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Influence of National Culture on Accounting Conservatism and Risk Taking in the Banking Industry

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Abstract

Using an international sample of banks and country-level indices for individualism and uncertainty avoidance as proxies for national culture, we study how differences in culture across countries affect accounting conservatism and bank risk taking. Consistent with expectations, our cross-country analysis indicates that individualism is negatively (positively) related to conservatism (risk taking) and uncertainty avoidance is positively (negatively) related to conservatism (risk taking). We also find that cultures that encourage higher risk taking experienced more bank failures and bank troubles during the recent financial crisis.

JEL classification: G21; G28; G34

Keywords: National culture; Accounting Conservatism; Risk taking; Individualism; Uncertainty avoidance; Banking

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I. INTRODUCTION

Bank financial reporting incentives and risk taking are likely to be affected by several factors, including differences in ownership structure, bank regulation, bank monitoring, and institutional factors such as creditor rights, as well as by national culture. This reasoning is supported by the findings of a survey conducted in May 2008 by PricewaterhouseCoopers and the Economist Intelligence Unit on the factors that created the conditions for the recent banking crisis (PricewaterhouseCoopers 2008) in which 73% of survey participants identified "culture and excessive risk taking" as the major cause for the banking crisis. Given the findings of this survey and the critical importance of the banking industry to national economies, we conduct a systematic study of the influence of national culture on bank financial reporting incentives and risk taking.

The financial reporting practice we focus on is accounting conservatism, an important and widely studied property of a firm's financial reporting. In particular, we rely on the principle of conservatism that is viewed as requiring higher verification standards for recognizing good news than for recognizing bad news (Basu 1997; Watts 2003; Nichols et al. 2009), i.e., asymmetric timeliness of recognition of earnings decreases versus earnings increases in accounting income. Timely recognition of earnings decreases and delay in recognizing earnings increases will directly impact profitability and capital ratios which, in turn, could determine the intensity of monitoring by regulators because these measures are used by regulators to identify troubled banks. We predict that banks in countries with national cultures that encourage higher risk taking will have less

conservative earnings.[1] Also of particular interest in this study is whether these differences manifest in accounting-based risk measures. This objective is in line with Kaplan's (2011) call for accounting academics to focus on the study of indicators of risk and its drivers.

Prior research examines how national culture influences a country's adoption of accounting systems and values (Gray 1988; Salter and Niswander 1995; Radebaugh et al. 2006). More recent research studies the relation between national culture and earnings management but has generally excluded firms in banking and financial services (e.g., Nabar and Thai 2007; Doupnik 2008; Han et al. 2010). An exception is Kanagaretnam et al. (2011), who study the relation between cultural factors and bank earnings quality during the pre-financial crisis and crisis periods. They find that cultural factors influence income-smoothing and benchmark-beating behaviors in the pre-crisis period, and result in large losses and large loan loss provisions in the crisis period. Unlike Kanagaretnam et al. (2011), who focus on accounting discretion for earnings management, our study's primary focus is on the links between national culture and accounting conservatism and risk taking.

Another strand of research examines the effects of national culture on accounting conservatism. However, most of these studies examine cultural differences between a limited number of countries, typically two or three (Sudarwan and Fogarty 1996; Schultz and Lopex 2001; Doupnik and Richter 2004; Doupnik and Riccio 2006; Tsakumis 2007). Additionally most of these studies employ surveys or experiments without using the actual reported numbers to measure accounting conservatism (Schultz and Lopez 2001; Doupnik and Richter 2004; Doupnik and Riccio 2006; Tsakumis 2007). An exception is Salter et al. (2012) who, using reported accounting

[1] Our primary objective is to examine the direct effects of national culture on bank accounting conservatism and risk taking. The risk taking in banking is most likely related to real actions by managers; however, the ability to take higher risk could be constrained by conservative accounting. Thus, the effects of national culture on risk taking could be direct and also indirect through conservatism. We explore this possibility later in the study under additional tests.

and market data from 22 countries to measure conservatism, find conflicting results. For example, they report contradictory results for tests using Basu asymmetric timeliness coefficients and non-operating accruals to measure conservatism.[2] Additionally, their tests employing the Basu measure indicate that conservatism is unrelated to individualism and only weakly related to uncertainty avoidance. Furthermore, they find that uncertainty avoidance is positively related to non-operating accruals, which, contrary to expectations, indicates that firms in high uncertainty avoidance countries report less conservatively. Salter et al. (2012) do however report significant results for a composite measure of culture that is not commonly used in the literature.

Our research differs from Salter et al. (2012) and other prior studies in at least three important ways. First, we obtain significant, consistent results with a sample comprising a much broader set of countries and with a more comprehensive, multiple set of conservatism measures used in recent banking research. Second, we examine the effects of culture on risk taking and crisis period performance in addition to examining its effects on conservatism. Third, we focus on financial firms, which are excluded from prior research, and study measures of conservatism specific to the banking sector using proxies directly related to banking-specific accounting practices.

We focus on the banking industry because it offers a unique context for studying the effects of national culture on risk-based accounting outcomes. First, banking is an industry where risk taking incentives and opportunities are greater relative to other industries. Given the call-

[2] Many prior studies argue that conservatism measured using a Basu-type regression is noisy (e.g., Dietrich et al. 2007). Such an approach may be appropriate if stock returns capture true economic income equally well across countries over a one-year window and if good and bad economic news is reflected to the same degree in stock returns within the one-year window. Salter et al. (2012) recognize this shortcoming and state "Finally, following Givoly and Hayn (2000), we measure conditional accounting conservatism as the ratio of non-operating accruals over total assets. This measure has the advantage of not relying on stock market price, thus is not influenced by the different processes that can contribute to determine stock price in different countries (including different levels of market efficiency)".

option nature of bank equity, banks face strong incentives to lend aggressively and take excessive risks, often ignoring prudent risk management (Merton 1977). The lower their capital base, the less they have to lose and the more they can gain through aggressive lending and other high-risk activities. Therefore, the banking industry provides an ideal setting for studying the relations between national culture and risk-based accounting outcomes. Second, the banking industry facilitates investigation of accounting conservatism as reflected in bank loan loss accounting. Given that loan loss accounting has a material effect on bank earnings and balance sheet strength and requires a substantial degree of estimation, it is a good setting to observe managers' preferences for conservative accounting (Nichols et al. 2009).

We focus on two dimensions of national culture identified by Hofstede (2001), individualism and uncertainty avoidance, which we argue are related to bank financial reporting conservatism and risk taking.[3, 4] High individualism cultures emphasize individual achievements, self-orientation and autonomy (Hofstede 2001). Chui et al. (2010) argue that individualism, as defined by Hofstede (2001), can be linked to overconfidence, i.e., in high individualism societies more decisions are made by the individual and these decisions tend to be driven more by overconfidence. Risk taking incentives likely are greater in high individualism societies where concern for other stakeholders' welfare is likely to be low. The higher level of overconfidence and risk taking in high individualism societies will, in turn, be reflected in less conservative and more volatile earnings for firms in such societies.

[3] The dimensions of culture developed by Hofstede (1980) have been widely accepted since Hofstede first published his results, and have been used by many business researchers. For example, Schultz et al. (1993) and Kachelmeier and Shehata (1997) have employed Hofstede's measures of cultural values in accounting, Gorodnichenko and Roland (2011) in economics, Beugelsdijk and Frijns (2010) and Chui et al. (2010) in finance, Nakata and Sivakumar (1996) and Aaker and Williams (1998) in marketing, and Franke et al. (1991), Geletkanycz (1997), Tan et al. (1998), Han et al. (2010) and Kanagaretnam et al. (2011) in management.

[4] Han et al. (2010) also study only the individualism and uncertainty avoidance dimensions of national culture. Although Kanagaretnam et al. (2011) examine all four commonly used dimensions of national culture, they find consistent results only for individualism and uncertainty avoidance.

Hofstede (2001, p148) notes that ‘‘uncertainty-avoiding cultures shun ambiguous situations. People in such cultures look for structure in their organizations, institutions and relationships, which makes events clearly interpretable and predictable.’’ When applied to our context, it implies that banks in high uncertainty-avoidance societies are more likely to avoid high risk taking. Additionally, if higher uncertainty avoidance leads to a preference for less risk and ambiguity, then we are more likely to observe higher accounting conservatism.

We use an international bank sample from the *BankScope* database representing 70 countries over the period 2000 to 2006 (during the pre-crisis period) to test our main predictions on the relation between national culture and bank accounting conservatism and risk taking.[5, 6] Our results indicate that banks in low individualism and high uncertainty avoidance societies report earnings more conservatively than banks in high individualism and low uncertainty avoidance societies. Specifically, relative to banks in high individualism and low uncertainty avoidance societies, these banks recognize losses in a timelier manner, recognize larger and timelier loan loss provisions, recognize proportionately larger loan loss allowances, and recognize larger and timelier loan charge-offs.

Additionally, we find that the individualism and uncertainty avoidance dimensions of national culture are strongly related to two traditional accounting measures of bank risk taking (i.e., volatility of earnings and volatility of net interest margin) and to z-score. More specifically, individualism is positively and uncertainty avoidance negatively related to these three accounting-based measures of bank risk. These results hold even after controlling for previously identified factors associated with bank risk taking, underscoring the importance of softer dimensions such as

[5] The number of countries is smaller than 70 in some analyses that include country-level institutional variables due to missing values for these variables.

[6] We focus on the period 2000-2006, because it is generally accepted that the recent global financial crisis started in the latter half of 2007 (Ryan 2008; Erkens et al. 2012).

national culture that may influence excessive risk taking. Our results are robust to several sensitivity tests including exclusion of banks from larger countries (U.S., Germany, Italy, Japan, France and Switzerland), restriction of the sample to include only commercial banks, inclusion of additional controls for institutional factors, and examination of different sample periods.

In supplementary analysis, we examine the effect of national culture on bank failure and bank financial trouble during the recent financial/banking crisis spanning the period 2007-2009.[7] We use actual bank failures as well as measures of asset quality, balance sheet strength, and profitability to identify whether a bank is in financial trouble during the crisis period. In the U.S., bank examiners use the CAMELS rating system which relies on several financial ratios and management characteristics to assess bank performance and identify banks that are in trouble. Because the CAMELS rating or other similar indicators of troubled banks are not publicly available for banks around the world, we classify banks as troubled using publicly available data that reflect asset quality, capital adequacy and profitability. We use the ratio of loan loss provisions to total loans to measure asset quality, the ratio of total equity capital to total assets to measure capital adequacy, and the ratio of net income to total assets to measure profitability. Our evidence shows that bank failure and bank financial trouble are higher in societies where individualism is higher and uncertainty avoidance is lower.

We conduct several additional analyses. First, we find that in the pre-crisis period, banks in low individualism and high uncertainty avoidance cultures report lower accounting performance, fewer risky mortgage loans, higher asset quality, and higher capital ratios (balance sheet strength) compared to banks in high individualism and low uncertainty avoidance societies. Second, we

[7] It is generally accepted that the recent financial crisis in the US and UK started in 2007 (Ryan 2008). However, the financial crisis spread to other countries in 2008 (Laeven and Valencia 2010).

examine the direct and indirect effects through accounting conservatism of national culture on bank risk taking. We first develop a measure of relative accounting conservatism which is proxied by mean abnormal loan loss allowance. Using path analysis, we find that the direct effect of culture on bank risk taking is considerably larger its the indirect effect through accounting conservatism. Third, we examine whether two other commonly discussed dimensions of culture identified by Hofstede, namely masculinity and power distance, are associated with bank conservatism and risk taking. Although masculinity and power distance are related to accounting conservatism, risk taking and financial distress in some tests, we do not observe a consistent, systematic relation as we do with the individualism and uncertainty avoidance dimensions of culture.

Our study contributes to the literature in several ways. First, it contributes to prior research on factors affecting bank reporting conservatism. Nichols et al. (2009) document that bank ownership structure is an important determinant of reporting conservatism. We provide evidence that another important determinant of bank reporting conservatism is culture. This finding is especially important for studies that examine cross-country differences in financial reporting. Our study differs from Kanagaretnam et al. (2011) in that we focus on the link between national culture and accounting conservatism and risk taking. We do not expect conservatism and earnings management to be mechanically associated. For example, Jackson and Liu (2010) document that firms may use conservative accounting to facilitate earnings management.[8] Their results are consistent with the findings of Givoly et al. (2010) that conservatism is not associated with earnings management as measured by discretionary accruals. Earnings management can exist in

[8] Jackson and Liu (2010) study the interrelationship between conservatism and earnings management by examining the allowance for uncollectible accounts and its income statement counterpart, bad debt expense. They find that firms manage bad debt expense downward to meet or beat analysts' earnings forecasts and that conservatism accentuates the extent to which firms manage bad debt expense.

the presence of conservatism because it tends to be episodic and small in magnitude, and thus unlikely to obscure the more prevalent phenomenon of accounting conservatism. Additionally, in the banking context, Bushman and Williams (2012) document that while accounting discretion degrades transparency, there is no direct effect on risk taking. We also examine how national culture affects bank risk taking, which has not been studied by Kanagaretnam et al. (2011).

Second, our study shows that differences in bank risk taking influenced by differences in national culture manifest in accounting-based risk measures. Our results demonstrate that even in an opaque industry such as banking, accounting-based risk measures capture the predicted relations between national culture and risk taking. Third, our study extends prior research that examines bank risk taking behavior. Whereas prior studies focus on the implications of institutions, regulation, and governance for risk taking by banks (e.g., Laeven and Levine 2009; Houston et al. 2010), we show that, in addition to these institutional and regulatory characteristics, national culture also affects bank risk taking. Fourth, our study contributes to research investigating the relation between culture and corporate and individual decision making (e.g., Hilary and Hui 2009; Chui et al. 2010). We show that cultural differences between societies have a profound influence on the level of risk taking by banks. Our findings support the growing awareness among researchers studying international financial markets that informal institutions such as culture matter in financial decisions, even when those decisions are made by sophisticated professional managers.

The rest of this paper is organized as follows. We discuss related research on cultural dimensions and develop our predictions on the effects of cultural dimensions on accounting conservatism and bank risk taking in the next section. We present the research design and describe the data in section three. We discuss the results in section four, and provide our conclusions in the final section.

II. INDIVIDUALISM, UNCERTAINTY AVOIDANCE, ACCOUNTING CONSERVATISM, AND RISK TAKING

We hypothesize that cultural factors influence the level of accounting conservatism and risk taking in banks. In particular, we predict that banks in high individualism societies take more risk and report less conservative earnings, whereas banks in high uncertainty avoidance societies take less risk and report more conservative earnings.

Prior research argues that a society's culture affects its behavior and values. Hofstede and Bond (1988, p 6) define culture as ''the collective programming of the mind that distinguishes the members of one category of people from those of another. Culture is composed of certain values, which shape behavior as well as one's perception of the world." More recently, Licht et al. (2005, p 234) state that a "common postulate in cross-cultural psychology is that all societies confront similar basic issues or problems when they come to regulate human activity. The key dimensions of culture are derived from these issues, because the preferred ways of dealing with them are expressed in different societal value emphases. It is thus possible to characterize the culture of different societies by measuring prevailing value emphases on these key dimensions. This yields unique cultural profiles." Given these observations, we utilize the cultural dimensions pioneered by Hofstede (1980, 2001) for characterizing national culture.

The first cultural dimension we examine is individualism. According to Franke et al. (1991, p166), "Individualism is the tendency of individuals primarily to look after themselves and their immediate families, and its inverse is the integration of people into cohesive groups." A long-standing literature in economics and social psychology focuses on the distinction between collective (group-based) decision making and individual-based decision making, and its effect on risk behavior (Kerr et al. 1996). Shupp and Williams (2008) find that groups are more risk averse than individuals in high-risk situations, and that group decisions exhibit smaller variance than

individual decisions. Chui et al. (2010) argue that individualism, as defined by Hofstede (2001), can be linked to overconfidence, i.e., in high individualism societies, more decisions are made by the individual and these decisions tend to be driven more by overconfidence. Han et al. (2010) posit that where individualism is the dominant culture, managers will have more latitude in terms of self-governance (professionalism) and flexibility of measurement. High individualism cultures also emphasize individual achievements, self-orientation and autonomy (Hofstede 2001). Risk taking incentives may also be greater in high individualism societies where concern for other stakeholders' welfare (an indicator of collectivism) is likely to be low. Collectively, the above arguments suggest that the level of overconfidence and risk taking will be higher in high individualism societies. This, in turn, should manifest in less conservative and more volatile earnings.

The second cultural dimension we examine relates to uncertainty avoidance. Uncertainty is one of the key determinants of market transactions, and plays a critical role in business (Hofstede 1980, 2001). Hofstede's uncertainty avoidance index assesses the extent to which people feel threatened by uncertainty and ambiguity, and try to avoid these situations. Low uncertainty avoidance societies socialize their people into accepting or tolerating uncertainty. Accordingly, individuals in such societies are less averse to taking risks. By contrast, people living in high uncertainty avoidance societies tend to have a higher level of anxiety, which may manifest in greater nervousness, emotionality, and aggressiveness. As a coping mechanism against uncertainty, people in high uncertainty avoidance societies prefer a more predictable environment. Hofstede (2001, p148) states that uncertainty avoidance does not equal risk avoidance, where he goes on to explain "[U]ncertainty is to risk as anxiety is to fear. Fear and risk are both focused on something specific: an object in the case of fear, an event in the case of risk. Risk is often expressed in a percentage of probability that an event may happen. Anxiety and uncertainty are

both diffuse feeling. Anxiety has no object, and uncertainty has no probability attached to it." Although uncertainty avoidance is conceptually different from risk avoidance, Kwok and Tadesse (2006) develop and test arguments about how uncertainty avoidance affects the investment preference of individuals. Kwok and Tadesse (2006) show that countries scoring high on uncertainty avoidance are also characterized by a (relatively) more risk averse bank-based financial system, whereas countries scoring low on uncertainty avoidance are characterized by a (relatively) less risk averse market-based financial system. Collectively, the above arguments suggest that the propensity for risk taking will be lower in high uncertainty avoidance societies than in low uncertainty avoidance societies. This in turn should manifest in less volatile earnings for high uncertainty avoidance societies. Additionally, if higher uncertainty avoidance leads to a preference for less risk and ambiguity, then we are more likely to observe higher accounting conservatism in these societies.[9]

III. RESEARCH DESIGN AND DATA

Measures and Models for Accounting Conservatism

We employ both aggregate earnings and several disaggregated accounting measures from bank loan loss accounting to examine accounting conservatism. Overall, we rely on the principle of conservatism that is viewed as requiring higher verification standards for recognizing good news than for recognizing bad news (Basu 1997; Watts 2003; Nichols et al. 2009), i.e., asymmetric timeliness of recognition of earnings declines versus gains in accounting income. Additionally, in the banking industry, the timely recognition of losses is critical because of the importance of exposure to losses from various types of risk as well as capital adequacy

[9] However, because banks operate in a highly regulated environment in that they are monitored by Central Banks and other regulatory agencies (such as deposit insurance corporations), the overall level of risk taking likely is conditional on the level of regulation and bank monitoring. Consequently, the uncertainty avoidance dimension of culture may not be as important in influencing risk taking in banks relative to industrial firms.

regulations, which relate to the ability of a bank to absorb losses and remain solvent for depositors. We extend this line of inquiry by examining the impact of national culture on bank accounting conservatism.

Our model for testing accounting conservatism using aggregate earnings follows from Ball and Shivakumar (2005) and Nichols et al. (2009):

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_4 CULTURE + \alpha_5 CULTURE * D\Delta NI_{t-1}$$
$$+ \alpha_6 CULTURE * \Delta NI_{t-1} + \alpha_7 CULTURE * \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_8 SIZE + \alpha_9 SIZE * D\Delta NI_{t-1}$$
$$+ \alpha_{10} SIZE * \Delta NI_{t-1} + \alpha_{11} SIZE * \Delta NI_{t-1} * D\Delta NI_{t-1} + \gamma W_k + YEAR + \varepsilon_{i,k} \quad (1)$$

where ΔNI_t denotes the change in net income from year t - 1 to t, scaled by total assets at the end of t - 1, and $D\Delta NI_{t-1}$ denotes an indicator variable that equals 1 if ΔNI_{t-1} is negative and 0 otherwise. In essence, model (1) is an auto-regression of earnings changes (i.e., a regression of current period change in earnings (ΔNI_t) on prior period change in earnings (ΔNI_{t-1})), that is augmented by permitting the auto-regressive relation to differ for positive and negative values of ΔNI_{t-1} and for differing values of culture (*CULTURE*). The model also controls for the effects of differences in size on the estimated auto-regressive relations. Additionally, equation (1) includes several country-level variables (W_k) to isolate the effect of national culture from the effects of other country characteristics, and year indicators (*YEAR*) to control for year fixed effects. We estimate the model with robust standard errors clustered by country and bank to correct for heteroskedasticity and serial dependence (Petersen 2009).

As discussed in Nichols et al. (2009), under conditional conservatism, we expect asymmetry in the timeliness of recognition of earnings decreases versus increases in accounting income. Economic gains must meet a higher verification threshold to be recognized in accounting income, so earnings increases are likely to be less timely and more persistent, implying α_2 should be positive. We expect a lower verification threshold and therefore more timely recognition of

earnings declines than gains. Consequently, we predict a negative value for α_3. Our main predictions are that banks in high individualism societies will have less conservative accounting whereas banks in high uncertainty avoidance societies will have more conservative accounting. Specifically, we predict that the coefficient α_7 on $CULTURE*\Delta NI_{t-1}*D\Delta NI_{t-1}$ will be positive (negative) in high individualism (high uncertainty avoidance) societies.

In separate regressions, we also include several country-level variables to isolate the effect of national culture from the effects of other country characteristics that may influence bank financial reporting and risk taking. We present the details of these country-level controls in Table 1. The first set of controls relates specifically to the banking industry. Demirguc-Kunt and Detragiache (2002) show that systemic banking crises are more likely in countries with higher deposit insurance coverage limits. We therefore include a control for deposit insurance (*DI*) in the model.[10] We also control for bank competition (*COMP*) which may affect the stability of the banking sector (Allen and Gale 2000; Boyd and De Nicolo 2005).

The second set of controls relates to the institutional environment in a country. We control for creditor rights (*CR*) and information sharing (*IS*) because Houston et al. (2010) show that stronger creditor rights promote greater bank risk taking, and greater information sharing among creditors leads to lower bank risk. As in Laeven and Levine (2009), we control for the degree to which the law is fairly and effectively enforced in a country (*ENFORCE*). We also control for the legal origin (*COMMON*) as Cole and Turk-Ariss (2010) show that banks in common law countries allocate a significantly larger portion of their assets to risky loans than banks in code law countries. Lastly, we control for economic well-being of the country, measured as the natural log

[10] Following Laeven and Levine (2009), *DI* is an indicator variable that equals one if the country has explicit deposit insurance, and zero otherwise. We also use an alternative measure, log of one plus the ratio of deposit insurance coverage to deposits per capita, as in Houston et al. (2010), to capture deposit insurance. The results are similar across the two measures.

of Gross Domestic Product per capita in constant 2000 U.S. dollars (denoted as *LGDP*), because countries with different income levels are subject to different economic shocks and sources of volatility, which likely affect bank risk taking.

[Insert Table 1 here]

We also employ several disaggregated measures from bank loan loss accounting to examine bank accounting conservatism. These models are discussed in detail when we present the results in section 4.

Measures and Models for Bank Risk Taking

We measure bank risk taking using two traditional accounting-based measures of bank risk as well as z-score. The first two measures, *σ(ROA)* and *σ(NIM)*, measure the volatility of return on assets (ROA) and net interest margin (NIM) respectively, and are computed as the standard deviation of ROA and NIM over the period 2000-2006. They reflect the degree of risk taking in a bank's operations (Laeven and Levine 2009; Houston et al. 2010). The third measure is z-score, a measure of bank stability that indicates the distance from insolvency (Laeven and Levin 2009; Houston et al. 2010). Specifically, $z = (ROA+CAR)/\sigma(ROA)$, where ROA is earnings before taxes and loan loss provisions divided by assets, CAR is capital-asset ratio, and σ(ROA) is standard deviation of ROA. ROA and CAR are mean values estimated over 2000-2006, and σ(ROA) is the standard deviation of ROA estimated over the same period.[11] Z-score indicates the number of standard deviations a bank's return on assets has to drop below its expected value before equity is depleted and the bank is insolvent. Thus, a higher z-score indicates that the bank is more stable and less risky. Because z-score is highly skewed, we use its natural logarithm and use the negative

[11] We require at least three years of data for each bank to calculate the standard deviation of return on assets over time. Our inferences remain unchanged when we restrict the sample to banks that have all seven years of data available.

value so that a higher value indicates higher risk. For brevity, we refer to the negative of the natural logarithm of z-score as "z-score" in the remainder of the paper.

In order to assess the effect of national culture on bank risk taking, we regress our three risk measures on the two dimensions of national culture, and bank- and country-level control variables. Our main regression specification is as follows:

$$R = \gamma_0 + \gamma_1 \text{ CULTURE} + \gamma_2 \text{ SIZE1} + \gamma_3 \text{ REVG} + \gamma_4 \text{ LLP1} + \gamma_5 \text{ EQTY} + \gamma_6 \text{ TOOBIG} + \gamma_7 \text{ W} + \varepsilon \quad (2)$$

where *R* is one of the three risk measures (volatility of return on assets (*σ(ROA)*), volatility of net interest margin (*σ(NIM)*), and z-score), *CULTURE* represents the two dimensions of national culture (i.e., individualism (*IND*) and uncertainty avoidance (*UA*)), and W is a vector of country characteristics. As before, we estimate the regression clustered by country with robust standard errors. In discussing the results, we focus on the signs and significance of the coefficients on *CULTURE*. We expect bank risk to increase with individualism and decrease with uncertainty avoidance. Accordingly, we expect a positive coefficient on *IND* and a negative coefficient on *UA*.[12]

We include several bank-level variables to control for cross-sectional differences in bank characteristics that may influence the relationship between national culture and accounting-based bank risk measures. Consistent with Laeven and Levine (2009) and Houston et al. (2010), we control for bank size (*SIZE1*) measured as the logarithm of mean total assets in U.S. dollars over 2000-2006. We control for bank revenue growth (*REVG*), which is the average growth rate of bank revenue over the period 2000–2006. We also control for average loan loss provision over the

[12] Potential reverse causality may cause endogeneity problems. In our study, the potential for reverse causality is less of a concern than in a pure cross-country analysis because it is unlikely that risk taking by banks will affect national culture. Additionally, the indices for cultural values were developed prior to the sample period covered in this study.

period 2000–2006 (*LLP1*), for whether the bank accounts for more than 10% of its country's deposits (*TOOBIG*), and for equity-to-asset ratio (*EQTY*). As in equation (1), in separate regressions, we also include several country-level variables (W). We control for creditor rights (*CR*), information sharing (*IS*), the degree to which the law is fairly and effectively enforced in a country (*ENFORCE*), legal origin (*COMMON*) and economic well-being (*LGDP*). We provide the details of these bank-level and country-level control variables in Table 1.

Data

We obtain financial data for the international banks for the 2000-2006 (pre-crisis) period from the *BankScope* database.[13] Recent surveys and replication studies have expanded Hofstede's cultural database from the initial 50 countries to 70 countries, with data available for both individualism and uncertainty avoidance.[14] We thus have a maximum of 70 countries available for the analysis that controls for bank characteristics. Some bank-level variables (such as non-performing loans and net loan charge-offs) are not available for certain countries. Our sample for the analysis that includes country-level institutional variables comprises 65 countries because of missing institutional data (such as creditor rights, law enforcement index) for five countries.[15] The values of the institutional variables at the country level are reported in Table 2, which also provides the number of banks and bank-year observations by country.

[Insert Table 2 here]

[13] As indicated in Laeven and Valencia (2010), the recent financial crisis began in 2007 for the UK and US and spread to other countries in 2008. In sensitivity tests, we discuss the robustness of our results to different definitions of pre-crisis period (i.e., 2000 -2005 and 2000-2007).

[14] The most current version of the data is available at http://www.geert-hofstede.com/.

[15] The five countries with missing institutional data are Estonia, Luxembourg, Malta, Suriname, and Trinidad and Tobago.

IV. EMPIRICAL RESULTS

Descriptive Statistics

In Table 3, we present descriptive statistics for the variables used in the accounting conservatism and risk taking tests in Panels A and B respectively. For each variable, we report the distribution of the variable, number of countries with available data, and number of bank-year observations. The number of bank-level observations also varies because of data availability. In Panel A, the mean change in income is 0.2% of total assets and, on average, 33% of the sample banks report a decline in earnings. The means of loan loss provisions (LLP_t), net loan charge-offs (NCO_t), and loan loss allowance (LLA_t) are 1%, 1% and 4% of total loans, respectively. The distributions of the other variables used in the accounting conservatism test are also reported in Panel A. In Panel B, the variables used in the risk taking test are computed for each bank over the sample period 2000-2006. The mean values of the risk variables, *σ(ROA)*, *σ(NIM)* and z-score, are 0.006, 0.008 and -3.486, respectively. These values are similar to the statistics reported in prior studies and exhibit considerable variation across countries.[16] Panel C of Table 3 reports descriptive statistics for the country-level variables. Our two variables of interest, individualism (*IND*) and uncertainty avoidance (*UA*), have means (standard deviations) of 44.03 (23.97) and 67.51 (23.64), respectively.[17]

[Insert Table 3 here]

We present Pearson correlations between the variables used in the accounting conservatism and risk taking regressions in Panel A and Panel B, respectively, of Table 4. While the three proxies for bank risk taking are highly correlated as expected, the correlations between *σ(ROA)*,

[16] Note that we multiply our *z-score* measure by -1 so that higher values indicate greater risk taking. In comparison, the mean values reported in Houston et al. (2011) for these three variables are 0.012, 0.015 and 3.240, respectively, and the mean values for *σ(ROA)* and z-score in Laeven and Levine (2009) are 0.01 and 2.88, respectively.

[17] Note that the number of observations for some institutional variables is less than 70 due to missing data.

σ(NIM), and z-*score* are less than one, indicating that each measure likely reflects different dimensions of bank risk taking behavior. Panel C of Table 4, which reports correlations among the country-level institutional variables, indicates that some of the correlations are high. To address concern with this high level of multicollinearity, we perform all our tests without and with the inclusion of country-level institutional controls.

[Insert Table 4 here]

Culture and Accounting Conservatism

We estimate the effects of culture on accounting conservatism using equation (1) and report the results in Panel A of Table 5. The first two models examine the effects of individualism (*IND*) and the last two models examine the effects of uncertainty avoidance (*UA*). As expected, the coefficient on $\Delta NI_{t-1} * D\Delta NI_{t-1}$ (α_3) is negative and significant, indicating that banks are timelier in reporting earnings declines compared with reporting earnings increases. Our main predictions are that banks in high individualism and low uncertainty avoidance societies will report earnings less conservatively. Consistent with our prediction, the coefficients on $IND*\Delta NI_{t-1}*D\Delta NI_{t-1}$ (α_7) in Models 1 and 2 are positive and significant at the 1% level, indicating lower differential timeliness of recognizing earnings declines versus gains in high individualism societies. Also consistent with our prediction, the coefficients on $UA*\Delta NI_{t-1}*D\Delta NI_{t-1}$ (α_7) in Models 3 and 4 are negative and significant at the 1% level, indicating that recognition of earnings declines is more timely than recognition of earnings increases when uncertainty avoidance is higher. These results provide support for our prediction that conditional accounting conservatism is higher in societies where individualism is lower and where uncertainty avoidance is higher.

[Insert Table 5 here]

We next refine the analysis by examining the relation between loan loss provisions and changes in nonperforming loans. Changes in nonperforming loans represent exogenous and

relatively nondiscretionary indicators of possible future credit losses. We assess how national culture affects the timeliness of accounting recognition of economic losses by examining the associations between loan loss provisions and lagged, contemporaneous, and future changes in nonperforming loans.

Following Nichols et al. (2009), we estimate the following model of loan loss provisions, after controlling for potentially confounding differences in bank size, type of loans outstanding, lagged loan loss allowance, and net loan charge-offs:

$$\begin{aligned} LLP_t = {} & \beta_0 + \beta_1 \Delta NPL_{t-1} + \beta_2 \Delta NPL_t + \beta_3 \Delta NPL_{t+1} + \beta_4 NCO_t + \beta_5 NCO_{t+1} + \beta_6 CULTURE \\ & + \beta_7 CULTURE*\Delta NPL_{t-1} + \beta_8 CULTURE*\Delta NPL_t + \beta_9 CULTURE*\Delta NPL_{t+1} \\ & + \beta_{10} CULTURE*NCO_t + \beta_{11} CULTURE*NCO_{t+1} + \beta_{12} LLA_{t-1} + \beta_{13} HOMP_{t-1} \\ & + \beta_{14} CAP_t + \beta_{15} LNGRO_t + \beta_{16} SIZE_t + \beta_{17} SIZE_t*\Delta NPL_{t-1} + \beta_{18} SIZE_t*\Delta NPL_t \\ & + \beta_{19} SIZE_t*\Delta NPL_{t+1} + \beta_{20} SIZE_t*NCO_t + \beta_{21} SIZE_t* NCO_{t+1} + \gamma W_k + YEAR + \varepsilon_{i,k} \end{aligned} \quad (3a)$$

The model is estimated with robust standard errors clustered by country and bank. Details of the variable definitions are shown in Table 1. Loan loss provisions in year t reflect expectations of loan losses based on information about loans that became delinquent during the previous year (ΔNPL_{t-1}) or the current year (ΔNPL_t), or that are expected to become delinquent in the future (ΔNPL_{t+1}). Loan loss provisions also relate to loan charge-offs (that is, loss realizations) during the current year (NCO_t) and future years (NCO_{t+1}).[18] We therefore expect positive coefficients on these five variables. However, since managers also have discretion in the timing of loan charge-offs, the relationship between culture, LLP and NCO may not be as strong as the relationship between culture, LLP and ΔNPL.

[18] The results reported in Table 4 show that although most of the correlations are low, some correlations are high. For example, the correlation between current loan charge-offs and future loan charge-offs, which are both included in equation (3a), is 0.74. Hence, to ensure that multicollinearity is not driving our results, we check for the variance inflation factor (VIF) in this and all other empirical tests. The VIFs are all less than 10, indicating that multicollinearity is not a serious concern (Kennedy 2008; Neter 1996).

To assess the effect of national culture on loan loss recognition, we interact these five variables with our two proxies for culture, *IND* and *UA*. We predict that banks in low (high) individualism (uncertainty avoidance) societies recognize larger or more timely loan loss provisions relative to changes in nonperforming loans than banks in high (low) individualism (uncertainty avoidance) societies. Hence, we expect the coefficients β_7, β_8, and β_9 to be negative (positive).[19] We include *HOMP*, *CAP*, and *LNGRO* to control for the effects of differences in type of loans, regulatory capital, and loan growth on loan loss provisions. We report the results of this test in Panel B of Table 5.

The positive and significant coefficients on ΔNPL_{t-1} (β_1) and ΔNPL_t (β_2) imply that, in general, banks recognize loan loss provisions in a timelier manner relative to changes in nonperforming loans, indicating some degree of accounting conservatism. Consistent with our predictions, the coefficients on $IND*\Delta NPL_{t-1}$ (β_7) and $IND*\Delta NPL_t$ (β_8) are both negative and significant while the coefficients on $UA*\Delta NPL_{t-1}$ (β_7) and $UA*\Delta NPL_t$ (β_8) are both positive and significant, indicating that banks in low individualism and high uncertainty avoidance societies recognize larger and timelier loan loss provisions than banks in high individualism and low uncertainty avoidance societies. However, the coefficients on $IND*\Delta NPL_{t+1}$ ($UA*\Delta NPL_{t+1}$) are not significantly negative (positive).[20] Although not as strong as the results in Panel A for earnings changes, these results generally indicate that banks in low individualism and high uncertainty avoidance societies exhibit more conservative loan loss accounting than banks in high individualism and low uncertainty avoidance societies.

[19] Similar to Nichols et al. (2009), we make no prediction about the signs of the coefficients on β_{10} and β_{11} since the associations between culture and net charge-offs are ambiguous.

[20] These results are consistent with Nichols et al. (2009), who also report significant results only for past and current changes in NPL.

In the previous analyses, we examine how national culture affects accounting conservatism in recognizing loan loss provisions. We now turn to the balance sheet and predict that banks in low individualism and high uncertainty avoidance societies recognize more conservative (larger) loan loss allowances than banks in high individualism and low uncertainty avoidance societies. We test this prediction by estimating the following loan loss allowance model:

$$LLA_t = \beta_0 + \beta_1 CULTURE + \beta_2 SIZE_t + \beta_3 HOMP_t + \beta_4 CAP_t + \beta_5 LNGRO_t + \beta_6 NPL_t + \gamma W_k + YEAR + \varepsilon_{i,k} \quad (3b)$$

where LLA_t denotes loan loss allowance for year t divided by loans for year t, and other variables are as defined in Table 1. As before, the model is estimated with both country and bank clustering.

We predict that banks in high individualism (uncertainty avoidance) societies will recognize relatively smaller (larger) loan loss allowance than banks in low individualism (uncertainty avoidance) societies; we therefore expect a negative (positive) coefficient on *IND* (*UA*). As in equation (3a), we include $HOMP_t$, CAP_t, $LNGRO_t$ and NPL_t to control for the effects of differences in type of loans, regulatory capital, loan growth, and nonperforming loans on expected loan loss allowance across banks.

We report the results in Panel C of Table 5. As predicted, the coefficient on *IND* is significantly negative and the coefficient on *UA* is significantly positive, indicating that banks in low individualism and high uncertainty avoidance societies recognize proportionately larger loan loss allowance than banks in high individualism and low uncertainty avoidance societies. As for economic significance, a one standard deviation increase in *IND* (*UA*) is associated with a decrease (an increase) in loan loss allowance of 1.0 - 1.4% (0.7- 0.9%) of total loans. When

compared to our sample mean *LLA* of about 4% of total loans, the economic impact of each of the culture variables on *LLA* is clearly nontrivial.[21]

In the final test for accounting conservatism, we examine the relation between national culture and loan charge-offs. We predict that banks in more conservative cultures will exhibit more conditional conservatism in writing off bad loans than banks in less conservative cultures. We test this prediction by estimating the following model of loan charge-offs with both country and bank clustering:

$$LCO_t = \beta_0 + \beta_1 CULTURE + \beta_2 SIZE_t + \beta_3 HOMP_t + \beta_4 CAP_t + \beta_5 LNGRO_t + \beta_6 \Delta NPL_{t-1}$$
$$+ \beta_7 CULTURE*\Delta NPL_{t-1} + \beta_8 \Delta NPL_t + \beta_8 CULTURE*\Delta NPL_t + \gamma W_k + YEAR + \varepsilon_{i,k} \quad (3c)$$

where LCO_t denotes loan charge-offs for year t divided by total loans at the end of year t - 1, and other variables are as defined in Table 1. Loan charge-offs in year t likely reflect realizations of managers' expectations of loan losses that became delinquent during the previous year (ΔNPL_{t-1}); hence we expect a positive coefficient on ΔNPL_{t-1}.[22]

To assess the effect of national culture on LCO timeliness, we interact ΔNPL_{t-1} and ΔNPL_t with the two proxies for culture. Our primary prediction is that banks in conservative cultures (low individualism and high uncertainty avoidance) recognize larger and timelier loan charge-offs relative to changes in nonperforming loans than banks in less conservative cultures (high individualism and low uncertainty avoidance). Hence, we predict that the coefficient, β_7, on $IND*\Delta NPL_{t-1}$ ($UA*\Delta NPL_{t-1}$) will be negative (positive).

[21] We do not assess the economic significance of the interaction terms involving culture in equations (1), (3a), and other equations because it is difficult to clearly interpret their economic significance.

[22] As in Nichols et al. (2009), we do not have a directional prediction for the relation between LCO_t and ΔNPL_t. This relation is ambiguous because, even though ΔNPL_t serves as a leading indicator that should be positively related to future LCOs, the contemporaneous association between ΔNPL_t and LCO_t should be negative (when a bank charges off an uncollectible loan it also removes it from nonperforming status, so current period LCOs trigger negative ΔNPLs). We also do not make a directional prediction for the coefficient on $CULTURE*\Delta NPL_t$ because of the potential ambiguity in this relation as described above.

We report the results in Panel D of Table 5. As predicted, we find a positive coefficient on ΔNPL_{t-1}, indicating that banks generally recognize loan charge-offs in a timely manner relative to changes in prior period nonperforming loans. This result indicates that banks exhibit some degree of accounting conservatism. Consistent with our prediction, the coefficient on $IND*\Delta NPL_{t-1}$ ($UA*\Delta NPL_{t-1}$) is significantly negative (positive) at the 1% level, indicating that banks in more conservative cultures recognize larger and timelier loan charge-offs than banks in less conservative cultures.

Overall, the evidence presented in Table 5 indicates that banks in low individualism and high uncertainty avoidance societies are more conservative in financial reporting than banks in high individualism and low uncertainty avoidance societies.

Culture and Risk Taking

We regress each of the three risk measures for individual banks on national culture, bank-level control variables and country-level control variables, and report the results in Table 6. The first four models present results using $\sigma(ROA)$ as the risk measure. We expect banks to take more risk when individualism is high and less risk when uncertainty avoidance is high. Consistent with our predictions, the coefficient on *IND* is positive and significant at the 1% level, while the coefficient on *UA* is negative and significant at the 1% level in all four models. As for the economic significance of the coefficients on *IND* and *UA*, a one standard deviation change in *IND* is associated with a change in $\sigma(ROA)$ of 0.002, while a one standard deviation change in *UA* is associated with a change in $\sigma(ROA)$ of between 0.001 and 0.002. Given that the mean $\sigma(ROA)$ for our sample is 0.006, the economic significance of each of these two dimensions of culture is nontrivial.[23] These results indicate that banks take more risk in societies where individualism is

[23] The economic size of the coefficients on *IND* and *UA* are comparable in models (5) to (12) of Table 6.

high or uncertainty avoidance is low. Overall, the evidence exhibits that national culture plays an important role in influencing risk taking by banks and this influence is reflected in accounting outcomes.

With regard to bank-level controls, we find that larger banks, higher-growth banks, and banks with higher equity-to-assets ratio take more risk. These results are largely consistent with the evidence reported in earlier studies (e.g., Laeven and Levine 2009; Houston et al. 2010). For the country-level controls, the coefficient estimate for *DI* is positive and significant, consistent with the argument that *DI* increases the moral hazard problem (Demirguc-Kunt and Detragiache 2002). Banks are less risky in countries with higher economic well-being (*LGDP*).

Models (5) to (8) of Table 6 report results using *σ(NIM)* as the risk measure, while models (9) to (12) of Table 6 report results using *z-score* as the risk measure. Consistent with our prediction, the coefficients on *IND* are positive and the coefficients on *UA* are negative, and all are significant at the 1% level. Both the bank-level and country-level variables exhibit qualitatively similar results to those reported in models (1) to (4) of Table 6.

Collectively, the results reported in Table 6 provide robust support for our prediction that national culture has an important impact on bank risk taking and is reflected in accounting-based risk measures. Specifically, bank risk taking is higher in societies with higher individualism and lower uncertainty avoidance.[24]

[Insert Table 6 here]

[24] Since Tosi and Greckhamer (2004) find that national culture affects CEO compensation, as a sensitivity check, we include an additional country-level control, *PCTEQ*, defined as the sum of the value of option compensation and restricted stock compensation divided by total compensation, in the model. We use the CEO compensation data for 40 countries provided by Bryan et al. (2010) at the country level as an alternate proxy for CEO incentives. Our main inferences are not affected by the inclusion of this additional variable.

National Culture and Accounting Performance

We explore how higher risk taking manifests in various aspects of accounting performance. In particular, we expect that banks in countries with cultures that encourage higher risk taking will have higher accounting performance (at least in the short run during growth periods) as well as higher levels of risky loans, such as mortgage loans. However, banks in countries with cultures that encourage higher risk taking are more likely to have lower asset quality and capital strength. Consistent with our expectations, in untabulated results, we find that banks in high individualism and low uncertainty avoidance societies report higher accounting performance and have more risky mortgage loans, but have lower asset quality and capital ratios (balance sheet strength) compared to banks in low individualism and high uncertainty avoidance societies.

Exclusion of Banks from the U.S. and Other Large Countries

Although our results are robust to several alternative measures of accounting conservatism and bank risk, one major concern is that the results may be unduly influenced by a subset of large banks in a few key countries. Because banks from the U.S., Germany, Italy, Japan, France, and Switzerland constitute about 60% of the sample, we re-estimate the regressions after dropping banks from these countries in the analysis. The results are robust to the exclusion of banks from these countries. Specifically, we find that banks in more conservative cultures (low individualism and high uncertainty avoidance) take lower risk and report more conservative earnings than banks in less conservative cultures (high individualism and low uncertainty avoidance).

Additional Controls for Institutional Factors

Following Laeven and Levine (2009) and Houston et al. (2010), we control for activity restrictions by including *RESTRICT*, an indicator of the degree to which banks face regulatory restrictions on their activities in securities markets, insurance, real-estate, and owning shares in

non-financial firms (Barth et al. 2006). Barth et al. (2006) show that the banking system is more fragile in countries where banking activities are more restricted. We also control for capital stringency (*CAPST*) in banks using the approach in Laeven and Levine (2009) and Houston et al. (2010). *CAPST* is an index of regulatory oversight of bank capital from Barth et al. (2006). In addition, we control for investor protection rights (*RIGHTS*) because shareholder protection laws in each country may affect bank risk taking (Laeven and Levine 2009). These variables are not used in our main analysis because of missing information which reduces the number of countries included in the sample to 49. We re-estimate all our regressions with the addition of these three institutional controls and find that all our main results continue to hold. There is no evidence to suggest that our results are driven by these omitted institutional characteristics.

Other Robustness Tests

We conduct several additional robustness tests. First, we examine whether our main results hold for large banks. Large banks may be better able to diversify risk and have more stable earnings and reduced risk of insolvency. On the other hand, large banks may take greater risks, especially if they consider themselves too-big-to-fail. We define a bank as large if it is in the top quartile in terms of the assets in the pooled bank sample, and all other banks as small. The untabulated results indicate that the association between national culture, accounting conservatism and bank risk taking is stronger for the large banks, and weaker or not significant for the smaller banks. About 40% of our bank sample consists of commercial banks, with the remaining comprised of bank holding companies, finance companies, savings banks, and other types of banks. In our second robustness test, we analyze the subsample that includes only the commercial banks. Our untabulated results indicate that the main inferences are robust.

We compute all the risk measures ($\sigma(ROA)$, $\sigma(NIM)$, and *z-score*) in our main tests over the period 2000-2006. As another robustness check, we re-compute these measures over two

alternate time periods (i.e., 2000–2005 and 2000–2007). Our results are robust to these alternative measurement period specifications.

Lastly, we conduct our main analysis at the country-year level. We compute the means of the variables used in the accounting conservatism and risk taking measures for each country-year, and regress them on the two culture variables and bank-level, institutional controls. Again, our results are similar to those reported in the main tables, with all the test variables significant in the predicted direction at 10% or lower.

Crisis Period Analysis

In this section, we provide preliminary evidence on whether cultural factors help explain bank failure and financial difficulties experienced by banks during the recent financial crisis spanning the period 2007-2009. Most previous studies of bank failure rely on bank-level accounting data to predict bank failure (e.g., Meyer and Pifer 1970; Arena 2008; Jin et al. 2011). For example, Arena (2008) studies the relationship of bank failure and bank fundamentals during the 1990s Latin America and East Asia banking crises, and finds that individual bank conditions explain bank failure, while macroeconomic shocks that triggered the crises primarily destabilized the weak banks ex ante.

We hand-collect data on the failed banks from primarily government and central bank reports. Data are available for failed banks in 44 countries.[25] We use all banks in *Bankscope* with available financial information for the failed bank analysis. Overall, we have 5,372 banks, of which 4.2% failed during the period 2007-2009.

[25] These 44 countries include: Australia, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Canada, Chile, Croatia, Czech Rep, Denmark, Finland, France, Germany, Hong Kong, India, Ireland, Israel, Italy, Jamaica, Japan, Lithuania, Malaysia, Netherlands, Norway, Pakistan, Panama, Philippines, Poland, Romania, Russia, Singapore, Slovak Rep, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, United States, and Venezuela. For the troubled bank analysis, the number of sample countries is 68 (less Iran and Suriname from the full sample of countries listed in Table 2).

We next define a composite measure for troubled banks, coded one if it satisfies any of the following three criteria in 2007 or 2008 or 2009: (1) incurs a loss (i.e., net income < 0), (2) has a low capital ratio (i.e., equity over assets < 10%), and (3) recognizes a large loan loss provisions (i.e., loan loss provisions/total loans > 1%). These benchmarks are reasonable because the mean (median) values of ROA, equity to total assets ratio, and LLP to loans ratio during the pre-crisis period (i.e., 2000-2006) are 2.19% (1.44%), 19.46% (14.14%), 0.11% (0.19%), respectively. To ensure that these banks were not troubled prior to 2007, we delete banks that satisfy any of the above criteria in 2006. Thus, our tests relate to banks that were healthy in 2006 but are troubled in 2007-2009. For the troubled bank analysis, we have 3,622 banks with 33% classified as troubled. The number of banks used is smaller than the failed banks analysis because we deleted banks that are financially weak in the pre-crisis period.

We use the following logistic model (clustered by country) to test the association between national culture and bank financial trouble during the crisis period. This test specification follows Lel and Miller (2008) and Beltratti and Stulz (2012).

$$\text{Bank failure or trouble} = \gamma_0 + \gamma_1 \text{CULTURE} + \gamma_2 \text{SIZE1} + \gamma_3 \text{GROWTH} + \gamma_4 \text{LOANS} + \gamma_5 \text{LEV} + \gamma_6 \Delta\text{CASH} + \gamma_7 \text{LLP1} + \gamma_8 \text{RISK} + \gamma_9 \text{W} + e \quad (4)$$

We include bank-level controls that may affect the financial health of banks (i.e., size, growth, loans, leverage, change in cash flow, and loan loss provisions). We also include the bank risk taking measure in the model as well as the full set of country-level institutional variables. We use *σ(ROA)* to proxy bank risk, although our results are robust to using either *σ(NIM)* or *z-score* as a proxy for risk.

We present the results in Table 7. The first four models report results for the failed bank analysis and the last four models report results for the troubled bank analysis. As expected, the cultural variables have strong association with bank failure and trouble. Specifically, we find that

IND is positively and significantly associated with bank failure and trouble while *UA* is negatively and significantly associated with bank failure and trouble. As for economic significance, a one standard deviation increase in *IND* increases the probability of bank failure and bank trouble by 2.67% - 4.79% and 2.38% - 3.56%, respectively. Similarly, a one standard deviation increase in *UA* decreases the probability of bank failure and bank trouble by 2.10% - 3.67% and 0.78% - 1.17%, respectively.[26] These results show that banks in societies with low individualism and high uncertainty avoidance had a lower incidence of bank failure and trouble during the crisis period, most likely due to lower risk taking during the pre-crisis period.

[Insert Table 7 here]

Direct and Indirect Effects of National Culture on Bank Risk Taking

Our main tests are designed to examine the direct effects of national culture on bank accounting conservatism and risk taking. However, accounting conservatism by itself may also have an effect on bank risk taking. Thus, the effects of national culture on risk taking could be direct and also indirect through conservatism. To test this, we first develop a measure for relative bank conservatism which is proxied by mean abnormal LLA estimated over the period 2000-2006 as the residual from the following regression (clustered by banks):

$$LLA_t = \beta_0 + \beta_1 SIZE_t + \beta_2 HOMP_t + \beta_3 CAP_t + \beta_4 LNGRO_t + \beta_5 NPL_t + COUNTRY + YEAR + \varepsilon_{i,k} \quad (5)$$

Details of the variable definitions are shown in Table 1. Abnormal LLA is decile-ranked and scaled between zero and one, with higher values indicating greater conservatism.

[26] To assess the economic significance, we calculate the marginal effect of risk measures on the incidence of bank failure. The marginal effect indicates the change in the probability of bank failure per standard deviation change in the risk measure (holding other independent variables constant). The marginal effect per standard deviation (SD) change for the risk variable is computed as p x (1-p) x b x SD, where p is the base rate and b is the estimated coefficient from the logistic regression (Liao 1994).

We use path analysis to decompose the correlation between the source variable (national culture) and the outcome variable (bank risk taking) into direct and indirect (mediated) paths. This decomposition provides evidence on the existence and relative importance of the direct and indirect paths between national culture and bank risk taking. Our approach closely follows the methodology in Bhattacharya et al. (2012).

Panels A and B of Table 8 present results when the source variable is Individualism (*IND*) and Uncertainty Avoidance (*UA*), respectively. We denote correlations with r and path coefficients with p. In Panel A, the Pearson correlation between *IND* and various proxies of risk taking is between 0.22 and 0.48.The direct and mediated paths decompose this correlation into the portion attributable to the direct link between *IND* and risk taking and the indirect link, mediated by the relative bank conservatism (*CONS*).[27] The correlation between *IND* and various proxies of risk ranges from 94 to 99 percent attributable to a direct path between *IND* and risk, and between 1 and 6 percent attributable to the mediated path. We find similar results in Panel B when culture is measured by Uncertainty Avoidance (*UA*). Overall, the results in Table 8 indicate that culture plays a more important direct effect on bank risk taking. The indirect effect of culture on risk

[27] The ratio of the direct path coefficient, p[IND, Risk], to the total correlation (labeled percentage in the table) is the portion of the correlation between *IND* and risk taking that is attributable to the direct path. Similarly, p[IND,CONS] and p[CONS, Risk] are the path coefficients between individualism and conservatism and between conservatism and risk taking, respectively. The mediated path is the product of p[IND, CONS] and p[CONS, Risk]. The ratio of the mediated path to the total correlation, labeled percentage, captures the portion of the correlation between individualism and risk taking that is attributable to the mediated effect.

taking through accounting conservatism is relatively small in magnitude even though the correlations are statistically significant in most cases.[28]

[Insert Table 8 here]

Other Hofstede Dimensions of National Culture

We consider two dimensions of national culture - individualism and uncertainty avoidance - in the main tests because prior research documents consistent effects of these cultural dimensions on managerial decisions. For completeness, we also examine whether the two other commonly discussed cultural dimensions of Hofstede, namely masculinity and power distance, are associated with bank conservatism, risk taking, and crisis period performance. High masculinity societies emphasize achievements and competitiveness, which may lead to higher risk taking behavior and less conservative financial reporting. In high power distance societies, decisions are more centralized and managers have greater influence, which may result in higher risk taking and lower reporting conservatism.

Our untabulated results indicate that, in the conservatism tests, lower masculinity and power distance societies recognize timelier loan loss provisions and loan loss allowance (but not timelier earnings declines and loan charge-offs) than societies with higher masculinity and power distance. Hence, we do not observe a consistent relation between the masculinity and power distance dimensions of culture on bank conservatism. We also include all four dimensions of

[28] The results reported in Table 8 do not control for other factors known to affect risk taking by banks. Following Bhattacharya et al. (2012), we also include other variables (*SIZE1*, *REVG*, *EQTY*, and *TOOBIG*) in equation (2) as source variables that are posited to have a direct path to risk taking and, therefore, to act like control variables in a regression. The correlation between *IND* and various proxies of risk ranges from 50 to 81 percent attributable to a direct path between *IND* and risk, and between 2 and 5 percent attributable to the mediated path. The correlation between *UA* and various proxies of risk ranges from 74 to 96 percent attributable to a direct path between *UA* and risk, and between 2 and 3 percent attributable to the mediated path. Overall, the results indicate that culture plays a more important direct effect, relative to the indirect effect, on bank risk taking, even after controlling for other factors that are associated with risk taking by banks.

Hofstede's culture variables in the same regression model.[29] The results indicate that while the individualism and uncertainty avoidance dimensions of culture are still associated with bank conservatism in the predicted directions, the masculinity and power distance dimensions of culture lose their significance in some models. Overall, our results indicate that individualism and uncertainty avoidance have a greater impact on bank conservatism than masculinity and power distance.

In the risk taking tests, only power distance is consistently associated with higher risk taking for all three proxies of risk. As before, when we include all four cultural dimensions in the same regression model, we find that individualism and uncertainty avoidance are associated with risk taking in the predicted direction, but the impacts of power distance and masculinity on risk taking are weak or insignificant.

Lastly, in the crisis period analysis, we find that masculinity is significantly associated with greater incidence of bank trouble. When all of Hofstede's culture measures are included in the same regression, all four dimensions are associated with greater likelihood of bank trouble in the predicted directions. In the failed bank analysis, all the culture variables, except masculinity are associated with greater likelihood of bank failure.

Overall, we observe a consistent and systematic impact of individualism and uncertainty avoidance on bank conservatism, risk taking and financial distress, but do not observe such consistent relations for masculinity and power distance.

[29] Caution is required to interpret the results when all dimensions of culture are included in the regression because some culture variables are highly correlated. For example, the correlation between individualism and power distance is -0.62.

V. CONCLUSION

The primary research questions addressed in this study are whether and how two important dimensions of national culture, individualism and uncertainty avoidance, influence bank accounting conservatism and risk taking. We address these questions by analyzing a sample of banks from 70 countries over the period 2000-2006, just prior to the financial crisis. In additional tests, we explore the relation between culture and bank failure and financial trouble during the recent financial crisis spanning the period 2007-2009.

Our empirical results indicate that banks in low individualism and high uncertainty avoidance societies report earnings more conservatively than banks in high individualism and low uncertainty avoidance societies. Additionally, we find that banks in low individualism and high uncertainty avoidance cultures exhibit lower levels of risk taking as reflected in volatility of net interest margin, volatility of earnings, and z-score. Lastly, we find that banks in low individualism and high uncertainty avoidance cultures are less likely to fail or experience financial trouble during the crisis period.

Our primary contribution is to document that differences in national culture are related to differences in bank financial reporting properties, risk taking, and financial distress. Our study adds to prior research on factors affecting bank reporting conservatism. Nichols et al. (2009) document that bank ownership structure is an important determinant of reporting conservatism. We provide evidence that another important determinant of bank reporting conservatism is culture. This finding is especially important for studies that examine cross-country differences in financial reporting. Second, our study extends prior research on risk taking by banks by documenting that in addition to institutions, regulation, and governance, the individualism and uncertainty avoidance dimensions of national culture also affect risk taking of banks. Overall, our findings support the growing awareness among researchers studying international financial markets that informal

institutions such as culture matter in financial reporting and financial decisions, even when those decisions are made by sophisticated professional managers.

Our study is subject to the following limitations. First, Hofstede's cultural variables are measured at the country level whereas our tests are primarily based on bank-level analysis. Although, we examine the sensitivity of our results by replacing the bank-level data with country-year level data, we still assume that the Hofstede measures are constant over time, in particular, over our sample period of seven years. Second, we note that the reported relations between national culture, bank conservatism, and risk taking are observed associations and may not result from underlying causal relations.

References

Aaker, J. L., and P. Williams. 1998. Empathy versus pride: The influence of emotional appeals across cultures. *Journal of Consumer Research* 25 (3): 241–261.

Allen, F., and D. Gale. 2000. *Comparing Financial Systems.* Cambridge, MA: MIT Press.

Arena, M. 2008. Bank failures and bank fundamentals: A comparative analysis of Latin America and East Asia during the nineties using bank-level data. *Journal of Banking and Finance* 32 (2): 299-310.

Ball R., and L. Shivakumar. 2005. Earnings quality in U.K. private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics* 39 (1): 83–128.

Barth, J., G. Caprio, and R. Levine, 2006. *Rethinking Bank Regulation: Till Angels Govern.* Cambridge, MA: Cambridge University Press.

Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24 (1): 3–37.

Beltratti, A., and R. M. Stulz. 2012. The credit crisis around the globe: Why did some banks perform better? *Journal of Financial Economics* 105 (1): 1-17.

Beugelsdijk, S., and B. Frijns. 2010. A cultural explanation of the foreign bias in international asset allocation. *Journal of Banking and Finance* 34 (9): 2121-2131.

Bhattacharya, N., F. Ecker, P. Olsson, and K. Schipper. 2012. Direct and mediated associations among earnings quality, information asymmetry, and the cost of equity. *The Accounting Review* 87 (2): 449-282.

Boyd, J., and G. De Nicolo. 2005. The theory of bank risk taking and competition revisited. *The Journal of Finance* 60 (3): 1329–1343.

Bryan, S., R. Nash, and A. Patel. 2010. How the legal system affects the equity mix in executive compensation. *Financial Management* 39 (1): 393 – 418.

Bushman, R., and C. Williams. 2012. Accounting discretion, loan loss provisioning, and discipline of banks' risk-taking. *Journal of Accounting and Economics* 54 (1): 1-18.

Cole, R A., and R. T. Ariss. 2010. Legal origin, creditor protection and bank lending around the world. Working paper. Available at SSRN: http://ssrn.com/abstract=997582

Chui, A.C.W., S. Titman, and K.C. J. Wei. 2010. Individualism and momentum around the world. *The Journal of Finance* 65 (1): 361–392.

Demirguc-Kunt, A., and E. Detragiache. 2002. Does deposit insurance increase banking system stability? An empirical investigation. *Journal of Monetary Economics* 49 (7): 1373–1406.

Demirguc-Kunt, A., E. Kane, and L. Laeven. 2008. Determinants of deposit-insurance adoption and design. *Journal of Financial Intermediation* 17 (3): 407–438.

Dietrich, J.R., K.A. Muller, and E.J. Riedl. 2007. Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies* 12 (1): 95-124.

Djankov, S., C. McLiesh, and A. Shleifer. 2007. Private credit in 129 countries. *Journal of Financial Economics* 84 (2): 299-329.

Doupnik, T.S. 2008. Influence of culture on earnings management: A note. *Abacus* 44 (3): 317-340.

Doupnik, T. S., and E. L. Riccio. 2006. The influence of conservatism and secrecy on the interpretation of verbal probability expressions in the Anglo and Latin cultural areas. *The International Journal of Accounting* 41 (3): 237–261.

Doupnik, T. S. and M. Richter. 2004. The impact of culture on the interpretation of "in context" verbal probability expressions. *Journal of International Accounting Research* 3 (1): 1–20.

Erkens, D., M. Hung, and P. Matos. 2012. Corporate Governance in the 2007-2008 Financial Crisis: Evidence from Financial Institutions Worldwide. *Journal of Corporate Finance* 18 (2): 389-411.

Franke, R. H., G. Hofstede, and M. H. Bond. 1991. Cultural roots of economic performance: A research note. *Strategic Management Journal* 12 (S1): 165–173.

Geletkanycz, M. A. 1997. The salience of "culture's consequences": The effects of cultural values on top executive commitment to the status quo. *Strategic Management Journal* 18 (8): 615–634.

Givoly, D., and C. Hayn. 2000. The changing time series properties of earnings, cash flows and accruals: has financial reporting become more conservative? *Journal of Accounting and Economics* 29 (3): 287-320.

Givoly, D., C. Hayn, and S. Katz. 2010. Does public ownership of equity improve earnings quality? *The Accounting Review* 85 (1): 195-225.

Gorodnichenko, Y., and G. Roland. 2011. Which dimensions of culture matter for long run growth? *American Economic Review Papers and Proceedings* 101 (3): 492-498.

Gray, S.J., 1988, Towards a theory of cultural influence on the development of accounting systems internationally, *Abacus* 24, 1-15.

Han, S., T. Kang, S. Salter, and Y. K., Yoo. 2010. A cross-country study on the effects of national culture on earnings management. *Journal of International Business Studies* 41 (1): 123-141.

Hilary, G., and K. W. Hui. 2009. Does religion matter in corporate decision making in America? *Journal of Financial Economics* 93 (3): 455-473.

Hofstede, G. 1980. *Culture's consequences: International differences in work related values*. Beverly Hills, CA: Sage Publications.

Hofstede, G. 2001. *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA: Sage Publications.

Hofstede, G., and M. Bond. 1988. The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics* 16 (4): 4-21.

Houston, J.F., C. Lin, P. Lin, and Y. Mae. 2010. Creditor rights, information sharing, and bank risk taking. *Journal of Financial Economics* 96 (3): 485-512.

Jackson, S., and X. Liu. 2010. The allowance for uncollectible accounts, conservatism, and earnings management. *Journal of Accounting Research* 48 (3): 565-601.

Jin, J.Y., K. Kanagaretnam and G.J. Lobo. 2011. Ability of accounting and audit quality variables to predict bank failures during the recent financial crisis. *Journal of Banking and Finance* 35 (11): 2811-2819.

Kachelmeier, S. J., and M. Shehata. 1997. Internal auditing and voluntary cooperation in firms: A cross-cultural experiment. *The Accounting Review* 72 (3): 407-431.

Kanagaretnam, K., C.Y. Lim and G.J. Lobo. 2011. Effects of national culture on earnings management in banks. *Journal of International Business Studies* 42 (6): 853-874.

Kaplan, R. S. 2011. Accounting scholarship that advances professional knowledge and practice. *The Accounting Review* 86 (2): 367-383.

Kennedy, P. 2008. *A Guide to Econometrics, 6th ed.* Malden, MA: Blackwell Publishing.

Kerr, N., R. MacCoun, and G. Kramer. 1996. Bias in judgment: Comparing individuals and groups. *Psychological Review* 103 (4): 687-719.

Kwok, C., and S. Tadesse. 2006. National culture and financial systems. *Journal of International Business Studies* 37 (2): 227-247.

Laeven, L., and R. Levine. 2009. Bank governance, regulation and risk taking. *Journal of Financial Economics* 93 (2): 259–275.

Laeven, L., and F. Valencia. 2010. Resolution of banking crises: The good, the bad, and the ugly. IMF Working paper. Available at SSRN: http://ssrn.com/abstract=1632145

LaPorta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 1998. Law and finance. *The Journal of Political Economy* 106 (6): 1113-1155.

Lel, U., and D. Miller. 2008. International cross-listing, firm performance and top management turnover: A test of the bonding hypothesis. *The Journal of Finance* 63 (4): 1897 – 1937.

Liao, T. M. 1994. *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. University Paper Series on Quantitative Applications in the Social Sciences, 07-101. Thousand Oaks, CA: Sage Publications.

Licht, A., C. Goldschmidt, and S. H. Schwartz. 2005. Culture, law, and corporate governance. *International Review of Law and Economics* 25 (2): 229–255.

Merton, R. 1977. An analytical derivation of the cost of deposit insurance and loan guarantees. *Journal of Banking and Finance* 1 (1): 3-11.

Meyer, P. A., and H.W. Pifer. 1970. Prediction of banking failure. *The Journal of Finance* 25 (4): 853-568.

Nabar, S., and B. Thai. 2007. Earnings management, investor protection, and national culture. *Journal of International Accounting Research* 6 (2): 35–54.

Nakata, C., and K. Sivakumar. 1996. National culture and new product development: An integrative view. *Journal of Marketing* 60 (1): 61–74.

Neter J., M. Kutner, C. Nachtsheim, and W. Wasserman. 1996. *Applied linear statistical models (4th Edition)*. Chicago, IL: IRWIN: 385-388.

Nichols, C., J. Wahlen, and M. Wieland. 2009. Publicly traded versus privately held: implications for conditional conservatism in bank accounting. *Review of Accounting Studies* 14 (1): 88–122.

Petersen, M. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22 (1): 435-480.

PricewaterhouseCoopers. 2008. Reward: A new paradigm? *PwC*. Available at: http://www.pwc.com/gx/en/banking-capital-markets/pdf/Reward.pdf

Radebaugh, L.H., S. Gray, and E. Black. 2006. International accounting and multinational enterprises, 6th Edition. NJ: John Wiley and Sons, Inc.

Ryan, S.G. 2008. Accounting in and for the subprime crisis. *The Accounting Review* 83 (6): 1605-1638.

Salter, S., T. Kang, G. Gotti, and T. Doupnik. 2012. The role of social values, accounting values and institutions in determining accounting conservatism. *Management International Review* (forthcoming).

Salter, S.B., and F. Niswander. 1995. Cultural influence on the development of accounting systems internationally: A test of Gray's (1988) theory. *Journal of International Business Studies* 26 (2): 379-397.

Schultz, J. J., D. A. Johnson, D. Morris, and S. Dyrnes. 1993. An investigation of the reporting of questionable acts in an international setting. *Journal of Accounting Research* 31: 75–103.

Schultz, J. J. and T. J. Lopez. 2001. The impact of national influence on accounting estimates: Implications for international accounting standard-setters. *The International Journal of Accounting* 36 (3): 271–290.

Shupp, R., and A. Williams. 2008. Risk preference differentials of small groups and individuals. *Economic Journal* 118 (1): 258-283.

Sudarwan, M. and T. J. Fogarty. 1996. Culture and accounting in Indonesia: An empirical examination. *International Journal of Accounting*. 31 (4): 463–481.

Tan, B. C. Y., K.W. Kwok, R.T. Watson, D.L. Clapper, and E.R. McLean. 1998. Computer-mediated communication and majority influence: Assessing the impact in an individualistic and a collectivistic culture. *Management Science* 44 (9): 1263–1278.

Tosi, H. and T. Greckhamer. 2004. Culture and CEO Compensation. *Organization Science* 15 (6): 657-670.

Tsakumis., G. 2007.The influence of culture on accountants' application of financial reporting rules. *ABACUS* 43 (1): 27-48.

Watts, R. 2003. Conservatism in accounting Part I: Explanations and implications. *Accounting Horizons* 17 (3): 207-221.

Table 1: Variable definitions

National Culture variables

IND	=	measure of individualism from Hofstede (2001).
UA	=	measure of uncertainty avoidance from Hofstede (2001).

Variables used in accounting conservatism

ΔNI_t	=	change in net income from year t-1 to year t divided by total assets at the end of year t-1.
ΔNI_{t-1}	=	change in net income from year t-2 to year t-1 divided by total assets at the end of year t-2.
$D\Delta NI_{t-1}$	=	1 if ΔNI_{t-1} is negative, 0 otherwise.
$SIZE_t$	=	natural logarithm of total assets at the end of year t.
LLP_t	=	loan loss provisions for year t divided by total loans at the end of year t-1.
ΔNPL_{t-1}	=	nonperforming loans divided by total loans at the end of year t-1 minus nonperforming loans divided by total loans at the end of year t-2.
ΔNPL_t	=	nonperforming loans divided by total loans at the end of year t minus nonperforming loans divided by total loans at the end of year t-1.
ΔNPL_{t+1}	=	nonperforming loans divided by total loans at the end of year t+1 minus nonperforming loans divided by total loans at the end of year t.
NCO_t	=	net loan charge-offs for year t divided by total loans at the end of year t-1.
NCO_{t+1}	=	net loan charge-offs for year t+1 divided by total loans at the end of year t.
LLA_t	=	loan loss allowance at the end of year t divided by total loans at the end of year t-1.
LLA_{t-1}	=	loan loss allowance at the end of year t-2 divided by total loans at the end of year t-1.
$HOMP_t$	=	homogeneous loans (consumer loans) in year t as a percentage of total assets at the end of year t.
$HOMP_{t-1}$	=	homogeneous loans (consumer loans) in year t-1 as a percentage of total assets at the end of year t-1.
CAP_t	=	capital ratio for period t.
$LNGRO_t$	=	total loans at the end of year t divided by total loans at the end of year t-1.
NPL_t	=	nonperforming loans at the end of year t divided by total loans at the end of year t.
LCO_t	=	loan charge-offs for year t divided by total loans at the end of year t-1.

Variables used in risk taking and financial crisis tests

σ(ROA)	=	volatility of earnings over the period 2000-2006.
σ(NIM)	=	volatility of net interest margin over the period 2000–2006.
z-score	=	log of (ROA+CAR)/σ(ROA) where ROA is earnings before taxes and loan loss provisions divided by assets, CAR is capital-asset ratio, and σ(ROA) is the standard deviation of ROA. The ROA and capital-asset ratio are calculated as the mean over 2000–2006, and σ(ROA) is the standard deviation of ROA estimated over 2000–2006. We multiply the score by -1, so that higher z-score implies more risk taking.
Failed Banks	=	1 if the bank fails during the crisis period 2007-2009, 0 otherwise.
Troubled Banks	=	1 if the bank is in financial trouble during the crisis period 2007-2009, 0 otherwise. A troubled bank is defined as a bank that satisfies any of the following criteria in 2007-2009: (1) incurs a loss (i.e., net income < 0), (2) has a low capital ratio (i.e., equity over assets < 10%), and (3) recognizes a large loan loss provision (i.e., loan loss provisions/total loans > 1%). To ensure that these banks were not troubled prior to 2007, banks that satisfy any of the above criteria in 2006 are deleted from the sample. Thus, sample banks used in the tests include only banks that were healthy in 2006 but are troubled in 2007-2009.

Control variables

SIZE1	=	log of total assets, averaged over 2000-2006.
REVG	=	growth in net interest revenue, averaged over 2000-2006.
LLP1	=	loan loss provisions divided by total loans, averaged over 2000-2006.
EQTY	=	equity divided by total assets, averaged over 2000-2006.
TOOBIG	=	an indicator that the bank is too big to fail. It equals one if the bank's share of the country's total deposits is more than 10% over 2000-2006, zero otherwise.
GROWTH	=	growth in total assets from the beginning to the end of the year 2006.
LOANS	=	total loans divided by total assets at the end of the year 2006.
LEV	=	total liabilities divided by total assets at the end of the year 2006.
ΔCASH	=	change in annual cash flows (income before taxes and loan loss provisions) divided by total assets at the end of the year 2006.
LLP1	=	loan loss provisions for year t divided by total assets at the end of the year 2006.
RISK	=	volatility of earnings over the period 2000-2006.

Country-level control variables

DI	=	indicator variable that equals one if the country has deposit insurance, zero otherwise. Data from Demirguc-Kunt et al. (2008).
COMP	=	competition index, measured using the Herfindahl–Hirschman Index, which equals the sum of the squares of the market shares (deposits) of each individual bank in each individual countries. The index is calculated over the period 2000-2006 and ranges from zero to one, with a higher value indicating greater monopoly power.
CR	=	index aggregating the following creditor rights: absence of automatic stay in reorganization, requirement for creditors' consent or minimum dividend for a debtor to file for reorganization, secured creditors are ranked first in reorganization, and removal of incumbent management upon filing for reorganization. The index ranges from 0 to 4. Data originally from La Porta et al. (1998) and updated in Djankov et al. (2007).
IS	=	information sharing index that equals 1 if either a public registry or a private bureau operates in the country, 0 otherwise. Data from Djankov et al. (2007).
ENFORCE	=	Law enforcement index that ranges from 0 to 10, with higher values indicating greater law enforcement. Data from the Economic Freedom of the World: 2010 Annual Report.
COMMON	=	indicator that equals one if the legal origin is common law, zero otherwise. Data from La Porta et al. (1998).
LGDP	=	log of GDP per capita, in constant 2000 US dollars. Data from World Development Indicators and Global Development Finance database

Table 2: Institutional variable measures by country

Country	IND	UA	DI	COMP	CR	IS	ENFORCE	COMMON	LGDP	No. of Banks	No. of Bank-years
Argentina	46	86	1	0.05	1	1	5.02	0	8.90	136	624
Australia	90	51	0	0.08	3	1	6.23	1	9.99	107	356
Austria	55	70	1	0.06	3	1	6.70	0	10.11	311	1,334
Bangladesh	20	60	1	0.07	2	1	1.15	1	5.95	42	192
Belgium	75	94	1	0.09	2	1	5.65	0	10.04	107	460
Benin	60	70	1	0.32	-	-	7.51	-	10.75	130	544
Brazil	38	76	1	0.07	1	1	4.82	0	8.16	264	1,071
Bulgaria	30	85	1	0.39	2	1	4.77	0	7.55	38	174
Canada	80	48	1	0.12	1	1	4.81	1	10.09	85	326
Chile	23	86	1	0.04	2	1	5.11	0	8.60	50	211
China	20	30	0	0.08	2	0	6.73	0	7.10	76	246
Colombia	13	80	1	0.05	0	1	1.80	0	7.69	45	206
Costa Rica	15	86	0	0.99	1	1	3.52	0	8.43	111	274
Croatia	33	80	1	0.11	3	0	5.40	0	8.45	47	212
Czech	58	74	1	0.12	3	0	3.54	0	8.70	43	147
Denmark	74	23	1	0.08	3	1	6.19	0	10.33	165	752
Ecuador	8	67	1	0.10	0	1	4.38	0	7.24	75	179
El Salvador	19	94	1	0.12	3	1	3.83	0	7.68	31	122
Estonia	60	60	1	0.20	-	-	6.11	0	8.52	10	52
Finland	63	59	1	0.16	1	1	8.06	0	10.11	35	102
France	71	86	1	0.02	0	1	6.91	0	10.05	691	2,908
Germany	67	65	1	0.02	3	1	6.62	0	10.07	2,165	10,666
Greece	35	112	1	0.09	1	1	4.13	0	9.39	50	136
Guatemala	6	101	1	0.11	1	1	3.39	0	7.50	6	13
Hong Kong	25	29	0	0.10	4	1	7.69	1	10.20	142	408
Hungary	80	82	1	0.23	1	1	7.15	0	8.56	37	132
India	48	40	1	0.07	2	0	2.59	1	6.26	106	428
Indonesia	14	48	1	0.15	2	1	1.17	0	6.69	77	347
Iran	41	59	0	0.56	2	1	5.51	0	7.48	15	44
Ireland	70	35	1	0.07	1	1	4.95	1	10.25	50	157
Israel	54	81	0	0.09	3	1	3.46	1	9.89	29	140
Italy	76	75	1	0.03	2	1	3.18	0	9.85	1,060	4,628
Jamaica	39	13	1	0.13	2	0	3.44	1	8.04	38	96
Japan	46	92	1	0.02	2	1	6.37	1	10.56	992	4,520
Korea	18	85	1	0.04	3	1	8.11	1	9.41	56	229
Latvia	70	63	1	0.08	3	0	7.39	0	8.34	34	158
Lithuania	60	65	1	0.16	2	1	7.45	0	8.26	18	101
Malaysia	26	36	1	0.04	3	1	4.27	1	8.39	117	526
Malta	59	96	1	0.13	-	-	-	-	9.18	13	51
Mexico	30	82	1	0.06	0	1	5.39	0	8.68	80	322
Morocco	46	68	0	0.08	1	1	4.30	0	7.09	21	104
Netherlands	80	53	1	0.12	3	1	5.11	0	10.06	72	230
New Zealand	79	49	0	0.09	4	1	7.50	1	9.60	20	81
Norway	69	50	1	0.07	2	1	7.53	0	10.56	124	454
Pakistan	14	70	0	0.14	1	1	3.55	1	6.28	49	201
Panama	11	86	0	0.06	4	1	2.26	0	8.35	106	315
Peru	16	87	1	0.06	0	1	4.77	0	7.68	41	175

Philippines	32	44	1	0.23	1	1	3.42	1	6.91	89	246
Poland	60	93	1	0.05	1	0	4.27	0	8.45	86	274
Portugal	27	104	1	0.07	1	1	5.25	0	9.24	82	267
Romania	30	90	1	0.14	2	0	5.21	0	7.58	38	158
Russia	39	95	1	0.24	2	0	7.53	0	7.66	312	917
Serbia	25	92	1	0.18	2	0	3.95	0	6.83	47	124
Singapore	20	8	0	0.26	3	0	8.48	1	10.05	65	174
Slovakia	52	51	1	0.12	2	1	4.64	0	8.36	26	121
Slovenia	27	88	1	0.11	3	1	3.87	0	9.25	34	147
South Africa	65	49	0	0.06	3	1	3.93	1	8.11	76	264
Spain	51	86	1	0.05	2	1	5.54	0	9.67	321	1,167
Suriname	47	92	0	0.29	-	-	-	-	7.75	2	14
Sweden	71	29	1	0.08	1	1	4.73	0	10.25	152	579
Switzerland	68	58	1	0.10	1	1	6.03	0	10.44	586	2,212
Taiwan	17	69	1	0.17	2	1	5.55	0	9.59	98	433
Thailand	20	64	1	0.96	2	0	6.11	1	7.71	62	287
Trinidad & Tobago	16	55	1	0.11	-	-	2.96	-	9.06	19	80
Turkey	37	85	1	0.05	2	1	6.16	0	8.07	105	325
United Kingdom	89	35	1	0.03	4	1	6.00	1	10.15	333	1,242
Uruguay	36	100	1	0.11	3	1	3.88	0	8.69	65	199
USA	91	46	1	0.01	1	1	7.33	1	10.49	1,648	7,751
Venezuela	12	76	1	0.06	3	1	3.97	0	8.49	73	283
Vietnam	20	30	1	0.60	1	1	6.36	0	6.16	30	112

This table reports measures of institutional characteristics by country. The last two columns provide the number of banks and bank-years based on the largest sample used in the study. Please see Table 1 for variable definitions.

Table 3: Descriptive statistics

Panel A: Bank-level data for conservatism tests

	Mean	Median	Std Dev	Min	Max	No. of countries	No. of obs.
ΔNI_t	0.002	0.000	0.016	-0.063	0.089	70	52,530
ΔNI_{t-1}	0.002	0.000	0.017	-0.067	0.098	70	52,530
DΔNI	0.333	0.000	0.471	0.000	1.000	70	52,530
SIZE	7.183	6.953	2.048	-1.054	14.543	70	52,530
LLP_t	0.010	0.005	0.023	-0.036	0.168	70	51,130
ΔNPL_{t-1}	-0.001	-0.001	0.043	-0.192	0.220	69	26,937
ΔNPL_t	-0.002	-0.001	0.040	-0.182	0.210	69	27,693
ΔNPL_{t+1}	-0.002	-0.001	0.034	-0.147	0.175	68	25,530
NCO_t	0.010	0.002	0.030	-0.015	0.227	68	20,133
NCO_{t+1}	0.009	0.002	0.026	-0.021	0.194	68	18,530
LLA_t	0.041	0.019	0.073	0.000	0.526	69	27,203
LLA_{t-1}	0.045	0.020	0.078	0.000	0.554	68	26,016
$HOMP_t$	0.577	0.612	0.218	0.000	0.970	70	52,530
$HOMP_{t-1}$	0.576	0.610	0.216	0.001	0.967	70	52,530
CAP_t	0.106	0.076	0.108	0.012	0.725	70	52,526
$LNGRO_t$	0.129	0.061	0.336	-0.670	2.060	70	52,013
NPL_t	0.056	0.021	0.087	0.000	0.544	70	23,859
LCO_t	0.012	0.002	0.034	0.000	0.264	67	19,059

Panel B: Bank-level data for risk taking test

	Mean	Median	Std Dev	Min	Max	No. of countries	No. of obs.
σ(ROA)	0.006	0.003	0.009	0.000	0.087	70	6,622
σ(NIM)	0.008	0.003	0.025	0.000	0.826	70	6,622
z-score	-3.486	-3.567	1.080	-8.879	3.124	70	6,622
SIZE	7.049	6.793	1.913	1.275	14.137	70	6,622
REVG	0.104	0.065	0.186	-0.989	1.000	70	6,622
LLP	0.027	0.006	0.355	0.000	10.000	70	6,622
EQTY	0.105	0.078	0.100	-0.103	0.975	70	6,622
TOOBIG	0.008	0.000	0.091	0.000	1.000	70	6,622

Panel C: Country-level data

	Mean	Median	Std Dev	Min	Max	No. of Countries	No. of obs.
IND	44.03	40.00	23.97	6.00	91.00	70	70
UA	67.51	70.00	23.64	8.00	112.00	70	70
DI	0.81	1.00	0.39	0.00	1.00	70	70
COMP	0.15	0.11	0.15	0.01	0.87	70	70
CR	1.95	2.00	1.05	0.00	4.00	65	65
IS	-0.82	-1.00	0.39	-1.00	0.00	65	65
ENFORCE	5.16	5.11	1.72	1.15	8.48	68	68
COMMON	0.29	0.00	0.46	0.00	1.00	66	66
LGDP	8.71	8.58	1.27	5.95	10.75	70	70

Panels A and B report descriptive statistics for the bank-level variables used in the accounting conservatism and risk taking tests, respectively. Panel C reports descriptive statistics for the country-level institutional variables. Please see Table 1 for variable definitions.

Table 4: Correlations

Panel A: Pearson correlations for bank-level variables used in the conservatism tests

	ΔNIt	*ΔNIt-1*	*DΔNI*	*SIZE*	*LLPt*	*ΔNPLt-1*	*ΔNPLt*	*ΔNPLt+1*	*NCOt*	*NCOt+1*	*LLAt*	*LLAt-1*	*HOMPt*	*HOMPt-1*	*CAPt*	*LNGROt*	*NPLt*	*LCOt*
ΔNIt	1.00																	
ΔNIt-1	-0.18	1.00																
DΔNI	0.09	-0.41	1.00															
SIZE	0.03	0.04	-0.02	1.00														
LLPt	-0.10	0.00	0.06	-0.01	1.00													
ΔNPLt-1	0.04	-0.20	0.12	-0.03	0.12	1.00												
ΔNPLt	-0.18	-0.03	0.02	-0.02	0.25	0.01	1.00											
ΔNPLt+1	-0.01	0.00	-0.01	-0.01	-0.03	-0.03	-0.01	1.00										
NCOt	0.05	0.02	0.06	-0.02	0.49	0.12	-0.03	-0.04	1.00									
NCOt+1	0.00	-0.01	0.06	0.01	0.54	0.09	0.12	-0.02	0.74	1.00								
LLAt	0.06	0.04	0.08	-0.07	0.50	0.18	0.16	-0.17	0.48	0.49	1.00							
LLAt-1	0.20	0.07	0.06	-0.06	0.28	0.18	-0.17	-0.17	0.49	0.38	0.81	1.00						
HOMPt	-0.03	-0.03	-0.06	-0.03	-0.11	0.00	0.02	0.08	-0.17	-0.10	-0.19	-0.21	1.00					
HOMPt-1	-0.03	-0.04	-0.06	-0.03	-0.08	0.02	0.07	0.06	-0.11	-0.07	-0.16	-0.20	0.94	1.00				
CAPt	0.09	0.08	0.05	-0.20	0.17	0.04	0.02	-0.01	0.28	0.24	0.31	0.32	-0.26	-0.24	1.00			
LNGROt	0.16	0.10	-0.05	0.12	-0.06	-0.09	-0.20	0.04	-0.08	-0.06	-0.12	0.04	0.03	-0.12	0.03	1.00		
NPLt	0.04	-0.02	0.01	-0.02	0.01	0.08	0.06	-0.08	0.00	0.02	0.10	0.14	-0.03	-0.03	0.00	-0.01	1.00	
LCOt	0.04	0.06	0.05	-0.04	0.51	0.12	-0.03	-0.05	1.00	0.74	0.55	0.56	-0.18	-0.11	0.32	-0.09	0.07	1.00

Panel B: Pearson correlations for bank-level variables used in the risk taking tests

	σ(ROA)	σ(NIM)	z-score	SIZE	REVG	LLPAT	EQTY	TOOBIG
σ(ROA)	1.00							
σ(NIM)	0.35	1.00						
z-score	0.60	0.17	1.00					
SIZE	0.02	0.03	0.21	1.00				
REVG	0.17	0.17	0.13	0.15	1.00			
LLPAT	0.07	0.03	0.03	-0.05	-0.01	1.00		
EQTY	0.53	0.29	0.03	-0.17	0.12	0.09	1.00	
TOOBIG	0.01	0.00	0.05	0.19	0.04	0.00	-0.03	1.00

Panel C: Pearson correlations between country-level variables

	IND	UA	DI	COMP	CR	IS	ENFORCE	COMMON	LGDP
IND	1.00								
UA	-0.23	1.00							
DI	0.07	0.19	1.00						
COMP	-0.26	-0.03	-0.21	1.00					
CR	0.12	-0.21	-0.29	-0.05	1.00				
IS	0.10	0.10	-0.02	-0.12	-0.13	1.00			
ENFORCE	0.40	-0.17	-0.03	-0.01	0.14	-0.07	1.00		
COMMON	0.13	-0.47	-0.31	-0.06	0.26	-0.04	0.03	1.00	
LGDP	0.60	-0.09	0.09	-0.24	0.22	0.28	0.51	0.09	1.00

Panels A and B report Pearson correlations between the bank-level variables used in the conservatism and risk taking tests, respectively. Panel C reports Pearson correlations between the country-level institutional variables. Please see Table 1 for variable definitions.

Table 5: Relation between national culture and accounting conservatism

Panel A: Earnings changes

Variable		Predicted sign	CULTURE=IND Model (1)	CULTURE=IND Model (2)	CULTURE=UA Model (3)	CULTURE=UA Model (4)
Constant	α_0	?	-0.003	0.005	-0.003	0.005
			(-1.85)*	(1.25)	(-1.95)**	(1.26)
$D\Delta NI_{t-1}$	α_1	?	0.001	0.001	0.001	0.001
			(0.13)	(0.21)	(0.26)	(0.25)
ΔNI_{t-1}	α_2	+	0.254	0.254	0.278	0.281
			(2.59)###	(2.60)###	(2.05)##	(2.05)##
$\Delta NI_{t-1}*D\Delta NI_{t-1}$	α_3	-	-0.965	-0.967	-1.010	-1.015
			(-3.16)###	(-3.16)###	(-4.01)###	(-4.03)###
CULTURE	α_4	?	0.002	0.006	0.003	0.002
			(0.93)	(2.44)**	(1.51)	(1.31)
$CULTURE*D\Delta NI_{t-1}$	α_5	?	0.007	0.006	-0.021	-0.021
			(1.34)	(1.22)	(-5.16)***	(-5.04)***
$CULTURE*\Delta NI_{t-1}$	α_6	-/+	-0.563	-0.560	0.018	0.179
			(-1.93)##	(-1.91)#	(1.21)	(1.21)
$CULTURE*\Delta NI_{t-1}*DNI_{t-1}$	α_7	+/-	1.561	1.556	-1.299	-1.295
			(3.26)###	(3.24)###	(-3.44)###	(-3.42)###
SIZE	α_8	?	0.001	0.001	0.001	0.001
			(4.55)***	(4.45)***	(3.95)***	(3.70)***
$SIZE*D\Delta NI_{t-1}$	α_9	?	-0.001	-0.001	-0.001	-0.001
			(-0.90)	(-0.92)	(-0.65)	(-0.62)
$SIZE *\Delta NI_{t-1}$	α_{10}	?	-0.038	-0.038	-0.035	-0.036
			(-2.58)***	(-2.60)***	(-2.14)**	(-2.17)**
$SIZE *\Delta NI_{t-1}*D\Delta NI_{t-1}$	α_{11}	?	0.041	0.042	0.064	0.065
			(0.89)	(0.90)	(1.58)	(1.61)
DI	α_{12}	?		-0.001		0.091
				(-0.01)		(1.09)
COMP	α_{13}	?		0.208		0.308
				(0.85)		(1.30)
CR	α_{14}	?		0.031		0.030
				(1.76)*		(1.78)*
IS	α_{15}	?		-0.259		-0.209
				(-1.92)*		(-1.47)
ENFORCE	α_{16}	?		0.024		0.016
				(1.69)*		(0.99)
COMMON	α_{17}	?		-0.055		-0.003
				(-1.49)		(-0.08)
LGDP	α_{18}	?		-0.075		-0.081
				(-1.98)**		(-2.02)**
YEAR			Yes	Yes	Yes	Yes
Adj R^2 (%)			24.60	24.77	24.71	24.92
Observations			52,530	51,789	52,530	51,789
Countries			70	65	70	65

Table 5 (continued)

Panel B: Loan loss provisions

			CULTURE=IND		CULTURE=UA	
Variable		Predicted sign	Model (1)	Model (2)	Model (3)	Model (4)
Constant	β_0	?	0.018	0.086	0.008	0.084
			(1.81)*	(2.94)***	(0.80)	(2.75)***
ΔNPL_{t-1}	β_1	+	0.534	0.538	0.149	0.150
			(2.68)###	(2.69)###	(2.63)###	(2.65)###
ΔNPL_t	β_2	+	0.448	0.452	0.316	0.323
			(2.64)###	(2.65)###	(2.14)##	(2.16)##
ΔNPL_{t+1}	β_3	+	0.026	0.028	0.023	0.020
			(0.19)	(0.20)	(0.32)	(0.27)
NCO_t	β_4	+	0.310	0.310	0.106	0.114
			(1.89)##	(1.89)##	(0.38)	(0.41)
NCO_{t+1}	β_5	+	0.074	0.074	0.056	0.058
			(1.15)	(1.15)	(0.85)	(0.88)
CULTURE	β_6	?	-0.041	-0.022	0.009	-0.001
			(-4.47)***	(-3.52)***	(1.31)	(-0.03)
CULTURE* ΔNPL_{t-1}	β_7	-/+	-1.015	-1.023	0.894	0.910
			(-2.50)###	(-2.51)###	(2.17)##	(2.20)##
CULTURE* ΔNPL_t	β_8	-/+	-0.298	-0.299	0.292	0.294
			(-3.00)###	(-3.01)###	(2.63)###	(2.64)###
CULTURE* ΔNPL_{t+1}	β_9	-/+	-0.076	-0.075	-0.087	-0.099
			(-0.28)	(-0.27)	(-0.28)	(-0.32)
CULTURE* NCO_t	β_{10}	?	1.799	1.806	0.213	0.258
			(2.41)**	(2.42)**	(0.29)	(0.34)
CULTURE* NCO_{t+1}	β_{11}	?	-0.098	-0.099	0.013	0.006
			(-1.92)*	(-1.94)*	(0.12)	(0.06)
LLA_{t-1}	β_{12}	-	-0.094	-0.096	-0.080	-0.082
			(-2.03)##	(-2.05)##	(-1.65)##	(-1.68)##
$HOMP_{t-1}$	β_{13}	-	0.007	0.013	-0.001	0.009
			(0.93)	(1.68)##	(-0.12)	(1.21)
CAP_t	β_{14}	+	-0.004	-0.004	0.002	0.001
			(-0.20)	(-0.22)	(0.11)	(0.08)
$LNGRO_t$	β_{15}	+	0.001	-0.002	-0.003	-0.006
			(0.05)	(-0.37)	(-0.40)	(-0.79)
$SIZE_t$	β_{16}	?	-0.001	-0.001	0.001	-0.001
			(-1.20)	(-1.78)*	(1.04)	(-0.24)
SIZE*ΔNPL_{t-1}	β_{17}	?	0.075	0.075	0.065	0.066
			(2.73)***	(2.74)***	(2.40)**	(2.42)**
SIZE*ΔNPL_t	β_{18}	?	0.075	0.075	0.070	0.071
			(2.60)***	(2.61)***	(2.24)**	(2.25)**
SIZE*ΔNPL_{t+1}	β_{19}	?	-0.003	-0.002	-0.008	-0.007
			(-0.17)	(-0.14)	(-0.45)	(-0.41)
SIZE*NCO_t	β_{20}	?	0.073	0.072	0.025	0.025
			(2.47)**	(2.47)**	(0.83)	(0.83)
SIZE*NCO_{t+1}	β_{21}	?	-0.006	-0.006	-0.001	-0.002
			(-0.65)	(-0.67)	(-0.17)	(-0.21)
DI	β_{22}	?		0.166		0.397
				(0.48)		(1.02)
COMP	β_{23}	?		0.039		-0.085
				(0.03)		(-0.07)
CR	β_{24}	?		0.029		0.279
				(0.21)		(2.05)**
IS	β_{25}	?		0.748		0.017
				(1.43)		(0.03)
ENFORCE	β_{26}	?		0.024		0.091
				(0.21)		(0.76)
COMMON	β_{27}	?		-0.631		-0.518
				(-2.05)**		(-1.87)*
LGDP	β_{28}	?		-0.776		-0.876
				(-2.81)***		(-2.89)***
YEAR			Yes	Yes	Yes	Yes
Adj R^2 (%)			63.94	64.16	58.91	59.34
Observations			13,065	12,993	13,065	12,993
Countries			61	57	61	57

Table 5 (continued)

Panel C: Loan loss allowance						
			CULTURE=IND		CULTURE=UA	
Variable		Predicted sign	Model (1)	Model (2)	Model (3)	Model (4)
Constant	β_0	?	0.072	0.146	0.013	0.152
			(12.52)***	(11.42)***	(1.63)*	(11.92)***
CULTURE	β_1	-/+	-0.058	-0.040	0.038	0.028
			(-22.33)###	(-8.65)###	(9.87)###	(6.64)###
$SIZE_t$	β_2	?	0.001	-0.001	0.001	-0.001
			(0.31)	(-2.43)**	(2.35)**	(-2.48)**
$HOMP_t$	β_3	?	-0.039	-0.031	-0.051	-0.051
			(-5.84)***	(-4.84)***	(-7.33)***	(-5.06)***
CAP_t	β_4	+	0.165	0.157	0.188	0.157
			(8.90)###	(8.17)###	(9.79)###	(8.18)###
$LNGRO_t$	β_5	?	-0.014	-0.017	-0.012	-0.018
			(-7.86)***	(-8.87)***	(-6.78)***	(-9.11)***
NPL_t	β_6	+	0.002	0.002	0.002	0.002
			(1.22)	(1.16)	(1.25)	(1.16)
DI	β_7	?		2.159		1.740
				(6.08)***		(4.71)***
COMP	β_8	?		-2.280		-1.248
				(-3.10)***		(-1.74)*
CR	β_9	?		0.200		0.520
				(1.52)		(4.43)***
IS	β_{10}	?		-0.570		0.110
				(-1.14)		(0.22)
ENFORCE	β_{11}	?		-0.068		0.009
				(-0.87)		(0.11)
COMMON	β_{12}	?		0.137		0.208
				(0.68)		(1.09)
LGDP	β_{13}	?		-0.969		-1.583
				(-6.01)***		(-11.01)***
YEAR			Yes	Yes	Yes	Yes
Adj R^2 (%)			17.40	19.96	13.54	19.49
Observations			23,859	23,704	23,859	23,704
Countries			70	65	70	65

Table 5 (continued)

Panel D: Loan charge-offs

Variable		Predicted sign	CULTURE=IND Model (1)	CULTURE=IND Model (2)	CULTURE=UA Model (3)	CULTURE=UA Model (4)
Constant	β_0	?	0.124	0.260	0.115	0.266
			(1.97)**	(2.02)**	(1.99)**	(2.05)**
CULTURE	β_1	-/+	-0.046	-0.014	0.011	0.004
			(-1.83)$^{\#\#}$	(-0.89)	(0.27)	(0.14)
$SIZE_t$	β_2	?	-0.004	-0.005	-0.004	-0.005
			(-1.05)	(-1.32)	(-1.11)	(-1.40)
$HOMP_t$	β_3	?	-0.095	-0.091	-0.103	-0.093
			(-2.40)**	(-2.50)***	(-2.42)**	(-2.50)***
CAP_t	β_4	?	-0.004	-0.004	-0.004	-0.004
			(-1.88)*	(-1.91)*	(-1.98)**	(-1.96)**
$LNGRO_t$	β_5	?	-0.049	-0.058	-0.047	-0.056
			(-1.89)*	(-1.87)*	(-1.86)*	(-1.88)*
ΔNPL_{t-1}	β_6	+	0.007	0.007	0.022	0.021
			(2.73)$^{\#\#\#}$	(2.53)$^{\#\#\#}$	(14.56)$^{\#\#\#}$	(15.32)$^{\#\#\#}$
CULTURE* ΔNPL_{t-1}	β_7	-/+	-0.077	-0.074	0.094	0.090
			(-8.84)$^{\#\#\#}$	(-7.67)$^{\#\#\#}$	(11.46)$^{\#\#\#}$	(12.67)$^{\#\#\#}$
ΔNPL_t	β_8	?	0.019	0.020	0.049	0.049
			(4.62)***	(4.55)***	(23.88)***	(24.83)***
CULTURE* ΔNPL_t	β_9	?	-0.184	-0.183	0.213	0.002
			(-14.44)***	(-13.98)***	(17.37)***	(18.49)***
DI	β_{10}	?		-1.346		-1.397
				(-0.73)		(-0.66)
COMP	β_{11}	?		-0.750		-0.089
				(-0.24)		(-0.03)
CR	β_{12}	?		-0.098		0.087
				(-0.13)		(0.10)
IS	β_{13}	?		5.050		5.092
				(1.88)*		(1.92)*
ENFORCE	β_{14}	?		1.285		1.318
				(2.03)**		(1.89)*
COMMON	β_{15}	?		-4.316		-4.377
				(-1.53)		(-1.67)*
LGDP	β_{16}	?		-2.165		-2.289
				(-2.14)**		(-2.20)**
YEAR			Yes	Yes	Yes	Yes
Adj R^2 (%)			8.95	9.31	9.33	9.79
Observations			16,322	16,234	16,322	16,234
Countries			67	63	67	63

Panel A reports the results of the following regression, clustered by country and bank:

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_4 CULTURE + \alpha_5 CULTURE * D\Delta NI_{t-1} + \alpha_6 CULTURE * \Delta NI_{t-1} + \alpha_7 CULTURE * \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_8 SIZE + \alpha_9 SIZE * D\Delta NI_{t-1} + \alpha_{10} SIZE * \Delta NI_{t-1} + \alpha_{11} SIZE * \Delta NI_{t-1} * D\Delta NI_{t-1} + \gamma W_k + YEAR + \varepsilon_{i,k}$$

Panel B reports the results of the following regression, clustered by country and bank:

$$LLP_t = \beta_0 + \beta_1 \Delta NPL_{t-1} + \beta_2 \Delta NPL_t + \beta_3 \Delta NPL_{t+1} + \beta_4 NCO_t + \beta_5 NCO_{t+1} + \beta_6 CULTURE + \beta_7 CULTURE * \Delta NPL_{t-1} + \beta_8 CULTURE * \Delta NPL_t + \beta_9 CULTURE * \Delta NPL_{t+1} + \beta_{10} CULTURE * NCO_t + \beta_{11} CULTURE * NCO_{t+1} + \beta_{12} LLA_{t-1} + \beta_{13} HOMP_{t-1} + \beta_{14} CAP_t + \beta_{15} LNGRO_t + \beta_{16} SIZE_t + \beta_{17} SIZE_t * \Delta NPL_{t-1} + \beta_{18} SIZE_t * \Delta NPL_t + \beta_{19} SIZE_t * \Delta NPL_{t+1} + \beta_{20} SIZE_t * NCO_t + \beta_{21} SIZE_t * NCO_{t+1} + \gamma W_k + YEAR + \varepsilon_{i,k}$$

Panel C reports the results of the following regression, clustered by country and bank:

$$LLA_t = \beta_0 + \beta_1 CULTURE + \beta_2 SIZE_t + \beta_3 HOMP_t + \beta_4 CAP_t + \beta_5 LNGRO_t + \beta_6 NPL_t + \gamma W_k + YEAR + \varepsilon_{i,k}$$

Panel D reports the results of the following regression, clustered by country and bank:

$$LCO_t = \beta_0 + \beta_1 CULTURE + \beta_2 SIZE_t + \beta_3 HOMP_t + \beta_4 CAP_t + \beta_5 LNGRO_t + \beta_6 \Delta NPL_{t-1} + \beta_7 CULTURE * \Delta NPL_{t-1} + \beta_8 \Delta NPL_t + \beta_8 CULTURE * \Delta NPL_t + \gamma W_k + YEAR + \varepsilon_{i,k}$$

W_k refers to the country-level variables which include *DI*, *COMP, CR*, *IS*, *ENFORCE*, *COMMON*, and *LGDP*. Please see Table 1 for variable definitions. Coefficients on year indicators are not tabulated for brevity. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels (two-tailed), respectively. '#', '##', and '###' denote significance at 10%, 5%, and 1% levels (one tailed), respectively. In all panels, the coefficients for all country-level variables and the interaction terms for the culture variables are multiplied by 100 for ease of presentation.

Table 6: Relation between national culture and risk taking

		Pred. Sign	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
			Dependent variable: σ(ROA)				Dependent variable: σ(NIM)				Dependent variable: z-score			
			CULTURE=IND		CULTURE=UA		CULTURE=IND		CULTURE=UA		CULTURE=IND		CULTURE=UA	
Constant	γ_0	?	0.004	0.546	-0.007	0.016	0.005	1.201	-0.015	0.397	-3.139	-2.888	-5.315	-3.856
			(3.59)***	(3.05)***	(-5.28)***	(0.59)	(1.33)	(1.79)*	(-2.66)***	(0.72)	(-12.70)***	(-10.42)***	(-20.83)***	(-11.54)***
CULTURE	γ_1	+/-	0.009	0.009	-0.007	-0.006	0.015	0.017	-0.013	-0.012	0.015	0.017	-0.014	-0.014
			(7.01)###	(5.14)###	(-3.55)###	(-5.02)###	(3.39)###	(2.74)###	(-2.38)###	(-3.45)###	(8.27)###	(2.95)###	(-4.96)###	(-2.88)###
SIZE1	γ_2	?	0.024	0.019	0.041	0.033	0.041	0.036	0.072	0.061	0.072	0.058	0.105	0.084
			(2.46)**	(2.81)***	(3.31)***	(4.67)***	(0.93)	(1.96)**	(1.44)	(2.34)**	(4.40)***	(2.95)***	(5.57)***	(3.54)***
REVG	γ_3	+	0.003	0.002	0.004	0.002	0.015	0.016	0.017	0.015	0.331	0.305	0.526	0.277
			(2.86)###	(2.04)###	(3.72)###	(2.00)##	(2.63)###	(2.86)###	(2.95)###	(2.79)###	(2.31)###	(2.36)###	(4.19)###	(2.32)###
LLP1	γ_4	+	0.048	0.048	0.054	0.047	0.103	0.097	0.113	0.099	0.095	0.087	0.106	0.084
			(1.08)	(1.82)##	(1.10)	(1.66)##	(1.14)	(1.26)#	(1.14)	(1.28)#	(2.40)###	(2.31)###	(2.20)###	(2.24)###
EQTY	γ_5	?	0.044	0.043	0.047	0.044	0.066	0.063	0.070	0.064	0.180	-0.040	0.625	0.161
			(16.31)***	(15.38)***	(16.09)***	(11.94)***	(5.34)***	(4.76)***	(5.32)***	(4.97)***	(0.31)	(-0.30)	(1.20)	(1.08)
TOOBIG	γ_6	?	-0.000	0.073	-0.000	0.007	-0.004	-0.200	-0.003	-0.314	-0.049	0.094	0.009	-0.013
			(-0.43)	(0.62)	(-0.05)	(0.06)	(-1.57)	(-1.16)	(-1.25)	(-2.04)**	(-0.29)	(0.45)	(0.05)	(-0.09)
DI	γ_7	+		0.425		0.341		0.613		0.460		0.451		0.296
				(6.35)###		(3.53)###		(3.47)###		(2.84)###		(5.65)###		(3.94)###
COMP	γ_8	?		0.092		0.369		1.467		0.634		0.204		0.638
				(0.15)		(2.30)**		(2.57)***		(2.00)**		(1.60)		(3.12)***
CR	γ_9	+		0.049		0.010		0.114		0.043		0.060		0.013
				(3.55)###		(1.38)#		(2.56)###		(1.40)#		(3.88)###		(1.02)
IS	γ_{10}	-		0.067		-0.023		0.021		-0.153		-0.137		-0.052
				(0.15)		(-0.41)		(0.12)		(-0.86)		(-2.29)###		(-1.35)#
ENFORCE	γ_{11}	?		0.010		0.003		0.015		0.006		-0.014		-0.021
				(1.08)		(0.34)		(0.66)		(0.25)		(-1.34)		(-2.16)**
COMMON	γ_{12}	?		0.001		0.044		0.310		0.227		0.196		0.289
				(0.05)		(2.04)**		(5.14)***		(4.15)***		(4.67)***		(6.91)***
LGDP	γ_{13}	?		-0.032		-0.115		-0.072		-0.220		-0.018		-0.165
				(-2.07)**		(-4.87)***		(-2.00)**		(-4.60)***		(-1.10)		(-8.09)***
Adj R^2 (%)			34.28	35.65	32.14	34.86	11.82	12.99	11.30	12.80	13.68	15.33	11.26	15.62
Observations			6,622	6,515	6,622	6,515	6,622	6,515	6,622	6,515	6,622	6,515	6,622	6,515
Countries			70	65	70	65	70	65	70	65	70	65	70	65

The table reports the results of the following regression, clustered by country:
$R = \gamma_0 + \gamma_1$ CULTURE $+ \gamma_2$ SIZE1 $+ \gamma_3$ REVG $+ \gamma_4$ LLP1 $+ \gamma_5$ EQTY $+ \gamma_6$ TOOBIG $+ \gamma_7$ W $+ \varepsilon$
W_k refers to the country-level variables which include *DI*, *COMP, CR*, *IS*, *ENFORCE*, *COMMON*, and *LGDP*. Please see Table 1 for variable definitions. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels (two-tailed), respectively. '#', '##', and '###' denote significance at 10%, 5%, and 1% levels (one tailed), respectively. In panels A and B, the coefficients for SIZE1, LLP1 and all country-level variables are multiplied by 100 for ease of presentation.

Table 7: Relation between national culture and bank failure and trouble

			Failed Banks				Troubled Banks			
			CULTURE=IND		CULTURE=UA		CULTURE=IND		CULTURE=UA	
		Predicted sign	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)
Constant	γ_0	?	-0.372	11.69	-3.473	1.604	-0.387	2.796	0.331	-1.237
			(38.70)***	(0.83)	(40.90)***	(0.01)	(1.54)	(0.55)	(1.02)	(0.11)
CULTURE	γ_1	+/-	0.024	0.036	-0.008	-0.012	0.005	0.009	-0.007	-0.004
			(34.71)###	(17.43)###	(4.04)##	(6.09)###	(8.79)###	(8.52)###	(15.62)###	(3.38)##
SIZE1	γ_3	?	0.163	0.161	0.135	0.130	0.139	0.118	0.123	0.107
			(34.01)***	(20.72)***	(26.50)***	(15.23)***	(69.96)***	(37.40)***	(58.45)***	(31.89)***
GROWTH	γ_4	?	0.006	0.042	0.209	0.032	0.045	0.060	0.055	0.087
			(0.00)	(0.10)	(0.60)	(0.06)	(0.22)	(0.32)	(0.32)	(0.65)
LOANS	γ_5	?	0.681	0.573	0.979	0.728	0.194	0.087	0.218	0.137
			(7.02)***	(7.16)***	(10.74)***	(11.43)***	(2.03)	(0.33)	(2.58)	(0.83)
LEV	γ_6	?	0.070	1.000	0.572	0.914	0.234	0.158	0.082	0.055
			(0.01)	(1.23)	(0.87)	(1.14)	(0.38)	(0.14)	(0.05)	(0.02)
ΔCASH	γ_7	-	-2.537	-0.553	-1.784	-0.109	-0.655	-1.059	-0.715	-1.059
			(1.34)	(0.06)	(0.60)	(0.01)	(0.39)	(0.90)	(0.49)	(0.94)
LLP	γ_8	+	23.146	6.955	39.065	21.670	21.689	48.665	21.808	46.069
			(5.22)##	(0.59)	(13.54)###	(4.14)###	(4.12)##	(14.29)###	(4.11)###	(13.59)###
RISK	γ_9	+	0.239	0.177	0.116	0.138	0.307	0.299	0.298	0.293
			(17.11)###	(7.50)###	(4.18)###	(4.70)##	(57.65)###	(45.56)###	(56.38)###	(44.27)###
DI	γ_{10}	+		2.279		2.299		0.006		0.043
				(7.51)###		(9.87)###		(0.00)		(0.02)
COMP	γ_{11}	?		-0.191		-2.509		1.179		0.500
				(0.00)		(0.26)		(3.36)*		(0.72)
CR	γ_{12}	+		0.759		0.882		0.148		0.113
				(68.99)###		(12.61)###		(6.81)###		(4.34)##
IS	γ_{13}	-		-0.900		-0.674		-0.227		-0.269
				(2.57)#		(1.30)		(2.40)#		(2.94)##
ENFORCE	γ_{14}	?		0.081		0.079		0.274		0.272
				(0.68)		(0.53)		(67.67)***		(65.66)***
COMMON	γ_{15}	?		1.705		1.552		0.003		-0.032
				(9.78)***		(14.16)***		(0.00)		(0.04)
LGDP	γ_{16}	?		-5.143		-0.871		-2.010		-0.469
				(1.83)		(0.05)		(2.87)*		(0.16)
Pseudo R^2 (%)			6.12	16.91	3.78	15.49	5.96	14.58	6.19	14.35
Observations			5,372	5,252	5,372	5,252	3,622	3,394	3,622	3,394
Countries			44	44	44	44	68	64	68	64
% of troubled banks			4.32	4.32	4.32	4.32	33.46	33.29	33.46	33.29

The table reports the results of the following regression, clustered by country:

Bank failure or trouble = $\gamma_0 + \gamma_1$ CULTURE + γ_2 SIZE1 + γ_3 GROWTH + γ_4 LOANS + γ_5 LEV + γ_6 ΔCASH + γ_7 LLP1 + γ_8 RISK + γ_9 W + e

W refers to the country-level variables which include *DI*, *COMP, CR*, *IS*, *ENFORCE*, *COMMON*, and *LGDP*. Please see Table 1 for variable definitions. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels (two-tailed), respectively. '#', '##', and '###' denote significance at 10%, 5%, and 1% levels (one tailed), respectively.

Table 8: Direct and indirect effects of national culture on bank risk taking

Panel A: Individualism, conservatism and risk taking						
	Risk=σ(ROA)		Risk = σ(NIM)		Risk = zscore	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
r[IND, Risk]	0.343		0.217		0.475	
Direct path p[IND, Risk]	0.332	22.55***	0.215	13.67***	0.446	33.40***
percentage	*97%*		*99%*		*94%*	
Mediated path						
p[IND, CONS]	-0.208	-13.52***	-0.208	-13.52***	-0.208	-13.52***
p[CONS, Risk)]	-0.053	-3.39***	-0.012	-0.73	-0.140	-9.54***
Total mediated path	0.011		0.002		0.029	
percentage	*3%*		*1%*		*6%*	

Panel B: Uncertainty avoidance, conservatism and risk taking						
	Risk=σ(ROA)		Risk = σ(NIM)		Risk = zscore	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
r[UA, Risk]	-0.174		-0.133		-0.314	
Direct path p[UA, Risk]	-0.173	-10.97***	-0.128	-8.04***	-0.304	-20.62***
percentage	*99%*		*96%*		*97%*	
Mediated path						
p[UA, CONS]	0.116	7.31***	0.116	7.31***	0.116	7.31***
p[CONS, Risk)]	-0.004	-0.22	-0.042	-2.59***	-0.083	-5.36***
Total mediated path	-0.001		-0.005		-0.010	
percentage	*1%*		*4%*		*3%*	

The table reports path analyses of the links between culture and risk, a direct link, and a link mediated by relative conservatism, *CONS*, which is estimated from the following regression, clustered by banks:
$LLA_t = \beta_0 + \beta_1 SIZE_t + \beta_2 HOMP_t + \beta_3 CAP_t + \beta_4 LNGRO_t + \beta_5 NPL_t + COUNTRY + YEAR + \varepsilon_{i,k}$

p indicates path coefficients and r indicates (Pearson) correlation coefficients. Please see Table 1 for variable definitions. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels (two-tailed), respectively. '#', '##', and '###' denote significance at 10%, 5%, and 1% levels (one tailed), respectively.