

**A CROSS-COUNTRY STUDY OF THE DIRECT AND INDIRECT EFFECTS OF NATIONAL CULTURE ON
INTERNAL CONTROL DISCLOSURES: AN AGENCY PERSPECTIVE**

ABSTRACT

This study examines the association between national culture and the amount of internal control information that listed companies disclose in their annual reports. In particular, we argue that culture affects managers' and investors' perceptions of agency problems and, consequently, may drive managers' disclosure choices. Using unique hand-collected data from a sample of 4,370 firm-year observations for 1,559 firms from 29 countries for the period 2005 to 2007, we find that national culture directly affects such disclosures. Moreover, we show that national culture also indirectly affects disclosures via the level of investor protection in a country. This article is the first to examine cultural determinants of internal control disclosure and to demonstrate that culture not only directly but also indirectly, via investor protection, influences disclosure choices.

Keywords – Cross-cultural research, National culture, International financial reporting, Investor protection, Disclosure.

1. Introduction

There is a growing field in accounting and finance that considers the role of cross-national cultural differences in affecting financial decision making. Several previous studies have shown that culture is associated with different aspects of corporate financial decisions, such as capital structure choices (Chui *et al.*, 2002), dividend policies (Fidrmuc and Jacob, 2010; Shao *et al.*, 2010), earnings management (Doupnik, 2008; Han *et al.*, 2010), financial disclosure (e.g., Jaggi and Low, 2000; Zarzeski, 1996), and CEO compensation (Bryan *et al.*, 2012; Li *et al.*, 2012). This emerging research interest is part of a more general trend in economics and business emphasizing the important role of culture in economic transactions (Guiso *et al.*, 2009). In our study we extend this line of research by examining how culture affects decisions to voluntarily disclose information about internal controls.

The literature on the relevance of disclosure of information is embedded in agency theory and stresses that it mitigates agency conflicts by reducing asymmetric information between managers and shareholders (Healy and Palepu, 2001; Francis *et al.*, 2005). The disclosure of information enables investors to evaluate to what extent the actions and decisions of management are in line with their interests. Investors therefore perceive disclosures as value-relevant. This also holds for internal control disclosures as information about internal control systems is an important subset of information investors use to evaluate and monitor firm management (Hammersley *et al.*, 2008). Yet, only the United States mandates the disclosure of information about internal control. Outside the United States, law does not prescribe reporting on internal control and the nature of corporate governance codes makes reporting on internal control largely voluntary. That is, outside the United States, firm management has discretion with respect to the amount of information it discloses about the firm's internal controls in the annual report. Thus, internal control disclosures can be considered to reflect economic and agency incentives and there may be considerable variation in reporting, not only between firms within a country but also cross-nationally.

In line with the literature on the relevance of disclosure of information, in this study we take an agency perspective to explain voluntary disclosures on internal controls and posit that preferences and behaviors of economic agents are culturally determined. In particular, we argue that the social normative nature of culture determine the characteristics of agency relations (Fidrmuc and Jacob, 2010;

Wiseman *et al.*, 2012). We posit that national culture determines the acceptance and legitimacy of different approaches of firm management towards the voluntary disclosure of information about internal controls. Specifically, we develop hypotheses framed in agency theory on the determinants of voluntary disclosure of information about internal controls and explain how culturally determined social norms affect the cost-benefit trade-off managers make in their disclosure choices. While we are not the first to investigate the link between culture and voluntary disclosure of firms, other studies mainly rely on Gray's (1988) theory to explain how differences in national culture lead to variations in accounting systems (e.g., Chanchani and MacGregor, 1999; Chand *et al.*, 2012; Doupnik, 2008; Doupnik and Tsakumis, 2004; Zarzeski, 1996). Gray's theory is suitable primarily for explaining the effects of national culture, through accounting values, on broad systemic or structural differences across countries (Han *et al.*, 2010; Tsakumis, 2007). However, the agency theory framework is more suitable for explaining how preferences and behaviors of economic agents are culturally determined. As such our framework constitutes the first attempt to bridge the gap that separates the firm-level voluntary disclosure literature from the country-level, systemic approach embodied by Gray's (1988) theory.

In addition we investigate whether culture indirectly, via investor protection, determines disclosure decisions. While prior studies show that differences in culture are correlated with differences in investor protection across countries (Licht *et al.*, 2005, 2007; Stulz and Williamson, 2003), and while prior studies establish that culture *directly* influences managers' financial decisions (e.g., Doupnik and Tsakumis, 2004; Doupnik, 2008; Han *et al.*, 2010; Shao *et al.*, 2010), to the best of our knowledge, we are the first to analyze whether national culture not only directly but also indirectly, via investor protection, influences managers' choices such as the level of voluntary information disclosure in annual reports.ⁱ

Our regression analyses, which relies on unique, hand-collected panel data from a sample of 4,370 firm-year observations for 1,559 firms from 29 countries during the period 2005 to 2007, provides robust evidence that differences in the amount of internal control disclosures are culturally determined. Moreover, we provide evidence that this association between culture and voluntary internal control disclosures has a direct and indirect component, i.e. part of the impact of culture on voluntary disclosures runs through the impact culture has on molding formal institutions (i.e. investor protection).

In section 2 we outline the link between internal control disclosure and national culture to derive our hypotheses. In section 3 we describe our study's research design, before presenting the empirical results in section 4. Section 5 outlines our sensitivity checks, while section 6 contains conclusions, limitations, and suggestions for further research.

2. Literature Review and Hypotheses Development

2.1. Voluntary Internal Control Disclosures

Standard agency theory frames agency relations and problems in terms of conflicts between managers (agents) and shareholders (principals). Managers take decisions to support their own interests that are not necessarily in the shareholders' interests. Furthermore, as managers have superior information, it is not always possible for shareholders to effectively detect and limit such behavior. This also applies to internal control: while internal control can protect the interests of shareholders, it is a within-firm phenomenon and, thus, managers possess superior information about these systems (Deumes and Knechel, 2008). Various solutions have been proposed to resolve agency conflicts; one of them is the voluntary disclosure of information to reduce the information asymmetry between managers and shareholders (e.g., Healy and Palepu, 2001).

In the standard agency theory framework, shareholders demand higher levels of information as this reduces information risk. This also applies to disclosures about internal control as internal control is beneficial to financial reporting quality and, thus, helps reducing information risk. To the extent that shareholders are reassured by disclosures that the internal control system yielded reliable (financial) information, they require a lower return, implying a lower cost of capital to the firm (e.g., Verrecchia, 2001; Ogneva *et al.*, 2007). Prior research also suggests that higher levels of disclosure enables shareholders to more closely monitor managers, thus disciplining them. This is expected to result in fewer agency problems resulting from managerial actions that are not optimal for shareholders, including empire building and the avoidance of optimal risk investments (Dey, 2008). As shareholders are in a position to terminate the contract with the manager, the manager is likely to at least partially respond to shareholders' demand for information about the firm's internal control system. However, a manager's decision to voluntarily disclose information is ultimately based on a trade-off between the expected benefits and costs of disclosing (Healy and Palepu, 2001).

To the manager the main benefit of voluntarily disclosing information about the firm's internal control system is that it may add to managerial reputation building. Indeed, prior survey-based evidence (Graham *et al.*, 2005) shows that establishing a reputation for accurate and transparent, i.e., credible, reporting is a key managerial motivation for voluntary disclosures. Not having a reputation for credible reporting not only reduces the effectiveness of the manager's communication efforts, it also adversely affects her reputation in the managerial labor market (Kothari *et al.*, 2009). As investors' perceptions of managerial competence and trustworthiness are enduring, establishing and maintaining a reputation for credible reporting may be particularly important (Mercer, 2004). Thus, establishing a reputation for credible reporting requires the disclosure of accurate and timely information as well as of information that is complete (Healy and Palepu, 2001; Mercer, 2004). This means that a manager has incentives to voluntarily disclose information, even if the information disclosed is not favorable from the manager's point of view (e.g., information that the internal control system did not function effectively) (Skinner, 1994).ⁱⁱ

An important cost of voluntarily disclosing information about internal control is that it may have potential legal consequences. If a manager discloses inaccurate information (i.e., information that later turns out to be incorrect) or if a manager discloses incomplete information (i.e., does not disclose information that in hindsight was value relevant), shareholders may bring lawsuits against the manager and she may be held personally liable. To the extent that this leads to bad publicity the manager will face an increased likelihood that the board of directors will fire her. This will adversely impact the manager's reputation on the managerial labor market.

Another important cost of voluntary disclosures is that they may involve proprietary information. Disclosures of internal control information for example could provide competitors with information about the firm's key risks, how it manages those, and basically provides them with information on the firm's strategy (Deumes and Knechel, 2008). By disclosing this information the firm runs the risk that new competitors are attracted to enter the market and/or that existing competitors will copy the firm's strategy. Subsequently, this may damage the firm's competitive position in products markets (Healy and Palepu, 2001; Verrecchia, 2001), adversely affecting firm performance. Evidently, both shareholders and managers bear the cost of disclosing proprietary information. For shareholders, the

cost of disclosing is that it reduces the firm's competitive position and, thus, adversely affects share price performance. Managers bear the cost, as a reduction of the firm's competitive position may reduce the possibility of successfully executing the strategy, which may affect both the managerial compensation and her career (Kothari *et al.*, 2009).

2.2. The Effect of Culture and Investor Protection on Internal Control Disclosures

Culture refers to the collective programming of the mind that distinguishes members of one group from another. This definition stresses shared values, norms, beliefs, and expected behaviors that are deeply embedded, unconscious, and often irrational (Hofstede, 2001). Such shared values define what represents acceptable and/or desirable behavior within the group and accordingly can help group members make decisions and/or judge the decisions of others. As such, culture also affects managers' and shareholders' perceptions of agency problems (e.g., Chui *et al.*, 2002; Fidrmuc and Jacob, 2010) and thus, ultimately, drive disclosure choices.

As indicated, standard agency theory frames agency relations and solutions to these problems in terms of conflicts between managers and shareholders. Yet, the nature and characteristics of agency conflicts may be culturally determined, such that they take on different characteristics and are accepted and legitimate in different cultural settings. Thus, culturally determined views about what is legitimate or not establish different preferences for the behavior of managers versus shareholders of a firm. Consequently, this may lead to different views on how to address agency problems across countries (Fidrmuc and Jacob, 2010; Shao *et al.*, 2010; Wiseman *et al.*, 2012). In the context of our study, the extent to which managers choose to disclose information voluntarily may depend on the cultural values that drive individual managers' values, preferences, and behaviors. We focus on Hofstede's (2001) individualism versus collectivism and uncertainty avoidance dimensions to investigate the impact of specific cultural values on managerial decisions to disclose internal control information as these dimensions are the most relevant when studying managers' accounting choice behaviors using an agency perspective (Bryan *et al.*, 2012).

Individualism indicates a preference for a loosely knit social framework in a society in which individuals focus on themselves rather than on the group to which they belong. In an individualistic cultural environment, decisions based on individual needs tend to prevail. This type of behavior can

largely be attributed to how people view themselves in individualistic cultures and how they pursue self-esteem. In these cultures an independent self-construal prevails involving a “conception of the self as an autonomous, independent person” (Markus and Kitayama, 1991: 226). People having an independent self-construal tend to have a worldview that centralizes the person, involving, for instance, a focus on achieving personal goals, personal success, and personal uniqueness (cf. Oyserman *et al.*, 2002). Moreover, research suggests that “[p]eople participating in individualistic cultures will stand to fare well by viewing themselves as competent and talented” (Heine and Hamamura, 2007: 22). Hence, in individualistic societies people are less focused on group interests, but instead focus much more on personal achievement.

In terms of our agency theory framework, in individualistic societies the focus on achieving personal goals and personal success imply greater agency conflicts between managers and investors (e.g., Shao *et al.*, 2010; Bryan *et al.*, 2012). At the same time, given the stronger need to view oneself as competent and talented in individualistic societies (Heine and Hamamura, 2007) managerial reputation building may be particularly important in these societies. The increased potential for differences between the principal’s and agent’s interests and the greater importance of managerial reputation building affect the level of the voluntary disclosure of information. First, the focus on achieving personal goals and personal success may involve managers’ actions that are not necessarily in the interest of the shareholders. However, because shareholders in individualistic societies recognize such behavior, which stems from their own shared cultural values, they demand more voluntary disclosure of information as this enables them to more closely monitor managers. If managers are not lenient to shareholders’ demands to disclose more information about the firm’s internal control system, managers run the risk that shareholders will terminate the contract. Second, shareholders’ perceptions of managerial competence and trustworthiness will be adversely affected. This has a negative impact on the manager’s reputation in the managerial labor market (Kothari *et al.*, 2009). As managers have self-interest in establishing and maintaining a reputation of credible reporting they are likely to respond to the shareholders’ demands and supply a higher level of information on internal control. Based on the above discussion, we hypothesize:

Hypothesis 1: Individualism is positively associated with the amount of information about internal control that firms voluntarily disclose in their annual reports.

Uncertainty avoidance is the degree to which members of a society feel uncomfortable with uncertainty and ambiguity (Hofstede, 2001). In societies with high uncertainty avoidance scores, members prefer to avoid dealing with uncertainty, ambiguity, and unstructured situations. They are critical of change, assign high value to predictability, and prefer risk-averse behavior. In contrast, in societies characterized by low uncertainty avoidance, people have much less problems dealing with uncertainty and ambiguity. They are more open to accept change, attach less value to predictability, and generally are more ready to take risks. Moreover, Bryan *et al.* (2012) suggest that cultures with lower uncertainty avoidance are more accepting of competition and more comfortable with conflict and confrontation.

One potential link between voluntary disclosure of internal control information and uncertainty avoidance indicates that investors in uncertainty avoidant societies aim at reducing risk and uncertainty, so they demand more information about how the company deals with potential risks. Again, as shareholders are in a position to terminate the contract with the manager, the manager is likely to at least partially respond to shareholders' demand for information about the firm's internal control system. This interpretation emphasizes the benefits, rather than the costs, of voluntary disclosure of information.

However, this line of reasoning fails to acknowledge that managers, who also are uncertainty avoidant, could be reluctant to voluntarily disclosing information, because they fear possible reputational and legal consequences if they disclose information about their internal control that later turns out to be incorrect (Graham *et al.*, 2005). To avoid these consequences, managers may want to limit voluntary disclosure of information on internal control as much as possible. This alternative interpretation emphasizes the costs, rather than the benefits, of voluntary disclosure. Tversky and Kahneman (1991) argue that people prefer to avoid losses rather than acquire benefits, i.e. they suffer from loss aversion. Recent empirical research has shown that individuals' loss aversion may indeed be culturally determined and is stronger in uncertainty avoidant cultures (Arkes *et al.*, 2010; Bryan *et al.*, 2012; Li *et al.*, 2012).ⁱⁱⁱ Therefore, in line with the previous discussion, we predict:

Hypothesis 2: Uncertainty avoidance is negatively associated with the amount of information about internal control that firms voluntarily disclose in their annual reports.

A widely accepted view stresses that the severity and nature of agency problems also vary with differences in investor protection. As La Porta *et al.* (1998) show, protection of (minority) shareholders' interests differs across the world, and the level of investor protection is a key institutional determinant of firm policy choices. According to empirical evidence, the level of investor protection and insiders' propensity to conceal their activities, either through earnings management (e.g., Doupnik, 2008; Han *et al.*, 2010; Leuz *et al.*, 2003) or limited information voluntarily disclosed in annual reports (e.g., Bushman *et al.*, 2004; Francis *et al.*, 2008; Gaio, 2010), exhibit a negative association. Thus, if investor protection is strong (weak), firms should have more (less) incentives to voluntarily disclose information about internal controls. In line with prior studies, we predict:

Hypothesis 3: Investor protection is positively associated with the amount of information about internal control that firms voluntarily disclose in their annual reports.

At the same time, however, researchers recently have argued that institutional settings may differ between countries because of different national cultures. Williamson (2000), in his discussion of different levels of social analysis, suggests that informal institutions such as customs, traditions and norms (i.e. culture) are at "level 1", whereas formal institutions such as law and property rights are at "level 2". In his model, higher levels impose constraints on the development of the levels immediately below. Licht *et al.* (2005: 233) argue that cultural values "...serve as sources of motivation and justification of alternative formal institutions." According to this view, national culture influences the content of formal institutions. Empirical evidence for this notion is provided by Licht *et al.* (2005, 2007). Stulz and Williamson (2003) show that differences in culture are correlated with differences in investor protection across countries. Combining the literature supporting hypotheses 1 and 2 with the literature related to hypothesis 3, and similar to Gray (1988), we argue that culture has both a direct as well as an indirect effect (through its effect on the design and development of formal institutions, such as investor protection) on firm level decisions such as voluntary disclosure of information on internal controls. Thus, investor protection mediates the association between national culture and the amount of

internal control information that firms voluntarily disclose in their annual reports. This leads us to the following two hypotheses.

As we have explained, in individualistic societies, people focus on personal achievement, which should induce stronger agency conflicts between managers and shareholders. To resolve these agency conflicts, shareholders demand more voluntary disclosure, and as discussed previously managers have incentives to obey to these demands. If in these individualistic societies shareholders' interests are well protected, managers are expected to have more incentives to disclose information about their activities. Therefore, we hypothesize:

Hypothesis 4a: Stronger investor protection positively mediates the direct positive association between individualism and the amount of information about internal control that firms voluntarily disclose in their annual reports.

Moreover, managers in uncertainty avoidant societies stress the costs rather than the benefits of voluntary disclosure, so to mitigate these costs they prefer to limit disclosure of information about internal controls as much as possible. We therefore expect a negative association between uncertainty avoidance and voluntary disclosure of information. If, in uncertainty avoidant societies, shareholders' interests are poorly protected—which implies that (minority) shareholders can exert less pressure on insiders—managers have sufficient power and incentives to limit their voluntary disclosure of information about internal controls. The amount of information disclosed about internal controls then declines even more. In contrast, when shareholders' interests are well protected, the pressure to voluntarily provide information about internal controls to outsiders increases, i.e. incentives to limit voluntary disclosure are weaker. Thus, we hypothesize:

Hypothesis 4b: Stronger investor protection negatively mediates the direct negative association between uncertainty avoidance and the amount of information about internal control that firms voluntarily disclose in their annual reports.

3. Data and Methods

3.1. Sample and Data Collection

For this study, we manually collect information about the disclosure practices of listed firms from 29 countries during the years 2005 to 2007. We exclude the United States, where SOX legally mandates that listed firms report on their internal controls. To facilitate our analysis of the relationship between culture and internal control disclosure, we ensure that our country sample is culturally diverse (in scores on Hofstede's cultural dimensions). We adopt an approach similar to that used by the Center for International Financial Analysis and Research (CIFAR) and select countries that differ in terms of their economic development (i.e., gross domestic product and total market capitalization levels; see, e.g., Bushman *et al.* (2004) for a discussion of how CIFAR constructed its database). Thus, our country sample includes both highly developed and emerging economies.

To sample firms from each of the 29 countries, we start by identifying all non-financial firms in the 29 countries included in Compustat Global as of 2005 for which all necessary financial statement variables are available. The number of firms in Compustat Global per country varies, so we use a stratified approach to select firms within each country. Specifically, we select 15 large firms (typically blue chip firms) from each country, and then randomly add more firms until we have 10% of the total number of firms listed in that country for which data is available in Compustat Global.^{iv} Thus our sample contains different numbers of firms per country. Although our approach is similar to CIFAR's approach in selecting firms (leading to similarly large numbers of British, French, German, and Japanese firms), our dataset has one main advantage. While CIFAR data tend to be skewed toward large firms (Francis *et al.*, 2008), our sample includes small and medium-sized firms as well. We purposefully aim to include both large and small or medium-sized listed firms to limit potential size biases as prior studies find a positive association between firm size and level of disclosure (e.g., Ahmed and Courtis, 1999).

For each firm, we obtain three annual reports, corresponding to the fiscal years 2005, 2006, and 2007. If a firm was delisted after 2005, we include the annual report(s) of another firm of similar size (measured by total assets). The rationale for replacing annual reports is that we aim to apply our stratified approach as consistently as possible. This procedure yields a sample of 4,370 firm-year observations for 1,559 distinct firms. For 1,383 firms (about 90% of the final sample), we have data for all three years. Table 1, Panel A, contains the breakdown of the sample per country.

We use the exchange rate data from Compustat Global Currency to translate total assets (our firm size measure) into Euros (using the closing rate). All other data are from the firms' annual reports.

3.2. Dependent Variable: Internal Control Disclosure

Prior voluntary disclosure studies generally rely on the disclosure index developed by CIFAR. Despite its extensive use, the CIFAR disclosure index has at least one important drawback from a cross-cultural perspective, i.e. it comprises both mandatory and voluntary financial disclosure items. Consequently, these analyses cannot differentiate between the possibility that cross-national differences found in these studies are the result of differences in countries' disclosure requirements versus the possibility that these differences result from differences in individual actors' behaviors and perceptions of agency problems. In our study we rely on unique, hand-collected data on internal control disclosures, which is voluntary and, thus, reflects how culturally determined social norms affect the cost-benefit trade-off individual managers make in their disclosure choices. Moreover, the CIFAR disclosure index is based on data from annual reports from the mid-1990s, which means that it does not reflect the change in investors' demands regarding types of disclosure as a result of the financial accounting scandals. Since our data refer to more recent years, these changes in demands of investors are reflected in our analysis.

Only very few studies have looked at internal control disclosures. These studies use self-constructed disclosure indices. We follow prior research in this field and construct our own internal control disclosure index (ICDisc). With the large number of firm-year observations we have, we opted for a disclosure index that is limited in number of items but captures information that provides a broad overview of the firm's internal control. Specifically, the construction of ICDisc involves three steps, similar in process to other disclosure studies.

First, the selection of items to be included in the disclosure index reflects public policy reports about corporate governance and internal control (e.g., COSO, 2004; FEE, 2005; IFAC, 2006) and our comprehensive review of prior studies on internal control disclosure (e.g., Ashbaugh-Skaife *et al.*, 2007; Deumes and Knechel, 2008; Doyle *et al.*, 2007). We identify seven separate items, which we discuss and explain in the Appendix.

Second, in line with the CIFAR approach and previous disclosure studies, we examine annual reports to identify the presence or absence of each disclosure item. We confine ourselves to information

in annual reports, to increase comparability with prior studies and because annual reports are a key source of information for investors. Moreover, we limit ourselves to the narrative portion of the annual report and exclude mandated financial statements or notes. This choice reflects that most internal control information appears in the unregulated, narrative portion (e.g., Deumes and Knechel, 2008). Furthermore, by confining ourselves to the unregulated, narrative portion, we ensure that our disclosure index reflects our theoretical arguments regarding the cost-benefit trade-off managers make.

Third, we assign firms one point for the presence of each item in their annual reports. The extent of internal control disclosure is the sum of these scores. Each item is equally weighted, because user preferences are not known (again consistent with prior research). The resulting ICDisc index measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed).^v

3.3. Independent Variables

Culture. Similar to prior studies (e.g., Han *et al.*, 2010; Jaggi and Low, 2000; Zarzeski, 1996), we use Hofstede's (2001) scores on four cultural dimensions to represent each country's cultural values. Hofstede's scores are the most widely used measures of national culture and have produced a widely accepted, well-defined, empirically based terminology to characterize culture. In addition, Hofstede's cultural dimensions are based on research within a business organization, which makes them appropriate for our study of business practices, i.e. voluntary internal control disclosure. In this analysis we include individualism (IDV), uncertainty avoidance (UAI), masculinity (MAS), and power distance (PDI).

Investor protection. In line with Engelen and Van Essen (2010) and Boulton *et al.* (2011), our proxy for investor protection is the anti-director rights index (ADRI) measure developed by Djankov *et al.* (2008). Generally speaking, the ADRI measure denotes the strength of anti-director rights in a country (0 represents the weakest and 6 the strongest anti-director rights). The coefficient for investor protection (INVP) should be positive, because we anticipate higher disclosure levels for countries with stronger investor protection environments.

Country-level characteristics. We include two country-level variables that might be associated with firm-level internal control disclosure: the level of stock market development and the level of economic

development. In countries with more developed stock markets, firms rely more on external funds to finance their activities. Moreover, prior research demonstrates that in countries with a developed stock market the demand for high-quality, voluntary disclosures are high (Ball *et al.*, 2003; Gaio, 2010). The level of stock market development is proxied by a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010) (STKDVLP). Specifically, STKDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross domestic product, and (3) the total value traded over total market capitalization. A higher value on STKDVLP implies a more developed stock market. Prior research also shows that economic development affects accounting quality (e.g., Gaio, 2010). Therefore, we include the log of gross domestic product per capita (GDP) into our analysis. Data on STKDVLP and GDP is from the World Bank.^{vi}

Firm-level characteristics. We include several firm-level variables considered in the literature to be associated with voluntary disclosure in general, and voluntary disclosure on internal control in particular. First, we control for firm size as prior studies show that firm size matters when examining voluntary disclosure (e.g., Ahmed and Courtis, 1999). We measure firm size as the natural logarithm of the firm's total assets (SIZE). Second, we include the firm's year-on-year sales growth (SGROWTH) as faster growing firms face more inherent risk, which may increase management's incentive to report about internal controls (e.g., Ashbaugh-Skaife *et al.*, 2007; Doyle *et al.*, 2007). Third, we include a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise (BIG4). Prior studies have suggested that being audited by a Big 4 audit firm is associated with higher financial reporting quality (e.g., Ashbaugh-Skaife *et al.*, 2007). Fourth, we control for U.S. listing status (USLIST); when firms cross-list in the United States, they commit to the strict U.S. requirements for firm disclosures (Doidge *et al.*, 2007). We measure U.S. listing as a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. Fifth, we include year and industry dummies^{vii} to control for the time-series and cross-sectional differences in internal control disclosures.

3.4. Statistical Analysis

Our empirical model to analyze the association between culture and investor protection on the one hand and the extent of internal control disclosure on the other is as follows:

$$\begin{aligned} \text{ICDisc}_{i,j,k} = & \beta_0 + \beta_1 \cdot \text{IDV}_k + \beta_2 \cdot \text{UAI}_k + \beta_3 \cdot \text{PDI}_k + \beta_4 \cdot \text{MAS}_k + \beta_5 \cdot \text{INVP}_k + \beta_6 \cdot \text{GDP}_k + \\ & \beta_7 \cdot \text{STKDLVP}_k + \beta_8 \cdot \text{SIZE}_{i,j,k} + \beta_9 \cdot \text{SGROWTH}_{i,j,k} + \beta_{10} \cdot \text{Y2005}_{i,j,k} + \beta_{11} \cdot \text{Y2006}_{i,j,k} + \quad (1) \\ & \beta_{12} \cdot \text{BIG4}_{i,j,k} + \beta_{13} \cdot \text{USLIST}_{i,j,k} + \sum \beta_{\square} \cdot \text{SECTOR}_{i,j,k} + \varepsilon_{i,j,k} \end{aligned}$$

where: $\text{ICDisc}_{i,t,k}$ = the level of internal control disclosure of firm i for year j in country k ; $\varepsilon_{i,j,k}$ is the error term; and all other variables are defined as previously.

The number of firms per country range from 9 in Taiwan to 175 in Japan. Therefore, we employ a weighted least squares (WLS) regression where the weight is inversely proportional to the number of observations per country. Using WLS ensures that uneven country representation in the sample will not bias the results towards countries that are more heavily represented (Han *et al.*, 2010). We report Huber-White robust standard errors. In additional sensitivity checks we show that our main results are robust to alternative estimation methods, including ordinary least squares with two-way clustered robust (country and firm levels) standard errors (Gow *et al.*, 2010) and Hierarchical Linear Modeling (HLM; Raudenbush and Bryck, 2002).

To determine whether an indirect effect of individualism and uncertainty avoidance on internal control disclosures through investor protection exists, we used the so-called M -test (MacKinnon *et al.*, 2004). According to MacKinnon *et al.* (2004) the Sobel-test, a test that is frequently used to analyze whether an indirect (or mediated) effect exists, can produce erroneous outcomes. While the Sobel-test uses critical values from the standard normal distribution to determine confidence limits for indirect effects, the M -test determines the confidence limits using the distribution of the product method which does not assume normality. To investigate the hypothesized indirect effects, we utilized the program PRODCLIN designed by MacKinnon *et al.* (2007). This program facilitates obtaining confidence limits for indirect effects that have more accurate Type I error rates and more power than the Sobel-test. It requires information on the desired significance level, the estimated α (the parameter regarding the relation between the relevant cultural dimension and investor protection), the estimated β (the parameter regarding the relation between investor protection and ICDisc) and the standard errors for α and β . If the confidence interval does not include zero, given a significance level, an indirect effect is present.

4. Results

4.1. Descriptive Analysis

In Table 1, Panel A we provide information pertaining to our dependent variable, ICDisc, at the country level. The mean value of the index is 3.64. We also note extensive heterogeneity between countries with respect to the mean value of the index. We present the descriptive statistics with respect to firm- and country-level determinants in Table 1, Panel B. The average firm has total assets of approximately €4.5 billion and experienced an annual sales increase of 51% from 2005 to 2007. Furthermore, 77% of all sampled firms have been audited by one of the Big 4 audit firms. Nine percent of the firms have shares cross-listed in the United States.

[Insert Table 1 about here]

Table 2 shows the correlations between the dependent and independent variables. In a few cases, the correlation coefficient between independent variables is greater than $|0.7|$, which may indicate possible multicollinearity issues. In particular, the correlations between individualism and investor protection ($r = 0.56$), power distance and investor protection ($r = -0.62$), and individualism and power distance ($r = -0.71$) are relatively high, which is consistent with prior studies (Hofstede, 2001; Licht *et al.*, 2005). Moreover and also consistent with prior research, we observe high correlation coefficients between on the one hand GDP per capita and investor protection ($r = 0.80$), individualism ($r = 0.73$), and power distance ($r = -0.79$) on the other. Finally, the correlation between stock market development and investor protection ($r = 0.54$) is relatively high; again this is consistent with prior research. To reduce concerns about multicollinearity, we obtained variance inflation factors for each model; these VIFs were all less than 3, and the average VIF in all models was less than 1.5; indicating that multicollinearity should not be problematic.

[Insert Table 2 about here]

4.2. The Direct Effect of Culture and Investor Protection on Internal Control Disclosures (H1 to H3)

In this sub-section, we empirically analyze the direct effect of culture and investor protection on internal control disclosures. Table 3 presents the coefficients and Huber-White robust standard errors (in parentheses) from weighted least squares regressions where the weight is inversely proportional to the number of observations per country.^{viii} In models (1), (2), and (3) we present analyses that include

our set of firm-level controls and IDV, UAI, and INVP, respectively. In model (1), we find a significantly positive association ($p < 0.01$) between IDV and ICDisc. This finding lends support to hypothesis 1 and suggests that managers from individualistic countries have a greater incentive to voluntarily disclose information about internal control than do managers from collectivistic countries. Furthermore and in support of hypothesis 2, in model (2) the association between uncertainty avoidance and ICDisc is significantly negative ($p < 0.01$), which suggests that managers in more uncertainty avoidant countries are more likely to focus on the reputational and proprietary costs of internal control disclosures and, consequently, disclose lower levels of information about internal control systems. In support of hypothesis 3, in model (3) we find higher disclosure levels for countries with stronger investor protection environments ($p < 0.01$). This result is consistent with prior evidence that financial reporting quality is positively associated with the level of investor protection (e.g., Bushman *et al.*, 2004; Francis *et al.* 2008; Leuz *et al.* 2003).

[Insert Table 3 about here]

In the next set of regressions (i.e., models (4) to (7) in Table 3) we assess the joint effect of culture, investor protection, and other institutional characteristics on internal control disclosures. First, model (4) includes both IDV and INVP; while model (6) also includes GDP and STKDVLP. Reinforcing the evidence regarding hypothesis 1, the results in these models indicate that the association between IDV and ICDisc is significantly positive ($p < 0.01$). Second, in models (5) and (7) we present the results regarding UAI. Again, the association between UAI and ICDisc is significantly negative ($p < 0.01$) confirming hypothesis 2. Lastly, in all models (i.e., models (4) to (7) in Table 3), in line with hypothesis 3, we find a significantly positive association between INVP and ICDisc ($p < 0.01$).

Although our primary focus is on the individualism versus collectivism and uncertainty avoidance dimensions as these dimensions are the most relevant when studying managers' accounting choice behaviors using an agency perspective (Bryan *et al.*, 2012), in model (8) we examine whether Hofstede's (2001) other cultural dimensions, viz. power distance (PDI) and masculinity (MAS) affect internal control disclosures. The results reported in Table 3, model (8) not only corroborate the results of our previous analyses, they also suggest a significant, positive association between PDI and ICDisc. This result is consistent with empirical evidence that shows that managers from high power distance

countries tend to be associated with higher financial reporting quality (e.g., Han *et al.*, 2010; Hope, 2003). We find no association between MAS and ICDisc; masculinity does not appear to be an important determinant of disclosure practices (Gray, 1988).

The results regarding our firm-level control variables remain relatively stable across the different models. Specifically, and in line with prior research (e.g., Ahmed and Courtis, 1999; Ashbaugh-Skaife *et al.*, 2007; Deumes and Knechel, 2008), we find positive associations between ICDisc and SIZE, BIG4, and USLIST (all $p < 0.05$). There is also some evidence that SGROWTH and ICDisc are positively associated in line with the idea that as faster growing firms face more inherent risk, managers have more incentives to disclose information about internal controls (e.g., Ashbaugh-Skaife *et al.*, 2007; Doyle *et al.*, 2007). Moreover, the results in Table 3 suggest that compared with 2005, the amount of internal control disclosures increased significantly in 2007 ($p < 0.01$). Consistent with Ball *et al.* (2003), we observe that the level of stock market development (STKDVLP) and ICDisc are positively associated ($p < 0.01$). Lastly, in contrast to Gaio (2010), we find a negative association between ICDisc and a country's development (as measured by GDP) ($p < 0.01$).

4.3. The Indirect Effect of Culture via Investor Protection on Internal Control Disclosures (H4a and H4b)

To test hypotheses 4a and 4b, which predicted that national culture also indirectly, via investor protection, influences the level of voluntary information disclosure in annual reports, we employ the *M*-test (MacKinnon *et al.*, 2004). Using information on the estimated α (the estimated coefficient for the relationship between either IDV and INVP or UAI and INVP), the estimated β (the estimated coefficient regarding the relationship between INVP and ICDisc) and the standard errors for α and β , we determine the 90% confidence intervals (CI) for models (4) to (8). If the confidence interval does not include zero, given a significance level of 90%, an indirect effect is present. Table 4, Panel A includes the results for the indirect effects of individualism on ICDisc through investor protection (hypothesis 4a); Panel B includes the results for the indirect effects of uncertainty avoidance on ICDisc through investor protection (hypothesis 4b).

[Insert Table 4 about here]

Table 4, Panel A provides evidence that supports hypothesis 4a. In specifications (4), (6), and (9) which build on models (4), (6), and (9) of Table 3, the 90% confidence interval does not include zero, suggesting that there is an indirect effect of individualism on ICDisc through investor protection. Furthermore, Table 4, Panel A shows that both the direct and indirect effects are positive. Taken together, the results in Table 4, Panel A suggest that the indirect link (via investor protection) between individualism and ICDisc is reliably nonzero, i.e. investor protection strengthens the positive direct link between individualism and internal control disclosure. The results in Table 4, Panel B suggest that, in all specifications, the 90% confidence interval excludes zero and, hence, that there is an indirect link (via investor protection) between uncertainty avoidance and the ICDisc. Moreover, the results reported in Table 4, Panel B show that, while the direct effect indicates a negative relationship between UAI and ICDisc, the indirect link (via INVP) has an opposite (i.e. positive) impact on ICDisc. We interpret this combined result as indicating that managers in countries with high uncertainty avoidance and high levels of investor protection will respond to shareholders' increased demands by increasing the amount of information about internal control they disclose. Taken together, the results in Table 4, Panel B suggest that the total link between uncertainty avoidance and the ICDisc is negative, and thus that the direct impact of uncertainty avoidance dominates. Overall, on the basis of these results we accept hypothesis 4b, which stated that investor protection mediates the direct association between uncertainty avoidance and the amount of information about internal control that firms voluntarily disclose in their annual reports.

5. Sensitivity Checks

5.1. Sensitivity Checks using Alternative Dependent and Explanatory Variables

In this sub-section, we report the results of a number of sensitivity checks using alternative dependent and explanatory variables. The results are shown in Table 5. Panel A presents the results with respect to the direct effects (i.e., hypotheses 1 to 3); Panel B presents the results regarding the indirect effects (i.e., hypotheses 4a and 4b) using the *M*-test as explained in section 3.4 to determine the 90% confidence intervals.

First, to test the sensitivity of the model to our choice of cultural variables, we consider the GLOBE cultural dimensions (House *et al.*, 2004) as alternatives to the cultural dimensions distinguished by

Hofstede. The GLOBE cultural dimensions are the result of a study conducted in the mid-1990s in 62 countries. Among other dimensions, the GLOBE study distinguished an uncertainty avoidance dimension (UASP) and two collectivism dimensions (*viz.* societal in-group collectivism (SIGCPS) and societal institutional collectivism (SICPS)).^{ix} Panel A of Table 5, models (9) and (10) report the results using these alternative cultural variables and reveal similar patterns with respect to our hypotheses about the direct effect of culture and investor protection on internal control disclosures.^x Moreover, the 90% confidence intervals (as shown in table 5, Panel B) do not include zero and, hence, suggest that there is an indirect effect of both individualism and uncertainty avoidance on ICDisc through investor protection.

[Insert Table 5 about here]

In models (11) and (12), we use the ADRI measure developed by Spamann (2010) ($INVP_{updated}$) as an alternative to Djankov *et al.*'s (2008) measure. One disadvantage of this measure is that our sample size decreases considerably given the lower number of countries covered by Spamann (2010). Using $INVP_{updated}$ as our proxy for investor protection we still find evidence supporting the direct effects of IDV and UAI on ICDisc (see Table 5, Panel A). We only find partial support for hypothesis 3, which predicted a positive association between investor protection and ICDisc, as only in model (12) we find a significant positive association between $INVP_{updated}$ and ICDisc (see Table 5, Panel A). Lastly, based on $INVP_{updated}$ we find support for the indirect effect of UAI on ICDisc, but not for the indirect effect of IDV on ICDisc (see Table 5, Panel B).

Third and finally, as an alternative disclosure measure, we use a dummy variable that equals 1 if the firm's ICDisc score is greater than the sample median and 0 otherwise. This new dependent variable, in combination with logit regression, yields similar results regarding the direct effects of IDV, UAI, and INVP on ICDisc as shown in model (15) and (16) in Table 5, Panel A. Moreover, the 90% confidence intervals (see Table 5, Panel B) do not include zero and, again, suggest that there is an indirect effect of both individualism and uncertainty avoidance on ICDisc through investor protection.

We conclude from these sensitivity analyses that our findings are robust to our variable measurement choices, because we predominantly reach the same qualitative conclusions about the

influence of culture and the mediating effect of investor protection on the amount of internal control information firms disclose in their annual reports.

5.2. Sensitivity Checks using Alternative Estimation Methods

In this sub-section, we report the results of a number of sensitivity checks using alternative estimation methods. First, to address possible endogeneity issues due to the possibility that firms with weaker internal controls (i.e., firms that have to report bad news) may be less likely to voluntarily disclose information regarding the firm's internal control (e.g., Francis *et al.*, 2008), we use a two-stage Heckman self-selection procedure. In the first stage, we use probit estimation to model the decision to disclose information that the firm's internal control was ineffective. In the second stage, we re-estimate the relationship between the explanatory variables and ICDisc after controlling for the inverse Mills ratios, which is calculated using the first-stage results. In the probit models, we include all firm-level control variables of our main model (i.e., firm size, sales growth, Big-4 auditor, and US-listing) and an (exogenous) instrumental variable. Within accounting research it is difficult to identify truly exogenous instrumental variables (Lennox *et al.*, 2012). In this study we choose firm age as our instrumental variable, as it is (generally speaking) not a firm choice variable. In addition, prior research shows that firm age is associated with the likelihood that a firm has weaknesses in internal control (Doyle *et al.*, 2007). As the year in which a firm was founded is not readily available, we follow Doyle *et al.* (2007) and calculate firm age as the number of years the firm has data on Compustat Global.^{xi} Table 6, models (15) and (16) present the results after controlling for self-selection. Unreported results regarding the first-stage probit models show that firm size and firm age are significant explanatory variables. More importantly, the second-stage results (as reported in models (15) and (16) in Table 6) are consistent with our main results (see Table 6, Panel A). Furthermore, the 90% confidence intervals (as shown in Table 6, Panel B) do not include zero and, hence, suggest that there is an indirect effect of both individualism and uncertainty avoidance on ICDisc through investor protection.

[Insert Table 6 about here]

Second, to alleviate the concern that the use of WLS regressions leads to inflated parameter estimators, we re-estimate the models using ordinary least squares (OLS) regressions. We report two-way clustered-robust standard errors (Gow *et al.*, 2010). First, we cluster by country as it is likely that

firms located within one country have similar disclosure practices (i.e., there may be cross-sectional dependence), such that observations within a country are not treated as independent, but observations across countries are (*cf.* Doidge *et al.*, 2007). Moreover, because it is likely that firms' internal control disclosure practices are sticky (i.e., there may be time-series dependence in the data) we clustered the standard errors by firm. The results are presented in Panel A of Table 6, models (17) and (18) and reinforce our inferences regarding the direct effects of culture and investor protection on internal control disclosures (i.e., hypotheses 1 to 3). Furthermore, the 90% confidence interval (see Table 6, Panel B) regarding the indirect effect of IDV, via investor protection, on ICDisc does not include zero and, hence, suggest that there is an indirect effect of individualism on internal control disclosures (hypothesis 4a). However, we are unable to find evidence (see Table 6, Panel B) that supports a statistically significant indirect effect of UAI, via investor protection, on internal control disclosures.

Third, and finally, we apply Hierarchical Linear Modeling (HLM; Raudenbush and Bryck, 2002). By using HLM, we can simultaneously estimate country-, firm- and time-level parameters without distorting the results. Furthermore, HLM ensures that uneven country representation in the sample does not lead to biased estimates of the parameters (Raudenbush and Bryck, 2002). Our data set contains a hierarchical structure with three levels, each represented by its own regression equation. The Level-1 model estimates the relationship between the dependent variable (ICDisc) and time varying firm characteristics (e.g., SIZE and SGROWTH). The Level-2 model estimates the effects of time-invariant firm characteristics (e.g., BIG4, USLIST and sector dummies).^{xii} Finally, the Level-3 model estimates the effects of the country characteristics. Consistent with prior research (e.g., Engelen and Van Essen, 2010), we apply hierarchical linear modeling with random intercepts and fixed coefficients (i.e., the effects are assumed to be the same across time, firms, and countries). Moreover, as our main interest is in the effects of the country-level variables on ICDisc we centered all lower level variables (i.e., time- and firm levels) at the grand mean (Hofmann and Gavin, 1998).^{xiii} The results are shown in Table 6, models (19) and (20). We again find evidence in support of the direct and indirect effect of IDV on ICDisc (for the direct effects see Panel A; the indirect effects are shown in Panel B). Yet, while we still find evidence in support of a direct effect of UAI on ICDisc, the results reported in Table 6, Panel B fail

to support an indirect effect of UAI, via INVLP, on ICDisc (as the 90% confidence interval does not exclude zero).

We conclude from these sensitivity analyses that our findings regarding the direct effects of culture and investor protection are robust to estimation methods, because we predominantly reach the same qualitative conclusions about the influence of culture. Moreover, we continue to find evidence in support of the indirect effect of individualism, via investor protection, on the amount of internal control information firms disclose in their annual reports. However, we only find partial support for the indirect effect of uncertainty avoidance, via investor protection, on the amount of internal control information firms disclose in their annual reports.

6. Conclusions, Limitations, and Future Research

The central focus of this study has been the empirical examination of the association between the national culture in which firms operate and the amount of internal control information they disclose in their annual reports. The study presents an extended view of the voluntary disclosure literature and relies on agency theory to explain how national culture affects the cost-benefit trade-off managers make in their disclosure choices. As such, this study builds on the notion that culture affects individual actors' perceptions of agency problems, which, consequently, may drive disclosure choices. We are the first to use an agency perspective in explaining the link between culture and voluntary disclosure choices regarding informal control information.

Our unique data, which feature a sample of 4,370 firm-year observations for 1,559 firms from 29 countries for the period 2005 to 2007, reveal that national culture is associated with cross-national differences in the amount of information about internal control that firms disclose in their annual reports, after we control for firm characteristics. In particular, we show that the amount of internal control information firms present is positively associated with individualism and negatively with uncertainty avoidance. Moreover, we provide evidence that this association between culture and voluntary internal control disclosures has a direct and indirect component, i.e. part of the impact of culture on voluntary disclosures runs through the impact culture has on molding formal institutions (i.e. investor protection), which in turn affect voluntary disclosures. We are not aware of any other study

investigating both the direct and indirect effects of national culture on corporate decisions such as the level of voluntary information disclosure in annual reports.

This study is subject to some limitations. First, we only studied listed firms, and it is unclear whether our results generalize to non-listed firms. It would be interesting to extend our research and unravel whether there are cross-national differences, as well as whether culture and the institutional environment remain important determinants for this type of firms. Second, although our dependent variable is consistent with prior research, it is a rather crude measure of internal control disclosures. It would be interesting to extend our research by focusing on the amount and detail of information firms voluntarily disclose. Third, although we considered determinants of the amount of internal control information disclosed in annual reports cross-nationally, we did not examine its consequences. A potentially fruitful area for research would be to examine potential cross-national differences in the association between internal control disclosure practices and firms' cost of capital. This effort would be a natural extension of studies by Francis *et al.* (2005) and Ogneva *et al.* (2007), which have shown the importance of voluntary internal control disclosures for investor decisions.

Our empirical results can make an important contribution to the debate on the development and design of corporate governance practices. Accounting scandals and corporate failures in recent years, as well as the current global financial and economic crisis, have reaffirmed the importance of corporate governance practices. In particular, such scandals and crises have raised calls for improved internal control systems, as well as enhanced reporting about such systems. Many of these calls are characterized by the view that there is an optimal way of developing such systems. It features prominently in codes of best practice of many countries, which have been formulated as a guidance for firms how to improve their governance in general, and internal control systems in particular. It also features in discussions among practitioners and academic researchers who often explicitly or implicitly subscribe to the view that there is an optimal governance structure for firms.

Our study shows that differences in observed corporate governance practices, such as the disclosure of information about internal control, are influenced by cultural differences. International calls for uniform best practices regarding disclosure of internal control information may therefore turn out to be counterproductive, as there may likely be no uniform approach to tackling accounting scandals

and corporate failures. To the extent that variations in culture affect actual disclosure practice, it may thus be wise to consider cultural variations when attempting to develop or update codes of corporate governance to improve internal control disclosures and protect investors' interests. Put differently, our findings suggest that introducing a uniform approach to demanding disclosure of (more) information about internal control may not necessarily translate into uniform reporting practices.

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Table 1
Descriptive statistics

Panel A: Dependent variable (ICDisc) per country

Country	Number of firm-year observations	Number of firms	Mean	Median	SD	Min	Max
Australia	224	79	4.48	5.00	1.34	0.00	7.00
Austria	45	15	3.09	3.00	1.00	1.00	5.00
Brazil	140	53	2.96	3.00	1.75	0.00	7.00
Czech Republic	37	15	3.35	3.00	1.23	0.00	6.00
Denmark	126	45	3.79	4.00	1.06	0.00	7.00
Finland	135	45	3.08	3.00	1.05	0.00	5.00
France	227	81	3.89	4.00	1.84	0.00	7.00
Germany	274	92	3.83	4.00	1.23	0.00	7.00
Greece	135	46	2.53	3.00	0.96	0.00	5.00
Hungary	45	15	2.67	3.00	1.23	0.00	6.00
India	175	59	3.55	4.00	1.52	0.00	7.00
Indonesia	143	59	3.35	3.00	1.83	0.00	7.00
Italy	168	61	3.48	4.00	1.19	0.00	7.00
Japan	511	175	2.98	3.00	1.81	0.00	7.00
Malaysia	181	65	5.56	6.00	1.33	0.00	7.00
Mexico	108	43	2.13	2.00	1.52	0.00	7.00
New Zealand	45	15	2.27	2.00	1.32	0.00	5.00
Poland	66	32	2.48	3.00	1.19	0.00	6.00
Russia	96	45	3.09	3.00	1.54	0.00	7.00
Singapore	90	30	3.91	4.00	1.40	1.00	7.00
South Africa	139	53	4.03	4.00	1.31	0.00	7.00
South Korea	204	74	1.85	0.50	2.25	0.00	7.00
Spain	89	32	3.99	4.00	1.52	0.00	7.00
Sweden	150	52	4.28	5.00	1.64	0.00	7.00
Switzerland	135	45	3.80	4.00	1.45	0.00	7.00
Taiwan	22	9	3.41	3.00	2.02	0.00	6.00
Thailand	165	52	4.40	5.00	1.29	1.00	7.00
Turkey	90	35	3.20	3.00	1.36	1.00	6.00
United Kingdom	405	137	5.07	5.00	1.48	0.00	7.00
Total	4,370	1,559	3.64	4.00	1.78	0.00	7.00

Table continues on the next page

Panel B: Independent variables

	Mean	Median	SD	Min	Max
SIZE (in million €)	4,571.01	312.42	14,010.725	0.26	96,010.00
SGROWTH	0.51	0.11	2.02	-0.91	13.00
BIG4	0.77	1.00	0.42	0.00	1.00
USLIST	0.09	0.00	0.29	0.00	1.00
CONSUMER	0.24	0.00	0.43	0.00	1.00
MANUFACTURING	0.28	0.00	0.45	0.00	1.00
HI-TECH	0.14	0.00	0.35	0.00	1.00
HEALTH CARE	0.05	0.00	0.21	0.00	1.00
OTHER	0.29	0.00	0.45	0.00	1.00
IDV	54.66	55.00	23.35	14.00	90.00
UAI	63.35	65.00	24.34	8.00	112.00
PDI	53.32	54.00	19.86	11.00	104.00
MAS	56.99	58.00	21.42	5.00	95.00
INVP	3.99	4.00	0.92	2.00	5.00
GDP	20,225.21	26,316.96	12,122.81	659.88	40,458.17
STKDVLP	0.60	0.59	2.28	-3.50	6.17

This table presents the descriptive statistics for continuous and dichotomous variables for the full sample. Panel A presents the descriptive statistics regarding the dependent variable, ICDisc, which measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed). Panel B presents descriptive statistics regarding the explanatory variables. SIZE is total assets in million €. SGROWTH is the firm's year-on-year sales growth. BIG4 is a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise. USLIST is a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. CONSUMER, MANUFACTURING, HI-TECH, HEALTH CARE, and OTHER are sector dummies that take the value of 1 if the firm is active in the sector and 0 otherwise. IDV, UAI, PDI, and MAS are from Hofstede (2001). INVP is the anti-director rights index developed by Djankov *et al.* (2008). GDP is the gross domestic product per capita (in €). STKDVLP is a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010). Specifically, STDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross domestic product, and (3) the total value traded over total market capitalization.

Table 2
Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 ICDisc	1.00	0.07	0.03	0.19	0.09	0.01	-0.05	0.02	-0.03	0.04	0.23	-0.34	-0.08	-0.04	0.21	0.15	0.16
2 SIZE	0.10	1.00	0.10	0.18	0.27	-0.03	0.04	-0.12	-0.06	0.10	-0.04	0.08	0.12	-0.18	-0.19	-0.10	-0.14
3 SGROWTH	0.03	-0.01	1.00	-0.02	0.00	-0.08	-0.01	0.00	0.03	0.07	-0.01	-0.09	0.06	-0.08	0.02	-0.09	-0.06
4 BIG4	0.21	0.17	-0.01	1.00	0.11	0.00	0.01	0.01	0.00	-0.02	0.17	-0.02	-0.20	0.04	-0.11	0.22	0.06
5 USLIST	0.10	0.28	-0.04	0.11	1.00	-0.02	-0.02	0.10	0.00	-0.05	0.02	0.05	0.05	0.00	-0.01	-0.01	-0.07
6 CONSUMER	0.01	-0.02	-0.02	0.00	-0.02	1.00	-0.36	-0.23	-0.12	-0.36	-0.04	0.00	0.05	0.03	0.06	-0.05	0.01
7 MANUFACTURING	-0.05	0.03	-0.02	0.01	-0.02	-0.36	1.00	-0.26	-0.14	-0.40	-0.06	0.10	0.01	0.04	-0.02	-0.02	-0.02
8 HI-TECH	0.02	-0.11	0.02	0.01	0.10	-0.23	-0.26	1.00	-0.09	-0.26	0.04	0.00	-0.08	-0.01	-0.04	0.08	0.07
9 HEALTH CARE	-0.02	-0.06	0.02	0.00	0.00	-0.12	-0.14	-0.09	1.00	-0.14	0.09	-0.05	-0.07	0.03	-0.02	0.09	0.04
10 OTHER	0.04	0.11	0.02	-0.02	-0.05	-0.36	-0.40	-0.26	-0.14	1.00	0.03	-0.08	0.04	-0.07	0.01	-0.04	-0.06
11 IDV	0.23	-0.03	0.05	0.17	0.02	-0.04	-0.05	0.04	0.08	0.02	1.00	-0.33	-0.69	0.20	-0.10	0.73	0.38
12 UAI	-0.35	0.07	-0.08	-0.03	0.06	0.00	0.10	0.00	-0.05	-0.08	-0.29	1.00	0.29	0.30	-0.36	-0.22	-0.21
13 PDI	-0.04	0.09	-0.01	-0.17	0.03	0.05	0.01	-0.07	-0.08	0.04	-0.71	0.18	1.00	-0.15	0.20	-0.79	-0.54
14 MAS	-0.08	-0.23	-0.04	-0.01	-0.01	0.04	0.06	-0.03	0.02	-0.08	0.10	0.40	0.00	1.00	-0.02	0.13	0.13
15 INVP	0.19	-0.21	0.04	-0.08	-0.01	0.05	-0.01	-0.02	-0.02	-0.01	-0.09	-0.42	0.18	0.03	1.00	0.80	0.31
16 GDP	0.03	-0.08	0.00	0.25	-0.01	-0.04	0.00	0.08	0.04	-0.04	0.58	0.09	-0.67	0.14	0.78	1.00	0.60
17 STKDVLP	0.17	-0.11	0.02	0.08	-0.06	0.00	-0.02	0.07	0.05	-0.06	0.46	-0.25	-0.47	0.11	0.29	0.58	1.00

This table presents the correlation coefficients between the dependent and independent variables. ICDisc measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed). SIZE is the natural logarithm of total assets. SGROWTH is the firm's year-on-year sales growth. Y2005 (Y2006) represents a year dummy that take the value of 1 if the annual report is from fiscal year 2005 (2006) and 0 otherwise. BIG4 is a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise. USLIST is a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. CONSUMER, MANUFACTURING, HI-TECH, HEALTH CARE, and OTHER are sector dummies that take the value of 1 if the firm is active in the sector and 0 otherwise. IDV, UAI, PDI, and MAS are from Hofstede (2001). INVP is the anti-director rights index developed by Djankov *et al.* (2008). GDP is the log of gross domestic product per capita. STKDVLP is a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010). Specifically, STKDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross domestic product, and (3) the total value traded over total market capitalization.

Pearson correlation coefficients are presented below the diagonal. Spearman's Rho is reported above the diagonal. Correlations greater than the absolute value of 0.04 are statistically significant at the 1% level; correlations greater than the absolute value of 0.03 are statistically significant at the 5% level. Correlations are based on firm-level observations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	2.316*** (0.260)	3.151*** (0.262)	0.676** (0.293)	0.081 (0.304)	2.027*** (0.318)	2.682*** (0.511)	3.565*** (0.531)	0.965*** (0.358)
SIZE	0.031** (0.012)	0.072*** (0.013)	0.051*** (0.012)	0.060*** (0.012)	0.075*** (0.012)	0.049*** (0.012)	0.065*** (0.012)	0.074*** (0.013)
SGROWTH	0.039*** (0.013)	0.021 (0.013)	0.029** (0.013)	0.027** (0.013)	0.020 (0.013)	0.027** (0.013)	0.020 (0.014)	0.017 (0.014)
Y2005	-0.277*** (0.078)	-0.271*** (0.076)	-0.272*** (0.076)	-0.272*** (0.076)	-0.270*** (0.075)	-0.275*** (0.075)	-0.273*** (0.074)	-0.269*** (0.076)
Y2006	-0.105 (0.078)	-0.089 (0.076)	-0.090 (0.077)	-0.089 (0.077)	-0.085 (0.076)	-0.092 (0.075)	-0.087 (0.075)	-0.087 (0.076)
BIG4	0.615*** (0.080)	0.549*** (0.074)	0.678*** (0.074)	0.585*** (0.078)	0.576*** (0.074)	0.663*** (0.082)	0.618*** (0.080)	0.547*** (0.077)
USLIST	0.359*** (0.116)	0.389*** (0.114)	0.249** (0.115)	0.233** (0.113)	0.324*** (0.114)	0.303*** (0.114)	0.386*** (0.116)	0.273** (0.111)
IDV	0.006*** (0.002)			0.008*** (0.002)		0.009*** (0.002)		0.012*** (0.002)
UAI		-0.021*** (0.001)			-0.016*** (0.001)		-0.015*** (0.001)	-0.017*** (0.002)
PDI								0.012*** (0.002)
MAS								-0.000 (0.001)
INVP			0.394*** (0.029)	0.416*** (0.030)	0.202*** (0.032)	0.279*** (0.039)	0.113*** (0.041)	0.170*** (0.037)
GDP						-0.211*** (0.035)	-0.115*** (0.038)	
STKDVLP						0.133*** (0.019)	0.114*** (0.019)	
Sector dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	4,166	4,166	4,166	4,166	4,166	4,166	4,166	4,166
R-squared	0.05	0.13	0.10	0.11	0.14	0.14	0.16	0.15

This table presents the results based on Weighted Least Squares (WLS) regressions where the weight is inversely proportional to the number of observations per country. In all regression models the dependent variable is ICDisc, which measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed). SIZE is the natural logarithm of total assets. SGROWTH is the firm's year-on-year sales growth. Y2005 (Y2006) represents a year dummy that take the value of 1 if the annual report is from fiscal year 2005 (2006) and 0 otherwise. BIG4 is a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise. USLIST is a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. IDV, UAI, PDI, and MAS are from Hofstede (2001). INVP is the anti-director rights index developed by Djankov *et al.* (2008). GDP is the log of gross domestic product per capita. STKDVLP is a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010). Specifically, STKDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross domestic product, and (3) the total value traded over total market capitalization. The models include four sector dummies (i.e., consumer, manufacturing, hi-tech, and health care, with the category "other" being the hold-out group). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively (one-tailed tests for hypothesized effects, two-tailed for control variables). Huber-White robust standard errors are in parentheses.

Table 4
Results regarding the Indirect Effect of Culture, via Investor Protection, on Internal Control Disclosures

Panel A: Indirect effect of individualism on ICDisc through investor protection

<i>Model</i>	90% confidence interval		Decomposition of effects		
	<i>Lower bound</i>	<i>Upper bound</i>	<i>Total</i>	<i>Direct</i>	<i>Indirect</i>
(4)	0.022	0.028	0.033	0.008	0.025
(6)	0.013	0.021	0.026	0.009	0.017
(8)	0.007	0.014	0.022	0.012	0.010

Panel B: Indirect effect of uncertainty avoidance on ICDisc through investor protection

<i>Model</i>	90% confidence interval		Decomposition of effects		
	<i>Lower bound</i>	<i>Upper bound</i>	<i>Total</i>	<i>Direct</i>	<i>Indirect</i>
(5)	0.007	0.012	-0.006	-0.016	0.010
(7)	0.002	0.009	-0.009	-0.015	0.006
(9)	0.005	0.012	-0.009	-0.017	0.008

This table presents the results of the *M*-test to verify whether the indirect effect of culture (i.e., IDV and UAI, respectively) on internal control disclosures, via investor protection, is statistically significant. Using information on the estimated α (the estimated coefficient for the relationship between either IDV and INVP or UAI and INVP), the estimated β (the estimated coefficient regarding the relationship between INVP and ICDisc) and the standard errors for α and β , we determine the 90% confidence intervals. If the confidence interval does not include zero, given a significance level, an indirect effect is present. Panel A presents the results regarding the indirect effect of individualism; Panel B relates to uncertainty avoidance. The numbers in the most-left column (i.e., the column labeled “model”) correspond to the models in Table 3.

Table 5

Weighted Least Square (WLS) regressions of internal control disclosures on culture, investor protection and control variables using alternative dependent and explanatory variables

Panel A: Direct effects

	(9)	(10)	(11)	(12)	(13)	(14)
Intercept	5.763*** (0.724)	1.591*** (0.532)	5.240*** (0.475)	4.589*** (0.454)	-2.461*** (0.775)	-3.388*** (0.633)
SIZE	0.042*** (0.013)	0.053*** (0.012)	0.017 (0.013)	0.045*** (0.013)	0.064*** (0.018)	0.078*** (0.014)
SGROWTH	0.027** (0.013)	0.022* (0.013)	0.032** (0.013)	0.022* (0.013)	0.013 (0.021)	0.001 (0.018)
BIG4	0.689*** (0.081)	0.695*** (0.079)	0.532*** (0.083)	0.418*** (0.085)	0.769*** (0.134)	0.616*** (0.102)
USLIST	0.240** (0.116)	0.372*** (0.120)	0.285** (0.123)	0.328*** (0.123)	0.294** (0.148)	0.485*** (0.126)
SICPS	-0.312*** (0.072)					
SIGCPS	-0.254*** (0.061)					
UASP		0.470*** (0.050)				
IDV			0.006*** (0.002)		0.006*** (0.002)	
UAI				-0.014*** (0.001)		-0.018*** (0.002)
INVP	0.319*** (0.045)	0.188*** (0.040)			0.528*** (0.060)	0.504*** (0.050)
INVP _{updated}			0.042 (0.048)	0.109*** (0.046)		
GDP	-0.214*** (0.041)	-0.235*** (0.040)	-0.285*** (0.030)	-0.170*** (0.032)	-0.281*** (0.052)	-0.021 (0.045)
STKDVLP	0.135*** (0.019)	0.119*** (0.020)	0.179*** (0.017)	0.136*** (0.018)	0.179*** (0.025)	0.099*** (0.020)
Sector dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	4,129	4,129	3,721	3,721	4,166	4,166
(Pseudo) R-squared	0.14	0.15	0.10	0.13	0.10	0.14

Panel B: Indirect effects

IDV (lower bound; upper bound)	(0.210; 0.338)	-	(-0.003; 0.008)	-	(0.026; 0.038)	-
UAI (lower bound; upper bound)	-	(0.103; 0.215)	-	(0.002; 0.011)	-	(0.021; 0.029)

This table presents the results of various robustness checks based on Weighted Least Squares (WLS) regressions where the weight is inversely proportional to the number of observations per country. Panel A presents the results regarding the direct effects (i.e., hypotheses 1 to 3). Panel B shows the 90% confidence intervals based on the *M*-test and indicate whether an indirect effect exists (i.e., hypotheses 4a and 4b). If the confidence interval does not include zero an indirect effect is present. In columns (9) to (12) the dependent variable is ICDisc, which measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed). In columns (13) and (14) the dependent variable is a dummy variable that equals 1 if the firm's ICDisc score is greater than the sample median and 0 otherwise (and we apply logit regression). SIZE is the natural logarithm of total assets. SGROWTH is the firm's year-on-year sales growth. BIG4 is a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise. USLIST is a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. IDV and UAI are from Hofstede (2001). SICP, SIGCP, and UAP are from GLOBE (House *et al.*, 2004). INVP is the anti-director rights index developed by Djankov *et al.* (2008). INVP_{updated} is the ADRI measure developed by Spamann (2010). GDP is the log of gross domestic product per capita. STKDVLP is a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010). Specifically, STKDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross domestic product, and (3) the total

value traded over total market capitalization. The models include two year (Y2005 and Y2006) and four sector dummies (i.e., consumer, manufacturing, hi-tech, and health care). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively (one-tailed tests for hypothesized effects, two-tailed for control variables). Huber-White robust standard errors are in parentheses.

Table 6
Regressions of internal control disclosures on culture, investor protection and control variables using alternative estimation methods

Panel A: Direct effects

	(15) WLS, Heckman	(16) WLS, Heckman	(17) OLS, clustering	(18) OLS, clustering	(19) HLM	(20) HLM
Intercept	2.622*** (0.514)	3.526*** (0.535)	2.158 -1.679	2.842* -1.464	3.852*** -1.358	5.051*** -1.337
SIZE	0.050*** (0.013)	0.064*** (0.013)	0.068*** (0.020)	0.065*** (0.018)	0.0625*** (0.014)	0.063*** (0.014)
SGROWTH	0.027** (0.013)	0.020 (0.014)	0.016 (0.012)	0.010 (0.010)	0.009 (0.007)	0.009 (0.007)
BIG4	0.665*** (0.082)	0.618*** (0.080)	0.724*** (0.251)	0.635** (0.252)	0.697*** (0.211)	0.692*** (0.212)
USLIST	0.278** (0.131)	0.349*** (0.133)	0.302* (0.159)	0.446*** (0.156)	0.679*** (0.194)	0.682*** (0.196)
Mills Inverse Ratio	0.010 (0.044)	0.019 (0.044)				
IDV	0.009*** (0.002)		0.017** (0.008)		0.011* (0.007)	
UAI		-0.015*** (0.001)		-0.020*** (0.005)		-0.016*** (0.005)
INVP	0.283*** (0.039)	0.113*** (0.041)	0.349** (0.166)	0.168* (0.130)	0.304** (0.149)	0.127 (0.130)
GDP	-0.208*** (0.036)	-0.113*** (0.039)	-0.263 (0.160)	-0.021 (0.124)	-0.218 (0.129)	-0.111 (0.114)
STKDVLP	0.130*** (0.019)	0.112*** (0.020)	0.094 (0.072)	0.080 (0.076)	0.123* (0.068)	0.103 (0.066)
Sector dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	4,141	4,141	4,166	4,166	4,166	4,166
R-squared	0.14	0.16	0.16	0.18	0.16	0.18

Panel B: Indirect effects

IDV (lower bound; upper bound)	(0.013; 0.021)	-	(0.005; 0.0380)	-	(0.004; 0.033)	-
UAI (lower bound; upper bound)	-	(0.002; 0.009)	-	(-0.002; 0.019)	-	(-0.004; 0.017)

This table presents the results based on alternative estimation methods. In all regression models the dependent variable is ICDisc, which measures the extent to which management voluntarily reports on internal controls, with values ranging from 0 (no items disclosed) to 7 (all items disclosed). Panel A presents the results regarding the direct effects (i.e., hypotheses 1 to 3). Panel B shows the 90% confidence intervals based on the *M*-test and indicate whether an indirect effect exists (i.e., hypotheses 4a and 4b). If the confidence interval does not include zero an indirect effect is present. Columns (15) and (16) show the second stage results of a Heckman self-selection procedure to address possible endogeneity issues. In the (unreported) first stage, we use probit estimation to model the decision to disclose information that the firm's internal control was ineffective. In the probit models, we include all firm-level control variables of our main model (i.e., firm size, sales growth, Big-4 auditor, and US-listing) and firm age is our (exogenous) instrumental variable. The results of the first-stage are used to obtain the Mills Inverse ratio. In columns (17) and (18) the results are based on an Ordinary Least Squares regression with robust standard errors clustered by country and firm (Gow *et al.*, 2010). In columns (19) and (20) the results are based on Hierarchical Linear Modeling (HLM) which takes into account the nature of the data (time-series data about firms nested in different countries) and we report Huber-White robust standard errors in parentheses.

SIZE is the natural logarithm of total assets. SGROWTH is the firm's year-on-year sales growth. BIG4 is a dummy variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise. USLIST is a dummy variable that equals 1 if the firm's shares are cross-listed in the United States and 0 otherwise. IDV, UAI, PDI, and MAS are from Hofstede (2001). INVP is the anti-director rights index developed by Djankov *et al.* (2008). GDP is the log of gross domestic product per capita. STKDVLP is a composite measure similar to Francis *et al.* (2008) and Shao *et al.* (2010). Specifically, STKDVLP equals the sum of the standardized values of (1) total market capitalization over gross domestic product, (2) total value traded over gross

domestic product, and (3) the total value traded over total market capitalization. The models include two year (Y2005 and Y2006) and four sector dummies (i.e., consumer, manufacturing, hi-tech, and health care).

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively (one-tailed tests for hypothesized effects, two-tailed for control variables). Standard errors are in parentheses.

Appendix

The Appendix table below presents the seven separate items of the internal control disclosure index we used to measure the amount of information about internal control that firms disclose in their annual reports.

Item	Description of item and reason why it is included in the index
1. Strategic and operational risk	Equal to 1 if the annual report discloses information with respect to strategic and operational risks. Examples of strategic and operational risks include: environment, competition, product development, health and safety, and brand name erosion.
2. Financial risk	Equal to 1 if the annual report discloses information with respect to financial risks. Examples of financial risks include: interest rate, exchange rate, liquidity, and credit risks.
3. Financial reporting risk	<p>Equal to 1 if the annual report discloses information with respect to financial reporting risks. Examples of financial reporting risks include: impairment, pension accounting, and valuation of derivatives.</p> <p>Items 1 to 3 are included as COSO (1992, 2004), policy documents (FEE, 2005; IFAC, 2006) and the literature (e.g., Deumes and Knechel, 2008) indicate that good corporate governance requires firm managers to report on the key risks the firms faces as this helps to gain understanding of the firm's risk profile. Furthermore, these documents indicate that risks broadly can be categorized into strategic and operational risks, financial risks, and financial reporting risks.</p>
4. Responsibility	Equal to 1 if management acknowledges explicitly its responsibility for internal control in the annual report. This item is included as COSO (1992, 2004), policy documents (FEE, 2005; IFAC, 2006), corporate governance codes and the literature (e.g., Deumes and Knechel, 2008) indicate that firm managers are responsible for internal control and that they should report on their responsibilities for internal control.
5. Internal control measures	Equal to 1 if the annual report discloses information with respect to the firm's activities to control risks. This item is included as COSO (1992, 2004), corporate governance codes and the literature (e.g., Deumes and Knechel, 2008) indicate that the process to identify, evaluate and manage a firm's risks is a crucial component of internal control.

Item	Description of item and reason why it is included in the index
6. Framework	Equal to 1 if the annual report discloses information with respect to the framework (e.g., COSO) the firm uses to design its internal control. This item is included as COSO (1992, 2004), policy documents (FEE, 2005; IFAC, 2006) and the literature (e.g., Deumes and Knechel, 2008) indicate that frameworks help to organize activities regarding identifying, evaluating, and managing risks. Furthermore, providing information on the framework helps shareholders to assess the firm's performance on internal control <i>vis-à-vis</i> certain criteria.
7. Effectiveness	Equal to 1 if the annual report presents an opinion on the effectiveness of internal control. This item is included as COSO (1992, 2004), corporate governance codes and the literature (e.g., Ashbaugh-Skaife <i>et al.</i> , 2007; Deumes and Knechel, 2008; Doyle <i>et al.</i> , 2007) indicate that firm managers should report on the effectiveness of the firm's internal control system.

ENDNOTES

ⁱ Although Gray's (1988) theory indicates that societal values affect accounting practices both directly and indirectly (through their influence on, e.g., legal system), to the best of our knowledge, all prior studies that empirically test Gray's theory ignore the indirect link between culture and disclosure.

ⁱⁱ Indeed, the probability that a manager's private information about the existence of weaknesses in internal control system does not reach investors is small as auditors (partly) rely on (and test) the effectiveness of the firm's internal control system. Auditors will disclose this information in their audit opinion if they have to issue a qualified opinion. Hammersley *et al.* (2008) find a significantly negative abnormal return following a firm's announcement that the internal control system was not effective, but more importantly also document that the adverse effects on returns are more pronounced when the firm's managers claim that the internal control system is effective but the independent auditor report indicates that the system is not effective.

ⁱⁱⁱ The negative association between uncertainty avoidance and voluntary disclosure is also consistent with Gray's (1988) model. This model suggests that transparency is negatively associated with uncertainty avoidance, which creates a preference to restrict information disclosures to avoid conflict and competition and preserve security.

^{iv} The only exception is Japan, for which we gathered data for about 8% of the firms covered by Compustat Global.

^v We assessed the reliability of our internal control disclosure measure by calculating Cronbach's alpha, which tests the internal consistency of the seven-item scale we used to measure internal control disclosures. The results of the analysis show that for the entire data set, the Cronbach's alpha value is 0.7, which indicates that our measure is internally consistent and can be applied in the research.

^{vi} As the World Bank does not cover Taiwan we assembled this data ourselves using information from the Taiwan Stock Exchange, the Central Bank of the Republic of China (i.e., Taiwan), and the CIA World Factbook.

^{vii} We use industry dummy variables based on the five-sector classification model by Fama and French (consumer, manufacturing, high-tech, health care, and other). These dummy variables are equal to 1 if a firm belongs to a particular industry and 0 otherwise. The hold-out group was "the other category".

^{viii} We also ran these regressions for the 1,383 firms for which we have data for all three years. The results remain unchanged.

^{ix} The first collectivism dimension, societal institutional collectivism (SICPS) is defined as "the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action" (House *et al.*, 2004: 12). The second dimension, societal in-group collectivism is defined as "the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families" (House *et al.*, 2004: 12). According to House *et al.* (2004), the societal in-group collectivism (SIGCPS) dimension is the most similar to the individualism dimension of Hofstede. Uncertainty avoidance is "the extent to which members of an organization or society strive to avoid uncertainty by relying on established social norms, rituals, and bureaucratic practices" (House *et al.*, 2004: 12).

^x While the opposed signs for both the collectivism dimensions (SICPS and SIGCPS) and the uncertainty avoidance (UASP) dimensions may seem to contradict the results reported in Table 3 based on Hofstede, they actually confirm those results. Specifically, Hofstede's (2001) IDV and UAI and GLOBE's collectivism dimensions and UASP, respectively have been shown to correlate *negatively* (House *et al.*, 2004).

^{xi} We estimate the probit models cross-sectionally every year to compute annual inverse Mills ratios. A complete description of this research methodology, including the computation of the inverse Mills ratio, can be found in Verbeek (2010).

^{xii} Please note that we include our auditor (BIG4) and US listing dummies as firm-level (time-invariant) variables as these variables remained unchanged in our sampling period.

^{xiii} Centering or rescaling of independent variables is a customary procedure in HLM and improves the interpretability of coefficients and reduces multicollinearity issues (Hofmann & Gavin, 1998). Grand mean centering implies that the overall or grand mean of the level-1 (and level-2) variables is subtracted from each level-1 (and level-2) case (i.e., $X_{ijk} - X_{GM}$, where X_{GM} is the overall or grand mean based on all X_{ijk}).