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Effects of national culture on earnings quality of banks

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Abstract

We examine the relation between four dimensions of national culture and earnings quality of banks using a sample of banks from 39 countries. Our main analysis, which focuses on the pre-financial crisis period 1993–2006, indicates that banks in high individualism, high masculinity, and low uncertainty avoidance societies manage earnings to just-meet-or-beat the prior year's earnings. In tests of income smoothing through loan loss provisions, we find that banks in high individualism, high power distance, and low uncertainty avoidance societies report smoother earnings. Our exploratory analysis of the effects of national culture on accounting outcomes during the financial crisis period 2007–2008 indicates that cultures that encourage higher risk-taking experienced more bank troubles in the form of larger losses or larger loan loss provisions.

Keywords: national culture; earnings management; earnings quality; financial crisis loan loss provisions; just-meeting-or-beating earnings

INTRODUCTION

We employ four dimensions of national culture identified by Hofstede (2001) and an international sample of banks to study the effects of national culture on bank earnings quality. Cross-country differences in earnings quality are likely to be affected by differences in bank regulation and monitoring across countries, as well by softer dimensions such as national culture that may influence excessive risk-taking. Additionally, differences in national culture also influence a country's adoption of accounting systems and values (Gray, 1988; Radebaugh, Gray, & Black, 2006; Salter & Niswander, 1995). Such differences became apparent in the recent financial crisis, which had a considerably larger adverse effect on banks in certain countries (e.g., the US and the UK) than in others (e.g., Australia, Canada, and Singapore). In a global survey on factors that created the conditions for the credit/banking crisis conducted in May 2008 by PricewaterhouseCoopers and the Economist Intelligence Unit, 31% of survey participants put the blame on "monetary policy," 58% on "ineffective regulatory oversight," and an impressive 73% on "culture and excessive risk-taking" (PricewaterhouseCoopers, 2008). Given these findings, an examination of the influence of national culture on financial reporting quality of banks clearly is warranted.

The extant literature has studied the relation between national culture and earnings management, but has excluded firms in banking and financial services (e.g., Douppnik, 2008; Han, Kang, Salter, & Yoo, 2010; Nabar & Thai, 2007). Given the importance to national and global economies of this highly leveraged sector of the economy, and given that firms in this sector are markedly different from industrial firms, it is important to understand the role of cultural factors on earnings quality of banks. In addition, the influence of cultural factors may be of greater importance in industries such as banking, where information uncertainty is higher relative to industrial firms, because of the greater complexity of banking operations and the difficulty of assessing risk on the large and diverse portfolio of loans (Autore, Billingsley, & Schneller, 2009). An alternative view is that because banks operate in a highly regulated environment, and are monitored by central banks and other regulatory agencies (such as deposit insurance corporations), cultural factors may not be as important in influencing their earnings management behavior. If our study establishes a relation between cultural factors and earnings quality, then cultural differences across countries are likely to be even more relevant for firms in other industries that are not subject to such direct regulatory scrutiny.¹

Han et al. (2010) hypothesize and find that cultural factors influence both income-increasing and income-decreasing earnings management in industrial firms. More specifically, they document a positive relation between the individualism dimension of national culture and earnings management, and a negative relation between the uncertainty avoidance dimension of national culture and earnings management. Given their findings, we examine the relations between individualism and uncertainty avoidance, and earnings quality of banks.² Additionally, we explore the relations between the masculinity and power distance dimensions of national culture and bank earnings quality.

We focus on the pre-financial crisis period (i.e., the period 1993–2006) in our main analysis. We employ two traditional measures of earnings management – managing earnings to just-meet-or-beat the prior year's earnings benchmark, and an accrual-based proxy (based on income smoothing through bank loan loss provision, LLP) – to test the relation between the individualism, uncertainty avoidance, masculinity and power distance dimensions of national culture, and earnings quality of banks. By using two different measures of earnings

management (accruals- and non-accruals-based), we strengthen the validity and robustness of our results.

Although our study is primarily exploratory in nature, we also examine the effects of national culture on earnings quality of banks during the financial crisis (i.e., the period 2007–2008). We examine two related measures of earnings quality in the crisis period – the probability of a bank having a large loss, and the probability of a bank having a large LLP. We choose these two measures because the probability of a bank having a large loss is related to the level of earnings and timely loss recognition, and the probability of a bank having a large LLP is related to income smoothing through LLP.

We use an international bank sample from the *BankScope* database representing 39 countries over the period 1993–2008 to test our predictions on accounting outcomes. For our main analysis, focusing on the pre-crisis period, we find in both separate and joint tests that the individualism, uncertainty avoidance, and masculinity dimensions of national culture are strongly related to benchmark-beating (just-meeting-or-beating prior year's earnings) behavior in banks. More specifically, individualism and masculinity are positively related to and uncertainty avoidance is negatively related to benchmark-beating behavior. In tests related to income smoothing, we find both separately and jointly that individualism and power distance are positively related to and uncertainty avoidance is negatively related to income-smoothing behavior of banks. Our results are robust to several sensitivity tests, including using a reduced sample that excludes US banks, and using country-year level data instead of bank-year level data. In additional analysis, we find that the effect of national culture on earnings management by banks is conditional on the level of investor protection, consistent with the evidence reported in Han et al. (2010).

Our exploratory analysis on the effects of national culture on accounting outcomes during the crisis period provides some interesting insights. First, we find that banks in high individualism and high masculinity societies are more likely to incur a large loss, whereas banks in high uncertainty avoidance societies are less likely to incur a large loss. Second, we find that banks in high power distance societies are more likely to incur a large LLP, whereas banks in high uncertainty avoidance societies are less likely to incur a large LLP during

the crisis period. Third, we find that banks in high individualism and high power distance societies are more likely to incur a large loss or a large LLP, whereas banks in high uncertainty avoidance societies are less likely to incur a large loss or a large LLP. These results indicate that national culture has a first-order effect on bank risk-taking, and on the probability of a bank getting into trouble, as evidenced by these two accounting outcomes during the crisis period.

Our results contribute to the literature in several ways. First, they extend prior research on the relation between national culture and earnings management to the banking industry. Our study identifies several dimensions of national culture that are related to earnings quality of banks around the world. Second, in an international banking setting, our study can be viewed as identifying some softer dimensions related to national culture, in addition to previously identified international institutional factors and bank-monitoring factors that influence financial the reporting behavior of banks. Third, our study records that national culture played a significant role in risk-taking by banks and, at a broader level, in the financial crisis.

The rest of this paper is organized as follows. We discuss related research and develop the hypotheses in the next section. This is followed by a description of the earnings quality measures and the empirical models used, and the sample selection and data. We then discuss the results and provide our conclusions.

RESEARCH BACKGROUND AND HYPOTHESES

To our knowledge, there are only a few studies that examine the financial reporting quality of banks in an international setting. Notable exceptions are Shen and Chih (2005), Fonseca and Gonzalez (2008), and Kanagaretnam, Lim, and Lobo (2010b), that examine the relations between international institutional factors, bank monitoring variables, auditor reputation, and earnings management. Our main research question is whether and how commonly used dimensions of national culture influence earnings management of banks in an international setting.

Only recently has the academic literature begun exploring the influence of national culture as a potential factor in explaining cross-country variations in earnings quality (Doupnik, 2008; Han et al., 2010; Nabar & Thai, 2007). Gray (1988) proposes a model that maps cultural patterns discussed by Hofstede (1980) to societal values expressed

at the level of accounting subculture. Gray (1988) indicates that culture is an essential element in understanding how social systems change, because culture influences both the norms and values of such systems and the behavior of groups in their interactions within and across systems. He states that the term "culture" is reserved as a whole, for nations, whereas the term "subculture" is used for the level of an organization, profession, or family. While acknowledging that the degree of cultural integration varies across societies, Gray (1988) explores the relation between culture and international accounting systems at the subculture level. Given that cultural values permeate a nation's social system, he presents theoretical arguments for the match between national culture and pattern of accounting systems across countries.³ We draw heavily on the arguments developed in Gray (1988) in formulating our hypotheses.

Hofstede and Bond (1988: 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." In a more recent study, Licht, Goldschmidt, and Schwartz (2005) note that value emphases are the essence of culture when seen as meanings, symbols, and assumptions about what is good or bad, legitimate or illegitimate, that underlie the prevailing practices and norms in a society. Licht et al. (2005: 234) further 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.

In this spirit, we utilize the cultural dimensions pioneered by Hofstede (2001) for characterizing national culture.

Since our main analysis focuses on the pre-financial crisis period, we develop formal hypotheses only for the relations between cultural dimensions and pre-crisis earnings management measures (i.e., just-meeting-or-beating prior year's earnings, and income smoothing through LLP). Using Gray's framework, 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.⁴ High individualism cultures emphasize individual achievements, self-orientation, and autonomy (Hofstede, 2001). Given that managers are evaluated and rewarded based on reported firm performance, they have incentives to meet earnings performance benchmarks. And, given the greater emphasis on individual achievements in high individualism cultures, managers in such cultures are more likely to manage earnings to meet or beat benchmarks. Risk-taking incentives are also likely to be greater in high individualism societies, where concern for other stakeholders' welfare (which is an indicator of collectivism) is likely to be low. Higher risk-taking will lead to more volatile earnings, and induce managers to engage in a higher level of income smoothing (Fonseca & Gonzalez, 2008). Collectively, the above arguments suggest that the level of earnings management will be higher in high individualism societies.

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 earnings management is likely to be conditional on the level of regulation and bank monitoring. For example, Fonseca and Gonzalez (2008) document lower income smoothing in banks with higher restrictions on bank activities, and more official and private supervision. Consequently, the individualism dimension of culture may not be as important in influencing earnings management in banks relative to industrial firms. Given this, we present our hypothesis in null form:

Hypothesis 1: Earnings management in banks is unrelated to the individualism dimension of national culture.

Gray (1988) suggests that strong uncertainty avoidance leads to a preference for conservative accounting. Additionally, Gray's (1988) model indicates that countries with high uncertainty avoidance are more likely to have uniform financial reporting standards, with many rules and little room for professional judgment. These arguments suggest that higher uncertainty avoidance societies will have lower earnings management. Consistent with this reasoning, Douppnik (2008) and Han et al. (2010) find a negative association between uncertainty avoidance and earnings management for industrial firms. Higher uncertainty avoidance is likely to lead to lower risk-taking, as individuals in such cultures

have a higher level of anxiety, and therefore prefer a more predictable environment. This, in turn, will result in more stable earnings and reduced incentives for benchmark beating and income smoothing by banks. However, as discussed earlier, the influence of cultural factors may not be as pronounced in banking as in other industries because, unlike firms in other industries, banks are highly regulated. Accordingly, we present the following hypothesis stated in null form:

Hypothesis 2: Earnings management in banks is unrelated to the uncertainty avoidance dimension of national culture.

Next, we explore the relation between power distance and earnings management in banks. Higher power distance implies that decisions are more centralized, and that managers have greater influence on financial reporting choices. Recently enacted regulations, such as the Sarbanes–Oxley Act in the US, attempt to improve corporate financial reporting by reducing the power of the CEO through separation of the roles of CEO and chairman of the board of directors, and stipulation that the board of directors includes a majority of independent directors.⁵ Gray (1988) states that information sharing is also low in high power distance societies. In summary, in high power distance societies managers can more easily influence financial reporting choices for opportunistic reasons. Therefore we predict a positive relation between the power distance dimension of national culture and benchmark beating and income smoothing by banks. Again, because banking is a highly regulated industry, power distance may not be as important in earnings management. Therefore we present the following hypothesis in null form:

Hypothesis 3: Earnings management in banks is unrelated to the power distance dimension of national culture.

Finally, we explore the relation between the masculinity dimension of national culture and earnings management in banks. Masculinity implies aggressive behavior that includes decisiveness and competitiveness. High masculinity societies are characterized by an emphasis on performance (Hofstede, 2001), suggesting that achieving performance targets and high risk-taking are more likely in societies with higher masculinity traits. Therefore we predict a positive relation

between masculinity and benchmark beating and income smoothing by banks. However, considering banking is a highly regulated industry, where earnings management may be constrained, we present the following hypothesis stated in null form:

Hypothesis 4: Earnings management in banks is unrelated to the masculinity dimension of national culture.

TESTS OF EARNINGS MANAGEMENT

Our main prediction is that national culture influences earnings management in banks in the pre-crisis period. We use Hofstede's (2001) four main measures as proxies for national culture: individualism (*IND*), uncertainty avoidance (*UA*), power distance (*PD*), and masculinity (*MAS*), which we assume are constant over the sample period.

Managing Earnings to Just-meet-or-beat the Prior Year's Earnings

Beatty, Ke, and Petroni (2002) and Altamuro and Beatty (2010) report that banks have incentives to manage earnings to just-meet-or-beat the prior period's earnings. We examine how various dimensions of national culture affect this incentive.⁶ We include all available additional control variables (size, growth, loans, leverage, change in cash flow, and loan loss allowance) to be consistent with the above literature. Prior studies also control for country-level institutional environment when testing the existence of earnings management across countries. However, it is well recognized that the correlations among the country-level institutional variables are high, so we control for the country effects in two ways. First, we include country indicator variables in the logistic regression to control country-level fixed effects. Second, we include country-level institutional variables to control the country-wide institutional effect on earnings management by banks.⁷ Specifically, we estimate the following logistic models:

$$\begin{aligned}
 SMALL_POS_{\Delta t} = & \alpha_0 + \alpha_1 IND + \alpha_2 UA + \alpha_3 PD \\
 & + \alpha_4 MAS + \alpha_5 SIZE_t + \alpha_6 GROWTH_t \\
 & + \alpha_7 LOANS_t + \alpha_8 LEV_t + \alpha_9 \Delta CF_t \\
 & + \alpha_{10} ALLOW_t + \langle \text{Country Controls} \rangle \\
 & + \langle \text{Year Controls} \rangle + e
 \end{aligned}
 \tag{1a}$$

$$\begin{aligned}
 SMALL_POS_{\Delta t} = & \alpha_0 + \alpha_1 IND + \alpha_2 UA + \alpha_3 PD \\
 & + \alpha_4 MAS + \alpha_5 SIZE_t + \alpha_6 GROWTH_t \\
 & + \alpha_7 LOANS_t + \alpha_8 LEV_t + \alpha_9 \Delta CF_t \\
 & + \alpha_{10} ALLOW_t + \alpha_{11} BANK \\
 & + \alpha_{12} CR_RIGHT + \alpha_{13} INVPRO \\
 & + \alpha_{14} DISCL + \alpha_{15} LGDP \\
 & + \langle \text{Year Controls} \rangle + e
 \end{aligned}
 \tag{1b}$$

The detailed definitions of the variables are provided in Table 1. The coefficients of interest are the coefficients on the four culture variables: individualism (*IND*), uncertainty avoidance (*UA*), power distance (*PD*), and masculinity (*MAS*). If these dimensions of culture have implications for earnings quality, then higher values of *IND*, *PD*, and *MAS* will be associated with higher earnings management, and the coefficients on these three variables will be positive.⁸ In addition, higher values of *UA* will lead to lower earnings management, and the coefficient on *UA* will be negative. On the other hand, if cultural dimensions are not important, given the highly regulated environment of the banking industry, then the coefficients on *IND*, *PD*, *MAS*, and *UA* will not differ significantly from zero.

We include the five country-specific variables – bank monitoring (*BANK*), creditor rights (*CR_RIGHT*), investor protection (*INVPRO*), accounting disclosure (*DISCL*), and economic development (*LGDP*) – as control variables in Eq. (1b), but do not offer directional predictions on their coefficients. As suggested by Fonseca and Gonzalez (2008), bank monitoring in the form of bank regulation and bank supervision may also affect the extent of earnings management. We control for creditor rights because Houston, Lin, Lin, and Mae (2010) record that stronger creditor rights lead to greater risk-taking (and perhaps more earnings management to hide that behavior) by banks. We control for the level of investor protection and accounting disclosure because the legal environment (e.g., Han et al., 2010; Leuz, Nanda, & Wysocki, 2003) and financial transparency and disclosure (Shen & Chih, 2005) can potentially influence the extent of earnings management in a country.⁹ Finally, we control for national economic development because a higher level of national economic development is associated with higher-quality institutions that facilitate private contracting (Claessens & Laeven, 2003), and hence potentially reduce the incentives to manage earnings.

Table 1 Variable definitions

<i>National culture variables</i>	
<i>IND</i>	= Measure of individualism from Hofstede (2001).
<i>UA</i>	= Measure of uncertainty avoidance from Hofstede (2001).
<i>PD</i>	= Measure of power distance from Hofstede (2001).
<i>MAS</i>	= Measure of masculinity score from Hofstede (2001).
<i>Country-level institutional variables</i>	
<i>BANK</i>	= Principal component factor derived from the following three variables: regulatory restrictions on nontraditional bank activities (<i>ENTRY</i>), the official supervisory power index (<i>OFFICIAL</i>), and the private monitoring index (<i>MONITOR</i>). Regulatory restriction on bank activities is an index that ranges from 0 to 8, with higher values indicating more restrictions on entry into banking. The official supervisory power index is an index that ranges from 0 to 14; it measures the power of supervisors to take prompt corrective action, to restructure and reorganize troubled banks, and to declare a troubled bank insolvent. The private monitoring index ranges from 0 to 7; it measures the extent of monitoring by outsiders such as international rating agencies. These indices are developed by Barth, Caprio, and Levine (2001).
<i>CR_RIGHT</i>	= Index aggregating different creditor rights, as reported in La Porta et al. (1998) and updated in Djankov, McLiesh, and Shleifer (2007). The index ranges from 0 to 4.
<i>INVPRO</i>	= Investor protection measure used in Han et al. (2010). This variable is measured as the mean score across five legal variables: efficiency of the judicial system, assessment of the rule of law, corruption index, risk of expropriation, and risk of contract repudiation.
<i>DISCL</i>	= Disclosure index reported in La Porta et al. (1998).
<i>LGDP</i>	= Log of annual gross domestic product (GDP) per capita, based on 2000 constant prices from the World Bank's World Development Indicators database.
<i>Bank-level variables</i>	
<i>SMALL_POS_{Δt}</i>	= Indicator variable that equals 1 if the bank has a change in ROA (income before taxes divided by total assets) from the beginning to the end of the year in the interval between 0 and 0.001, 0 otherwise.
<i>SIZE_t</i>	= Log of total assets at the beginning of the year.
<i>GROWTH_t</i>	= Growth in total assets from the beginning to the end of the year.
<i>LOANS_t</i>	= Total loans at the end of the year scaled by total assets at the beginning of the year.
<i>LEV_t</i>	= Total equity at the end of the year divided by total assets at the beginning of the year.
<i>ΔCF_t</i>	= Change in annual cash flows (income before taxes and loan loss provisions) scaled by total assets at the beginning of the year.
<i>ALLOW_t</i>	= Allowance for loan losses at the end of the year scaled by total assets at the beginning of the year.
<i>LLP</i>	= Provision for loan losses deflated by beginning total assets.
<i>EBTP</i>	= Income before taxes and loan loss provisions deflated by beginning total assets.
<i>PASTLLP</i>	= Last year's LLP deflated by total assets at the beginning of the year.
<i>LOANS</i>	= Total loans outstanding deflated by beginning total assets.
<i>ΔLOANS</i>	= Change in total loans outstanding deflated by beginning total assets.
<i>BEGLLA</i>	= Beginning loan loss allowance deflated by beginning total assets.
<i>LCO</i>	= Net loan charge-offs deflated by beginning total assets.
<i>BEGNPL</i>	= Beginning balance of nonperforming loans deflated by beginning total assets.
<i>ΔNPL</i>	= Change in nonperforming loans deflated by beginning total assets.
<i>LOAN CATEGORIES</i>	= Loans to municipalities/government (<i>MUN</i>), mortgages (<i>MORT</i>), hire-purchase/lease (<i>LEASE</i>), other loans (<i>OTH</i>), loans to group companies/associates (<i>GRP</i>), loans to other corporations (<i>OCORP</i>) and loans to banks (<i>BK</i>), each deflated by beginning total assets.
<i>CAPRATIO</i>	= Total capital ratio as reported in <i>BankScope</i> .

Income Smoothing through Loan Loss Provisions

Prior research (e.g., Fonseca & Gonzalez, 2008; Kanagaretnam, Lobo, & Mathieu, 2003; Kanagaretnam, Lobo, & Yang, 2004; Wahlen, 1994) finds that banks use LLP to smooth income. To smooth income, banks increase LLP when pre-managed earnings are

high, and decrease LLP when pre-managed earnings are low. We are interested in determining whether various dimensions of national culture increase or decrease the propensity to smooth income. We estimate income smoothing as the relation between *LLP* and *EBTP* (earnings before taxes and LLP) and

the effects of the national culture variables on income smoothing by including interactions between *EBTP* and measures of the four dimensions of national culture. Our model explicitly controls for the normal or nondiscretionary component of *LLP* by including the following factors related to normal *LLP* that have been identified in prior research: beginning loan loss allowance, net loan charge-offs, change in total loans outstanding, total loans outstanding, loan mix, capital ratio, and last period's *LLP*.¹⁰ As before, we control for the country effect in two ways: by including country indicator variables to control for country fixed effects, and by including country-level institutional variables in the regression model. Following Kanagaretnam et al. (2004), we use the following models to examine the relation between proxies for national culture and income smoothing through *LLP*:¹¹

$$\begin{aligned}
LLP_{it} = & \beta_0 + \beta_1 EBTP + \beta_2 IND + \beta_3 UA + \beta_4 PD \\
& + \beta_5 MAS + \beta_6 IND \cdot EBTP + \beta_7 UA \cdot EBTP \\
& + \beta_8 PD \cdot EBTP + \beta_9 MAS \cdot EBTP \\
& + \beta_{10} PASTLLP + \beta_{11} LOANS + \beta_{12} \Delta LOANS \\
& + \beta_{13} BEGLLA + \beta_{14} LCO + \beta_{15} BEGNPL \\
& + \beta_{16} \Delta NPL + \beta_{17} \text{to} \beta_{23} \langle \text{LOANCATEGORIES} \rangle \\
& + \beta_{24} CAPRATIO + \langle \text{Country Controls} \rangle \\
& + \langle \text{Year Controls} \rangle + e
\end{aligned} \tag{2a}$$

$$\begin{aligned}
LLP_{it} = & \beta_0 + \beta_1 EBTP + \beta_2 IND + \beta_3 UA + \beta_4 PD \\
& + \beta_5 MAS + \beta_6 IND \cdot EBTP + \beta_7 UA \cdot EBTP \\
& + \beta_8 PD \cdot EBTP + \beta_9 MAS \cdot EBTP \\
& + \beta_{10} PASTLLP + \beta_{11} LOANS + \beta_{12} \Delta LOANS \\
& + \beta_{13} BEGLLA + \beta_{14} LCO + \beta_{15} BEGNPL \\
& + \beta_{16} \Delta NPL + \beta_{17} \text{to} \beta_{23} \langle \text{LOANCATEGORIES} \rangle \\
& + \beta_{24} CAPRATIO + \beta_{25} BANK + \beta_{26} CR_RIGHT \\
& + \beta_{27} INVPRO + \beta_{28} DISCL + \beta_{29} LGDP \\
& + \langle \text{Year Controls} \rangle + e
\end{aligned} \tag{2b}$$

The detailed definitions of the variables are provided in Table 1. The coefficients of interest are the coefficients on *EBTP*, and its interactions with the four dimensions of national culture. Consistent with the income-smoothing argument, we expect a positive coefficient on *EBTP*. If higher values of *IND*, *PD*, and *MAS* lead to higher income smoothing, the coefficients on each of the three interaction terms *IND*·*EBTP*, *PD*·*EBTP*, and *MAS*·*EBTP* will be positive. By contrast, if higher

values of *UA* lead to lower income smoothing, the coefficient on the interaction term *UA*·*EBTP* will be negative. On the other hand, if cultural variables are not important in a highly regulated industry such as banking, the coefficients on the four interaction variables *IND*·*EBTP*, *PD*·*EBTP*, *MAS*·*EBTP*, and *UA*·*EBTP* will not differ significantly from zero.

The models include net loan charge-offs (*LCO*), beginning balance of nonperforming loans (*BEGNPL*), change in nonperforming loans (ΔNPL), and beginning balance of loan loss allowance (*BEGLLA*) to account explicitly for the nondiscretionary portion of *LLP*. Prior studies (e.g., Kanagaretnam et al., 2004; Wahlen, 1994) suggest that *LCO*, *BEGNPL*, and ΔNPL are positively related to *LLP*. *BEGLLA* will be negatively related to *LLP*, because a higher initial allowance will require a smaller provision in the current period, and vice versa. We use the level of last period's total *LLP* (*PASTLLP*) to control for the reversal of accruals.

In addition, we include a regulatory capital variable (*CAPRATIO*) to control for the potential effects on *LLP* of motivations related to capital management. We include total loans outstanding (*LOANS*), change in total loans outstanding ($\Delta LOANS$), and loan categories in the model. As before, we include either country indicators or country-specific institutional variables in our regression to control for the country fixed effects on earnings management by banks.

DATA DESCRIPTION

We obtain financial data for the international banks for the 1993–2006 (pre-crisis period) and 2007–2008 (crisis period) from the *BankScope* database.¹² We select sample countries from the 49 countries listed in La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). We drop ten countries (Ecuador, Egypt, Finland, Indonesia, Jordan, Kenya, Nigeria, Sri Lanka, Sweden, and Zimbabwe), because of missing bank-specific information (such as loan charge-offs, loan loss provisions, loan loss allowance, and capital ratio).¹³ We retain the remaining 39 countries in our study. These include Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Columbia, Denmark, France, Germany, Greece, Hong Kong, India, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Switzerland, Taiwan, Thailand, Turkey, UK, US, Uruguay, and Venezuela.

We present the sample distribution by year and by country in Panels A and B, respectively, of

Table 2 Sample distribution

Year	Meet-or-beat		Income smoothing	
	N	%	N	%
<i>Panel A: Distribution by year</i>				
1993	111	0.52	9	0.07
1994	406	1.89	247	1.94
1995	518	2.42	297	2.33
1996	635	2.96	341	2.68
1997	722	3.37	438	3.44
1998	812	3.79	501	3.93
1999	956	4.46	608	4.77
2000	2435	11.36	1422	11.16
2001	2495	11.63	1597	12.53
2002	2485	11.59	1629	12.78
2003	2558	11.93	1632	12.81
2004	2476	11.55	1376	10.80
2005	2504	11.68	1318	10.34
2006	2331	10.87	1330	10.44
	21,444	100.00	12,745	100.00
<i>Panel B: Distribution by country</i>				
Argentina	262	1.22	2	0.02
Australia	335	1.56	90	0.71
Austria	45	0.21	8	0.06
Belgium	12	0.06	3	0.02
Brazil	637	2.97	417	3.27
Canada	69	0.32	54	0.42
Chile	163	0.76	15	0.12
Colombia	154	0.72	18	0.14
Denmark	11	0.05	–	0.00
France	338	1.58	11	0.09
Germany	72	0.34	31	0.24
Greece	108	0.50	–	0.00
Hong Kong	435	2.03	307	2.41
India	208	0.97	59	0.46
Ireland	153	0.71	27	0.21
Israel	113	0.53	70	0.55
Italy	179	0.83	4	0.03
Japan	3213	14.98	824	6.47
South Korea	221	1.03	55	0.43
Malaysia	158	0.74	–	0.00
Mexico	150	0.70	48	0.38
Netherlands	62	0.29	15	0.12
New Zealand	68	0.32	40	0.31
Norway	383	1.79	154	1.21
Pakistan	102	0.48	13	0.10
Peru	24	0.11	6	0.05
Philippines	111	0.52	81	0.64
Portugal	276	1.29	87	0.68
Singapore	55	0.26	8	0.06
South Africa	216	1.01	87	0.68
Spain	484	2.26	294	2.31
Switzerland	17	0.08	1	0.01
Taiwan	352	1.64	221	1.73
Thailand	114	0.53	83	0.65
Turkey	209	0.97	42	0.33
United Kingdom	1215	5.67	115	0.90
Uruguay	32	0.15	–	0.00
USA	10,577	49.32	9330	73.21
Venezuela	111	0.52	125	0.98
	21,444	100.00	12,745	100.00

Table 2. There are 21,444 and 12,745 bank-years for the just-meet-or-beat test and income-smoothing test, respectively.¹⁴ The sample for the just-meet-or-beat test is larger than the sample for the income-smoothing test because of the less stringent data requirements for the former test. The number of bank-years reported in Panel A grows over time because of the increasing coverage of banks in *BankScope*.¹⁵

In Panel B, there is significant variation in the number of bank-year observations across countries due to differences in capital market development, country size, and availability of complete financial accounting data. Since US banks represent a significant proportion of the total sample (around 49% and 73% for our two earnings management tests), we also conduct sensitivity checks to ensure that our results are robust to excluding US banks from the analyses.

Table 3 reports measures of the country-level culture and other institutional variables. Western societies such as the US, Australia, the UK, Canada, and the Netherlands exhibit a higher level of individualism (*IND*), whereas some Asian societies (e.g., South Korea, Taiwan, Singapore) exhibit a higher level of collectivism. Japan and Portugal have the highest index for uncertainty avoidance (*UA*), and Singapore the lowest. The Philippines and Mexico have the highest power distance (*PD*), whereas Austria and Israel have the lowest. Lastly, Japan has the highest score for masculinity (*MAS*), and Norway the lowest.

EMPIRICAL RESULTS

The residuals from the regression models may be serially and/or cross-sectionally correlated. We therefore use OLS/logistic regressions with clustered robust errors to account for both serial and cross-sectional correlations (Petersen, 2009). For all tests, we report Wald or *t* statistics based on clustered standard errors after correcting for both serial and cross-sectional correlations in the residuals.

Meet-or-beat Prior Year's Earnings Test

We report descriptive statistics (mean values) of bank-level variables for the just-meet-or-beat test across countries in Table 4. On average, 11.29% of our sample banks report a small increase in earnings over the prior year. The mean values of other variables used in the regression are also reported in Table 4.

We report the results for the logistic regressions in Table 5. For the main variables of interest (i.e.,

Table 3 Descriptive statistics of culture and institutional variables

Country	<i>IND</i>	<i>UA</i>	<i>PD</i>	<i>MAS</i>	<i>ENTRY</i>	<i>OFFICAL</i>	<i>MONITOR</i>	<i>BANK</i>	<i>INVPRO</i>	<i>CR_RIGHT</i>	<i>DISCL</i>	Mean GDP
Argentina	46	86	49	56	6	12	5	-0.37	5.64	1	71	7643
Australia	90	51	36	61	8	12	6	-0.73	9.30	1	100	20,441
Austria	55	70	11	79	8	14	2	2.14	9.47	3	70	24,394
Belgium	75	94	65	54	8	13	4	0.70	9.49	2	93	23,486
Brazil	38	76	69	49	8	15	4	1.14	6.46	1	57	3456
Canada	80	48	39	52	8	7	5	-1.21	9.58	1	100	23,943
Chile	23	86	63	28	3	11	3	0.26	6.77	2	93	5174
Colombia	13	80	67	64	8	13	3	1.31	5.66	0	14	2187
Denmark	74	23	18	16	8	9	3	0.45	9.80	3	87	32,028
France	71	86	68	43	6	8	4	-0.63	8.97	0	100	22,968
Germany	67	65	35	66	4	11	4	-0.23	9.37	3	100	23,723
Greece	35	112	60	57	8	10	4	0.05	6.84	1	45	10,692
Hong Kong	25	29	68	57	6	11	5	-0.59	8.77	4	80	24,722
India	48	40	77	56	6	9	3	0.20	6.12	4	79	544
Ireland	70	35	28	68	7	11	4	0.15	8.74	1	100	25,744
Israel	54	81	13	47	6	8	5	-1.24	7.79	4	100	19,263
Italy	76	75	50	70	8	6	4	-0.81	7.95	2	100	19,312
Japan	46	92	54	95	6	13	4	0.46	9.14	2	100	38,536
South Korea	18	85	60	39	7	10	5	-0.68	6.71	3	65	10,959
Malaysia	26	36	104	50	7	11	5	-0.46	7.71	4	100	4264
Mexico	30	82	81	69	8	10	2	1.27	5.99	0	68	5735
Netherlands	80	53	38	14	8	8	4	-0.38	9.87	2	100	23,142
New Zealand	79	49	22	58	6	9	6	-1.63	9.80	3	100	14,121
Norway	69	50	31	8	8	9	5	-0.77	9.92	2	76	38,493
Pakistan	14	70	55	50	7	14	4	0.80	4.30	4	68	533
Peru	16	87	64	42	8	14	3	1.53	4.83	0	54	2141
Philippines	32	44	94	64	7	12	4	0.36	4.08	0	80	938
Portugal	27	104	63	31	7	13	4	0.58	7.81	1	81	9920
Singapore	20	8	74	48	7	3	5	-2.20	8.99	4	100	22,210
South Africa	65	49	49	63	8	4	5	-1.86	6.70	3	88	3111
Spain	51	86	57	42	8	10	4	0.05	7.87	2	93	14,785
Switzerland	68	58	34	70	8	13	4	0.70	9.99	1	100	34,259
Taiwan	17	69	58	45	8	9	5	-0.77	8.08	2	60	14,474
Thailand	20	64	64	34	8	11	4	0.27	5.93	3	51	2101
Turkey	37	85	66	45	7	11	4	0.15	5.46	2	59	3044
United Kingdom	89	35	35	66	8	12	5	-0.12	9.40	4	100	24,611
Uruguay	36	100	61	38	7	13	5	-0.03	6.07	2	33	5951
USA	91	46	40	62	7	14	4	0.78	9.52	1	87	33,618
Venezuela	12	76	81	73	8	14	2	2.14	6.15	3	36	5019

Definitions of the variables are provided in Table 1.

cultural dimensions), we report the regression coefficient, followed by the Wald statistic in parentheses, and the marginal effect (in percent) in square brackets. The marginal effect indicates the change in the probability of meeting the benchmark per standard deviation change in each respective culture variable (holding other independent variables constant).¹⁶ Models (1)–(4) present the results for the effects of individual culture variables on the propensity to just-meet-or-beat prior year's earnings, after controlling for bank characteristics, and country and year fixed effects.

A positive coefficient on *IND*, *PD*, and *MAS* indicates that banks are more likely to manage earnings to just-meet-or-beat prior year's earnings when the individualism, power distance and masculinity dimensions of national culture are higher. A negative coefficient on *UA* indicates that banks are less likely to manage earnings to just-meet-or-beat prior year's earnings when the uncertainty avoidance dimension of national culture is higher.

We find that banks in high individualism and high masculinity societies are more likely to

Table 4 Descriptive statistics (mean values) of variables used in the just-meet-or-beat test

Country	No. of banks	Bank-years	<i>SMALL_POS</i>	<i>SIZE</i>	<i>GROWTH</i>	<i>LOANS</i>	<i>LEV</i>	ΔCF	<i>ALLOW</i>
Argentina	94	262	0.011	5.652	0.136	0.422	0.245	0.022	0.012
Australia	98	335	0.104	8.022	0.147	0.832	0.078	0.002	0.007
Austria	15	45	0.289	10.352	0.154	0.557	0.052	0.002	0.014
Belgium	7	12	0.250	12.662	0.117	0.491	0.032	0.002	0.005
Brazil	185	637	0.031	6.824	0.215	0.404	0.178	0.007	0.011
Canada	18	69	0.159	10.257	0.099	0.612	0.055	0.001	0.006
Chile	32	163	0.043	7.217	0.142	0.637	0.142	0.003	0.012
Colombia	46	154	0.032	6.087	0.171	0.636	0.183	0.003	0.014
Denmark	7	11	0.000	9.229	0.190	0.660	0.075	0.002	0.011
France	158	338	0.222	9.374	0.069	0.505	0.082	0.001	0.011
Germany	24	72	0.194	11.216	0.082	0.359	0.067	0.010	0.007
Greece	35	108	0.074	8.148	0.282	0.589	0.093	0.007	0.013
Hong Kong	127	435	0.046	6.958	0.049	0.515	0.191	0.001	0.010
India	68	208	0.024	7.937	0.177	0.556	0.085	0.004	0.014
Ireland	43	153	0.131	8.947	0.250	0.642	0.086	0.002	0.007
Israel	22	113	0.097	8.232	0.055	0.714	0.076	0.001	0.004
Italy	152	179	0.145	8.400	0.135	0.707	0.093	0.004	0.013
Japan	710	3,213	0.156	7.852	0.021	0.567	0.057	0.000	0.012
South Korea	61	221	0.072	9.326	0.203	0.684	0.074	0.002	0.013
Malaysia	55	158	0.057	7.186	0.157	0.511	0.156	0.002	0.016
Mexico	54	150	0.047	6.909	0.263	0.630	0.150	0.003	0.012
Netherlands	29	62	0.177	10.185	0.139	0.548	0.062	0.002	0.005
New Zealand	14	68	0.074	8.186	0.173	0.931	0.061	0.003	0.006
Norway	99	383	0.112	7.219	0.138	0.973	0.085	0.001	0.011
Pakistan	29	102	0.069	6.031	0.233	0.580	0.087	0.012	0.012
Peru	12	24	0.000	5.461	0.218	0.612	0.186	0.015	0.016
Philippines	47	111	0.090	6.263	0.196	0.628	0.178	0.005	0.015
Portugal	77	276	0.145	8.385	0.151	0.555	0.084	0.002	0.010
Singapore	26	55	0.073	7.315	0.008	0.593	0.180	0.001	0.011
South Africa	78	216	0.042	7.402	0.260	0.728	0.127	0.008	0.012
Spain	137	484	0.240	8.840	0.129	0.716	0.076	0.002	0.015
Switzerland	6	17	0.118	12.180	0.145	0.188	0.062	0.000	0.003
Taiwan	65	352	0.108	9.292	0.106	0.702	0.095	0.001	0.009
Thailand	45	114	0.044	7.367	0.227	0.810	0.180	0.009	0.013
Turkey	87	209	0.014	7.393	0.623	0.671	0.140	0.021	0.012
United Kingdom	305	1215	0.170	8.051	0.107	0.608	0.101	0.001	0.006
Uruguay	20	32	0.000	5.073	0.104	0.593	0.226	-0.018	0.012
USA	1834	10,577	0.105	7.750	0.123	0.716	0.098	0.002	0.009
Venezuela	48	111	0.009	6.005	0.763	0.545	0.205	0.020	0.015
All countries	4969	21,444	0.113	7.801	0.124	0.660	0.100	0.003	0.010

The table provides descriptive statistics (mean values) for variables in the just-meet-or-beat test at the country level. Definitions of the variables are provided in Table 1.

just-meet-or-beat prior year's earnings, whereas banks in high uncertainty avoidance societies are less likely to just-meet-or-beat prior year's earnings. We do not find evidence that banks in high power distance societies are more likely to report a small earnings increase over the prior year. The marginal effect of the cultural factors indicates that the economic significance of culture is nontrivial. For example, in model (2), a one standard deviation increase in *UA* reduces a bank's propensity to just-meet-or-beat the earnings benchmark by 11.93%.

Overall, the evidence exhibits that national culture plays an important role in influencing earnings management by banks to just-meet-or-beat prior year's earnings.

With regard to bank-level controls, we find that larger banks and banks with higher loans are more likely to just-meet-or-beat prior year's earnings. On the other hand, high-growth, high-leverage and high-cash flow banks, and banks with high loan loss allowance, are less likely to manage earnings to just-meet-or-beat prior year's earnings.

Table 5 Regression results for the just-meet-or-beat test

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	α_0	-3.334 (39.88)***	1.640 (3.46)*	2.011 (0.13)	-21.226 (14.92)***	-30.281 (9.45)***	-7.375 (84.11)***
<i>IND</i>	α_1	0.028 (13.26)*** [7.26%]				0.081 (12.80)*** [20.99%]	0.008 (5.23)** [2.07%]
<i>UA</i>	α_2		-0.070 (13.54)*** [-11.93%]			-0.227 (5.83)** [-38.70%]	-0.011 (26.77)*** [-1.88%]
<i>PD</i>	α_3			-0.071 (0.79) [-9.34%]		-0.136 (2.31) [-17.88%]	0.012 (9.57)*** [1.58%]
<i>MAS</i>	α_4				0.231 (12.87)*** [48.5%]	0.263 (5.84)** [-55.62%]	0.011 (15.71)*** [2.33%]
<i>SIZE</i>	α_5	0.061 (27.74)***	0.061 (27.70)***	0.061 (27.73)***	0.061 (27.73)***	0.061 (27.73)***	0.072 (41.22)***
<i>GROWTH</i>	α_6	-0.820 (24.71)***	-0.814 (24.30)***	-0.811 (24.11)***	-0.812 (24.17)***	-0.811 (24.11)***	-0.817 (26.88)***
<i>LOANS</i>	α_7	0.537 (20.79)***	0.534 (20.55)***	0.533 (20.41)***	0.533 (20.45)***	0.533 (20.41)***	0.539 (22.19)***
<i>LEV</i>	α_8	-4.349 (56.46)***	-4.351 (56.51)***	-4.355 (56.55)***	-4.354 (56.56)***	-4.355 (56.55)***	-4.643 (62.51)***
ΔCF	α_9	-8.757 (55.45)***	-8.738 (55.36)***	-8.725 (55.07)***	-8.727 (55.32)***	-8.725 (55.07)***	-8.058 (58.73)***
<i>ALLOW</i>	α_{10}	-43.348 (89.24)***	-43.293 (89.01)***	-43.276 (88.91)***	-43.287 (88.96)***	-43.276 (88.91)***	-41.420 (85.27)***
<i>BANK</i>	α_{11}						-0.177 (8.59)***
<i>CR_RIGHT</i>	α_{12}						0.157 (12.32)***
<i>INVPRO</i>	α_{13}						-0.044 (0.26)
<i>DISCL</i>	α_{14}						-0.019 (16.58)***
<i>LGDP</i>	α_{15}						0.252 (5.92)**
Country controls		Yes	Yes	Yes	Yes	Yes	No
Year controls		Yes	Yes	Yes	Yes	Yes	Yes
Pseudo- R^2		7.79%	7.79%	7.80%	7.79%	7.80%	6.66%
<i>N</i>		21,444	21,444	21,444	21,444	21,444	21,444
Likelihood ratio		861.74***	862.53***	862.65***	862.64***	862.65***	734.43***

The regression model is given as Eq. (1a) or (1b). Definitions of the variables are provided in Table 1. Models (1)–(4) present the results for the effects of individual culture variables on the propensity to just-meet-or-beat prior year's earnings, after controlling for bank characteristics, fixed country and year effects. In model (5), all four cultural factors as well as bank-level control variables and country and year controls are included. In model (6), the country controls are replaced with country-level institutional variables.

For each variable we report the regression coefficient, followed by the Wald statistic in parentheses. For the main variable of interest (culture variable), we also report the marginal effect (in percent) in the square brackets. The marginal effect indicates the change in the probability of meeting benchmark per standard deviation change in each respective cultural variable (holding other independent variables constant). The marginal effect per standard deviation (SD) change for a cultural variable is computed as $p \times (1-p) \times \beta \times SD$, where p is the base rate (0.11) and β is the estimated coefficient from the logistic regression (Liao, 1994).

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

In model (5), we include all four cultural factors as well as bank-level control variables and country and year controls. The coefficients on *IND* and *MAS*

are positive and significant at the 1% level and 5% level, respectively, and the coefficient on *UA* is negative and significant at the 5% level. Our results

Table 6 Descriptive statistics (mean values) for selected variables in the income-smoothing test

Country	No. of banks	Bank-years	<i>LLP</i>	<i>EBTP</i>	<i>BEGLLP</i>	<i>LOANS</i>	Δ <i>LOANS</i>	<i>BEGLLA</i>	<i>LCO</i>	<i>BEGNPL</i>	Δ <i>NPL</i>	<i>CAPRATIO</i>
Argentina	2	2	0.038	0.136	0.033	0.603	-0.025	0.040	0.006	0.070	0.036	6.600
Australia	20	90	0.002	0.016	0.002	0.850	0.123	0.007	0.002	0.007	-0.011	11.922
Austria	5	8	0.002	0.008	0.001	0.337	0.020	0.011	0.003	0.011	-0.119	16.800
Belgium	2	3	0.000	0.008	0.000	0.478	0.052	0.006	0.001	0.011	0.000	10.933
Brazil	123	417	0.017	0.057	0.013	0.508	0.093	0.026	0.021	0.038	0.005	23.015
Canada	12	54	0.002	0.012	0.002	0.590	0.052	0.007	0.002	0.006	0.000	12.048
Chile	6	15	0.010	0.028	0.007	0.798	0.124	0.014	0.007	0.009	0.001	12.237
Colombia	7	18	0.014	0.023	0.020	0.625	0.068	0.031	0.006	0.024	-0.001	13.033
France	10	11	0.001	0.008	0.001	0.516	0.053	0.008	0.002	0.014	0.000	11.627
Germany	8	31	0.002	0.005	0.002	0.417	0.019	0.011	0.003	0.017	-0.002	11.926
Hong Kong	73	307	0.009	0.025	0.010	0.607	0.013	0.022	0.009	0.028	-0.019	30.297
India	26	59	0.008	0.020	0.009	0.582	0.121	0.024	0.009	0.045	-0.003	13.269
Ireland	8	27	0.002	0.018	0.002	0.780	0.140	0.009	0.001	0.008	0.000	11.859
Israel	16	70	0.005	0.013	0.004	0.707	0.038	0.004	0.002	0.054	-0.012	13.230
Italy	4	4	0.005	0.019	0.004	0.758	0.091	0.026	0.006	0.044	-0.002	10.650
Japan	167	824	0.006	0.006	0.007	0.670	0.001	0.018	0.005	0.051	-0.002	9.254
South Korea	15	55	0.008	0.018	0.009	0.690	0.092	0.014	0.008	0.014	-0.003	12.004
Mexico	18	48	0.008	0.027	0.007	0.669	0.051	0.034	0.006	0.021	0.001	16.056
Netherlands	8	15	0.001	0.008	0.001	0.622	0.062	0.006	0.001	0.009	0.000	10.993
New Zealand	10	40	0.001	0.018	0.001	0.897	0.135	0.005	0.001	0.003	-0.024	11.573
Norway	36	154	0.003	0.015	0.003	0.934	0.098	0.014	0.001	0.015	0.001	12.671
Pakistan	8	13	0.005	0.034	0.003	0.652	0.145	0.033	0.003	0.053	0.004	14.462
Peru	2	6	0.007	0.025	0.005	0.565	0.021	0.073	0.028	0.050	-0.008	12.100
Philippines	36	81	0.012	0.022	0.012	0.566	0.075	0.041	0.006	0.080	0.023	18.311
Portugal	26	87	0.005	0.015	0.004	0.590	0.087	0.013	0.004	0.017	0.001	11.095
Singapore	5	8	0.031	0.022	0.013	0.694	0.048	0.035	0.005	0.069	0.058	20.575
South Africa	31	87	0.011	0.033	0.008	0.785	0.121	0.027	0.010	0.033	-0.027	17.006
Spain	75	294	0.003	0.017	0.003	0.729	0.106	0.013	0.001	0.009	0.000	12.554
Switzerland	1	1	0.000	0.008	0.000	0.149	0.003	0.002	0.000	0.002	-0.001	18.000
Taiwan	52	221	0.012	0.014	0.011	0.689	0.048	0.009	0.015	0.034	-0.005	18.611
Thailand	21	83	0.010	0.017	0.008	0.693	0.075	0.048	0.007	0.086	0.004	15.048
Turkey	17	42	0.008	0.040	0.007	0.575	0.159	0.022	0.000	0.033	0.001	18.448
United Kingdom	38	115	0.004	0.015	0.003	0.587	0.077	0.013	0.003	0.017	-0.024	14.235
USA	1632	9330	0.003	0.021	0.002	0.715	0.083	0.008	0.002	0.005	0.000	15.360
Venezuela	48	125	0.022	0.083	0.017	0.581	0.131	0.035	0.012	0.029	0.005	28.829
All countries	2568	12,745	0.004	0.021	0.004	0.700	0.077	0.011	0.004	0.013	-0.001	15.549

The table provides descriptive statistics (mean values) for variables used in the income-smoothing test at the country level. Definitions of the variables are provided in Table 1.

suggest that, although the banking industry is highly regulated, national culture has an important, first-order effect on a bank's earnings management behavior.

In model (6), we replace the country controls with country-level institutional variables. All the culture variables (including *PD*) are significant and have the expected signs. The results for the bank-level controls are similar to those reported in model (5). For the country-level institutional variables, we find that banks are more likely to manage earnings when creditor rights and economic wealth are higher, and less likely to manage earnings when bank monitoring and accounting disclosure are higher.

Overall, the results presented in Table 5 provide support for the prediction that national culture affects earnings management by banks to just-meet-or-beat prior year's earnings, despite banking being a highly regulated industry.

Income-smoothing Test

We present descriptive statistics (mean values) of bank-level variables for the income-smoothing test across countries in Table 6. Across all sample countries, the mean *LLP* is 0.41% and the mean *EBTP* is 2.14%. The descriptive statistics for other variables used in the regression are also reported in Table 6.

We report the regression results for the income-smoothing test in Table 7. Similar to the just-meet-or-beat prior year's earnings test, we report the marginal effect (in square brackets) for the main variables of interest (the interactions between the dimensions of national culture and *EBTP*). The marginal effect indicates the change in *LLP* for a one standard deviation change in the interaction term between each culture variable and *EBTP*.

The first four models report the results for the individual culture variables and their interactions with *EBTP*, after controlling for bank characteristics, fixed country and year effects. Consistent with our expectation, *EBTP* is positively and significantly associated with *LLP* in all the models, indicating prevalence of income smoothing in our sample of banks. The variable of interest is the interaction between each dimension of national culture and

Table 7 Regression results for the income-smoothing test

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	β_0	0.004 (1.43)	-0.001 (-0.01)	0.005 (1.73)*	0.026 (2.29)**	-0.003 (-1.95)*	0.002 (0.64)
<i>EBTP</i>	β_1	0.118 (4.69)***	0.138 (4.85)***	0.082 (4.52)***	0.114 (4.63)***	0.058 (2.10)**	0.069 (2.52)***
<i>IND</i>	β_2	-0.011 (-1.59)				0.025 (1.32)	0.000 (0.02)
<i>UA</i>	β_3		-0.009 (-0.48)			-0.086 (-1.33)	0.009 (3.45)***
<i>PD</i>	β_4			0.037 (1.91)*		0.185 (1.85)*	-0.011 (-2.51)***
<i>MAS</i>	β_5				0.138 (2.38)**	-0.131 (-1.91)*	-0.005 (-2.04)**
<i>IND*EBTP</i>	β_6	0.002 (4.41)*** [0.17%]				0.004 (2.92)*** [0.35%]	0.003 (2.02)** [0.26%]
<i>UA * EBTP</i>	β_7		-0.008 (-3.77)*** [-0.24%]			-0.008 (-3.76)*** [-0.24%]	-0.005 (-3.38)*** [-0.15%]
<i>PD * EBTP</i>	β_8			0.005 (4.78)*** [0.24%]		0.011 (4.29)*** [0.53%]	0.009 (3.36)*** [0.43%]
<i>MAS * EBTP</i>	β_9				0.004 (3.51)*** [0.19%]	-0.001 (-0.63) [-0.05%]	-0.001 (-0.12) [-0.05%]
<i>PASTLLP</i>	α_{10}	0.313 (5.49)***	0.307 (5.47)***	0.314 (5.61)***	0.320 (5.67)***	0.307 (5.69)***	0.319 (5.75)***
<i>LOANS</i>	α_{11}	0.003 (4.36)***	0.003 (3.60)***	0.003 (4.54)***	0.003 (4.94)***	0.003 (4.25)***	0.001 (3.62)***
Δ <i>LOANS</i>	α_{12}	-0.002 (-1.45)	-0.002 (-1.46)	-0.002 (-1.53)	-0.002 (-1.63)	-0.002 (-1.73)*	-0.001 (-0.62)
<i>BEGLLA</i>	α_{13}	-0.177 (-4.77)***	-0.170 (-4.58)***	-0.173 (-4.70)***	-0.171 (-4.60)***	-0.160 (-4.39)***	-0.144 (-4.07)***
<i>LCO</i>	α_{14}	0.445 (7.54)***	0.436 (7.41)***	0.438 (7.47)***	0.446 (7.57)***	0.412 (7.23)***	0.405 (7.06)***
<i>BEGNPL</i>	α_{15}	0.067 (3.43)***	0.066 (3.36)***	0.066 (3.41)***	0.062 (3.16)***	0.065 (3.39)***	0.056 (3.28)***
Δ <i>NPL</i>	α_{16}	0.027 (4.07)***	0.027 (4.11)***	0.027 (4.08)***	0.027 (4.10)***	0.027 (4.14)***	0.028 (3.98)***
<i>MUN</i>	α_{17}	-0.003 (-3.67)***	-0.002 (-1.83)*	-0.003 (-3.81)***	-0.002 (-2.18)**	-0.002 (-1.95)**	-0.001 (-0.19)
<i>MORT</i>	α_{18}	-0.001 (-3.05)***	-0.001 (-2.44)**	-0.001 (-3.22)***	-0.001 (-3.29)***	-0.001 (-2.95)***	-0.001 (-1.72)*

Table 7 *Continued*

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>LEASE</i>	α_{19}	-0.003 (-1.16)	-0.005 (-1.46)	-0.004 (-1.27)	-0.004 (-1.28)	-0.006 (-1.74)*	-0.006 (-1.75)*
<i>OTH</i>	α_{20}	0.003 (4.57)***	0.002 (3.26)***	0.003 (4.98)***	0.003 (3.59)***	0.003 (5.28)***	0.004 (5.93)***
<i>GRP</i>	α_{21}	0.026 (1.59)	0.026 (1.57)	0.026 (1.58)	0.025 (1.48)	0.026 (1.58)	0.029 (1.36)
<i>OCORP</i>	α_{22}	-0.001 (-3.64)***	-0.001 (-2.64)***	-0.001 (-3.91)***	-0.001 (-2.75)***	-0.001 (-3.69)***	-0.001 (-3.14)***
<i>BK</i>	α_{23}	0.001 (0.64)	0.001 (0.40)	0.001 (0.64)	0.001 (0.39)	0.001 (0.65)	0.002 (1.44)
<i>CAPRATIO</i>	α_{24}	-0.003 (-2.72)***	-0.003 (-2.72)***	-0.003 (-2.61)***	-0.003 (-2.63)***	-0.002 (-2.17)**	-0.003 (-3.23)***
<i>BANK</i>	α_{25}						-0.001 (-1.46)
<i>CR_RIGHT</i>	α_{26}						0.001 (2.32)**
<i>INVPRO</i>	α_{27}						-0.002 (-5.00)***
<i>DISCL</i>	α_{28}						-0.001 (-1.98)**
<i>LGDP</i>	α_{29}						0.002 (3.90)***
Country controls		Yes	Yes	Yes	Yes	Yes	No
Year controls		Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>		12,745	12,745	12,745	12,745	12,745	12,745
Adj. <i>R</i> ²		61.42%	61.69%	61.85%	61.30%	63.20%	62.17%

The regression model is given as Eq. (2a) or (2b). Definitions of the variables are provided in Table 1. The first four models report the results for the individual culture variables and their interactions with *EBTP*, after controlling for bank characteristics, fixed country and year effects. In model (5), all four cultural factors along with the bank-level control variables and country and year controls are included in the regression. In model (6), the country controls are replaced by the country-level institutional variables.

For ease of presentation, the coefficient for *IND*, *UA*, *PD*, *MAS*, and *CAPRATIO* have all been multiplied by 10². For the main variable of interest (the interaction term between culture variables and *EBTP*), we also report the marginal effect (in percent) in the square brackets. The marginal effect indicates the change in the *LLP* with one standard deviation change in the interaction term between the culture variables and *EBTP*.

*, **, and *** denote significance at the 10%, 5%, and 1% levels, two-tailed, respectively.

EBTP. If national culture has an important effect on a bank's income-smoothing behavior, then the coefficients on the interaction terms *IND*·*EBTP*, *PD*·*EBTP*, and *MAS*·*EBTP* are expected to be positive, and the coefficient on the interaction term *UA*·*EBTP* is expected to be negative.

Our results indicate that all four dimensions of national culture have a significant impact on income smoothing by banks. Specifically, in models (1), (3), and (4), the coefficients on *IND*·*EBTP*, *PD*·*EBTP*, and *MAS*·*EBTP* are positive and significant at the 1% level. In model (2), the coefficient for *UA*·*EBTP* is negative and significant at the 1% level. In terms of economic significance, the effect of culture on the income-smoothing behavior of banks is nontrivial. For example, a one standard deviation increase in *UA*·*EBTP* reduces total *LLP* by 0.24%.

For the bank-level control variables, consistent with our expectation, *PASTLLP*, *LCO*, *BEGNPL*, and Δ *NPL* are all positively and significantly associated with *LLP*, whereas *BEGLLA* and *CAPRATIO* are negatively and significantly associated with *LLP*.

In model (5), we include all four cultural factors along with the bank-level control variables and country and year controls in the regression. We obtain similar results, with the exception of *MAS*·*EBTP*, which is no longer significant. In model (6), we replace the country controls with the country-level institutional variables. The coefficients on the interactions between the culture variables and *EBTP* are similar to those reported in model (5). The coefficient estimates for the bank-level controls are also similar to those reported in model (5). For the country-level institutional variables, the coefficients for *CR_RIGHT* and *LGDP* are

positive and significant, whereas the coefficients for *INVPRO* and *DISCL* are negative and significant.

Overall, we find consistent evidence that banks in high individualism, high power distance, and low uncertainty avoidance societies tend to smooth earnings to a greater extent than banks in low individualism, low power distance, and high uncertainty avoidance societies. These results indicate that cultural factors have an important effect on income-smoothing behavior, despite the high level of regulation in the banking industry.

Crisis Period Analysis

In this section, we provide preliminary evidence on whether cultural factors help explain the lower earnings quality experienced by banks during the recent financial crisis. Banks that focus on beating earnings thresholds tend to recognize losses in a less timely fashion, and banks with less timely loss reporting tend to report lower future profitability.¹⁷ Hence we examine two related measures of earnings quality – the probability of a bank having a large loss and the probability of a bank having a large LLP (related to income smoothing through LLP) – during the crisis period. A bank is considered to incur a large loss when its return on assets (*ROA*, income before taxes divided by total assets) is less than -5% , and to have a large LLP when its LLP exceeds 1% of total loans. These benchmarks are reasonable, since the mean (median) values of *ROA* and *LLP/Loans* (*LLP* divided by total loans) during the pre-crisis period for our sample banks are 1.25% (0.89%) and 0.15% (0.19%), respectively.

We use the same models as in Eqs. (1a) and (1b), except that the dependent variables are now redefined as large loss, large LLP, and either large loss or large LLP. Our test specification closely follows Lel and Miller (2008), Erkens, Hung, and Matos (2009), and Beltratti and Stulz (2010). The independent variables are measured in 2006, that is, prior to the financial crisis. The dependent variables (i.e., $ROA < -5\%$ and/or $LLP/Loans > 1\%$) are from either 2007 or 2008. To ensure that these banks were not troubled prior to 2007, we delete banks with $ROA < -5\%$ and/or $LLP/Loans > 1\%$ in 2006. Thus our tests relate to banks that were healthy in 2006 but had a large loss or a large LLP in 2007 or 2008.

The results for the crisis period analysis are reported in Table 8. We report results for large loss, large LLP, and either large loss or large LLP tests in Panels A, B, and C, respectively. We find that banks in high individualism and high masculinity societies are more likely to incur a large loss, whereas

banks in high uncertainty avoidance societies are less likely to incur a large loss during the crisis period. These results are consistent with the notion that societies that encourage higher risk-taking experienced more bank troubles. We also find that banks in high power distance societies are more likely to incur a large LLP, whereas banks in high uncertainty avoidance societies are less likely to incur a large LLP during the crisis period. Lastly, banks in high individualism and high power distance societies are more likely to incur either a large loss or a large LLP, whereas banks in high uncertainty avoidance societies are less likely to incur either a large loss or a large LLP during the crisis period. Overall, we provide some early evidence that cultural factors help explain financial difficulties faced by banks during the crisis period.

Sensitivity Checks

We conduct several additional tests to assess the robustness of our findings. All our sensitivity checks discussed in this section are based primarily on Eqs. (1a) and (2a).¹⁸ First, we exclude US banks from the analysis, since they represent a significant fraction of our sample. Our results are robust, and inferences remained unchanged, with the exclusion of these US banks.

Second, we conduct our analysis for the full sample period that includes the crisis years. We include an indicator variable for the crisis as additional control in Eqs. (1a) and (2a). The untabulated results indicate that our main inferences hold with this alternative model specification.

Third, prior studies also use loss avoidance as an alternative earnings benchmark (Burgstahler & Dichev, 1997). We test the robustness of our results to using the loss-avoidance benchmark by replacing *SMALL_POS* in Eq. (1a) with *LOSS_AVOID*, an indicator variable that equals 1 if the bank has *ROA* (income before taxes scaled by total assets) in the interval between 0 and 0.001, and 0 otherwise. Untabulated results indicate that only the coefficient on *MAS* is positively and significantly associated with *LOSS_AVOID*. Following Leuz et al. (2003), we also focus on the subset of firms that report small profits (i.e., with *ROA* between 0 and 0.01) and small losses (i.e., with *ROA* between 0 and -0.01). Our untabulated results indicate that *IND* and *PD* are positively and significantly (1% and 10%, respectively) associated with loss-avoidance for these firms.

Fourth, we assess whether the effect of national culture on a bank's earnings management is conditional

Table 8 Crisis period analysis

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Panel A: Large loss test</i>							
Intercept	α_0	-2.671 (12.03)***	1.645 (1.62)	7.881 (3.67)*	-16.390 (7.41)***	18.767 (12.05)***	0.369 (0.08)
IND	α_1	0.026 (5.23)** [12.33%]				0.012 (9.49)*** [5.69%]	0.013 (5.57)** [6.17%]
UA	α_2		-0.058 (6.28)*** [-20.65%]			-0.051 (10.32)*** [-18.19%]	-0.023 (12.38)*** [-8.19%]
PD	α_3			-0.013 (1.70) [-3.56%]		0.007 (2.34) [1.92%]	0.002 (0.21) [0.55%]
MAS	α_4				0.018 (6.31)*** [7.14%]	0.059 (11.04)*** [23.39%]	0.014 (8.32)*** [5.55%]
SIZE	α_5	0.081 (12.22)***	0.082 (12.54)***	0.083 (12.72)***	0.082 (12.65)***	0.083 (12.76)***	0.088 (16.79)***
GROWTH	α_6	-0.121 (0.96)	-0.118 (0.92)	-0.111 (0.83)	-0.117 (0.91)	-0.115 (0.88)	-0.051 (0.28)
LOANS	α_7	0.149 (0.64)	0.145 (0.61)	0.135 (0.54)	0.144 (0.60)	0.140 (0.57)	0.042 (0.08)
LEV	α_8	-1.700 (11.31)***	-1.701 (11.32)***	-1.628 (10.30)***	-1.698 (11.28)***	-1.687 (11.03)***	-1.739 (11.94)***
ΔCF	α_9	-0.407 (0.04)	-0.381 (0.03)	-0.287 (0.02)	-0.370 (0.03)	-0.341 (0.03)	-0.600 (0.09)
ALLOW	α_{10}	4.022 (3.29)*	3.994 (3.26)*	3.848 (3.02)*	3.981 (3.24)*	3.942 (3.17)*	4.525 (4.50)**
BANK	α_{11}						-0.255 (5.74)**
CR_RIGHT	α_{12}						0.272 (12.00)***
INVPRO	α_{13}						-0.066 (0.27)
DISCL	α_{14}						-0.017 (6.06)***
LGDP	α_{15}						0.033 (0.05)
Country controls		Yes	Yes	Yes	Yes	Yes	No
Year controls		Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2		9.76%	9.80%	9.76%	9.81%	9.82%	6.25%
N		2987	2987	2987	2987	2987	2987
Likelihood ratio		201.70***	202.44***	201.62***	202.64***	202.86***	127.51***
<i>Panel B: Large LLP test</i>							
Intercept	α_0	-4.747 (30.10)***	-1.666 (8.69)***	0.070 (0.00)	1.206 (0.03)	-18.976 (2.16)	-1.733 (1.18)
IND	α_1	-0.016 (1.01) [-6.54%]				0.003 (1.60) [1.22%]	-0.006 (0.98) [-2.45%]
UA	α_2		-0.017 (22.57)*** [-5.35%]			-0.010 (9.21)*** [-3.15%]	-0.031 (16.72)*** [-9.76%]
PD	α_3			0.073 (7.72)*** [16.64%]		0.017 (11.57)*** [3.87%]	0.019 (9.83)*** [4.33%]

Table 8 *Continued*

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
MAS	α_4				-0.008 (0.81) [-2.81%]	0.002 (2.09) [0.70%]	-0.002 (0.17) [-0.70%]
SIZE	α_5	0.179 (42.28)***	0.137 (27.96)***	0.183 (44.07)***	0.180 (42.36)***	0.180 (42.70)***	0.128 (25.98)***
GROWTH	α_6	-0.669 (13.16)***	-0.996 (8.88)***	-0.658 (13.01)***	-0.669 (13.15)***	-0.663 (12.95)***	-0.677 (15.50)***
LOANS	α_7	0.938 (11.60)***	1.366 (21.98)***	0.921 (11.42)***	0.939 (11.59)***	0.930 (11.41)***	0.963 (14.27)***
LEV	α_8	-0.012 (0.00)	-0.029 (0.24)	-0.071 (0.01)	-0.035 (0.00)	0.023 (0.00)	-0.163 (0.07)
Δ CF	α_9	-2.879 (1.04)	-3.887 (1.38)	-2.798 (0.98)	-2.900 (1.05)	-2.791 (0.99)	-4.287 (2.07)
ALLOW	α_{10}	9.330 (10.15)***	4.267 (2.15)	9.467 (10.39)***	9.386 (10.19)***	9.247 (10.04)***	8.205 (5.73)**
BANK	α_{11}						-0.879 (30.86)***
CR_RIGHT	α_{12}						0.180 (4.77)**
INVPRO	α_{13}						-0.730 (24.31)***
DISCL	α_{14}						-0.026 (9.06)***
LGDP	α_{15}						0.597 (8.35)***
Country controls		Yes	Yes	Yes	Yes	Yes	No
Year controls		Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2		17.43%	14.03%	17.25%	17.42%	17.45%	12.06%
N		2766	2766	2766	2766	2766	2766
Likelihood ratio		324.69***	258.22***	321.03***	324.35***	325.02***	220.40***
<i>Panel C: Large loss or large LLP test</i>							
Intercept	α_0	-0.581 (0.12)	1.078 (1.31)	5.369 (2.55)	-11.097 (4.42)**	-0.879 (0.01)**	0.855 (0.39)
IND	α_1	0.030 (4.74)** [16.52%]				0.010 (3.22)* [5.51%]	0.019 (12.27)*** [10.46%]
UA	α_2		-0.057 (10.59)*** [-24.34%]			-0.021 (10.35)*** [-8.97%]	-0.071 (6.54)*** [-30.31%]
PD	α_3			0.106 (5.03)** [32.59%]		0.032 (5.64)** [9.84%]	0.030 (4.44)** [9.22%]
MAS	α_4				0.011 (2.86)* [5.26%]	-0.019 (0.57) [-9.09%]	-0.008 (1.73) [-3.83%]
SIZE	α_5	0.168 (47.55)***	0.176 (56.44)***	0.178 (57.96)***	0.168 (51.04)***	0.164 (47.25)***	0.162 (54.15)***
GROWTH	α_6	-0.267 (4.25)**	-0.268 (4.22)**	-0.256 (3.89)**	-0.255 (3.87)**	-0.196 (2.66)	-0.192 (2.85)*
LOANS	α_7	0.338 (2.97)*	0.335 (2.88)*	0.318 (2.63)	0.316 (2.60)	0.219 (1.44)	0.224 (1.68)
LEV	α_8	-1.583 (7.49)***	-1.791 (9.80)***	-1.641 (7.97)***	-1.644 (8.13)***	2.245 (8.82)***	-1.712 (8.67)***

Table 8 *Continued*

Variable	Coeff.	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
ΔCF	α_9	-1.249 (0.19)	-1.184 (0.19)	-1.112 (0.16)	-1.253 (0.20)	-1.155 (0.00)	-1.954 (0.48)
<i>ALLOW</i>	α_{10}	8.623 (5.78)**	9.210 (6.52)***	9.004 (5.86)**	9.171 (6.43)**	9.884 (7.32)***	9.269 (5.98)**
<i>BANK</i>	α_{11}						-0.640 (27.07)***
<i>CR_RIGHT</i>	α_{12}						0.262 (10.24)***
<i>INVPRO</i>	α_{13}						-0.408 (9.66)***
<i>DISCL</i>	α_{14}						-0.028 (-12.46)***
<i>LGDP</i>	α_{15}						0.072 (0.19)
Country controls		Yes	Yes	Yes	Yes	Yes	No
Year controls		Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2		17.43%	17.38%	17.55%	17.53%	17.52%	13.30%
<i>N</i>		2656	2656	2656	2656	2656	2656
Likelihood ratio		364.52***	353.47***	357.20***	356.80***	356.53***	266.12***

This table provides preliminary evidence on whether cultural factors help to explain financial difficulties experienced by banks during the crisis period. Earnings quality is measured in two ways: the probability of a bank having a large loss or a large LLP. A bank is considered as incurring large loss when its ROA is less than -5%, and large LLP when its LLP is more than 1% of total loans. All the independent variables are measured at year 2006, and the dependent variable (large loss, large LLP, either large loss or large LLP) is measured at year 2007 or 2008. Troubled banks with either large loss or large LLP in year 2006 were deleted from the sample. We report results for large loss, large LLP, and either large loss or large LLP test in Panels A, B and C respectively.

Definitions of the other variables are provided in Table 1. For each variable, we report the regression coefficient, followed by the Wald statistic in parentheses. For the main variable of interest (culture variable), we also report the marginal effect (in percent) in the square brackets.

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

on the level of investor protection. Han et al. (2010) report that, for their sample of industrial firms, earnings management varies across high and low levels of investor protection. Although our context is slightly different (in a regulated industry such as banking, bank monitoring intensity may be equally as important as the level of investor protection), we examine whether our sample of international banks exhibits similar behavior. We define a categorical variable for investor protection (*DIP*), which equals 1 if *INVPRO* is greater than its median value, and 0 otherwise. For the earnings benchmark test, we include *DIP* and the interaction terms *DIP*·*IND*, *DIP*·*UA*, *DIP*·*PD*, and *DIP*·*MAS* in Eq. (1a). Untabulated results indicate that the effect of national culture on benchmark-beating behavior is conditional on investor protection. Specifically, the coefficients on *DIP*·*MAS* and *DIP*·*UA* are positive and significant at the 1% level. We also find that the coefficients on *DIP*·*IND* and *DIP*·*PD* are negative and significant at the 1% level.

Fifth, we assess whether our results vary between developed and developing countries. We use the *DEV* index as reported in Table 1 of Hail and Leuz

(2006) to identify developed and developing countries.¹⁹ We estimate our models separately for developed and developing countries. For the just-meet-or-beat test, only *MAS* is positive and significant for the developed countries, whereas all four culture variables are significant in the predicted directions for the developing countries. For the smoothing test, only *UA*·*EBTP* is negative and significant for the developed countries, whereas for the developing countries *IND*·*EBTP* and *PD*·*EBTP* are positive and significant, and *UA*·*EBTP* is negative and significant. Overall, our untabulated results indicate that the effect of culture is more pronounced for developing countries.

Sixth, we test whether our results for the just-meet-or-beat test hold for the subset of firms used in the income-smoothing test. Our untabulated results indicate that *PD*, *UA*, and *MAS* are significant in the predicted direction. Only *IND* loses its significance.

Estimating bank-level regressions in a pooled sample can bias the coefficients, because our culture variables are measured at the country level.

Therefore, in our final sensitivity test, we conduct our analysis based on country-year level data (Hail & Leuz, 2006). We measure the bank-level controls at their country-year means. There are 450 and 273 country-years for the just-meet-or-beat test and smoothing test, respectively. The power of the test is reduced, because of the smaller number of observations. Despite this, in the just-meet-or-beat test we still find the coefficients on *MAS* and *UA* to be significant and have signs consistent with the main results. In the income-smoothing test the interactions between *IND*, *UA*, *PD*, and *EBTP* are significant and have signs consistent with the main results. Overall, these results are largely consistent with the bank-level pooled regressions.

CONCLUSIONS

The primary research question addressed in this study is whether and how various dimensions of national culture influence the earnings quality of banks. Given the importance of banking to national and global economies, and the importance of differences in national culture to managerial behavior, it is surprising that there is no prior evidence on the implications of national culture for bank earnings quality.

We conduct our main analyses using a sample of banks from 39 countries over the period 1993–2006. We examine the relation between four dimensions of national culture and two earnings management proxies for bank earnings quality during the pre-financial crisis period. We find that banks in high individualism, high masculinity, and low uncertainty avoidance societies tend to manage earnings to just-meet-or-beat the prior year's earnings. In tests of income smoothing through loan loss provisions, we find that banks in high individualism, high power distance, and low uncertainty avoidance societies tend to report smoother earnings. Our results imply that culture has an important effect on bank earnings quality, despite the banking industry being highly regulated.

Our exploratory analysis of the effects of national culture on accounting outcomes during the crisis period (i.e., the period 2007–2008) provides interesting insights into the risk-taking behavior of banks. We find that banks in cultures that encourage higher risk-taking experienced more trouble in the form of larger losses or larger LLPs.

Our study is subject to the following limitations. First, Hofstede's cultural variables are measured at the country level, whereas our tests are based primarily on bank-level analysis. Although we

examine the sensitivity of our results by replacing the bank-year data with country-year data, we still assume that the Hofstede measures are constant over time. Second, some of Hofstede's measures are significantly correlated with each other. In particular, individualism is highly correlated with power distance and uncertainty avoidance. Although we test for the effects of multicollinearity on our inferences, we note that caution should be exercised in interpreting our regression results, especially when all four cultural dimensions are included in the same regression. Third, we note that the reported relations between national culture and earnings quality are observed associations, and may not result from underlying causal relations.

Our results also imply that the bank earnings quality in the pre-crisis period and the bank accounting outcomes during the crisis period are driven by risk-taking behavior of banks. Future research can explore the effects of national culture on bank risk-taking. Additionally, future research can expand on the early evidence we provide on the effects of national culture on bank accounting outcomes during the crisis period. A comprehensive crisis-period analysis could incorporate differences in international institutional factors such as legal, extra-legal, and political variables, in addition to cultural dimensions. Another potential avenue for future research is studying the effects of national culture on information asymmetry between different stakeholders in the banking industry. The higher level of information asymmetry resulting from the complexity of the banking industry makes it a powerful setting for examining the relation between national culture and information asymmetry.

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NOTES

¹There are several other advantages of focusing on the banking industry. In particular, our study mitigates error in measuring managerial discretion by focusing on a single accrual in a single industry. Focusing on a

single accrual facilitates a sharper separation into its normal (nondiscretionary) and abnormal (discretionary) components. We use a number of industry-specific variables to better isolate the normal loan loss provisions (LLP) from the abnormal LLP. Also, focusing on a single, relatively homogeneous industry provides control over other determinants of cross-sectional differences in accruals, thus increasing the reliability of the inferences from our empirical analysis.

²In our tests, we control for country fixed effects, bank-specific monitoring variables, and country-specific institutional variables whose influence on earnings management has been documented in the prior literature (e.g., Fonseca & Gonzalez, 2008; Han et al., 2010; Leuz et al., 2003).

³Gray (1988) identifies the mapping between the four societal values identified by Hofstede (1980) and the following four selected accounting values: professionalism vs statutory control, uniformity vs flexibility, conservatism vs optimism, and secrecy vs transparency.

⁴Please see Han et al. (2010: 125–126) for a more complete discussion of how Gray's (1988) predictions relate to expectations on earnings management.

⁵Regulations mirroring the Sarbanes–Oxley Act have been introduced in several other countries including Australia, Canada, Singapore, and the UK, to name a few.

⁶A recent survey of managers by Graham, Harvey, and Rajgopal (2005) finds that meeting or beating the prior period's earnings is one of the most important benchmarks for corporate managers.

⁷The correlations for some variables are very high. For example, the correlation between *INVPRO* and *LGDP* is 0.91. This high correlation may induce a multicollinearity problem in our analysis. However, this problem is mitigated because we also use country-level controls for the country-wide fixed effects. Our results yield similar inferences when we use controls for country fixed effects or country-level institutional variables, further strengthening the reliability of our tests.

⁸We note that *IND* is highly correlated with *PD* ($\rho = -0.648$) and with *UAI* ($\rho = -0.299$). Given these high levels of correlation among the independent variables of interest, we also estimate models (1a) and (1b) separately for each individual dimension of culture. In addition, we examine the variance inflation factors (VIFs) to check for multicollinearity in the full regressions that include all four cultural dimensions. We find that the VIFs are low, indicating that multicollinearity is not a major issue in these regressions.

⁹We also use the anti-self-dealing index from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) and an

indicator variable for legal origin (common vs code law) as alternative proxies for investor protection. The results are similar.

¹⁰These variables have also been used in several prior studies (e.g., Kanagaretnam et al., 2004; Kanagaretnam, Krishnan, & Lobo, 2010a; Wahlen, 1994) to estimate the normal component of *LLP*.

¹¹The inclusion of *EBTP* and its interaction with various cultural factors may introduce multicollinearity among the interaction terms. We mean-center the culture variables to mitigate this concern (Aiken & West, 1991; Neter, Wasserman, & Kutner, 1989).

¹²It 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 & Valencia, 2010).

¹³A total of 39 countries are available for the just-meet-or-beat test and 35 countries for the smoothing test. Some countries (e.g., Malaysia) have data for the just-meet-or-beat test but not for the smoothing test, because of missing information on capital ratio, non-performing loans, etc.

¹⁴We delete the top and bottom 1% of each of the continuous control variables used in regression models (1) and (2) to remove extreme values. The results are robust if we winsorize (rather than delete) the extreme values. The majority of the banks in our sample (over 64% for the just-meet-or-beat test and over 76% for smoothing test) are commercial banks. The results are similar when we run our tests for the subsample of commercial banks.

¹⁵The coverage in *BankScope* is more complete from year 2000 and later. Our results are robust to excluding years 1993–1999.

¹⁶The marginal effect per standard deviation (SD) change for a cultural variable is computed as $p \times (1-p) \times \beta \times SD$, where p is the base rate (0.11) and β is the estimated coefficient from the logistic regression (Liao, 1994).

¹⁷This line of reasoning is consistent with the prior literature. For example, Ball, Robin, and Wu (2003), Watts (2003), and Ball and Shivakumar (2005) argue that timely reporting of economic losses facilitates monitoring of managerial and debt contracts, increases the economic efficiency of firms' contracting with both managers and debt holders, and improves investment efficiency and profitability. Ahmed and Duellman (2007) examine a sample of US firms and show that firms with more conservative earnings have higher future profitability and lower likelihood (and magnitude) of future special items charges.

¹⁸We note that our inferences are similar when we use Eqs. (1b) and (2b).

¹⁹Specifically, a country is considered to be developing if its equity market is not included in the Morgan Stanley Capital International database. Based on this definition, the following 19 economies are considered

as developed: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Singapore, Spain, Switzerland, the UK, and the US.

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