (e.g., Liu and Ngo, 2014), and/or fraud (e.g., Benston and Kaufman, 1986; Akerlof and Romer. 1995; Barker and Holdsworth, 1994).

Very few studies analyze empirically bank failure in a multi-country context, and almost all of these focus on developing economies only. Brown and Dinc (2005, 2011) analyze bank failures in 21 developing countries. Brown and Dinc (2005) find that failing banks are less likely to be taken over by the government or lose their licenses before elections. Brown and Dinc (2011) find evidence of regulatory forbearance in relation to bank failures: a government is less likely to take over or close a failing bank if the banking system is weak. Bongini, Claessens, and Ferri (2001) study failures in 5 East Asian countries and find that traditional financial data predict bank distress and closure, and also find evidence of "too-big-to-fail" policies. Caprio and Klingebiel (1996) and Barth, Caprio, and Levine (2004) discuss some of the causes of international bank fragility and insolvencies and mention real GDP growth, volatility in output and prices, and regulation as important factors, but they do not conduct a bank-level study of international failures. Our paper is the first, to our knowledge, to study bank failures using bank-level failure data and a comprehensive number of both developing and developed countries. We also examine national culture elements as determinants of bank failures in these countries, about which there is no evidence in the

literature.[2]

2.2 National Culture

Hofstede and Bond (1988) define culture as being "the collective programming of the mind which distinguishes the members of one group or category of people from another." National culture reflects essential country characteristics that help explain international differences in beliefs, learned values, and norms. These cultural elements affect the way corporations do business and have important implications for business managers. Studies of national culture find that national culture dimensions are meaningful to business, as work-related values are not universal, and national values persist over multinationals' efforts to create corporate culture (e.g., Hofstede, 1983; Trompenaars, 1993; House, Hanges, Javidan, Dorfman, and Gupta, 2004).

The national culture dimensions employed here are derived from the survey of national culture conducted by Geert Hofstede. Hofstede's culture dimensions describe the fundamental problems of mankind with which each society has to deal, problems to which different societies have found different answers (Hofstede, 1983, 1984, 2001; Hofstede, Hofstede, and Minkov, 2010): (1) the degree of group integration, (2) division of roles between genders, (3) immobility between social classes, and (4) tolerance of uncertainty. These problems and possible answers are described in detail in Appendix B, however we provide a brief overview of them also below.

Individualism (*IDV*) – arguably the most significant driver of cultural differences across societies (Markus and Kitayama, 1991) –measures the degree to which a society stresses the role of the individual versus that of the group. Individualism is associated with independence, personal achievement, overconfidence, and overoptimism.

Masculinity (*MAS*) focuses on the duality of genders and captures the extent to which "male assertiveness" (preference for the competitiveness, achievement, heroism, assertiveness, and material rewards for success) is promoted as a dominant value in a society.

Power Distance (*PDI*) measures the extent to which the less powerful expect and accept that power is distributed unequally. In a high power distance country, the population holds relatively authoritarian views, and that authority is based on tradition rather than on secular arguments. It also characterizes a highly

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[2] There are also studies in an international context at the country level which generally document that country economic, institutional, and regulatory framework can make crises more likely (e.g., Barth, Caprio, and Levine, 2004, 2006; Beck, Demirguc-Kunt, and Levine, 2006; Caprio and Klingebiel, 1996, 2002; Claessens, Klingebiel, and Laeven, 2005; Demirguc-Kunt and Detragiache, 1997, 2002).

stratified society that values conformity more than independence.

Uncertainty Avoidance (*UAI*) deals with a society's tolerance for uncertain, unknown, or unstructured situations. Uncertainty avoidance is defined as "feeling uncomfortable with uncertainty and ambiguity, and therefore valuing beliefs and institutions that provide certainty and conformity." (Hofstede, 2001). People in uncertainty avoidant cultures have a "fear of failure" and thus favor an orderly structure in their organizations, institutions, and personal relations, prefer well anticipated events, and tend to take only known risks.

Following prior research on culture and finance, we use these four cultural value dimensions in our analysis. Although these measures are widely used and have arguably the greatest influence among various cultural classifications in cross-cultural research (e.g., Kirkman, Lowe, and Gibson 2006; Schwartz 1994; Sivakumar and Nakata 2001), in Section 7.5, we also test whether our results are sensitive to using alternative proxies for cultural values.

2.3 Culture and Finance

The last decades have experienced a "cultural revolution in finance" (Zingales, 2015) and led to the emergence of important studies on the role of culture in finance and economics (Karolyi, 2016). Barth, Caprio, and Levine (2006) point out that banks and bank regulation are "surrounded by the entire apparatus of political, legal, cultural and technological forces influencing the operation of banks." Culture may arguably influence individuals' attitudes and perceptions towards decision-making (Vitell, Nwachukwu, and Barnes, 1993; Husted and Allen, 2008). Aggarwal and Goodell (2009) contend that the relative efficiency of enforcing incomplete contracts differs significantly across countries, depending on legal, political, economic, and cultural environments, while North (1990) explains that the informal constraints that stem from culture provide a more pervasive influence than formal rules and property rights on shaping choices in daily interactions and ordering economy. Aggarwal, Faccio, Guedhami, and Kwok (2016) discuss that ignoring the role of culture jeopardies omitting an important variable from the analysis of financial decision-making.

First, a number of studies focus on how culture matters for the real economy and various broad country economic and financial phenomena such as economic development and national savings and income redistribution (e.g., Greif, 1994; Stulz and Williamson, 2003; Guiso, Sapienza, and Zingales,

2003,2004, 2006, 2009, 2015a,b).[3,4] Second, other studies document effects of national culture on investor perceptions and stock performance (e.g., Grinblatt and Keloharju, 2001; Chui, Titman, and Wei, 2010; Pevzner, Xie, and Xin, 2013; Hillert, Jacobs, and Müller, 2014; Eun, Wang, and Xiao, 2015). Third, other research finds that national culture is an important determinant of capital structure, affects dividend payout policies, corporate debt maturity choice, and can explain the leverage decisions of foreign joint ventures in China (e.g., Chui, Lloyd, and Kwok, 2002; Shao, Kwok, and Guedhami, 2008; Li, Griffin, Yue, and Zhao, 2011; Zheng, El Ghoul, Guedhami, and Kwok, 2012; El Ghoul, Guedhami, Kwok, and Zheng, 2017). Fourth, some research shows that national culture affects mergers and acquisitions (M&A): effective integration between M&A partners, merger volume, and synergy gains (e.g., Weber, Shenkar, and Raveh, 1996; Siegel, Licht, and Schwartz, 2011; Ahern, Daminelli, and Fracassi, 2015) and influences bank loan supply and terms to borrowers (Giannetti and Yafeh, 2012; Fisman, Paravisini, and Vig, 2017). Fifth, some studies find that national culture can explain compensation and human resources practices and policies (e.g., Schuler and Rogovsky, 1998; Tosi and Greckhamer, 2004), government involvement in privatized firms (e.g., Boubakri, Guedhami, Kwok, and Saffar, 2015), life insurance policy consumption (e.g., Chui and Kwok, 2008), and corruption in bank lending (e.g., Zheng, El Ghoul, Guedhami, and Kwok, 2013).

Finally, the most closely related to our current research are studies that focus on the effects of culture on corporate risk-taking and investment, since bank failures may be the result of risk-taking incentives and/or bad investment decisions. Li, Griffin, Yue, and Zhao (2013) find that individualism has a positive and significant association with corporate risk taking, whereas uncertainty avoidance is negatively related to such risk taking. Mihet (2013) finds that firm risk-taking is higher in countries with high individualism, low uncertainty avoidance, and low tolerance for hierarchical relationships. Guiso, Sapienza, and Zingales (2009) find that culture affects trade between countries, portfolio investment, and direct investment. Shao, Kwok, and Zhang (2013) find that firms in individualistic countries invest more in long-term (risky) than in short-term (safe) assets. Moreover, the effect of individualism on long-term investment hinges on R&D: firms in individualistic countries invest more in R&D projects but not more in

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[3] Closely related to this strand of research, there are also studies focusing on corporate culture and their influence on firm financial outcomes (e.g., Braguinsky and Mityakov, 2013; Davidson, Dey, and Smith, 2013; Hoenig and Morris, 2013; Biggerstaff, Cicero, and Puckett, 2015; DeBacker, Heim, and Tran, 2015; Guiso, Sapienza, and Zingales, 2015b; Mironov, 2015). Hofstede, Neuijen, Ohayv, and Sanders (1990) recommend integrating both types of culture in order to best impact the organizational performance. Guiso, Sapienza, and Zingales (2015a) observe that national cultural changes are rare and slow and find that corporate culture can be used as a laboratory to study the role of national culture and the way it can be changed.

[4] In studies focusing on other aspects of culture, Guiso, Sapienza, and Zingales (2003) find that religious beliefs are associated with good' economic attitudes, where good' is defined as conducive to higher per capita income and growth. Guiso, Sapienza, and Zingales (2004) find that in high-social-capital areas in Italy (as opposed to low-social capital ones), households are more likely to use checks, invest less in cash and more in stock, have higher access to institutional credit, and make less use of informal credit.

physical assets. Buck and Shahrim (2005) find that national culture has implications for the translation of innovations in Germany. Looking at the banking industry, Kanagaretnam, Lim, and Lobo (2011) find that banks in high individualism, high masculinity, and low uncertainty avoidance societies manage earnings to just-meet-or-beat the prior year's earnings.

Extant literature on bank failure does not consider the role of national culture. Building on this literature, our paper looks at the role of cultural values in understanding bank failures around the world.

3. Hypothesis Development

We develop hypotheses relating each of the four cultural dimensions discussed in Section 2.1 to the likelihood of bank failure. For all four, we give reasons why it might be either positively or negatively associated with the bank failure probabilities.

3.1 Individualism and Bank Failure

As discussed above, individualism is associated with independence, personal achievement, overconfidence, and overoptimism in the culture literature. The emphasis on personal achievements in individualist countries may lead managers in these countries to choose relatively high expected return-high risk portfolios and be less likely to adopt compensating risk mitigation controls such as maintaining higher capital ratios or providing stronger risk management oversight. Moreover, managers in individualist cultures tend to believe more that their abilities are above average, which may result in overconfidence and overoptimism, which may also result in more trading volume and volatility (Chui, Titman, and Wei, 2010). All of these mechanisms may result in higher likelihoods of bank failure.

Alternatively, individualism may be negatively related to bank failure probabilities. In less individualist countries, people tend to be integrated into cohesive groups or extended families, resulting in lending decisions based on collective ties, rather than sound economic principles or herding behavior that can cause lending booms (e.g., Beckmann, Menkhoff, and Suto, 2008). Such booms may ultimately result in financial bubbles that burst and cause financial crises that are associated with widespread bank failures (e.g., Rajan, 1994; Acharya and Naqvi, 2012; Berger and Bouwman, 2017).

These arguments yield the following opposing hypotheses:

H1a: Individualism is <u>positively related</u> to the likelihood of bank failure, *ceteris paribus*.

H1b: Individualism is <u>negatively related</u> to the likelihood of bank failure, *ceteris paribus*.

3.2 Masculinity and Bank Failure

The masculinity characteristic stresses competitiveness and achievements, material success, and little sympathy for the weak, and can be associated with orientations toward acquisition and overinvestment. In more masculine societies, bank managers may be less risk-averse, and less likely to restrict credit availability to new, unestablished borrowers who pose high credit risks (e.g., Bellucci, Borisov, and Zazzaro, 2010), and may be more likely to manage earnings than control risk (e.g., Kanagaretnam, Lim, and Lobo, 2011). The greater competitiveness and less sympathy for the weak may result in more financially distressed banks being allowed to fail, rather than being bailed out by authorities. Thus, masculinity may be positively related to the likelihood of bank failure.

Alternatively, low masculinity is associated with a less intensive focus on work and business, and more focus on cooperation, caring for the weak, and nurturing relationships. Therefore, bank managers in relatively low masculine countries may be less willing to cut off credit to borrowers that pose credit risks, and less inclined to fire employees that are not performing well. Thus, masculinity may also be associated with a lower probability of bank failure.

These opposing predictions for bank failure yield the following hypotheses:

H2a: Masculinity is <u>positively related</u> to the likelihood of bank failure, *ceteris paribus*.

H2b: Masculinity is <u>negatively related</u> to the likelihood of bank failure, *ceteris paribus*.

3.3 Power Distance and Bank Failure

As indicated, power distance refers to the extent to which the less powerful accept and expect that power is distributed unequally. High power distance societies are relatively stratified, information is constrained by hierarchy, and conformity is valued over independence. Power distance may be positively associated with bank failure because: 1) organizational stratification and constrained information flows can enable problems to fester, rather than being resolved quickly; 2) centralization of authority may allow bank managers to pursue personal objectives other than optimizing bank performance (e.g., Kanagaretnam, Lim, and Lobo, 2011); and 3) emphasis on conformity and not being open to differing viewpoints may block innovative risk management solutions to problems.

Alternatively, power distance may be negatively related to bank failure. Low power distance societies value equitable rewards and penalties, and may be more likely to allow banks to fail, rather than bailing them out. In addition, bank managers in low power distance countries tend to be more trusting,

which may result in higher risk-taking (e.g., Growiec and Growiec, 2011; Das and Teng, 2004), slower cutoffs of risky investments, and increased probability of failure.

Again, the disparate arguments result in opposing hypotheses:

H3a: Power distance is <u>positively related</u> to the likelihood of bank failure, *ceteris paribus*.

H3b: Power distance is <u>negatively related</u> to the likelihood of bank failure, *ceteris paribus*.

3.4 Uncertainty Avoidance and Bank Failure

As discussed, uncertainty avoidance refers to the extent to which a culture may avoid unknown or unstructured situations.

Uncertainty avoidance may be positively associated the probability of bank failure because high uncertainty avoidance countries tend to avoid competition, which may be associated with greater bank risk according to the "*competition-stability*" view. Low competition results in high loan rates, which increase moral hazard and adverse selection problems, making the bank loans riskier and increasing the probability of failure (e.g., Boyd and De Nicolo, 2005).

Alternatively, uncertainty avoidance may be negatively associated with bank failures. According to the "*competition-fragility*" view, low competition is associated with high charter values, which discourage risk taking (e.g., Keeley, 1990).[5] In addition, managers in uncertainty avoidance countries may eschew risks that might otherwise result in failures.

Thus, uncertainty avoidance yields the following opposing hypotheses:

H4a: Uncertainty avoidance is <u>positively related</u> to the likelihood of bank failure, *ceteris paribus*.

H4b: Uncertainty avoidance is <u>negatively related</u> to the likelihood of bank failure, *ceteris paribus*.

4. Failure Regression Model

We next turn to our empirical model in which we test which of the "a" and "b" hypotheses empirically dominate using the following logit model of the probability of bank failure:

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[5] Both the "*competition-stability*" and "*competition-fragility*" views receive some empirical support (e.g., Berger, Klapper, and Turk-Ariss, 2009). There is also an argument for a potential nonmonotonic relationship between competition and bank risk (Martinez-Miera and Repullo 2010).

$$\log\left(\frac{\text{Prob}(\text{FAILURE}_{i,c,t})}{1-\text{Prob}(\text{FAILURE}_{i,c,t})}\right) = \alpha + \sum_{k=1}^{4}\beta_k \cdot \text{CULTURE}_{k,c} + \varphi \cdot X_{i,t} + \gamma \cdot Z_{ct} + \tau \cdot \text{TIME}_t + \varepsilon_{i,c,t} \qquad (1)$$

where $\log\left(\dfrac{\text{Prob}(\text{FAILURE}_{i,c,t})}{1-\text{Prob}(\text{FAILURE}_{i,c,t})}\right)$ measures the likelihood that bank i from country c failed during year

t. *FAILURE* is a dummy for bank failures discussed in Section 5.1 just below, $\text{CULTURE}_{k,c}$ represent the four cultural values: individualism, masculinity, power distance, and uncertainty avoidance as defined in Section 2. $X_{i,t}$ is a set of bank controls and $Z_{c,t}$ is a set of country controls. TIME_t represents year fixed effects.

5. Data and Sample

5.1. Data Sources and Sample

To construct our dataset, we identify the largest 25 commercial banks and bank holding companies (or the maximum number if it is under 25) in all countries – both developed and developing – covered in BankScope as of year 2000. To identify bank failures, we follow these banks from year 2000 until one of the following exit events takes place: failure as manifested through: (i) license suspension/revocation by the regulators; (ii) liquidation, bankruptcy, or cease of operations (iii) receivership, or (iv) bank merger or acquisition (M&A). Following the prior research on bank failures, we also add to our list of bank failures the cases of bank insolvencies / technical default, where bank became critically undercapitalized (capital equity falls to 2% or below as in Wheelock and Wilson, 1995, 2000; Assaf, Berger, Roman, and Tsionas, 2017).[6] As in Brown and Dinc (2011), we evaluate each bank M&A on a case-by-case basis to decide whether it is a government takeover of a failing bank. If one of the merger partners is a private bank but the resulting entity is majority government owned, then the merger is considered a bank failure. If a bank is acquired by another bank and the government provides financial support for the acquisition, it is considered a government-assisted acquisition, and thus also a bank failure. Finally, if the bank is acquired by another bank where there is a change of majority ownership, but the government does not provide financial support for the bank acquisition, then it is considered a bank acquisition exit event. We exclude these events as it is not clear whether the bank indeed failed in these cases, although when we added these events back into our

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[6] This definition of technical default is consistent with the Improvement Act of 1991 in the US, which requires regulators to close or impose prompt corrective actions on any bank whose equity ratio falls below 2%.

failure variable the results are consistent.[7]

We use unconsolidated financial statements from Bureau van Dijk's BankScope if available, and exclude financial statements which have missing key financial variables such as bank total assets. We then remove financial statement duplicates for a given bank (identified with its Bankscope unique bank identification number) and ensure we favor the longest possible time series for each bank in our sample, following the code recommendation of Duprey and Lé (2015).

We determine government and foreign ownership of the banks through Bureau van Dijk's BankScope historical CDs, BankScope web-based interface, the foreign ownership dataset provided by Claessens and van Horen (2014, 2015), and other manual data collection where the information in the first sources is unavailable. Government takeovers, government-assisted acquisitions, and other bank merger deal types are identified using the BankScope dataset, Zephyr M&A dataset, LexisNexis News, and various Internet sources (including the bank's website).

The cultural values data on individualism (*IDV*), masculinity (*MAS*), power distance (*PDI*), and uncertainty avoidance (*UAI*)) are collected from Hofstede (2001), Hofstede, Hofstede, and Minkov (2010), and Geert Hofstede website.[8] Data on explicit deposit insurance scheme and presence of multiple regulators supervising banks in a country are obtained from the World Bank Surveys on Bank Regulation of Barth, Caprio, and Levine (2013). We control for the country's economic environment using several proxies from the World Bank Development Indicators and the International Financial Statistics (IFS) databases. We also control for several country stability dimensions using the Worldwide Governance Indicators (WGI) of Kaufmann, Kraay, and Mastruzzi (2010).

We merge the financial and failure data with the cultural values and other country characteristics. The regressions exclude the first year of observations because of the use of lagged values for some of the exogenous variables. This leaves us with a final sample of 15,693 bank-year observations for 1,541 banks from 92 countries over the entire time period of 2000 to 2014.

5.2. Controls

The main regression results are run using a broad set of country and bank controls shown by prior research

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[7] There are other ways in which governments can intervene in a bank: by providing liquidity support, limiting bank operations, or purchasing nonperforming assets. However, the data on these are simply not available or are likely to be very poor, as discussed in Brown and Dinç (2011). This is because governments may have an incentive to remain confidential about these latter forms of intervention to prevent bank runs and other destabilizing market effects.

[8] http://geert-hofstede.com/

to affect bank failure. Each control is lagged one year in the regressions to mitigate potential endogeneity problems, except when noted otherwise.[9]

Following prior research on bank failures in an international context, we control for several country characteristics. First, we control for indicators of economic growth and development, given that prior research finds these to be associated with more bank failures (e.g., Brown and Dinc, 2005, 2011). *GDP_GROWTH* is the rate of growth in the country's real gross domestic product (GDP). *RESERVE* is the country total foreign exchange reserves (less gold). *GDP_CAPITA* is the logarithm of the country real gross domestic product (GDP). *INFLA* is the rate of inflation.

Second, we control for explicit deposit insurance scheme in the country (*NODEPINSUR*) using a dummy equal to one if there is no explicit deposit insurance scheme and depositors were not fully compensated the last time a bank failed. A value equal to one indicates more deposit insurance supervision. Some research suggests that greater deposit insurance protection is associated with a higher the risk of a banking collapse (e.g., Gorton and Rosen,1995; Wheelock and Wilson, 1995, 2000; Barth, Caprio, and Levine, 2006).[10] However, it is also possible that deposit insurance may reduce bank failure by reducing depositor runs (e.g., Diamond and Dybvig, 1983; Fungacova and Weill, 2013).

Third, we control for several country institutional factors. Rule of law (*RULE_OF_LAW*) is an indicator of the effectiveness of regulatory enforcement (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny,1998). It captures perceptions of 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. Regulatory quality (*REGULATORY*) captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Voice and accountability (*VOICE_ACCOUNT*) captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media. Generally, a country that has stronger rule of law, stronger regulatory quality, and stronger voice and accountability is more stable, favoring less bank failures.

Finally, we control for the presence of multiple supervisors (*M_SUPER*), a dummy equal to one if multiple supervisors share responsibility for supervising the nation's banks. This variable captures the potential differences in the quality of oversight and leniency when having multiple supervisors instead of

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[9] In Appendix C, we also try three-year lags and find consistent results.

[10] Peria and Schmukler (2001) find that the presence of deposit insurance does not reduce depositor discipline (as manifested by deposit withdrawals and requesting better rates) for a set of countries in South America.

one.

Next, we include a number of bank controls, most of which are standard in the bank failure literature. We first include bank size (*LN_ASSET*) the natural logarithm of bank total assets.[11] Bank size is expected to have a negative effect on the probability of bank failure because larger banks may have a greater capacity to absorb risk and more stable earnings (e.g., De Haan and Poghosyan, 2012). Second, we control for bank capital ratio (*CAPITAL_ASSET*), defined as the bank's total equity divided by total assets. Capital is a valuable tool to assess the safety and soundness of banking organizations and is used here as a measure of bank risk-taking. Third, we control for the nonperforming loans ratio (*NPL*), defined as the ratio of total nonperforming loans to total loans. Banks with riskier portfolios are more likely to fail (e.g., Ng and Rusticus, 2011). Fourth, we control for bank profitability, proxied by return on equity (*ROE*), calculated as bank net income divided by total equity[12]. Banks with lower profits may be more likely to fail (e.g., Arena, 2008). Fifth we control for the loan to asset ratio (*LOAN_ASSET*), which is associated with higher credit and liquidity risk (e.g., Beltratti and Stulz, 2012). Sixth, we capture the composition of the bank liabilities, by controlling for deposit to asset ratio (*DEP_ASSET*). Deposit financing is generally less subject to runs than money market funding (e.g., Gorton, 2010; Beltratti and Stulz, 2012). Seventh, we control for government ownership (*GOWN*), a dummy equal to one if a bank has 50% or more government ownership. Government-owned banks may be less likely to fail as governments are more likely to intervene and safeguard them in case of financial distress and also these banks may receive greater confidence from their depositors (e.g., Fungacova and Weill, 2013). Brown and Dinc (2011) find that no government-owned bank ever lost its banking license.[13] Eighth, we control for foreign ownership (*FOWN*), a dummy equal to one if a bank has 50% or more foreign ownership. In developing countries, foreign banks tend to be associated with increased stability, in part because they reduce problems of related lending and may benefit from financial support from their foreign parents in case of distress (e.g., Giannetti and Ongena, 2009), whereas foreign banks are sometimes found to perform worse than domestic banks in developed countries (e.g., Berger, DeYoung, Genay, and Udell, 2000). Ninth, we control for the bank public listing status (*PUB_LISTED*), a dummy equal to 1 if a bank is listed on a stock exchange. Publicly listed banks are subject to increased monitoring by shareholders and improved access to capital, which may affect their performance positively (e.g., Berger and Bouwman, 2013).

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[11] Results are robust to the alternative definition of bank size calculated as bank total assets normalized by the country total gross domestic product (GDP).

[12] In untabulated results, we also try using return on assets defined as bank net income divided by total assets and results are consistent.

[13] Boubakri, Cosset, and Saffar (2013) find that government ownership also induces lower risk-taking for nonfinancials.

6. Empirical Analysis

6.1. Summary Statistics

Table 1 Panel A shows definitions and Panel B shows summary statistics for all variables used in our analysis. For our key dependent variable, the average bank has a failure likelihood (*FAILURE*) of 3%. For the key independent variables, the average value of individualism (*IDV*) is 40.833, masculinity (*MAS*) is 49.371, power distance (*PDI*) is 62.493, and uncertainty avoidance (*UAI*) is 66.864, all on scales from 0 to 100, very close to the means reported in Hofstede (2001), suggesting that our sample represents well the overall population of countries.[14]

Turning to the country and bank controls. We find that the average value of GDP growth is 3.766%, inflation rate is 5.757%, log of total exchange reserves is 23.255 ($70.900 billion), log of GDP per capita is 8.770 (16.538 million), *RULE_OF_LAW* is 0.661, regulatory quality index *REGULATORY* is 0.736, and voice and accountability index *VOICE_ACCOUNT* is 0.760. We also note that 33.9% of the observations do not have an explicit deposit insurance scheme, and 10.5% have multiple bank supervisors.

The average bank in our sample has log of total assets of 6.884 (mean total assets of $79.526 million), capital ratio of 10.53%, *NPL* of 2.138%, *ROE* of 10.481%, loan ratio (*LOAN_ASSET*) of 50.73% and deposit ratio (*DEP_ASSET*) of 77.683%. These suggest that the average bank tends to be large, well-capitalized, and does not present any significant problems, although these averages may mask important differences across banks and over time. We also find that 7.8% of the banks are government owned (*GOWN*), 37.8% are foreign owned (*FOWN*), and 31.4% are publicly listed (*PUB_LISTED*). Table 1 Panel B also provides summary statistics for additional controls used later in robustness tests in Section 7. Summary statistics by country for the dependent and key independent variables are shown in Table A.1 of Appendix A.

6.2. Main Regression Results

Table 2 columns (1)-(5) report regressions of the failure variable on the four culture dimensions (*IDV*, *MAS*, *PDI*, and *UAI*) and year fixed effects. In (1)-(4), we alternate the four culture variables, and include all four in (5). In (6)-(10), we add country controls, and in columns (11)-(15), we also add bank controls. To mitigate potential endogeneity concerns, all controls are lagged one year to avoid potential endogeneity concerns (e.g., Duchin, Ozbas, and Sensoy, 2010). We more formally address the potential endogeneity issue in

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[14] In Hofstede (2001), the means of the four culture dimensions are 43 for individualism, 49 for masculinity, 57 for power distance, and 65 for uncertainty avoidance.

Section 7.1.

Across specifications, we consistently find that individualism and masculinity are positively and statistically significantly associated with a higher likelihood of bank failure. Results are also economically significant. Based on the full specification in column (15), we find that a one standard deviation increase in individualism (*IDV*) produces, on average, a 43.61% increase in the probability of bank failure. Similarly, we find that a one standard deviation increase in masculinity (*MAS*) produces, on average, a 18.78% increase in the probability of bank failure. These results confirm the statistical and economical empirical dominance of Hypothesis 1a over Hypothesis 1b and the empirical dominance of Hypothesis 2a over Hypothesis 2b. The relatively greater effect of individualism on bank failure relative to masculinity is consistent with Markus and Kitayama (1991). The effects ofPpower distance (*PDI*) and uncertainty avoidance (*UAI*) provide no consistent results.

Turning to the country controls with statistically significant results, inflation (*INFLA*), total foreign exchange reserves (*RESERVE*), rule of law (*RULE_OF_LAW*), and voice and accountability (*VOICE_ACCOUNT*) are all negatively associated with bank failure. We also find that the GDP per capita (*GDP_CAPITA*) is positively associated with bank failure, consistent with Brown and Dinc's (2005) findings. Finally, no explicit deposit insurance (*NODEPINSUR*) is also positively associated with bank failure. This suggests that implementation of deposit insurance schemes can reduce the occurrence of bank failures in a country.

Turning next to statistically significant bank controls, capital ratio (*CAPITAL_ASSET*) is negatively associated with bank failure, consistent with virtually all prior bank failure studies. Nonperforming loans (*NPL*) is positively associated with bank failure, and suggests that a higher loan portfolio risk leads to higher likelihood of bank failure. Both loan to assets ratio (*LOAN_ASSET*) and deposits to assets (*DEPOSIT_ASSET*) ratios are negatively associated with bank failure, consistent with Beltratti and Stulz (2012). Finally, bank public listing status (*PUB_LISTED*) is negatively associated with bank failure, consistent with Berger and Bouwman (2013).

7. Robustness Tests

We present a number of robustness tests that include the same controls as in our main specifications, except when noted otherwise.

7.1. Instrumental Variable Analysis

Our main analysis could suffer from potential endogeneity. One source of this may be reverse causality,

which in our setting corresponds to the possibility that bank failures may influence the cultural variables. However, we argue that such concern is unlikely, because culture is established over the order of centuries or millennia, and changes very slowly over time (Williamson, 2000; Hofstede, 2001; Licht, Goldschmidt, and Schwartz, 2005). Another source may be potential omitted variables that affect bank failure and are correlated with national culture. We tackle this concern in several ways. In our main analysis, we control for a broad set of determinants of bank failures and lag these determinants. In later sections below, we saturate our model with even more controls and try even longer lag structures.

Here, we employ instrumental variables (IV). We apply an IV Probit 2SLS approach, which involves using instruments for our cultural measures.[15] To find instruments for our four cultural dimensions, we follow prior research on culture and finance (e.g., Guiso, Sapienza, and Zingales, 2009; Gorodnichenko and Roland, 2011; Zheng, El Ghoul, Guedhami, and Kwok, 2013; El Ghoul and Zheng, 2016). Our instrument for individualism (*IDV*) is *DISEASES*. This is Murray and Schaller's (2010) overall index of the historical prevalence of nine diseases (i.e., constructed with data before the epidemiological revolution in treating pathogenic disease) within different geopolitical regions. Fincher, Thornhill, Murray, and Schaller (2008) argue that more individualistic societies are less wary of contact with outsiders, and are more likely to eat unusual foods. They argue that individualism is more likely to emerge in societies that historically suffered a lower prevalence of pathogens, suggesting that *DISEASES* may be negatively associated with individualism.

Our instrument for masculinity (*MAS*) builds on Gorodnichenko and Roland's (2011) argument that parents transfer both genes and culture to their children. To the extent that the intergenerational transmission of genes and culture occurs within countries, genetically close countries are likely to exhibit similar cultures. We therefore employ *GEN_DIST*, the genetic distance between each focal country and Slovakia – the country with the highest masculinity score in our sample – as an instrument for masculinity. Specifically, we use the Spolaore and Wacziarg's (2009) dominant population distance, where this distance captures the probability that two alleles (a particular form taken by a gene) at a given locus selected at random from two populations will be different. Our instruments for power distance (*PDI*) and uncertainty avoidance (*UAI*) – are based on geographical determinants of cultural values. Hofstede (2001) identifies geographical factors as important predictors for national culture dimensions. We use *LATITUDE*, the absolute value of a country's latitude scaled to take a value between zero and one from La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1999) and land area (*LAND_61*), measured as the natural logarithm of the country area in 1961. The discussion above makes the case for our instruments satisfying the relevance

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[15] In unreported results, we also try a linear probability model using the same instruments, and results are similar.

restriction. We also argue that they satisfy the exclusion restriction, as diseases, genetic variation, latitude, and land area in 1961 are not plausibly directly related to bank failure other than through culture.

The IV regression results are reported in Table 3. To facilitate comparison, we include the OLS results from column (15) of Table 2 in Column (1). Columns (2)-(5) present the IV first stage results for the culture dimensions and suggest that genetic distance, diseases, latitude, and land area are significantly associated with our culture dimensions at the 1% level. Column (6) presents the IV second stage results, which again show after controlling for various country and bank characteristics and time fixed effects, and addressing endogeneity using instrumental variables analysis, we continue to find that that individualism (*IDV*) and masculinity (*MAS*) are positively and statistically and economically significantly associated with bank failure, consistent with our main results. The IV estimates are much larger in absolute value terms than the OLS estimates, suggesting OLS may underestimate the causal effect of national culture on bank failure.[16] We perform two tests to assess the suitability of the selected instruments. We conduct the Anderson-Rubin (AR) *F*-test and also the *Wald* test of the excluded exogenous variables in the first-stage regression, in which the null hypothesis is that the coefficient estimates of these variables are jointly equal to zero. We reject this null hypothesis at the 1% level. The value of each of these tests and *p*-value of the *F*-tests is reported in the last rows of Table 3.

7.2. Alternative Econometric Specifications

In Table 4, we employ several alternative econometric models to evaluate robustness. We use a probit model in column (1), a linear probability model in column (2),[17] a proportional hazard model (e.g., Whalen, 1991; Shumway, 2001; Brown and Dinc, 2011) in column (3), and a maximum likelihood complementary log-log model in column (4). To attenuate concerns about measurement errors at the country-level which could be likely greater for smaller countries, we run a weighted logit model where the weights are proportional to the size of the country proxied by population and nominal GDP, respectively, in columns (5)-(6).[18] Finally, we run a weighted logit model where the weights are proportional to the number of banks in the country in column (7). Across all regressions in Table 5, we find that individualism and masculinity are significant at the 1% level, consistent with our baseline results.[19]

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[16] Documenting a much larger coefficient estimate for IV compared to OLS is consistent with other prior research (e.g., Levitt, 1996; Berger and Bouwman, 2009).

[17] In unreported results, we also tried a linear probability model IV 2SLS, and results are consistent.

[18] In unreported results, we also estimate a weighted model with weights proportional to the land area of the country, and results are consistent.

[19] Results are also consistent when employing models that cluster the errors at the bank and country levels.

7.3. Other Potentially Omitted Variables

In Table 5, we saturate the model with additional bank and country controls. Columns (1)-(6) include additional bank controls, and columns (7)-(14) include additional country controls.

In columns (1)-(7), we control for several additional bank characteristics. In columns (1)-(3) we include asset growth (*ASSET_GROWTH*), liquidity ratio (*LIQUID_ASSET*), and overhead costs ratio (*OVERHEAD_A*) as rapid asset growth, high liquidity, and high overhead costs (proxy for management inefficiency) may favor a higher likelihood of bank failure. In column (4), we include too-big-to-fail (*TBTF*), a dummy equal to one if the bank is ranked in the top three in the country based on total assets to control for TBTF effect, which prior research has shown to reduce the likelihood of bank failure (e.g., Brown and Dinc, 2011; Liu and Ngo, 2014).[20] In columns (5)-(6), we control for linear and non-linear effects of local market competition (*MKTSH_DEP* and *MKTSH_DEP_SQ*) on bank failure (e.g., Berger and Imbierowicz and Rauch, 2016). In column (7), we control for the too-many-to-fail (TMTF) effect (e.g., Brown and Dinc, 2011) by including *CAP_OTHER* (average capital ratio of other banks in the country). In column (8), we control for the probability of government bailout support of an institution by including *BAILOUT_PROBABILITY* following Gropp, Hakenes, and Schnabel (2011) and Correa, Lee, Sapriza, and Suarez (2014).[21]

In columns (9)-15), we control for several additional country characteristics: accounting standards used in different countries (*IFRS* and *IAS*, while *GAAP* is the excluded category), country trade effects (*CURRENT_ACCOUNT*), country population (*POPULATION*), domestic credit growth (*DOMESTIC_CREDIT*), government efficiency (*GOV_EFF*), political stability (*POLITICAL*), and level of corruption (*CORRUPTION*).

Across all specifications in Table 6, both individualism and masculinity are statistically significant at the 1% level, consistent with our main results.

7.4. Different Proxies for Culture

In Table 6, we use other national culture proxies as robustness checks. In columns (1)-(5), we consider Tang

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[20] In unreported results, we also tried controlling for TBTF using alterative definitions: when defining *TBTF* as a dummy variable that takes 1 if the bank is ranked in the top three in the country based on total loans and respectively when defining *TBTF* as a dummy variable that takes 1 if the bank is ranked in the top three in the country based on total deposits. Results are robust to these alternative definitions.

[21] This is constructed using the support ratings provided by the rating agency Fitch, which reflect the rating agency's expectations of the likelihood of external support to individual banks. The mapping of the ratings into bailout probabilities between 0 and 1 follows the methodology in Table 1 of Gropp, Hakenes, and Schnabel (2011).

and Koveos (2008)' updated Hofstede's (2001) culture dimensions, which are based on changes in economic conditions (country GDP per capita), but available for a smaller number of countries. (*IDV_TK, MAS_TK, PDI_TK*, and *UAI_TK*). In the first four columns, we include these four culture measures separately, while in column (5), we include all four. We find that both individualism and masculinity are still significant at the 5% level or better. In column (6), we use Schwartz (1994)'s measure of conservatism (*EMBEDDED*), which consists of values important to societies based on close-knit harmonious relations, which is inverse to the individualism dimension in our main regressions. We find a negative and significant effect, consistent with our main results. In columns (7)-(10), we include House, Hanges, Javidan, Dorfman, and Gupta (2004)'s cultural dimensions *CLT_GLOBE*, *PDI_GLOBE*, and *UAI_GLOBE* to capture Hofstede's collectivism (opposite of individualism), power distance, and uncertainty avoidance dimensions. These measures are based on the Globe (Global Leadership and Organizational Behavior Effectiveness) project, a replication and elaboration of the Hofstede study using newer data and more survey questions, but comprising a much smaller number of countries. Our results continue to hold when using all these alternative cultural measures, even when the number of observations dropped by almost one third due to data limitations.

7.5. Subsample Analysis

Table 7 shows several subsample analyses. In Panel A, we exclude several potential outliers to ensure that this are not responsible for our results. We exclude the U.S. in column (1), exclude the G-10 countries in column (2)[22], and exclude countries that have less than three banks in the sample in column (3).[23] Across all columns (1)-(3), we find that both individualism and masculinity are positively associated with bank failures. In columns (4)-(5), we show results for the periods before and after 2007. The findings hold for both subsamples, essentially ruling out the possibility that the main results are driven by the global financial crisis. In columns (6)-(7), we look at banking concentration above and below median (*HHI DEPOSITS*) given the competition-stability debate in the literature. Results again hold for both types of subsamples.

7.6. Channels Analysis

We further investigate through which channel(s) through which individualism and masculinity may affect bank failure. Specifically, we examine the extent to which these effects may occur through affecting banks' portfolio risk, capitalization, liquidity profile, and the willingness of country government to provide bailout

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[22] G-10 countries include France, Germany, Belgium, Italy, Japan, the Netherlands, Sweden, the United Kingdom, the United States, Canada, and Switzerland.

[23] In unreported results, we also tried excluding countries which have less than four banks in the sample and results are consistent.

support. As such, we will regress proxies for bank risk, capital, liquidity, government bailout probability on our cultural values to assess if these may help explain our results.

First, in Table 8 Panel A, we examine effects of the cultural elements on bank portfolio risk using several proxies. In column (1), we use bank *Z_SCORE* (e.g., Laeven and Levine, 2009; Houston, Lin, Lin, and Ma, 2010; Demirgüç-Kunt and Huizinga, 2010; Beltratti and Stulz, 2012). This is an inverse measure of bank risk calculated as the sum of a bank's mean ROA (net income over total assets) and mean capitalization (equity capital over total assets) divided by the standard deviation of ROA, calculated over a 5-year period.[24] In column (2), we use *LN(Z_SCORE)*, the natural log of *Z-SCORE,* a specification which helps mitigate the impact of outliers. In column (3), we use *SHARPE RATIO* over a 5-year period, calculated as the ratio of mean ROE (net income over equity) over the standard deviation of return on equity. In columns (4)-(5), we use two proxies for the volatility of ROA over a 5-year period: *STD ROA*, where ROA is net income over total assets, and *STD ROA2*, where ROA is pre-tax income over total assets. In columns (6)-(7), we use two proxies for the volatility of ROE over a 5-year period: *STD ROE*, where ROE is net income over total equity, and *STD ROE2*, where ROE is pre-tax income over total equity. In column (8), we use *LLR_LOAN*, the ratio of bank loan loss reserves over total loans. Finally, in column (9), we use *OBS ACTIVITIES_ASSET*, the ratio of off-balance-sheet activities to bank total assets. In all regressions, we include the controls from the main specification. We find consistent evidence that individualism is positively significantly associated with bank portfolio risk measured in many different ways, which suggests that individualism affects bank failures via higher portfolio risk. In contrast, masculinity is either negatively or not significantly associated with bank portfolio risk, suggesting a different channel for the effects of masculinity on bank failure.

Second, in Table 8 Panel B, we examine effects of individualism and masculinity on bank capitalization, liquidity, and government bailout support. We proxy for capitalization using two different measures shown in columns (1)-(2): *CAPITAL_ASSET*, the ratio of equity capital over total assets, and *TANGIBLE CAPITAL_ASSET*, the ratio of tangible capital over total assets. We proxy for liquidity using *LIQUID_ASSET*, the ratio of bank liquid assets to total assets, shown in column (3). The results on capital and liquidity indicate that in more masculine countries, banks have lower capital and fewer liquid assets which may reflect in part government tolerance for banks operating with lower capital and liquidity.

Finally, in columns (6)-(7), we test the effects of individualism and masculinity on government bailout probability. Our government bailout support measure (*BAILOUT_PROBABILITY*) is constructed

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[24] The Z-score variable employed here is based on Merton (1974)'s model where shareholders' equity is a call option on assets and has been used widely in the banking literature.

using the support ratings provided by the rating agency Fitch, which reflect the rating agency's expectations of the likelihood of external support to individual banks. The mapping of the ratings into bailout probabilities between 0 and 1, follows the methodology in Table 1 of Gropp, Hakenes, and Schnabel (2011). We report estimates from an ordered logit model in column (6) and an ordered probit model in column (7). Individualism does not appear to have consistent effects across the two specifications, but masculinity is negatively significantly associated with the probability of government bailout in both specifications. This is consistent with the argument that more masculine societies less often bail out their troubled banks, which may help explain the higher bank failure in these countries.

Taken together, these results suggest very different channels through which individualism and masculinity increase the probability of bank failure. In masculine societies, government authorities allow banks to fail, while in individualistic societies it is the banks themselves that put themselves in the position to fail by taking on too much risk.

7.7. Other Robustness Tests

In Appendix C Table C.1, we conduct several additional robustness tests. In Panel A, we use three-year lags of our independent variables instead of one-year lags in our main specifications.[25] Columns (1)-(4) test the effect of individualism, masculinity, power distance, and uncertainty avoidance on bank failure individually using three-year lags for the full specification. In column (5), we include all four Hofstede's culture dimensions, with three-year lags for the full specification. Across all models, we find that both individualism and masculinity are statistically significant at the 1% level, confirming our main results.

In Panel B we report regression results from models excluding the countries with highest *IDV*, *MAS*, *PDI*, *UAI* index, or the highest index on all four cultural dimensions in columns (1)-(5), and excluding the countries with the lowest index of *IDV*, *MAS*, *PDI*, *UAI*, or the lowest index on all four cultural dimensions in columns (6)-(10). Across all regressions in Panel B, we find that individualism and masculinity remain statistically significant at the 1% level, consistent with our main results.

In Panel C, we report regression results from models including additional controls. First, in columns (1)-(3), we control for two additional cultural variables: *LTO* (long-term orientation) and *IND* (indulgence). The *LTO* (long-term orientation) dimension was measured only more recently by Hofstede to distinguish better between life orientations in Eastern and Western cultures. High *LTO* societies are more oriented towards the future. Managers in high *LTO* societies may be more willing to compromise and adapt,

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[25] In unreported results, we also conducted tests using two-year lags instead of one- or three-year lags, and results are robust to this alternative specification.

and may compromise the present for the future in order to gain long-term benefits. Thus, we may see more bank failures in high *LTO* countries. The *IND* (indulgence) dimension was also measured only more recently by Hofstede. High *IND* societies allow relatively free gratification of basic and natural human drives related to enjoying life and having fun. Thus, high *IND* countries may favor more risk taking in management actions, which can lead to more bank failures. Across specifications in columns (1)-(3), we consistently find that individualism and masculinity are positively and statistically significantly associated with a higher likelihood of bank failure. Moreover, as discussed above, additional results on *LTO* and *IND* coefficients support the views, that in general, both high *LTO* and high *IND* countries are also positively and statistically significantly associated with a higher likelihood of bank failure.

Although in our main results we control for several regulatory and supervisory variables, in columns (4)-(7), we saturate the model with three additional regulatory variables from Barth, Caprio, and Levine (2013) dataset: *ACT_RESTRICT* (an index of regulatory restrictions on the activities of banks measuring extent to which a bank can both engage in securities, insurance, and real estate activities, and can own and control nonfinancial firms), *OVERALL_RESTRICT* (an index of the overall restrictions on financial conglomerates), and *PRIVATEMONITORING* (an index of monitoring on the part of the private sector). Our main results remain unaltered when adding these additional controls.

8. Conclusions

This paper analyzes bank failures in a large number of developed and developing countries and investigates the influences of national culture on them for the first time. Prior research on bank failure typically focuses on a single developed nation or a group of developing nations, and does not examine the roles of national culture. We also investigate the channels through which the various dimensions of culture influence the probability of bank failure and find plausible results. The results add to the research knowledge about the causes of bank failure and may assist in the formulation of prudential best practices.

Using a unique dataset of international bank failures – covering 92 countries over 2000-2014 – and considering Hofstede's (2001) national culture dimensions as potential failure determinants, we have several important results: 1) Individualism – which stresses independence, personal achievement, and has been linked with overconfidence and overoptimism – increases the probability of bank failure, and the channel for this effect appears to be high bank portfolio risk. 2) Masculinity – which stresses competitiveness and achievements, material success, little sympathy for the weak, and an orientation toward acquisition and overinvestment – also increases the probability of bank failure, and the channel through which this appears to occur is that government authorities in masculine nations allow banks to operate with less capital and liquidity and less often bail out weak institutions. 3) Other national culture dimensions,

power distance and uncertainty avoidance, do not have consistent effects on the likelihood of bank failure.

Our results are robust to controlling for a broad set of both country and bank determinants, accounting for endogeneity, considering alternative econometric techniques, controlling for additional failure determinants, and using alternative culture measures.

From a policy standpoint, the results of this study suggest that one-size-fits-all prudential policies, regulation, and supervision may not be appropriate, and instead should be tailored to individual countries' cultures. For more individualist countries, prudential actions might be taken to reduce managerial risk taking, including tighter supervision, increased transparency of bank conditions, and/or bail-in mechanisms to encourage more private-sector monitoring. For more masculine nations, the findings suggest potential reconsideration of their enforcement of capital and liquidity guidelines, or their bailout policies.

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Table 1: Variable Definitions and Summary Statistics

Panel A: Variable Definitions

Variable Type	Source	Variable	Definition
Key Dependent Variable			
Failure Variable	Bankscope (2016) Historical Information and Financials, Zefyr M&A Deals, LexisNexis	FAILURE	A dummy equal to one in the time period that a bank fails (failures include actual bank closures, license revocations, insolvencies (bank capitalization falls to 2% or below), liquidations, bankruptcies, receiverships, government takeovers, and government-assisted acquisitions).
Key Independent Variables			
Culture Variables	Hofstede (2001, 2010) & Hofstede Website	IDV	Hofstede's culture index of individualism.
		MAS	Hofstede's culture index of masculinity.
		PDI	Hofstede's culture index of power distance.
		UAI	Hofstede's culture index of uncertainty avoidance.
	Tang and Koveos (2008)	IDV_TK	Tang and Koveos' updated cultural index of individualism.
		MAS_TK	Tang and Koveos' updated cultural index of masculinity.
		PDI_TK	Tang and Koveos' updated cultural index of power distance.
		UAI_TK	Tang and Koveos' updated cultural index of uncertainty avoidance.
	Schwartz (1994)	EMBEDDED	Schwartz's culture index on conservatism.
	House, Hanges, Javidan, Dorfman, and Gupta (2004)	CLT_GLOBE	GLOBE's in-group collectivism practice value.
		PDI_GLOBE	GLOBE's power distance practice value.
		UAI_GLOBE	GLOBE's uncertainty avoidance practice value.
Other Main Controls			
Main Country Controls	World Bank Development Indicators, International Financial Statistics (IFS), Barth, Caprio and Levine (2011) Bank Supervisory Dataset, Worldwide Governance Indicators (WGI)	GDP GROWTH	Real gross domestic product (GDP) percentage change, winsorized at the 5% level.
		INFLA	Inflation percentage, winsorized at the 5% level.
		RESERVE	Log of foreign exchange reserves of the central bank, winsorized at the 5% level.
		GDP_CAPITA	Log of real gross domestic product (GP) per capita, winsorized at the 5% level.
		NODEPINSUR	A dummy variable that equals one if a country has no explicit deposit insurance scheme, and 0 otherwise.
		RULE_OF_LAW	Rule of law, a measure capturing 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.
		REGULATORY	Regulatory quality, a measure capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
		VOICE_ACCOUNT	Voice and accountability, a measure capturing the extent to which a country's citizens are able to participate in selecting their government, freedom of expression, freedom of association, and free media.
		M_SUPER	An indicator equal to 1 if a country has multiple banking supervisors.
Main Bank Controls	Bankscope (2016) Ownership CDs & Website, Claessens and Van Horen (2014, 2015) Foreign Ownership Dataset, LexisNexis News, Other Internet Sources	LN_ASSET	The natural logarithm of bank total assets, winsorized at the 5% level.
		CAPITAL_ASSET	The ratio of total capital to total assets of each individual bank, winsorized at the 5% level.
		NPL	The ratio of bank nonperforming loan to total assets, winsorized at the 5% level.
		ROE	Return on equity, winsorized at the 5% level.
		LOAN_ASSET	The ratio of total loans to total assets of each individual bank, winsorized at the 5% level.
		DEP_ASSET	The ratio of total deposits to total assets of each individual bank, winsorized at the 5% level.
		GOWN	An indicator equal to 1 if a bank has foreign ownership of 50% or more in a particular year.
		FOWN	An indicator equal to 1 if a bank has foreign ownership of 50% or more in a particular year.
		PUB_LISTED	A dummy variable equal to 1 if an individual bank is a publicly listed in a particular year.

Variable Type	Source	Variable	Definition
Other Controls for Additional Analyses			
Instrumental Variables	Spolaore and Wacziarg (2009), Murray and Schaller (2010), La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1999), World Bank Indicators	*GEN_DIST*	Genetic distance relative to Slovakia, which is the probability that two alleles at a given locus selected at random from the population of a given country and population of Slovakia will be different.
		DISEASES	An overall index of the historical prevalence of nine diseases within different geopolitical regions worldwide: leishmanias, schistosomes, trypanosomes, leprosy, malaria, typhus, filariae, dengue, and tuberculosis. Scheme employed: 0 = completely absent or never reported, 1 = rarely reported, 2 = sporadically or moderately reported, 3 = present at severe levels or epidemic levels at least once. All nine disease prevalence ratings were standardized by conversion to z-scores. Overall index is the mean of z-scores for nine diseases. Mean is approximately 0; positive scores show prevalence > mean, and negative scores indicate prevalence < mean.
		LATITUDE	Absolute value of the latitude of a country, scaled to take a value between zero and one.
		AREA61	The natural logarithm of the country land area in 1961.
Other Controls Used in Additional Analyses	Bankscope (2016) Financials	*ASSET_GROWTH*	The rate of asset growth of each individual bank.
		LIQUID ASSETS/TA	The ratio of liquid assets to total assets ratio of each individual bank, winsorized at the 5% level.
		OVERHEAD_A	The ratio of overhead expenses to total assets.
		TBTF	A dummy variable that takes 1 if the bank is ranked in the top three in the country based on total assets.
		MKTSH_DEP	A proxy for bank competition calculated as the market share of the bank in the country based on total deposits.
		MKTSH_DEP_SQ	A proxy for bank competition calculated as the market share squared of the bank in the country based on total deposits.
		CAP_OTHER	Average capital ratio of other banks in the country.
		BAILOUT_PROBABILITY	A proxy for bank bailout probability based on the Fitch rating of external support.
		IFRS	A dummy variable that is equal to 1 if the country accounting standard is International Financial Reporting Standard (*IFRS*).
		IAS	A dummy variable that is equal to 1 if the country accounting standard is International Accounting Standard (IAS).
		GAAP	A dummy variable that is equal to 1 if countries' accounting standard is Local GAAP.
		Z_SCORE	Bank's ROA plus the capital asset ratio divided by the stdv of ROA over a five years' period, winsorized at the 5% level.
		LN(Z_SCORE)	The natural logarithm of bank *Z_SCORE* over a five years' period, winsorized at the 5% level.
		SHARPE RATIO	Bank's ROE divided by the stdv of ROE over a five years' period, winsorized at the 5% level.
		STD ROA	Standard deviation of return on assets (net income over total assets) over a five years' period, winsorized at the 5% level.
		STD ROA2	Standard deviation of return on assets (pre-tax income over total assets) over a five years' period, winsorized at the 5% level.
		STD ROE	Standard deviation of return on equity (net income over total equity) over a five years' period, winsorized at the 5% level.
		STD ROE2	Standard deviation of return on equity (pre-tax income over total equity) over a five years' period, winsorized at the 5% level.
		LLR_LOAN	The ratio of loan loss reserves to total loans, winsorized at the 5% level.
		OBS ACTIVITIES_ASSET	The ratio of off-balance-sheet bank activities to total assets, winsorized at the 5% level.
		TANGIBILE CAPITAL_ASSET	The ratio of bank tangible capital to total assets.
		HHI DEPOSITS	A proxy for bank competition calculated as the Herfindahl Hirschman index of the bank in the country based on total deposits.
	World Bank Development Indicators, Worldwide Governance Indicators (WGI), United National (UN) Development Programme, Hofstede (2001, 2010) & Hofstede Website, Barth, Caprio and Levine (2011) Bank Supervisory Dataset	*CURRENT_ACCOUNT*	The natural logarithm of each country's current account balance, winsorized at the 5% level.
		POPULATION	The natural logarithm of each country's population.
		DOMESTIC_CREDIT	The rate of growth of real domestic credit, winsorized at the 5% level.
		GOV_EFF	Government effectiveness, capturing perceptions of the quality of public services and the degree of its independence from political pressures, the quality of policy formulation and implementation, and government credibility.
		POLITICAL	Political stability, capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
		CORRUPTION	Control of corruption, capturing the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.
		LTO	Hofstede's culture index of long-term orientation.
		IND	Hofstede's culture index of indulgence.
		ACT_RESTRICT	An index of regulatory restrictions on the activities of banks.
		OVERALL_RESTRICT	An index of overall restrictions on financial conglomerates.
		PRIVATEMONITORING	An index of monitoring on the part of the private sector.

Panel B: Summary Statistics

This table reports summary statistics of the variables for our analysis. It contains means, medians (p50), standard deviations (sd), 25th and 75 percentiles (p25, p75), number of observations, number of unique banks and number of unique countries for all variables used to examine the effect of cultural values on bank failure.

Variable Type	Source	Variable	mean	p50	sd	p25	p75	No. Observations	No. Banks	No. Countries
Key Dependent Variable										
Failure Variable	Bankscope (2016) History and Financials, Zefyr M&A, LexisNexis	FAILURE	0.030	0.000	0.170	0.000	0.000	15,693	1,541	92
Key Independent Variables										
Culture Variables	Hofstede (2001, 2010) and Hofstede Website	IDV	40.833	33.000	23.408	20.000	60.000	15,693	1,541	92
		MAS	49.371	50.000	18.291	40.000	63.000	15,693	1,541	92
		PDI	62.493	67.000	21.171	46.000	78.000	15,693	1,541	92
		UAI	66.864	70.000	21.319	50.000	86.000	15,693	1,541	92
	Tang and Koveos (2008)	IDV_TK	49.932	48.000	28.956	22.000	81.000	9,584	951	47
		MAS_TK	50.047	47.000	12.756	44.000	57.000	9,584	951	47
		PDI_TK	52.241	53.000	22.470	33.000	73.000	9,584	951	47
		UAI_TK	66.326	75.000	18.238	51.000	85.000	9,584	951	47
	Schwartz (1994)	EMBEDDED	3.686	3.670	0.384	3.430	3.920	11,449	1,119	59
	House, Hanges, Javidan, Dorfman, and Gupta (2004)	CLT_GLOBE	5.129	5.410	0.687	4.660	5.590	9,890	976	50
		PDI_GLOBE	5.174	5.230	0.369	4.940	5.470	9,890	976	50
		UAI_GLOBE	4.161	3.970	0.604	3.710	4.660	9,890	976	50
Other Main Controls										
Main Country Controls	World Bank Development Indicators, International Financial Statistics (IFS), Barth, Caprio and Levine (2011) Bank Supervisory Dataset, Worldwide Governance Indicators (WGI)	GDP_GROWTH	3.766	3.797	2.895	1.797	5.661	15,693	1,541	92
		INFLA	5.757	3.902	5.738	1.889	7.749	15,693	1,541	92
		RESERVE	23.255	23.363	1.664	22.040	24.359	15,693	1,541	92
		GDP_CAPITA	8.770	8.762	1.452	7.655	10.124	15,693	1,541	92
		NODEPINSUR	0.339	0.000	0.473	0.000	1.000	15,693	1,541	92
		RULE_OF_LAW	0.661	0.670	0.230	0.500	0.830	15,693	1,541	92
		REGULATORY	0.736	0.730	0.202	0.590	0.910	15,693	1,541	92
		VOICE_ACCOUNT	0.760	0.830	0.212	0.630	0.920	15,693	1,541	92
		M_SUPER	0.105	0.000	0.307	0.000	0.000	15,693	1,541	92
Main Bank Controls	Bankscope (2016) Ownership CDs & Website, Claessens and Van Horen (2014, 2015) Foreign Ownership Dataset, LexisNexis News, Other Internet Sources	LN_ASSET	6.884	7.202	3.137	5.043	9.120	15,693	1,541	92
		CAPITAL_ASSET	10.530	8.653	7.381	5.879	12.356	15,693	1,541	92
		NPL	2.138	0.674	3.183	0.000	2.837	15,693	1,541	92
		ROE	10.481	10.606	11.156	4.274	17.266	15,693	1,541	92
		LOAN_ASSET	50.730	53.495	19.509	37.500	65.785	15,693	1,541	92
		DEP_ASSET	77.683	81.659	13.141	72.712	86.983	15,693	1,541	92
		GOWN	0.078	0.000	0.269	0.000	0.000	15,693	1,541	92
		FOWN	0.378	0.000	0.485	0.000	1.000	15,693	1,541	92
		PUB_LISTED	0.314	0.000	0.464	0.000	1.000	15,693	1,541	92

Variable Type	Source	Variable	mean	p50	sd	p25	p75	No. Observations	No. Banks	No. Countries
Other Controls for Additional Analyses										
Instrumental Variables	Spolaore and Wacziarg (2009), Murray and Schaller (2010), La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1999), World Bank Indicators	GEN_DIST	120.210	114.000	49.519	97.000	137.000	15,004	1,469	88
		DISEASES	-0.035	0.090	0.670	-0.750	0.500	15,388	1,507	90
		LATITUDE	31.230	33.300	18.077	14.400	46.800	15,693	1,541	92
		LAND_61	12.424	12.592	2.004	11.216	13.690	15,693	1,541	92
Other Controls Used in Additional Analyses	Bankscope (2016) Financials	ASSET_GROWTH	0.031	0.011	0.310	0.000	0.032	15,252	1,537	92
		LIQUID ASSETS/TA	25.452	20.996	17.111	12.093	35.385	15,643	1,541	92
		OVERHEAD_A	3.358	2.628	2.471	1.518	4.563	15,118	1,541	92
		TBTF	0.228	0.000	0.420	0.000	0.000	15,693	1,541	92
		MKTSH_DEP	0.080	0.025	0.139	0.007	0.086	15209	1,530	92
		MKTSH_DEP_SQ	0.026	0.001	0.098	0.000	0.007	15209	1,530	92
		CAP_OTHER	6.590	10.464	42.613	7.725	13.692	15,684	1,539	91
		BAILOUT_PROBABILITY	0.350	0.000	0.450	0.000	1.000	15,693	1,541	92
		IFRS	0.281	0.000	0.450	0.000	1.000	15,693	1,541	92
		IAS	0.044	0.000	0.205	0.000	0.000	15,693	1,541	92
		GAAP	0.675	1.000	0.468	0.000	1.000	15,693	1,541	92
		Z_SCORE	31.468	23.900	26.020	12.868	42.415	9,484	1,154	84
		LN(Z_SCORE)	3.139	3.215	0.889	2.629	3.771	9,484	1,154	84
		SHARPE RATIO	3.299	2.537	3.073	1.090	4.713	9,471	1,152	84
		STD ROA	0.758	0.413	0.924	0.213	0.863	9,547	1,156	84
		STD ROA2	0.883	0.511	0.998	0.267	1.045	9,547	1,156	84
		STD ROE	8.471	4.614	10.891	2.539	8.634	9,547	1,156	84
		STD ROE2	9.847	5.743	11.543	3.277	10.545	9,547	1,156	84
		LLR_LOAN	4.643	3.060	4.428	1.550	6.025	12,560	1,364	90
		OBS ACTIVITIES_ASSET	23.192	15.144	25.230	6.264	28.955	12,307	1,392	91
		TANGIBILE CAPITAL_ASSET	9.701	8.340	5.738	5.640	11.970	15,225	1,536	92
		HHI DEPOSITS	0.275	0.194	0.222	0.136	0.306	15,693	1,541	92
	World Bank Development Indicators, Worldwide Governance Indicators (WGI), United National (UN) Development Programme	CURRENT_ACCOUNT	-0.520	-1.072	5.780	-4.453	2.835	15,693	1,541	92
		POPULATION	16.968	16.926	1.631	15.794	18.022	15,693	1,541	92
		DOMESTIC_CREDIT	66.090	48.539	47.535	25.949	98.913	14,764	1,541	92
		GOV_EFF	0.665	0.750	0.242	0.500	0.750	15,693	1,541	92
		POLITICAL	0.736	0.750	0.107	0.670	0.810	15,693	1,541	92
		CORRUPTION	0.491	0.420	0.209	0.330	0.670	15,693	1,541	92
		LTO	46.630	47.000	22.96	27.000	63.000	13,951	1,371	79
		IND	46.070	45.000	23.300	26.000	65.000	13,535	1,333	74
		ACT_RESTRICT	7.150	7.000	2.070	6.000	9.000	14,345	1,523	90
		OVERALL_RESTRICT	6.660	7.000	1.780	6.000	8.000	13,580	1,512	91
		PRIVATEMONITORING	8.070	8.000	1.430	7.000	9.000	13,802	1,502	89

Table 2: Effects of National Culture on Bank Failure – Main Results

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure. The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variable															
IDV	0.008***				0.008***	0.017***				0.022***	0.015***				0.019***
	(3.795)				(2.688)	(5.284)				(5.929)	(4.152)				(4.674)
MAS		0.013***			0.011***		0.014***			0.013***		0.010***			0.010***
		(5.975)			(5.096)		(5.920)			(5.258)		(4.059)			(4.150)
PDI			-0.005**		0.001			0.007**		0.013***			0.005		0.011***
			(-2.050)		(0.250)			(2.294)		(3.937)			(1.233)		(2.696)
UAI				0.001	0.003				-0.001	0.003				-0.001	0.003
				(0.286)	(1.208)				(-0.655)	(1.308)				(-0.379)	(0.947)
L_GDP_GROWTH						-0.051**	-0.055***	-0.061***	-0.058***	-0.055**	-0.036	-0.042*	-0.046**	-0.044**	-0.038
						(-2.335)	(-2.577)	(-2.876)	(-2.739)	(-2.518)	(-1.569)	(-1.860)	(-2.079)	(-1.968)	(-1.612)
L_INFLA						-0.056***	-0.047***	-0.052***	-0.052***	-0.052***	-0.036***	-0.028**	-0.031***	-0.033***	-0.031***
						(-4.912)	(-4.304)	(-4.786)	(-4.694)	(-4.713)	(-3.132)	(-2.457)	(-2.723)	(-2.824)	(-2.672)
L_RESERVE						-0.263***	-0.252***	-0.234***	-0.234***	-0.294***	-0.175***	-0.172***	-0.153***	-0.151***	-0.211***
						(-8.441)	(-8.429)	(-7.886)	(-7.752)	(-9.861)	(-5.607)	(-5.648)	(-5.253)	(-5.100)	(-6.772)
L_GDP_CAPITA						0.367***	0.371***	0.466***	0.434***	0.364***	0.171**	0.160**	0.221***	0.202***	0.166**
						(6.072)	(6.654)	(7.686)	(7.590)	(6.203)	(2.262)	(2.193)	(2.897)	(2.719)	(2.231)
L_NODEPINSUR						0.381***	0.485***	0.460***	0.407***	0.534***	0.536***	0.610***	0.613***	0.572***	0.650***
						(3.519)	(4.304)	(4.222)	(3.794)	(4.622)	(4.741)	(5.267)	(5.224)	(4.917)	(5.287)
L_RULE_OF_LAW						-0.788***	-0.120	-0.109	-0.379	-0.164	-1.230***	-0.739**	-0.642*	-0.869**	-0.698*
						(-2.582)	(-0.399)	(-0.362)	(-1.299)	(-0.519)	(-3.447)	(-2.199)	(-1.785)	(-2.458)	(-1.811)
L_REGULATORY						-1.537***	-1.263***	-1.421***	-1.409***	-1.431***	-0.267	-0.065	-0.215	-0.203	-0.146
						(-4.280)	(-3.671)	(-4.114)	(-4.043)	(-3.909)	(-0.672)	(-0.164)	(-0.557)	(-0.524)	(-0.361)
L_VOICE_ACCOUNT						-1.803***	-1.002***	-1.155***	-1.179***	-1.896***	-1.339***	-0.649*	-0.726*	-0.737*	-1.454***
						(-5.080)	(-2.996)	(-3.481)	(-3.540)	(-5.078)	(-3.094)	(-1.682)	(-1.879)	(-1.910)	(-3.322)
L_M_SUPER						-0.038	0.145	0.188	0.155	-0.039	0.211	0.297*	0.312*	0.291*	0.242

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
						(-0.223)	(0.907)	(1.176)	(0.969)	(-0.228)	(1.249)	(1.761)	(1.844)	(1.717)	(1.394)
L_LN_ASSET											-0.024	-0.008	-0.010	-0.010	-0.023
											(-1.316)	(-0.446)	(-0.567)	(-0.556)	(-1.291)
L_CAPITAL_ASSET											-0.311***	-0.310***	-0.313***	-0.313***	-0.305***
											(-5.877)	(-5.901)	(-5.889)	(-5.861)	(-5.813)
L_NPL											0.141***	0.137***	0.137***	0.137***	0.140***
											(8.188)	(7.935)	(8.038)	(7.945)	(8.064)
L_ROE											0.001	0.002	0.002	0.002	0.001
											(0.223)	(0.432)	(0.434)	(0.393)	(0.266)
L_LOAN_ASSET											-0.015***	-0.015***	-0.016***	-0.016***	-0.014***
											(-5.121)	(-5.129)	(-5.214)	(-5.196)	(-4.791)
L_DEP_ASSET											-0.029***	-0.030***	-0.030***	-0.029***	-0.031***
											(-7.979)	(-8.275)	(-8.139)	(-7.996)	(-8.298)
L_GOWN											-0.073	-0.037	-0.057	-0.068	-0.023
											(-0.369)	(-0.186)	(-0.296)	(-0.346)	(-0.113)
L_FOWN											0.007	-0.019	-0.011	-0.008	-0.005
											(0.061)	(-0.171)	(-0.098)	(-0.076)	(-0.043)
L_PUB_LISTED											-0.914***	-0.912***	-0.904***	-0.916***	-0.892***
											(-6.572)	(-6.612)	(-6.529)	(-6.629)	(-6.430)
CONSTANT	-3.987***	-4.287***	-3.331***	-3.664***	-4.762***	1.579**	-0.020	-0.685	0.327	-0.098	5.499***	4.589***	3.994***	4.630***	4.403***
	(-19.526)	(-19.487)	(-15.019)	(-15.897)	(-13.870)	(2.217)	(-0.029)	(-0.859)	(0.443)	(-0.122)	(5.555)	(4.704)	(3.796)	(4.562)	(4.048)
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693	15,693
Banks	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541	1541
Countries	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Pseudo R2	0.010	0.011	0.007	0.006	0.015	0.052	0.052	0.047	0.046	0.061	0.229	0.228	0.225	0.225	0.233

Table 3: Effects of National Culture on Bank Failure – Instrumental Variable (IV) 2SLS Analysis (IV Probit)

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using an ivprobit instrumental variable (IV) analysis. The instruments used are *DISEASES* (an overall index of historical prevalence of nine diseases), *GEN_DIST* (genetic distance), *LATITUDE* (a country's absolute value of latitude), and *LAND_61* (the natural logarithm of a country's total land area in 1961). The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)
Model	**OLS**	**IV First Stage**	**IV First Stage**	**IV First Stage**	**IV First Stage**	**IV Second Stage**
Dependent Variable	FAILURE	IDV	MAS	PDI	UAI	FAILURE
Independent Variables						
IDV	0.019***					0.037***
	(4.674)					(4.882)
MAS	0.010***					0.055***
	(4.150)					(5.891)
PDI	0.011***					-0.022
	(2.696)					(-1.101)
UAI	0.003					0.002
	(0.947)					(0.316)
DISEASES		-4.014***	-1.111**	2.351***	6.124***	
		(-10.473)	(-2.354)	(5.917)	(12.262)	
GEN_DIST		0.023***	0.019***	0.024***	-0.049***	
		(7.967)	(5.974)	(8.752)	(-15.391)	
LATITUDE		0.391***	-0.291***	-0.036**	0.479***	
		(30.609)	(-22.464)	(-2.462)	(31.910)	
LAND_61		1.455***	0.961***	-0.704***	2.522***	
		(18.402)	(12.097)	(-9.256)	(21.868)	
Country Controls	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES
Observations	15,693	14,699	14,699	14,699	14,699	14,699
Banks	1541	1434	1434	1434	1434	1434
Countries	92	86	86	86	86	86
Pseudo R2 / Adjusted R2	0.233	0.705	0.192	0.511	0.318	0.020
Anderson-Rubin Weak Instrument F-test						59.65***
Anderson-Rubin Weak Instrument p-value						0.000***
Wald Weak Instrument test						53.73***
Wald Weak Instrument p-value						0.000***

Table 4: Effects of National Culture on Bank Failure – Alternative Econometric Specifications

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using several alternative econometric specifications: a probit model in column (1), a linear probability model in column (2), a proportional hazard model in column (3), a complementary log-log model in column (4), a weighted logit model with the weight proportional to the country population in column (5), a weighted logit model with the weight proportional to the country nominal GDP in column (6), and a weighted logit model with the weight proportional to the number of banks in the country in column (7). The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Model	**Probit Model**	**Linear Probability Model**	**Hazard Model**	**Cloglog Model**	**Weighted Logit (Weight: Population)**	**Weighted Logit (Weight: Nominal GDP)**	**Weighted Logit (Weight: Number banks)**
Dependent Variable:	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables:							
IDV	0.009***	0.000***	0.016***	0.018***	0.010***	0.011***	0.009***
	(4.727)	(3.785)	(3.277)	(4.842)	(4.893)	(5.178)	(4.491)
MAS	0.005***	0.000***	0.014***	0.009***	0.004**	0.004**	0.008***
	(4.651)	(5.067)	(5.846)	(3.791)	(2.573)	(2.257)	(4.228)
PDI	0.004**	0.000***	0.005	0.011***	-0.001	0.001	0.002
	(2.440)	(4.143)	(0.871)	(2.817)	(-0.611)	(0.370)	(0.892)
UAI	0.002	0.000	0.006**	0.003	0.001	-0.000	0.000
	(1.638)	(0.740)	(2.285)	(1.021)	(0.638)	(-0.077)	(0.264)
Country-Level Controls	YES	YES	YES	YES	YES	YES	YES
Bank-Level Controls	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Observations	15,693	15,693	15,693	15,693	15,682	15,693	15,693
Banks	1541	1541	1541	1541	1541	1541	1541
Countries	92	92	92	92	92	92	92
Pseudo R2 or R-squared	0.208	0.061					

Table 5: Effects of National Culture on Bank Failure – Other Potentially Omitted Correlated Bank and Country Variables

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using several additional bank and country controls. The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include the previous set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and the previous set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). We also control here for additional bank controls: asset growth (*ASSET_GROWTH*), liquidity ratio (*LIQUID_ASSET*), overhead costs ratio (*OVERHEAD_A*), too-big-to-fail (*TBTF*), market share and market share squared (*MKTSH_DEP* and *MKTSH_DEP_SQ*), *CAP_OTHER* (average capital ratio of other banks in the country), *BAILOUT_PROBABILITY* (probability that a bank will receive bailout support based on Fitch's support ratings) and additional bank controls: *IFRS* and *IAS* (accounting standards dummies), trade account (*CURRENT_ACCOUNT*), country population (*POPULATION*), domestic credit growth (*DOMESTIC_CREDIT*), and government efficiency (*GOV_EFF*, *POLITICAL*, and *CORRUPTION*). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Test	Additional Bank-Level Controls								Additional Country-Level Controls						
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables															
IDV	0.020***	0.022***	0.020***	0.020***	0.020***	0.020***	0.019***	0.019***	0.021***	0.021***	0.019***	0.020***	0.020***	0.017***	0.016***
	(4.891)	(5.226)	(4.661)	(4.557)	(4.492)	(4.488)	(4.211)	(4.215)	(4.512)	(4.348)	(4.097)	(3.606)	(3.742)	(3.118)	(2.911)
MAS	0.012***	0.010***	0.010***	0.010***	0.010***	0.009***	0.009***	0.009***	0.010***	0.010***	0.007**	0.009***	0.011***	0.014***	0.018***
	(4.453)	(3.657)	(3.420)	(3.263)	(3.276)	(3.166)	(2.911)	(2.897)	(3.130)	(3.156)	(2.263)	(3.024)	(3.423)	(4.184)	(4.775)
PDI	0.010**	0.009**	0.010**	0.009*	0.009*	0.009*	0.009*	0.009*	0.010**	0.010**	0.009*	0.011**	0.009	0.008	0.012**
	(2.385)	(2.049)	(2.072)	(1.932)	(1.933)	(1.931)	(1.817)	(1.812)	(2.091)	(2.092)	(1.861)	(2.255)	(1.617)	(1.637)	(2.342)
UAI	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.001	0.001	0.000	0.001	0.000	0.001	0.003
	(0.998)	(0.855)	(1.088)	(0.975)	(0.969)	(0.958)	(0.900)	(0.894)	(0.180)	(0.203)	(0.032)	(0.275)	(0.043)	(0.348)	(0.698)
L_ASSET_GROWTH	-1.078	-0.800	-0.818	-0.811	-0.807	-0.804	-1.886	-1.880	-1.817	-1.810	-1.727	-1.674	-1.647	-1.643	-1.676
	(-0.888)	(-1.216)	(-1.347)	(-1.351)	(-1.349)	(-1.340)	(-1.230)	(-1.230)	(-1.216)	(-1.210)	(-1.248)	(-1.238)	(-1.235)	(-1.236)	(-1.332)
L_LIQUID ASSETS _TA		-0.017***	-0.019***	-0.018***	-0.018***	-0.018***	-0.016***	-0.016***	-0.016***	-0.016***	-0.017***	-0.018***	-0.019***	-0.020***	-0.020***
		(-4.454)	(-4.623)	(-4.566)	(-4.553)	(-4.555)	(-4.106)	(-4.101)	(-3.994)	(-3.983)	(-4.111)	(-4.208)	(-4.521)	(-4.609)	(-4.655)
L_OVERHEAD_A			0.004	0.002	0.002	0.002	-0.006	-0.005	-0.003	-0.003	-0.005	0.011	-0.007	-0.015	-0.037
			(0.110)	(0.051)	(0.069)	(0.069)	(-0.155)	(-0.144)	(-0.080)	(-0.081)	(-0.127)	(0.295)	(-0.200)	(-0.398)	(-0.918)
L_TBTF				-0.629***	-0.455**	-0.506**	-0.479**	-0.479**	-0.545**	-0.546**	-0.547**	-0.401*	-0.351	-0.326	-0.370
				(-4.094)	(-2.337)	(-2.221)	(-2.088)	(-2.087)	(-2.343)	(-2.337)	(-2.274)	(-1.667)	(-1.478)	(-1.379)	(-1.550)
L_MKTSH_DEP					-0.966	-0.237	-0.299	-0.344	0.359	0.371	1.107	0.198	-0.528	-0.863	-0.745
					(-1.352)	(-0.151)	(-0.189)	(-0.215)	(0.220)	(0.225)	(0.648)	(0.115)	(-0.300)	(-0.488)	(-0.420)
L_MKTSH_DEP_SQ						-1.164	-1.106	-1.064	-1.847	-1.862	-2.642	-1.450	-0.532	-0.014	-0.142
						(-0.700)	(-0.663)	(-0.637)	(-1.053)	(-1.049)	(-1.399)	(-0.809)	(-0.299)	(-0.008)	(-0.080)
L_CAP_OTHER							-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	0.001
							(-0.749)	(-0.752)	(-0.658)	(-0.662)	(-0.527)	(-0.272)	(-0.363)	(-0.057)	(0.585)
L_BAILOUT_ PROBABILITY								0.038	0.071	0.070	0.016	0.036	0.045	0.012	-0.014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
								(0.218)	(0.398)	(0.396)	(0.092)	(0.198)	(0.243)	(0.067)	(-0.077)
L_IFRS									-0.311*	-0.305*	-0.273	-0.398**	-0.448**	-0.440**	-0.298
									(-1.886)	(-1.779)	(-1.591)	(-2.153)	(-2.347)	(-2.285)	(-1.563)
L_IAS									-2.613***	-2.606***	-2.684***	-2.827***	-2.792***	-2.778***	-2.675***
									(-2.665)	(-2.646)	(-2.704)	(-2.787)	(-2.764)	(-2.788)	(-2.671)
L_CURRENT_ACCOUNT										0.002	0.006	0.002	0.008	0.019	0.013
										(0.114)	(0.430)	(0.131)	(0.531)	(1.308)	(0.893)
L_POPULATION											0.187**	0.185**	0.196**	0.137*	0.108
											(2.459)	(2.229)	(2.381)	(1.656)	(1.256)
L_DOMESTIC_CREDIT												0.002	0.002	0.004	0.004
												(0.728)	(0.826)	(1.419)	(1.532)
L_GOV_EFF													-1.236**	-1.474**	-2.179***
													(-2.007)	(-2.301)	(-3.035)
L_POLITICAL														-3.008***	-3.004***
														(-3.632)	(-3.413)
L_CORRUPTION															2.050***
															(3.330)
Previous Country-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Previous Bank-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	14,153	14,109	13,603	13,603	13,603	13,603	13,486	13,486	13,486	13,486	13,486	12,814	12,814	12,814	12,814
Banks	1514	1510	1473	1473	1473	1473	1466	1466	1466	1466	1466	1421	1421	1421	1421
Countries	92	92	92	92	92	92	91	91	91	91	91	89	89	89	89
Pseudo R2	0.231	0.245	0.250	0.254	0.255	0.255	0.259	0.259	0.265	0.265	0.266	0.270	0.271	0.275	0.279

Table 6: Effects of National Culture on Bank Failure – Alternative Cultural Value Variables

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using alternative culture measures. We use Tang and Koveos (2008)' culture measures (*IDV_TK*, *MAS_TK*, *PDI_TK*, and *UAI_TK*) in models (1)-(5), Schwartz (1994)'s conservatism (*EMBEDDED*) to capture collectivism in model (6), and Globe measures (*CLT_GLOBE*, *PDI_GLOBE*, and *UAI_GLOBE*) for collectivism, power distance, and uncertainty avoidance in models (7)-(10). The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Cultural Value Source	**Tang and Koveos**					**Schwartz**	**Globe**			
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables										
IDV_TK	0.013**				0.016**					
	(2.530)				(2.266)					
MAS_TK		0.021***			0.024***					
		(5.090)			(4.943)					
PDI_TK			-0.012*		0.008					
			(-1.898)		(1.162)					
UAI_TK				-0.006	0.002					
				(-1.266)	(0.409)					
EMBEDDED						-1.665***				
						(-4.870)				
CLT_GLOBE							-0.366***			-0.368**
							(-2.966)			(-2.151)
PDI_GLOBE								0.793***		1.278***
								(4.068)		(6.055)
UAI_GLOBE									0.509***	0.577***
									(3.581)	(3.092)
Country-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	9,584	9,584	9,584	9,584	9,584	11,449	9,890	9,890	9,890	9,890
Banks	951	951	951	951	951	1119	976	976	976	976
Countries	47	47	47	47	47	59	50	50	50	50
Pseudo R2	0.248	0.253	0.247	0.246	0.255	0.153	0.251	0.254	0.253	0.264

Table 7: Effects of National Culture on Bank Failure – Subsample Analysis

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using several subsamples: models that exclude U.S., G-10 countries, and countries with ≤ 3 banks in columns (1)-(3), models for period before and after the financial crisis (< 2007 and ≥ 2007) in columns (4)-(5), and banks with above and below median bank concentration (*HHI DEPOSITS*) in columns (6)-(7). The dependent variable is *FAILURE*, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sort Criteria	Exclude Potential Outliers			Global Financial Crisis		Bank Concentration (HHI DEPOSITS)	
Subsample	Exclude U.S.	Exclude G10 Countries	Exclude Countries with <=3 banks	Year < 2007	Year ≥ 2007	Below Median	Above Median
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables							
IDV	0.020***	0.012**	0.019***	0.013**	0.028***	0.036***	0.012**
	(4.894)	(2.311)	(4.792)	(2.259)	(4.164)	(4.907)	(2.048)
MAS	0.010***	0.018***	0.010***	0.014***	0.009**	0.009*	0.012***
	(4.270)	(5.942)	(4.146)	(4.308)	(2.017)	(1.808)	(3.798)
PDI	0.011***	0.005	0.011***	0.006	0.012*	0.033***	0.003
	(2.843)	(1.143)	(2.711)	(1.135)	(1.645)	(4.660)	(0.559)
UAI	0.002	0.004	0.003	0.000	0.004	-0.001	0.005
	(0.657)	(1.182)	(0.999)	(0.061)	(0.822)	(-0.167)	(1.572)
Country-Level Controls	YES	YES	YES	YES	YES	YES	YES
Bank-Level Controls	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES
Observations	15,436	13,290	15,605	8,449	7,244	7,672	7,847
Banks	1516	1297	1529	1495	1087	1038	1114
Countries	91	81	87	88	86	56	82
Pseudo R2	0.233	0.252	0.234	0.228	0.274	0.341	0.159

Tests of the equality of the effect of IDV and MAS for subsample pairs

Sort Criteria	Global Financial Crisis	Bank Concentration (HHI DEPOSITS)
Subsample	**Year < 2007 vs. Year ≥ 2007**	**Below vs. Above Median**
Dependent Variable:	FAILURE	FAILURE
t-stat: Effect of *IDV* for the two subsamples is equal	-1.627	2.603**
t-stat: Effect of *MAS* for the two subsamples is equal	1.000	-0.514

Table 8: Effects of National Culture on Bank Failure – Channels

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank portfolio risk in Panel A, and capitalization, liquidity, and government bailout support in Panel B. All independent variables are lagged five years when the dependent variable is calculated over 5 years, and are lagged one year for all other variables. If a bank does not have financial information in the previous year necessary for the lags, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Panel A: Bank Portfolio Risk

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Criteria	BANK PORTFOLIO RISK MEASURES								
Dependent Variable	Z_SCORE (over 5 years)	LN(Z_SCORE) (over 5 years)	SHARPE RATIO (over 5 years)	STD ROA (over 5 years)	STD ROA2 (over 5 years)	STD ROE (over 5 years)	STD ROE2 (over 5 years)	LLR __LOAN	OBS ACTIVITIES _ASSET
Independent Variables									
IDV	-0.146***	-0.006***	-0.022***	0.005***	0.005***	0.071***	0.080***	0.019***	0.033*
	(-7.318)	(-9.581)	(-9.534)	(6.956)	(7.533)	(8.894)	(9.450)	(8.042)	(1.801)
MAS	0.062***	0.001*	0.008***	0.000	-0.000	0.002	0.002	-0.005***	-0.033***
	(3.985)	(1.689)	(4.423)	(0.043)	(-0.118)	(0.322)	(0.209)	(-2.594)	(-2.721)
PDI	0.006	0.000	-0.006***	-0.001	-0.002***	0.004	-0.006	0.033***	0.085***
	(0.304)	(0.422)	(-2.642)	(-1.145)	(-2.660)	(0.479)	(-0.706)	(14.257)	(6.197)
UAI	-0.127***	-0.005***	-0.016***	0.004***	0.004***	0.039***	0.039***	0.019***	-0.059***
	(-8.993)	(-10.465)	(-10.358)	(9.055)	(8.269)	(7.330)	(6.783)	(11.374)	(-4.742)
Country Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	9,484	9,484	9,471	9,547	9,547	9,547	9,547	12,560	12,307
Banks	1154	1154	1152	1156	1156	1156	1156	1364	1392
Countries	84	84	84	84	84	84	84	90	91
Adjusted R2	0.096	0.125	0.169	0.172	0.184	0.091	0.090	0.407	0.101

Panel B: Bank Capitalization, Liquidity, and Government Bailout Support

Column	(1)	(2)	(3)	(4)	(5)
Criteria	**BANK CAPITALIZATION, LIQUIDITY, GOVERNMENT BAILOUT SUPPORT**				
Dependent Variable	CAPITAL_ASSET	TANGIBLE CAPITAL_ASSET	LIQUID_ASSET	BAILOUT_PROBABLITY (OLOGIT)	BAILOUT_PROBABLITY (OPROBIT)
Independent Variables					
IDV	-0.004**	-0.010***	0.136***	-0.003	-0.002*
	(-2.171)	(-5.139)	(14.258)	(-1.406)	(-1.815)
MAS	-0.002*	-0.006***	-0.045***	-0.008***	-0.004***
	(-1.662)	(-4.575)	(-6.469)	(-5.717)	(-5.342)
PDI	0.002	0.001	0.047***	-0.003**	-0.002***
	(1.269)	(0.528)	(5.586)	(-2.295)	(-2.645)
UAI	-0.006***	-0.005***	0.068***	-0.003***	-0.001**
	(-5.057)	(-4.089)	(10.295)	(-2.683)	(-2.435)
Country Controls	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Observations	15,250	15,225	15,199	15,693	15,693
Banks	1537	1536	1533	1541	1541
Countries	92	92	92	92	92
Adjusted R2 or Pseudo R2	0.758	0.748	0.414	0.300	0.306

Appendix A: Summary Statistics by Country

Table A.1: Summary Statistics by Country

This table reports summary statistics by country. All variables are defined in Table 1.

Variable Type			Failure	Culture (Hofstede)			
Ctrycode	Country	No banks	FAILURE	IDV	MAS	PDI	UAI
AO	Angola	3	0.000	18	20	83	60
AR	Argentina	25	0.011	46	56	49	86
AU	Australia	25	0.084	90	61	36	51
AT	Austria	25	0.067	55	79	11	70
BD	Bangladesh	24	0.057	20	55	80	60
BE	Belgium	25	0.052	75	54	65	94
BR	Brazil	22	0.000	38	49	69	76
BG	Bulgaria	19	0.009	30	40	70	85
BF	Burkina Faso	7	0.000	15	50	70	55
CA	Canada	15	0.025	80	52	39	48
CL	Chile	25	0.000	23	28	63	86
CN	China	25	0.057	20	66	80	30
CO	Colombia	25	0.024	13	64	67	80
CR	Costa Rica	22	0.004	15	21	35	86
HR	Croatia	25	0.004	33	40	73	80
CZ	Czech Republic	18	0.012	58	57	57	74
DK	Denmark	24	0.008	74	16	18	23
DO	Dominican Republic	25	0.000	30	65	65	45
EC	Ecuador	25	0.175	8	63	78	67
EG	Egypt	25	0.003	25	45	70	80
SV	El Salvador	13	0.000	19	40	66	94
EE	Estonia	5	0.000	60	30	40	60
ET	Ethiopia	6	0.000	20	65	70	55
FI	Finland	8	0.000	63	26	33	59
FR	France	25	0.136	71	43	68	86
DE	Germany	25	0.063	67	66	35	65
GH	Ghana	13	0.013	15	40	80	65
GR	Greece	11	0.084	35	57	60	100
GT	Guatemala	25	0.069	6	37	95	99
HN	Honduras	22	0.005	20	40	80	50
HK	Hong Kong	25	0.000	25	57	68	29
HU	Hungary	17	0.000	80	88	46	82
IS	Iceland	4	0.000	60	10	30	50
IN	India	25	0.008	48	56	77	40
ID	Indonesia	25	0.013	14	46	78	48
IE	Ireland	14	0.061	70	68	28	35
IL	Israel	15	0.007	54	47	13	81
IT	Italy	25	0.017	76	70	50	75
JM	Jamaica	6	0.000	39	68	45	13
JP	Japan	25	0.004	46	95	54	92
JO	Jordan	4	0.000	30	45	70	65
KE	Kenya	25	0.013	25	60	70	50
KW	Kuwait	3	0.028	25	40	90	80
LV	Latvia	17	0.019	70	9	44	63
LB	Lebanon	25	0.049	40	65	75	50
LT	Lithuania	10	0.053	60	19	42	65
LU	Luxembourg	25	0.077	60	50	40	70
MW	Malawi	5	0.000	30	40	70	50
MY	Malaysia	25	0.021	26	50	100	36
MT	Malta	4	0.000	59	47	56	96
MX	Mexico	25	0.008	30	69	81	82
MA	Morocco	7	0.033	46	53	70	68
MZ	Mozambique	7	0.000	15	38	85	44

Variable Type			Failure	Culture (Hofstede)			
Ctrycode	Country	No banks	FAILURE	IDV	MAS	PDI	UAI
NA	Namibia	5	0.000	30	40	65	45
NL	Netherlands	25	0.005	80	14	38	53
NZ	New Zealand	9	0.213	79	58	22	49
NG	Nigeria	25	0.061	30	60	80	55
NO	Norway	15	0.008	69	8	31	50
PK	Pakistan	19	0.024	14	50	55	70
PA	Panama	25	0.057	11	44	95	86
PE	Peru	16	0.020	16	42	64	87
PH	Philippines	21	0.017	32	64	94	44
PL	Poland	25	0.004	60	64	68	93
PT	Portugal	23	0.005	27	31	63	99
RO	Romania	22	0.000	30	42	90	90
RU	Russia	25	0.024	39	36	93	95
SN	Senegal	7	0.000	25	45	70	55
RS	Serbia	14	0.000	25	43	86	92
SL	Sierra Leone	4	0.000	20	40	70	50
SG	Singapore	22	0.008	20	48	74	8
SK	Slovakia	12	0.025	52	100	100	51
SI	Slovenia	13	0.007	27	19	71	88
ZA	South Africa	25	0.037	65	63	49	49
KR	South Korea	16	0.000	18	39	60	85
ES	Spain	25	0.058	51	42	57	86
LK	Sri Lanka	10	0.037	35	10	80	45
SR	Suriname	2	0.000	47	37	85	92
SE	Sweden	13	0.011	71	5	31	29
CH	Switzerland	25	0.004	68	70	34	58
SY	Syria	1	0.000	35	52	80	60
TZ	Tanzania	16	0.000	25	40	70	50
TH	Thailand	19	0.012	20	34	64	64
TT	Trinidad and Tobago	6	0.000	16	58	47	55
TR	Turkey	14	0.000	37	45	66	85
UA	Ukraine	20	0.014	25	27	92	95
AE	United Arab Emirates	3	0.000	25	50	90	80
GB	United Kingdom	25	0.081	89	66	35	35
US	United States	25	0.000	91	62	40	46
UY	Uruguay	25	0.074	36	38	61	99
VE	Venezuela	25	0.006	12	73	81	76
VN	Vietnam	17	0.066	20	40	70	30
ZM	Zambia	10	0.000	35	40	60	50

Appendix B: Hofstede Country-Level Cultural Dimensions

The culture dimensions we use in this study originally come from a cross-country psychological survey of employee values conducted by Geert Hofstede between 1967-1973. The subjects of this survey were International Business Machines Corporation (IBM) employees in 72 countries and included about 88,000 respondents. Later on, Hofstede and others updated the values to more than 100 countries, which are now available from Hofstede's website. They argued that "since culture only changes very slowly, the scores can be considered up to date." Below is a brief description of the construction of the cultural dimensions used in our analysis.[26] These dimensions have been used in a large number of finance and business studies.

Individualism

The index is a weighted sum of country mean scores (derived via factor analysis) of answers to the following four survey statements:

"*In choosing an ideal job, how important would it be to you to…*"

1) Have sufficient time left for your personal or family life.
2) Have good physical working conditions (good ventilation and lighting, adequate work space, etc.).
3) Have security of employment.
4) Have an element of variety and adventure in the job.

Possible answers: 1= of utmost importance; 2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.

High individualism is indicated by ratings of "*of very little or no importance*" to items (2) and (3), and ratings of "*of utmost importance*" to items (1) and (4).

Individualism deals with the self-construal of independence versus interdependence and measures the degree to which a society stresses the role of the individual versus that of the group. According to Hofstede (2001), individualism stands for "a society in which the ties between individuals are loose and everyone is expected to look after himself and his immediate family only". Collectivism (the opposite of individualism) stands for a society in which "people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty."

Masculinity

The index is a weighted sum of country mean scores (derived via factor analysis) of answers to the following four survey statements:

"*In choosing an ideal job, how important would it be to you to…*"

1) Work with people who cooperate well with one another.
2) Have an opportunity for advancement to higher level jobs.

Possible answers: 1= of utmost importance; 2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.

"How much do you agree or disagree with the following statements?"

3) Most people can be trusted.

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[26] More details on the methodology can be found in Hofstde's (2001) book on "Culture Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations".

4) When people have failed in life it is often their own fault.
Possible answers: 1 = strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.

Masculinity is indicated by ratings of "*of very little or no importance*" to item (1), ratings of "*of utmost importance*" to item (2), ratings of "*strongly disagree*" to item (3), and ratings of "*strongly agree*" to item (4).

Masculinity focuses on the duality of genders and captures the extent to which "male assertiveness" is promoted as dominant values in a society as opposed to "female nurturance". According to Hofstede (2001), masculinity stands for societies where social gender roles are clearly defined: men are supposed to be assertive, tough and focused on advancement and earnings; women are supposed to be more modest, nurturing, and concerned with the quality of life. Femininity (the opposite of masculinity) stands for societies where the gender roles overlap: both genders are supposed to be modest, tender and concerned with the standard of living.

Power distance*: The index is a weighted sum of country mean scores (derived via factor analysis) of answers to the following three statements and one question of the survey:

"In choosing an ideal job, how important would it be to you to…"

1) Have a good working relationship with your direct superior.

2) Be consulted by your direct superior in his/her decisions.
Possible answers: 1 = of utmost importance; 2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.

3) How frequently, in your experience, are subordinates afraid to express disagreement with their superiors?
Possible answers: 1 = never; 2 = seldom; 3 = sometimes; 4 = frequently; 5 = very frequently.

4) An organization structure in which certain subordinates have two bosses should be avoided at all costs.
Possible answers: 1 = strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.

High power distance is indicated by ratings of "*of utmost importance*" to item (1), ratings of "*of very little or no importance*" to item (2), answering "*very frequently*" to item (3), and ratings of "*strongly agree*" to item (4).

Power distance copes with human inequality and measures the extent to which the less powerful expect and accept that power is distributed unequally. According to Hofstede (2001), a high-power distance country refers to a society in which national elites hold relatively authoritarian views, and that authority is based on tradition rather than on secular arguments. It also characterizes a highly-stratified society that values conformity more than independence. A low power distance country refers to a society in which there is a latent harmony between the powerful and the powerless, and people at various levels feel less threatened and are more likely to trust each other.

Uncertainty avoidance*: The index is a weighted sum of country mean scores (derived via factor analysis) of answers to the following question and three statements of the survey:

1) How often do you feel nervous or tense at work?
Possible answers: 1 = never; 2 = seldom; 3 = sometimes; 4 = usually; 5 = always.

"How much do you agree or disagree with the following statements?"

2) One can be a good manager without having precise answers to most questions that subordinates may raise about their work.
3) Competition between employees usually does more harm than good.
4) A company's or organization's rules should not be broken – not even when the employee thinks it is in the company's best interest.

Possible answers: 1= strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.

High uncertainty avoidance is indicated by answering "*always*" to the first question, and ratings of "*strongly disagree*" to item (2), and ratings of "*strongly agree*" to items (3) and (4).

Uncertainty Avoidance deals with a society's tolerance for uncertain, unknown, or unstructured situations. According to Hofstede (2001), uncertainty avoidance is defined as "feeling uncomfortable with uncertainty and ambiguity, and therefore valuing beliefs and institutions that provide certainty and conformity." People in uncertainty avoidant cultures have a "fear of failure" and thus favor an orderly structure in their organizations, institutions, and personal relations, prefer well anticipated events, and tend to take only known risks. People in low uncertainty avoidance countries are more tolerant to risks and may take both known and unknown risks, are less stressed about downside scenarios, and have a "hope of success".

Appendix C: Additional Robustness Tests

Table C.1: Effects of National Culture on Bank Failure – Additional Robustness Tests

This table reports estimates from regression estimates for analyzing the effects of cultural values on bank failure using additional robustness tests. Panel A reports regression results when all independent variables are lagged three years. Panel B reports regression results from models excluding the highest index of *IDV, MAS, PDI, UAI*, or the highest score on all four cultural dimensions in columns (1)-(5), and excluding the lowest index of *IDV, MAS, PDI, UAI*, or the lowest score on all four cultural dimensions in columns (6)-(10). Panel C reports regression results from models controlling for two additional cultural variables *LTO* (long-term orientation) and *IND* (indulgence) in columns (1)-(3), and controlling for three additional regulatory variables *ACT_RESTRICT, OVERALL_RESTRICT*, and *PRIVATEMONITORING* in columns (4)-(7). The dependent variable is FAILURE, which is a dummy equal to 1 if the bank failed during a particular year or if the bank became insolvent (capitalization ratio is less or equal to 2%). All independent variables are lagged one year. If a bank does not have financial information in the previous year, we consider the financial information from the most recent financial statement available in Bankscope. The key explanatory variables are *IDV*, which is the Hofstede's cultural dimension of individualism, *MAS*, which is the Hofstede's cultural dimension of masculinity, *PDI*, which is the Hofstede's cultural dimension of power distance, and *UAI* which is the Hofstede's cultural dimension of uncertainty avoidance. We include a broad set of country controls such as *GDP_GROWTH* (country GDP growth rate), *INFLA* (country rate of inflation), *RESERVE* (country reserves), *GDP_CAPITA* (country GDP per capita), *NODEPINSUR* (indicator equal to one if a country does not have explicit deposit insurance), *RULE_OF_LAW* (country rule of law indicator), *REGULATORY* (country regulatory quality indicator), *VOICE_ACCOUNT* (country indicator for the strength of voice and accountability), *M_SUPER* (indicator equal to one if a country has multiple supervisors), and a broad set of bank level-level controls such as *LN_ASSET* (the natural logarithm of bank total assets), *CAPITAL_ASSET* (the bank capital ratio), *NPL* (the bank ratio of nonperforming loans), *ROE* (return on equity), *LOAN_ASSET* (the ratio of bank loans to total assets), *DEP_ASSET* (the ratio of bank deposits to total assets), *GOWN* (an indicator equal to 1 if a bank is government owned in a particular year), *FOWN* (an indicator equal to 1 if a bank is foreign owned in a particular year), and *PUB_LISTED* (an indicator equal to one if a bank is publicly listed). All regressions include year fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Panel A: Different Lag Specification (Three-Year Lags)

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables					
IDV	0.016***				0.021***
	(4.224)				(4.938)
MAS		0.013***			0.014***
		(4.395)			(4.853)
PDI			0.004		0.011**
			(0.892)		(2.353)
UAI				0.000	0.005
				(0.022)	(1.525)
Country Controls	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES
Observations	12,479	12,479	12,479	12,479	12,479
Banks	1384	1384	1384	1384	1384
Countries	90	90	90	90	90
Pseudo R2	0.170	0.170	0.166	0.165	0.177

Panel B: Exclude Most and Least *IDV, MAS, PDI, UAI* Countries

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Test	Exclude Most IDV	Exclude Most MAS	Exclude Most PDI	Exclude Most UAI	Exclude Most All	Exclude Least IDV	Exclude Least MAS	Exclude Least PDI	Exclude Least UAI	Exclude Least All
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables										
IDV	0.020***	0.019***	0.019***	0.019***	0.020***	0.020***	0.019***	0.025***	0.019***	0.026***
	(4.894)	(4.661)	(4.661)	(4.673)	(4.844)	(4.810)	(4.671)	(6.178)	(4.718)	(6.319)
MAS	0.010***	0.011***	0.011***	0.010***	0.012***	0.011***	0.010***	0.007***	0.010***	0.008***
	(4.270)	(4.277)	(4.277)	(4.030)	(4.303)	(4.559)	(4.128)	(2.663)	(4.167)	(3.101)
PDI	0.011***	0.012***	0.012***	0.011***	0.013***	0.011***	0.011***	0.021***	0.011***	0.021***
	(2.843)	(2.827)	(2.827)	(2.621)	(2.919)	(2.680)	(2.705)	(5.129)	(2.683)	(5.107)
UAI	0.002	0.002	0.002	0.002	0.000	0.002	0.003	0.002	0.003	0.002
	(0.657)	(0.691)	(0.691)	(0.702)	(0.091)	(0.598)	(0.913)	(0.778)	(0.965)	(0.499)
Country Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	15,436	15,574	15,574	15,477	15,101	15,445	15,601	15,363	15,570	14,900
Banks	1516	1529	1529	1516	1479	1516	1531	1516	1524	1464
Countries	91	91	91	91	89	91	91	91	91	88
Pseudo R2	0.233	0.234	0.234	0.243	0.243	0.228	0.233	0.244	0.233	0.237

Panel C: Controlling for Additional Culture and Regulatory Variables

Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Test	Control for Additional Culture Dimensions			Control for Additional Regulatory Variables			
Dependent Variable	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE
Independent Variables							
IDV	0.026***	0.029***	0.029***	0.019***	0.019***	0.020***	0.017***
	(6.086)	(6.406)	(6.547)	(4.206)	(4.354)	(4.351)	(3.612)
MAS	0.010***	0.009***	0.008***	0.013***	0.011***	0.009***	0.010***
	(3.935)	(3.088)	(3.062)	(4.281)	(3.806)	(3.109)	(3.093)
PDI	0.007*	0.008*	0.008*	0.011**	0.009*	0.007	0.009*
	(1.658)	(1.779)	(1.762)	(2.176)	(1.933)	(1.368)	(1.718)
UAI	0.001	0.005	0.004	0.006*	0.006	0.007**	0.011**
	(0.383)	(1.505)	(1.187)	(1.658)	(1.642)	(2.042)	(2.529)
LTO	0.003		0.008***				
	(1.159)		(2.589)				
IND		0.009***	0.013***				
		(2.952)	(3.957)				
L.ACT_RESTRICT				-0.118***			-0.123***
				(-3.294)			(-2.788)
L.OVERALL_RESTRICT					-0.096**		-0.070
					(-2.408)		(-1.454)
L.PRIVATEMONITORING						0.031	0.063
						(0.590)	(1.114)
Previous Country Controls	YES	YES	YES	YES	YES	YES	YES
Previous Bank Controls	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES
Observations	13,951	13,951	13,535	12,831	12,151	12,367	11,431
Banks	1371	1371	1333	1482	1470	1458	1427

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Countries	79	79	74	89	90	88	88
Pseudo R2	0.177	0.177	0.175	0.225	0.220	0.218	0.224