Examining the Relationship Between National Culture and Earnings Management

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This study investigates the relationship between national culture and the incidence of earnings management across thirty-one nations while controlling for the strength of corporate governance and type of legal system. The results indicate the importance of national culture in explaining the difference in the incidence of earnings management across nations. Earnings management is found to be higher in countries with low scores on the Individualism dimension and high scores on the Uncertainty Avoidance and Long-Term Orientation dimensions. This study confirms the relationship between national culture and earnings management and contributes to the literature through the inclusion of the Long-term Orientation and Indulgence dimensions of national culture. The potential impact of national culture on earnings quality highlights the need for caution in assuming that the harmonization of accounting standards alone will lead to comparability and consistency of financial reporting.

Keywords: earnings management, national culture, Hofstede cultural dimensions

INTRODUCTION

Earnings management has long been a topic of intense interest with much of the focus on the detection of earnings management and identifying situations in which earnings management is most likely to occur. The research has primarily examined these issues within one country, most often the US. Comparisons of earnings management across nations have been limited, with a small number of studies that examine institutional or regulatory structures in addition to national culture. Given the impetus for global adoption of International Financial Reporting Standards (IFRS), it is essential that we better understand the potential influence of culture on the quality of accounting information.

This study investigates the relationship between national culture and the incidence of earnings management using the national-level metrics developed by Leuz *et al.* (2003) for a set of thirty-one nations. Three different metrics for earnings management are explored: earnings smoothing, earnings discretion, and an aggregate measure of earnings management. National culture is represented by the six dimensions presented in Hofstede *et al.* (2010). These dimensions include Power Distance (PDI), Individualism vs. Collectivism (IDV), Masculinity vs. Femininity (MAS), Uncertainty Avoidance (UAI), Long-Term Orientation vs. Short-Term Normative Orientation (LTO), and Indulgence vs. Restraint (IVR).

The original research in this area was conceived by western minds, and thus may be constrained by culture. To address these concerns, Michael Bond, a Canadian social psychologist, worked with Chinese colleagues in Hong Kong to develop a values survey for Chinese people (Chinese Culture Connection, 1987). The Chinese Values Survey (CVS) was then administered to participants in 23 countries. Four distinct dimensions were identified; three of which correlated strongly with Hofstede's dimensions for PDI, IDV, and MAS. However, the fourth dimension did not correlate with UAI and was instead something entirely different. This new dimension focused on orientation to the future or orientation to the present and past and was named Long-Term Orientation. As it predicted future economic growth, Hofstede chose to adopt this dimension as a fifth universal dimension and it appeared in his 1991 book. Hofstede labeled this dimension as LTO vs STO (long-term vs short-term orientation) which contrasted persistence and thrift with personal stability and tradition (Hofstede, 1991).

In 2007, Misho Minkov's analysis of the World's Values Survey (WVS) both extended the number of countries for which there was an LTO score and refined the dimension. His analysis looked for items that were conceptually similar to the LTO-CVS items and correlated significantly with LTO-CVS. Three items emerged: Thrift as a desirable trait for children (LTO), National Pride (STO), and Importance of Service to Others (STO). Each of these items was significantly correlated with LTO-CVS. New scores for LTO-WVS were calculated for 84 countries and then expanded to 93 countries (Minkov, 2007).

LTO-CVS was developed by Chinese minds and the items reflected Chinese values. As a general rule, Western minds are considerably short-term oriented, and it is no surprise that this dimension was not developed in a Western context. However, as this dimension predicts economic growth, its inclusion has practical implications and was the driving reason for Hofstede including it in his model (Hofstede, 2010). Minkov further identified in the World Values Survey an entirely new dimension, Indulgence vs Restraint (IVR). Correlates and predictors of "happiness" at the national level include a perception of life control and the importance of leisure as a personal value. National wealth and happiness are not strongly correlated and this new dimension sheds light on that complicated relationship (Minkov, 2007).

This study contributes to the research through the inclusion of the two newest national culture dimensions (Hofstede *et al.*, 2010), Long-Term Orientation and Indulgence, in evaluating the relationship between national culture and earnings management. While some past studies have investigated the impact of LTO on earnings management, most have used the older original values of the dimension (Guan *et al.*, 2005; Doupnik, 2008; Gray *et al.*, 2015). No prior studies have examined IVR using national-level data. Hofstede's (1980) cultural dimensions are representative of the cultural background and societal pressures that influence the actions of management. It is hypothesized that management is more likely to engage in earnings management activities in nations with higher PDI, MAS, UAI, or LTO scores. Conversely, a lower incidence of earnings management is expected in nations with higher IDV or IVR scores.

National-level factors that influence the incidence of earnings management are well documented and include such things as corporate governance, market regulation, and investor protection. This study examines the relationship between national culture and earnings management while controlling for the strength of corporate governance practices and the type of legal system in each nation. Ordinary least square regression was used to test the hypotheses and the results demonstrate a clear relationship between national culture and earnings management. Earnings management is found to be higher in nations with low scores on the Individualism dimension and high scores on the Uncertainty Avoidance and Long-Term Orientation dimensions.

The remainder of the paper is organized as follows. The next section reviews the relevant literature and presents the hypotheses. This is followed by the methodology, results, discussion, and conclusion sections.

LITERATURE REVIEW

Earnings management ranges from the application of managerial discretion, which is neither illegal nor a violation of accounting rules, to intentionally fraudulent activities. It is this latter group of activities that are of greatest concern due to the impact on earnings quality and the subsequent signal that is sent to the market. Earnings smoothing refers to the managerial practice of adjusting earnings to present stable results

to stakeholders. This is typically achieved by manipulating the timing of the recognition of revenues and expenses to reduce the variability of earnings. The term earnings discretion is associated with the use of discretionary accruals to increase earnings to meet a target or benchmark such as an analyst forecast. Such managerial actions are often driven by company or market incentives that would lead to personal gain for the individual. The concept of information asymmetry is a fundamental assumption of signaling theory which suggests that earnings management actions send signals to the market that impact investment decisions. Manipulation of these signals may have significant consequences for companies, management, and investors.

Much of the early earnings management research focuses on the detection of earnings management (Jones, 1991; Dechow *et al.*, 1995) or the identification of circumstances in which earnings management is most likely to occur (DeFond and Jimbalvo, 1994; Wu, 1997; Teoh *et al.*, 1998; Wells, 2002). As a complement to that research, a body of literature evolved that examined the factors that influence or constrain earnings management. Many of these factors are regulatory in nature and include such things as corporate governance, market regulation, and investor protection.

Historically, earnings management research has focused on firm-level data within one specific country, most often the United States (Burgstahler and Dichev, 1997; Teoh *et al.*, 1998; Wells, 2002). Subsequent research examined earnings management on a cross-national level with an investigation into the regulatory characteristics that influence earnings management. Institutional or regulatory factors such as the level of investor protection and the type of legal system have been found to influence the incidence of earnings management across nations (Leuz *et al*., 2003; Haw *et al*., 2004; Burgstahler *et al*., 2006). The focus of cross-national studies then turned to the relationship between national culture and earning management (Guan *et al*., 2005; Han *et al*., 2010; Lewellyn and Bao, 2017; Pacheco Paredes and Wheatley, 2017; Chen *et al*., 2018; Haga *et al*., 2019).

A primary objective in developing International Financial Reporting Standards (IFRS) was to improve the comparability of financial reporting across nations. It was thought that the widespread adoption of a single set of financial reporting standards would remove many previously allowable accounting alternatives; thereby, limiting managerial discretion to manipulate earnings. The importance of recognizing the influence of national culture on accounting practice has been highlighted in studies that examine accounting and auditing regulatory enforcement (Kleinman *et al*., 2014; Kleinman and Lin, 2017; Kleiman *et al*., 2019). The results of these studies indicate that national culture should be a significant consideration when determining the effectiveness of accounting standards in enhancing comparability across nations. Zeghal and Lahmar (2018) specifically examined the impact of national culture on IFRS effects and found that cultural differences across nations influence accounting practices even when a single set of accounting standards is implemented.

Houqev (2018) surveyed the IFRS adoption literature and concluded that the implementation of IFRS has been successful in reducing information asymmetry and improving the quality of information for users. However, financial reporting continues to remain diverse across nations due to different information needs resulting from legal, economic, social, and political contexts, all of which are linked to national culture.

Culture is "the collective programming of the mind that distinguishes the members of one group or category of people from another" (Hofstede, 1980, p.25). However, it is argued that national culture is a multifaceted construct that cannot be completely captured in any one model. Various national culture models have been proposed to describe the differences between nations (Hofstede, 1980; Trompenaars, 1993; House *et al*., 2004). Hofstede's cultural dimensions have been used extensively in academic research and significant relationships have been found between the dimensions and organizational behavior (Hofstede, 1991; Hickson and Pugh, 1995).

In addition to Hofstede's model, several other models have used the same paradigm of classifying cultures by dimensions. In 1991, US management scholar, Robert House, developed and started collecting data for the GLOBE (Global Leadership and Organizational Behavior Effectiveness) project. The GLOBE project expanded the Hofstede cultural dimensions to nine and asked participants to describe their culture ("as it is") and judge it ("as it should be"). Even though many of Hofstede's terms were used in the GLOBE project, the operational definitions were quite different in many cases. This makes comparisons difficult.

Interestingly, "the massive body of GLOBE data still reflected the structure of the original Hofstede model" (Hofstede *et al.*, 2010, pg. 43).

Unlike other models, Hofstede's cultural dimensions are based on quantitative data and analysis that has been updated over time. An improved model of the original Hofstede IBM values survey, called Values Survey Modules (VSMs), has been used to provide replications of the original findings. As of 2010, six major replications had been conducted providing further support for the validity of the dimensions model (Hofstede *et al.*, 2010). A review of smaller replications by Mikael Søndergaard revealed that all four dimensions were statistically confirmed (Søndergaard, 1994). Both the GLOBE model and the Hofstede models have considerable research associated with them; however, one goal of this research was to extend the findings of Nabar and Boonlert-U-Thai (2007) and Doupnik (2008) which used the Hofstede dimensions.

Social norms theory suggests that Hofstede's cultural dimensions are representative of the cultural background and societal pressures that influence the actions of management. This is distinct from the accounting rules and market regulations that influence managerial behavior. These norms reflect behavioral expectations with the goal of avoiding the disapproval of others (Sunder, 2005). After all, a manager makes the decisions, not the company, and as individuals they will be influenced by societal expectations and norms that reflect national culture (Habib *et al.*, 2021).

Gray (1988) provided a theoretical basis for linking Hofstede's cultural dimensions with accounting systems. It was proposed that national culture impacts accounting systems through a nation's institutions as well as the influence on accounting values. Doupnik and Tsakumis (2004) present a review of the literature that provides empirical support for Gray's (1988) model. Most of the earnings management research examining national culture has used Hofstede's model (1980) which identified four dimensions as a result of an extensive survey of culture in 44 nations. These dimensions were Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, and Uncertainty Avoidance. The fifth dimension, Long-term vs. Short-term Orientation was added in the late 1980s (Hofstede, 1991). In 2010, the model was further revised to include an updated version of the Long-term Orientation dimension and the new dimension of Indulgence vs. Restraint.

National culture's influence on earnings management has been examined in numerous studies using firm-level data. These studies focus on discretionary accruals models (Guan *et al.*, 2005; Han *et al.*, 2010; Gray *et al*., 2015; Lewellyn and Bao, 2017; Chen *et al.*, 2018; Keidann Soschinksi *et al.*, 2021; Viana Jr *et al.*, 2022) and/or measures of real earnings management (Pacheco Paredes and Wheatley, 2017; Haga *et al.*, 2019; Keidann Soschinksi *et al.*, 2021; Viana Jr *et al.*, 2022).

Examining five Asia-Pacific countries, Guan *et al.* (2005) found significant relationships between three of the cultural dimensions and income-increasing earnings management. Individualism was found to have a positive relationship with this measure of earnings management while Uncertainty Avoidance and Long-term Orientation were found to have a negative relationship. The generalization of results from this study is limited by the focus on only five Asia-Pacific countries as greater cultural differences would be found in countries from other regions. Similar results were found by Han *et al.* (2010). After controlling for investor protection mechanisms, they found a positive relationship between Individualism and earnings management and a negative relationship between Uncertainty Avoidance and earnings management.

The impact of the mandatory adoption of IFRS on the relationship between national culture and earnings management was examined by Gray *et al*. (2015). They used firm-level data from 14 countries within the EU and determined that cultural dimensions continue to explain earnings management behaviors post-IFRS adoption. As part of the additional testing, they find a significant positive association for Long-Term Orientation. Like Guan *et al.* (2005), the use of culturally similar countries may limit the generalization of these results. This is of particular concern when examining the Long-Term Orientation dimension as there is greatest variation in scores between European or Anglo nations and Asian nations. By focusing the study on European firms, the variability in this dimension would be minimal.

Viana Jr *et al.* (2022) also examine the association between national culture and earnings management within the context of IFRS adoption and through a comparison of developed and emerging economies. Using firm-level data from 33 countries, they found that level of development impacted the strength of the

associations. The broader range of countries and the large number of firm-year observations in the sample provides stronger evidence than prior studies on the strength and direction of the relationship between national culture and earnings management.

The institutional factor examined by Chen *et al.* (2018) is the presence of a corporate code of ethics. They use Hofstede's cultural dimensions as control variables and find that higher quality codes of ethics are associated with higher earnings quality as represented by lower discretionary accruals. Lewellyn and Bao (2017) used the GLOBE model (House *et al.*, 2004) to examine the impact of national culture and corruption on earnings management. They find the GLOBE dimensions of power distance and institutional collectivism have a negative relationship with the magnitude of earnings management. However, there is a greater incidence of earnings management in countries with higher levels of corruption. These studies highlight the need to include regulatory control variables when examining the effects of national culture.

Pacheco Paredes and Wheatley (2017) examine the influence of culture on real earnings management. After controlling for discretionary accruals, higher levels of real earnings management were found to be associated with lower scores on Individualism, Masculinity, and Uncertainty Avoidance. However, a positive association was found with the Power Distance dimension of culture. The dimensions of Long-term Orientation and Indulgence were not examined.

The results from Haga *et al.* (2019) and Keidann Soschinski *et al.* (2021) provide preliminary evidence of a relationship between Long-Term Orientation and earnings management using firm-level data. Haga *et al.* (2019) investigate the relationship between Long-term Orientation and management's choice of earnings management strategies and finds that in long-term orientation cultures, managers tend to rely on earnings management via accrual manipulations whereas in short-term orientation cultures there is greater reliance on real earnings management. Keidann Soschinski *et al.* (2021) investigated the moderating effect of national culture on the relationship between corporate governance and earnings management using firm-level data from G20 countries. In this context, national culture was found to lessen the positive influence of good corporate governance practices in nations with high Individualism or Indulgence scores. The results provide interesting insights into the interaction between national culture and corporate governance. A number of studies have found that national culture influences the nature and selection of corporate governance mechanisms (Li and Harrison, 2008; Humphries and Whelan, 2017) but few have considered the moderating effect of culture on the outcomes of good corporate governance practices. It is noted that the interpretation of these results should be done cautiously due to the endogeneity of the variables.

Hofstede *et al.* (2010) remind us that the culture of an organization is a different construct than that of a nation. An organization is comprised of people who may or may not share their national culture, especially in a multi-national enterprise (MNE) that is foreign lead. Whose culture exerts the most effect in an MNE, the CEO (culture is driven top-down), the host nation's culture, the home nation's culture, or some blending of the three? Studies assessing the effects of national cultures at the firm level will encounter these attributional issues, making results difficult to interpret. For example, one author has visited both an Amazon distribution center and an IKEA distribution center in the same city in the US. One could argue that their workforces should be very similar given the area and type of activity. And yet, the differences in each center were palpable and could easily be explained by the national culture of the company's country of origin. As Hofstede explains, workers can decide to join an organization, play by its rules during working hours, and then go home to their own values and beliefs. Therefore, firm-level culture generalizations to the national level, and national-level generalizations to the firm level, are not without attributional errors.

Given the above argument, and as Hofstede *et al.* (2010) cultural dimensions were developed to represent relative positions among nations, these authors believe that the cultural dimensions are best applied to comparisons at the national level. Most of the extant literature examining the relationship between national culture and earnings management uses firm-level observations. A few studies have examined the relationship using national-level data (Nabar and Boonlert-U-Thai, 2007; Doupnik, 2008; Callen *et al.*, 2011). These studies used the national-level metrics of earnings management developed by Leuz *et al.* (2003) and investigated the relationship with the cultural dimensions based on Hofstede's theory of culture. The Leuz *et al.* (2003) metrics include two measures of earnings smoothing, two measures of

earnings discretion, and an aggregate measure of earnings management. These metrics are discussed further in the methodology section below.

Nabar and Boonlert-U-Thai (2007) used the four original Hofstede culture dimensions and Doupnik (2008) also included the early version of the Long-term Orientation dimension. These studies added to the literature by examining a broader range of countries and considering both earnings smoothing and earnings discretion. The only significant relationships found by Nabar and Boonlert-U-Thai (2007) were a positive association between earnings discretion and both Uncertainty Avoidance and Masculinity. Doupnik (2008) also found a positive association between Uncertainty Avoidance and earnings discretion, earnings smoothing, and the aggregate measure of earnings management. Additionally, they found negative relationships between Individualism and all three measures of earnings management. The key difference between these two studies was their choice of regulatory control variables.

Callen *et al.* (2011) utilized the aggregate earnings management metric developed by Leuz *et al.* (2003) to examine whether or not culture and religion mitigate earnings management. Using modified versions of the Hofstede dimensions developed by Tang and Koveos (2008), they confirmed prior findings of a negative association between earnings management and individualism and a positive association with uncertainty avoidance. No significant relationship between earnings management and religious affiliation or the degree of religiosity was found.

This study extends the literature by examining all six of the cultural dimensions currently proposed by Hofstede *et al.* (2010) using national-level data. The first four dimensions have been extensively examined but minimal consideration has been given to the Long-Term Orientation and Indulgence dimensions. Studies that have included these dimensions have either focused on culturally similar countries (Guan *et al.*, 2005; Gray *et al.*, 2015), used firm-level data (Guan *et al.*, 2005; Gray *et al.*, 2015; Keidann Soschinksi *et al.*, 2021; Viana Jr *et al.*, 2022) or used the old values from the original LTO dimension (Guan *et al.*, 2005; Doupnik, 2008; Gray *et al.*, 2015).

DEVELOPMENT OF HYPOTHESES

Power Distance (PDI)

Power Distance is defined as the extent to which the less powerful members of institutions and organizations within a nation expect and accept that power is distributed unequally (Hofstede *et al.*, 2010). In a business context, high Power Distance cultures are characterized by a lack of transparency and communication. Stakeholders view management as the holders of power and this would allow for their actions to be unchallenged by subordinates. Managers may feel comfortable using earnings management techniques to present the best possible outcome for the company, knowing that their decisions are unlikely to be questioned. Thus, it is expected that the incidence of earnings management will be higher in nations with higher Power Distance scores. This proposition is supported by the empirical results of Gray *et al.* (2015) and Pacheco Paredes and Wheatley (2017).

Hypothesis 1: *The higher the PDI score, the greater the incidence of Earnings Management.*

Individualism-Collectivism (IDV)

The Individualism-Collectivism dimension focuses on the degree of interdependence a society maintains among its members (Hofstede *et al.*, 2010). The links between individuals are weak and need-driven in an individualistic society; whereas, in collective societies, strong relationships are desired and maintained within groups, and loyalty is exchanged for benefits associated with group membership. Within a business environment, the in-group are the stakeholders of the company. In collective cultures, it is important for the company to assure stakeholders that management is adequately addressing their concerns and needs. One such concern is the ongoing stability of the company. Managers may use earnings management techniques to demonstrate stability through actions that smooth earnings or rectify unexpected losses. Changes to earnings through earnings discretion may also enhance the stability of the company by

avoiding failure to meet debt covenants or analysts' forecast targets. The empirical findings of Guan *et al.* (2005) and Han *et al.* (2010) support these arguments. Consequently, it is expected that in collective cultures, that is, nations with lower Individualism scores, there will be a higher incidence of earnings management.

Hypothesis 2: *The lower the IDV score, the greater the incidence of Earnings Management.*

Masculinity-Femininity (MAS)

The Masculinity-Femininity dimension can be viewed as a reflection of a society's motivation for behavior (Hofstede *et al.*, 2010). In Masculine cultures, the focus is on achievement with assertiveness and toughness encouraged and rewarded. Feminine cultures are characterized by a focus on quality of life, modesty, and tenderness. In the business world, the Masculinity dimension translates to a focus on competitiveness, success, and managerial decisiveness. Management will be driven to present the best possible firm performance, which could be in the form of stable earnings or simply the highest earnings. Consistent with prior research, it is expected that the incidence of earnings management is greater in high Masculinity cultures (Nabar and Boonlert-U-Thai, 2007; Gray *et al.* 2015; Pacheco Paredes and Wheatley, 2017).

Hypothesis 3: *The higher the MAS score, the greater the incidence of Earnings Management.*

Uncertainty Avoidance (UAI)

The cultural dimension of Uncertainty Avoidance measures the extent to which the members of a culture feel threatened by ambiguity or the unknown and have created beliefs, rules, and institutions that attempt to minimize these feelings (Hofstede *et al.*, 2010). This can manifest within an organization through management's actions that reduce ambiguity and improve predictability. A primary motivator for engaging in earnings management is to reduce the uncertainty that may be signaled to the market by fluctuations in earnings from year to year. Earnings smoothing reduces such fluctuations. Furthermore, upward earnings management through earnings discretion would also send a reassuring signal to the market in situations where a negative impact is to be avoided, such as the failure to meet an earnings target. Consistent with Nabar and Boonlert-U-Thai (2007) and Doupnik (2008), it is expected that earnings management is more likely to occur in nations with higher Uncertainty Avoidance scores.

Hypothesis 4: *The higher the UAI score, the greater the incidence of Earnings Management.*

Long-Term Orientation (LTO)

Long-term orientation represents a focus on future rewards, whereas short-term orientation focuses on the past and present (Hofstede *et al.*, 2010). From a business perspective, this dimension considers the extent to which a company views its operational time horizon. Achieving the highest possible earnings in the current period would be consistent with a short-term orientation. However, current performance in the form of stable or smooth earnings has the potential to build long-term success in the market. With a long-term orientation, establishing a strong market position is more important than short-term results. Therefore, in a culture with high scores on the Long-Term Orientation dimension, earnings management would provide an opportunity for management to build long-term market performance. This is supported by the practice of rewarding management with forms of compensation, such as stock options, that have a longer-term time horizon. Empirical research (Gray *et al.*, 2015; Haga *et al.*, 2019) supports the proposition that earning management is more likely to occur in nations with a long-term orientation.

Hypothesis 5: *The higher the LTO score, the greater the incidence of Earnings Management.*

Indulgence (IVR)

The indulgence versus restraint dimension reflects the extent to which a society is free to fulfill its desires in contrast to controlling impulses through strict societal norms (Hofstede *et al.*, 2010). In indulgent cultures, freedom and personal control are encouraged and there is an emphasis on the happiness and well-being of the individual. In restrained cultures, these characteristics are not emphasized, and emotions are less freely expressed. In a business context, the importance of freedom of speech and personal control in a high-indulgence culture may manifest itself as a willingness for employees to engage in decision-making through the sharing of opinions. Conversely, in a restraint culture, employees may not feel comfortable expressing concerns about managerial actions. Consequently, managers in restraint cultures may be under less scrutiny from other employees and therefore provided more freedom to engage in earnings management.

Hypothesis 6: *The lower the IVR score, the greater the incidence of Earnings Management.*

METHODOLOGY

Sample and Variables

The sample consists of the thirty-one nations for which earnings management metrics were developed by Leuz *et al.* (2003). These nations are listed in Table 1. The data used to create the metrics was drawn from firm performance over ten years from 1990 to 1999 and include 70,995 firm-year observations drawn from the Worldscope Database. The first two metrics signify earnings smoothing as they represent management's efforts to reduce the volatility of reported earnings. EM1 is the nation's median ratio of the firm-level standard deviations of operating income and operating cash flow (both scaled by lagged total assets). EM2 is the nation's Spearman correlation between change in accruals and change in operating cash flow (scaled by lagged assets). The higher the values of EM1 and EM2, the lower the level of earnings smoothing. The other two metrics signify earnings discretion as they represent efforts by management to misrepresent earnings. EM3 is the nation's median ratio of the absolute value of accruals to the absolute value of operating cash flow and EM4 is the nation's ratio of the number of small profits to small losses where small is less than one percent of lagged total assets. The higher the values of EM3 and EM4, the higher the level of earnings discretion. To alleviate possible measurement error, Leuz *et al.* (2003) created an aggregated earnings management score, AGGEM, by averaging the national rank for all four measures EM1, EM2, EM3, and EM4. A variable to represent earnings smoothing, SMOOTH, is also created using an average of the ranked values for EM1 and EM2. Due to the low correlation between EM3 and EM4, they are not combined to create an aggregate score for earnings discretion. This study uses three metrics for earning management; SMOOTH to represent earnings smoothing, ED (ranked EM3) to represent earnings discretion, and AGGEM as an aggregated measure of earnings management.

TABLE 1
LIST OF NATIONS

Australia	Finland	India	Malaysia	Portugal	Sweden
Austria	France	Indonesia	Netherlands	Singapore	Switzerland
Belgium	Germany	Ireland	Norway	South Africa	Taiwan
Canada	Greece	Italy	Pakistan	South Korea	Thailand
Denmark	Hong Kong	Japan	Philippines	Spain	United Kingdom
					United States

Scores for the cultural dimensions were obtained from the Hofstede website (geerthofstede.com/research-and-vsm) for the thirty-one nations identified in Table 1. The dimensions used in this study are Power Distance (PDI), Individualism-Collectivism (IDV), Masculinity-Femininity (MAS), Uncertainty Avoidance (UAI), Long-term Orientation versus Short-term Orientation (LTO), and

Indulgence versus Restraint (IVR). Scores on the dimensions are on a scale from zero to one hundred, with fifty as the midlevel. It should be noted that the scores represent relative measures that should be used only for comparative purposes at the national level.

As previously discussed, a variety of institutional and regulatory characteristics have been shown to relate to the incidence of earnings management. Two regulatory control variables are included in this study: one relates to the legal system used in each nation and the other is a proxy for corporate governance.

There is evidence that earnings management is less prevalent in nations with a common law legal system (Nabar and Boonlert-U-Thai, 2007; Doupnik, 2008; Francis *et al.*, 2016). Data for this variable were hand collected from the CIA World Factbook (https://www.cia.gov). Additionally, the strength of investor protection, corporate governance, and the regulation of public companies have been shown to reduce the likelihood of earnings management (Leuz *et al.*, 2003; Nabar and Boonlert-U-Thai, 2007; Doupnik, 2008; Han *et al.*, 2010; Lewellyn and Bao, 2017). The Global Competitiveness Index developed by the World Economic Forum (https://www.weforum.org) evaluates competitiveness through factors that determine an economy's level of productivity and is structured around nine pillars. Pillar One conceptualizes institutions broadly as the system of rules that shapes incentives and defines the way economic agents interact in an economy (World Economic Forum, 2006). This study uses the measure Efficacy of Corporate Boards #1.19 as a proxy for corporate governance. The metric is scaled from a low of 1 (management has little accountability) to a high of 7 (investors and boards exert strong supervision of management decisions). To better align with the time period from which data for the other variables were sourced, values were drawn from the 2006-2007 report. This was the first such report created by the World Economic Forum.

Model

It is hypothesized that earnings management is a function of national culture and regulatory structure. An empirical representation of the model is presented in Equation 1 below. Ordinary Least Squares Regression is used to estimate the model using the three different metrics of earnings management; earnings smoothing (SMOOTH), earnings discretion (ED), and aggregate earnings management (AGGEM). The impact on earnings management for each independent and control variable is represented by coefficients α_1 through α_8. The expected sign of each coefficient is presented in Table 2.

$$EM_i = \alpha_0 + \alpha_1 ECB_i + \alpha_2 LEG_i + \alpha_3 PDI_i + \alpha_4 IDV_i + \alpha_5 MAS_i + \alpha_6 UAI_i + \alpha_7 LTO_i + \alpha_8 IVR_i + \varepsilon \quad (1)$$

where: EM_i = Earnings Management for nation i
ECB_i = Score on Efficacy of Corporate Boards in nation i
LEG_i = Legal System in nation i; Common Law = 1, Other = 0
PDI_i = Score on Power Distance dimension for nation i
IDV_i = Score on Individualism dimension for nation i
MAS_i = Score on Masculinity dimension for nation i
UAI_i = Score on Uncertainty Avoidance dimension for nation i
LTO_i = Score on Long-Term Orientation dimension for nation i
IVR_i = Score on Indulgence dimension for nation i
ε = error term

TABLE 2
EXPECTED RELATIONSHIPS WITH EARNINGS MANAGEMENT

Coefficient	Variable	Expected Sign	Hypothesis
α_1	ECB	-	Control
α_2	LEG	-	Control
α_3	PDI	+	H1
α_4	IDV	-	H2
α_5	MAS	+	H3
α_6	UAI	+	H4
α_7	LTO	+	H5
α_8	IVR	-	H6

RESULTS AND DISCUSSION

Descriptive Statistics and Correlation Analysis

Table 3 provides basic descriptive statistics for the three earnings management dependent variables, the six cultural dimension variables, and the two regulatory control variables.

TABLE 3
DESCRIPTIVE STATISTICS (n = 31 nations)

	Minimum	Maximum	Mean	Std. Dev.
Earnings Management Variables				
Earnings Smoothing (SMOOTH)	1.500	30.000	16.000	8.625
Ranked EM3 (ED)	1.000	31.000	16.000	9.092
Aggregate EM (AGGEM)	2.000	28.250	16.000	7.753
Regulatory Variables				
Legal System (LEG)	0	1	0.387	0.495
Corporate Governance (ECB)	3.430	6.040	5.180	0.580
Cultural Dimension Variables				
PDI	11	100	51.710	21.083
IDV	14	91	53.129	25.597
MAS	5	95	49.581	20.811
UAI	8	100	57.935	23.812
LTO	21	100	52.935	21.787
IVR	0	78	50.129	17.979

The earnings management variables represent rankings of the thirty-one nations used in the study. SMOOTH and AGGEM were created using averages of rankings which is why the minimum and maximum values are not simply 1 and 31 as with the ED metric. Statistics for the cultural dimensions are consistent with prior studies using the Leuz *et al.* (2003) data set. The mean for the legal system variable indicates that just under 40% of the nations in the sample have a common law legal system. While the corporate governance variable, ECB, is measured on a scale of 1 to 7, this sample includes nations on the higher end of the distribution as reflected by a range from 3.43 to 6.04.

Spearman correlation coefficients were calculated for the independent, control, and dependent variables as a preliminary analysis of the sample. Spearman tests were used due to the nature of the variables; however, Pearson correlation coefficients were also calculated with no change in the direction, magnitude, nor significance of the results. The correlation results are presented in Tables 4 and 5.

The regulatory variables and four of the six cultural dimension variables are significantly correlated with the earnings management variables. As expected, low scores on the Individualism and Indulgence dimensions and high scores on the Uncertainty Avoidance and Long-Term Orientation dimensions are correlated with a higher incidence of earnings management. The results are consistent with Doupnik (2008) with the exception of Long-Term Orientation. Using the original values for Long-Term Orientation, Doupnik (2008) found no significant correlation with any of the earnings management metrics. However, using the revised values, this study found a significant positive correlation between LTO and all three earnings management metrics. The correlation results presented in Table 4 indicate a relationship between national culture and earnings management consistent with the stated hypotheses.

TABLE 4
SPEARMAN CORRELATION COEFFICIENTS – DEPENDENT / INDEPENDENT VARIABLES

	SMOOTH	ED	AGGEM
Regulatory Variables			
Legal System (LEG)	-0.318	-0.489**	-0.463**
Corporate Governance (ECB)	-0.508**	-0.458**	-0.564**
Cultural Dimension Variables			
PDI	0.174	0.267	0.252
IDV	-0.530**	-0.427*	-0.509**
MAS	0.099	-0.017	0.122
UAI	0.465**	0.569**	0.537**
LTO	0.575**	0.433**	0.628**
IVR	-0.521**	-0.474**	-0.549**

*** Correlation is significant at the 0.01 level (2-tailed)*
** Correlation is significant at the 0.05 level (2-tailed)*

Table 5 presents the correlations between the independent and control variables to identify possible multicollinearity issues. The correlation coefficients among the first four cultural dimensions are consistent with the results presented in Nabar and Boonlert-U-Thai (2007) and Doupnik (2008). The Long-Term Orientation and Indulgence dimensions provide additional insights. Power Distance is negatively correlated with both Individualism and Indulgence, although Individualism and Indulgence are not significantly correlated. The negative correlation between Power Distance and Individualism reflects the idea that people in relatively individualistic cultures are also less dependent on power figures. Similarly, the negative correlation between Power Distance and Indulgence suggests a tendency for less hierarchical societies to be more indulgent (Hofstede *et al.*, 2010). The lack of significant correlations between Long-Term Orientation and the other cultural dimensions, in conjunction with significant correlations with the earnings management metrics, provide support for the inclusion of this dimension in the regression model.

Legal System is significantly correlated with the cultural variables of Uncertainty Avoidance and Long-term Orientation. Nations with higher scores on these dimensions are more likely to have civil law rather than common law legal systems. Once again, the results are consistent with Doupnik (2008) with the exception of Long-Term Orientation. Where Doupnik (2008) found no correlation between the type of legal system and Long-Term Orientation, the revised values for LTO produced a significant negative correlation. Efficacy of Corporate Boards is negatively correlated with Power Distance and Uncertainty Avoidance and positively correlated with Individualism and Indulgence. Although this specific proxy for corporate governance has not been used in prior studies, the correlations between the variables are consistent with those found in previously examined proxies.

TABLE 5
SPEARMAN CORRELATION COEFFICIENTS – BETWEEN INDEPENDENT VARIABLES

	LEG	ECB	PDI	IDV	MAS	UAI	LTO	IVR
LEG	1.000							
ECB	0.215	1.000						
PDI	0.148	-0.632**	1.000					
IDV	0.030	0.655**	-0.570**	1.000				
MAS	0.215	-0.002	-0.067	0.155	1.000			
UAI	-0.522**	-0.492**	0.101	-0.140	0.049	1.000		
LTO	-0.426*	-0.194	0.164	-0.140	0.058	0.285	1.000	
IVR	0.093	0.773**	-0.616**	-0.246	-0.044	-0.351	-0.311	1.000

*** Correlation is significant at the 0.01 level (2-tailed)* * *Correlation is significant at the 0.05 level (2-tailed)*

The number of significant correlations among the independent variables indicates possible multicollinearity which may distort the coefficients in the regression results. To test for multicollinearity, variance inflation factors (VIF) were calculated for each of the variables in each model. A common threshold that indicates high multicollinearity is a VIF greater than 10 (Hair *et al*., 1995). The highest reported individual VIF was 4.722 with the average VIF for the models ranging from 1.022 to 2.608, suggesting low multicollinearity.

Tests of Hypotheses

Ordinary Least Squares (OLS) regression was run for each of the three dependent variables for earnings management against the regulatory control variables and independent variables for national culture. Three versions of the model are estimated for each of the three metrics of earnings management. This approach was used to facilitate comparison with past research using the Luez *et al.* (2003) earnings management metrics (Nabar and Boonlert-U-Thai, 2007; Doupnik, 2008).

The first model includes only the control variables. This model is included to demonstrate that the selected control variables produce an explanatory power of a similar magnitude to prior studies with different control variables. The second model includes the six cultural dimension variables. The final model includes the two control variables and all six of the cultural dimension variables. Testing of the residuals revealed no major violations of the assumptions of OLS regression. The results of the regression analysis support the proposition that national culture is related to the pervasiveness of earnings management.

Table 6 provides a summary of the results of the multivariate OLS regression analysis using the aggregate earnings management metric (AGGEM). The results for Model 1 are as expected. Earnings Management is lower in nations with higher ratings for the Efficacy of Corporate Boards and with a common law legal system. The explanatory power of this model is consistent with past research (Leuz *et al.*, 2003; Doupnik, 2008). Model 2 includes only the cultural dimensions as independent variables. As predicted, earnings management is higher in nations with low Individualism, high Uncertainty Avoidance, and high Long-term Orientation scores. However, there is no significant relationship between the aggregate earnings management metric and the dimensions of Power Distance, Masculinity, and Indulgence.

Hypothesis 1 proposed that earnings management would be higher in high power distance cultures as management might actively engage in activities that would go unchallenged by subordinates and stakeholders. The absence of a significant effect may be explained by considering management's motivation. In high Power Distance cultures, management may not feel as pressured to engage in earnings management as the outcomes of their actions would not be questioned. So, rather than taking advantage of the hierarchical structure to get away with questionable practices, they may simply not be pressured into those practices in the first place.

The results of this regression did not indicate the positive relationship between earnings management and the Masculinity dimension that was proposed in Hypothesis 3. Although cultures with high levels of masculinity are characterized as being achievement-oriented, it is also possible that managers in masculine

cultures are unconcerned with external pressures to meet arbitrary performance benchmarks such as analyst forecasts and are instead focused on personal success. This relationship may also be confounded by conflicting measures of success.

TABLE 6
REGRESSION ANALYSIS: AGGREGATE EARNINGS MANAGEMENT (AGGEM)

Variable	Expected Sign	Model 1 Regulation	Model 2 National Culture	Model 3 All Variables
Intercept		49.970	16.113	18.732
		(4.910)***	(2.258)**	(1.196)
ECB	-	-6.114		0.384
		(-3.103)***		(0.113)
LEG	-	-5.943		-3.547
		(-2.574)**		(-1.290)
PDI	+		-0.084	-0.075
			(-1.450)	(-1.280)
IDV	-		-0.151	-0.151
			(-2.667)**	(-2.473)**
MAS	+		0.020	0.049
			(0.439)	(0.963)
UAI	+		0.101	0.065
			(2.447)**	(1.172)
LTO	+		0.137	0.105
			(3.028)***	(1.908)*
IVR	-		-0.038	-0.065
			(-0.519)	(-0.656)
Adj. R^2		36.1%	59.3%	58.7%
F-test		9.488***	8.280***	6.339***
Mean VIF		1.022	1.674	2.608

, **, * Indicate significance at the 10%, 5%, and 1% levels respectively*
This table reports coefficient estimates (t-statistics in parentheses)

It was proposed in Hypothesis 6 that managers in restraint cultures may be under less scrutiny and therefore provided more freedom to engage in earnings management as employees may not feel comfortable expressing concerns about managerial actions. The lack of evidence to support this relationship may be due to the existence of more stringent controls that would exist in restraint cultures, thereby limiting the opportunity to manage earnings.

After controlling for the legal system and corporate governance, the regression results for Model 3 indicate that only Individualism and Long-term Orientation are significant. The fact that the regulatory variables are no longer significant in the presence of the culture variables suggests that institutional regulation may be subsumed by national culture.

Model 2 has the highest adjusted R^2 of 59.3%, indicating that national culture explains over 59% of the variation in earnings management among nations. This is slightly higher than the model that also includes the regulatory variables (58.7%) but considerably higher than the model with regulatory variables alone (36.1%). The extra sum-of-squares F-test for nested models found that the explanatory power of Model 3 is significantly greater than that of Model 1 but there is no significant difference between Models 2 and 3.

Models 2 and 3 provide support for Hypotheses 2 and 5. Model 2 also provides support for Hypothesis 4. There is a greater incidence of earnings management in nations with lower Individualism scores and higher Uncertainty Avoidance and Long-term Orientation scores. Support for Hypotheses 2 and 4 is consistent with the findings in Doupnik (2008). The significance of the relationship between the Long-term

Orientation dimension of national culture and earnings management was not found by Doupnik (2008) but this difference can be explained by the fact that this study uses the updated Long-term Orientation dimension presented in Hofstede *et al.* (2010). The positive association between Long-term Orientation and AGGEM is also consistent with the findings of Haga *et al.* (2019) when considering accruals manipulations.

Table 7 provides a summary of the regression results using the earning smoothing metric (SMOOTH). The results are consistent with the aggregate earnings management metric models for all variables except for the Power Distance dimension of national culture. This dimension was not significant when using the aggregate earnings management metric but is significant in the earnings smoothing regression results. A significant relationship was found, albeit in the opposite direction, from that which was hypothesized. A negative relationship between earnings management and Power Distance may arise due to the prevalence of rigidity in high Power Distance cultures. Managers may find it difficult to exercise discretion given the rigid hierarchies and centralization of authority that exist in such cultures (House *et al.*, 2004). A negative association was also found by Lewellyn and Bao (2017) when using the GLOBE measure of power distance to examine the influence on the use of discretionary accruals.

The relationship between the explanatory power of the models is also consistent with the regressions run on the aggregate earnings management metric. Model 2 has the highest adjusted R^2 of 57.4%, indicating that national culture explains over 57% of the variation in earnings smoothing among nations. This is considerably higher than the model with regulatory variables alone (28.4%) but only slightly higher than the model that includes all variables (54.2%). Similar to the analysis run for the AGGEM earnings management metric, the extra sum-of-squares F-test for nested models found that the explanatory power of Model 3 is significantly greater than that of Model 1 but there is no significant difference between Models 2 and 3.

TABLE 7
REGRESSION ANALYSIS: EARNINGS SMOOTHING (SMOOTH)

Variable	Expected Sign	Model 1 Regulation	Model 2 National Culture	Model 3 All Variables
Intercept		54.161	24.903	32.859
		(4.519)***	(3.966)***	(1.789)*
ECB	-	-7.017		-1.618
		(-3.024)***		(-0.405)
LEG	-	-4.684		-1.026
		(-1.723)*		(-0.319)
PDI	+		-0.165	-0.163
			(-2.519)**	(-2.383)**
IDV	-		-0.200	-0.189
			(-3.114)***	(-2.648)**
MAS	+		0.032	0.040
			(0.606)	(0.668)
UAI	+		0.085	0.060
			(1.799)*	(0.926)
LTO	+		0.136	0.135
			(2.634)**	(2.086)**
IVR	-		-0.067	-0.044
			(-0.803)	(-0.379)
Adj. R^2		28.4%	57.4%	54.2%
F-test		6.961***	7.733***	5.437***
Mean VIF		1.022	1.674	2.608

, **, * Indicate significance at the 10%, 5%, and 1% levels respectively*
This table reports coefficient estimates (t-statistics in parentheses)

Table 8 summarizes the results using the earnings discretion metric (ED). Results are consistent with the aggregate earnings management models with the exception of the Long-Term Orientation dimension which is no longer significant. Lower Individualism scores and higher Uncertainty Avoidance scores are related to higher levels of earnings discretion. When examining earnings discretion, Doupnik (2008) found that only the Uncertainty Avoidance dimension was statistically significant. The lack of a significant relationship between Long-Term Orientation and earnings discretion may be due to the income-increasing nature of earnings discretion. The use of discretionary accruals to continually increase earnings is not sustainable in the long run as these accruals will need to reverse over time.

The difference in the explanatory power of the models is not consistent with the regressions run on the aggregate earnings management metric. Model 3 has the highest adjusted R^2 of 47.2%, indicating that national culture and regulatory variables explain over 47% of the variation in earnings discretion. This is higher than Model 2 (37.8%) which includes only the national culture variables. Consistent with the previous results, Model 1, with regulatory variables alone, has the lowest adjusted R^2 of 27.5%. The extra sum-of-squares F-test found that the explanatory power of Model 3 is significantly greater than that of Model 1 but, despite the apparent difference in the adjusted R-square, there is no significant difference in the explanatory power of Models 2 and 3.

TABLE 8
REGRESSION ANALYSIS: EARNINGS DISCRETION (ED)

Variable	Expected Sign	Model 1 Regulation	Model 2 National Culture	Model 3 All Variables
Intercept		42.970	8.361	-13.090
		(3.378)**	(0.808)	(-0.605)
ECB	-	-4.595		6.922
		(-1.866)*		(1.471)
LEG	-	-8.190		-6.189
		(-2.838)***		(-1.629)
PDI	+		-0.025	-0.008
			(-0.296)	(-0.095)
IDV	-		-0.147	-0.187
			(-1.788)*	(-2.220)**
MAS	+		-0.016	0.035
			(-0.238)	(0.492)
UAI	+		0.168	0.155
			(2.796)**	(2.018)*
LTO	+		0.111	0.025
			(1.682)	(0.329)
IVR	-		0.038	-0.122
			(0.354)	(-0.885)
Adj. R^2		27.5%	37.8%	42.7%
F-test		6.678***	4.043***	3.797***
Mean VIF		1.022	1.674	2.608

, **, * Indicate significance at the 10%, 5%, and 1% levels respectively*
This table reports coefficient estimates (t-statistics in parentheses)

A summary of the results for each hypothesis test is presented in Table 9. There is clear support for Hypothesis 2 across all three earnings management metrics and all models. Hypothesis 4 is supported in the models that include only the national culture variables for the aggregate earnings management and earnings smoothing metric. This hypothesis is supported in all models when using the earnings discretion metric. Hypothesis 5 is supported for earnings smoothing and the aggregate metric of earnings management

but not earnings discretion.

Overall, the results of the study are consistent with past research that examines the relationship between national culture and earnings management (Nabar and Boonlert-U-Thai, 2007; Doupnik, 2008). Furthermore, this study provides new evidence of the relationship between Long-Term Orientation and earnings management using national-level data. There is no evidence that the Indulgence dimension is associated with the incidence of earnings management.

TABLE 9
SUMMARY OF RESULTS

Hypothesis	Variable	Expected Sign	Aggregate EM	Earnings Smoothing	Earnings Discretion
H1	PDI	+	Reject	Reject[#]	Reject
H2	IDV	-	Do not reject	Do not reject	Do not reject
H3	MAS	+	Reject	Reject	Reject
H4	UAI	+	Do not reject	Do not reject	Do not reject
H5	LTO	+	Do not reject	Do not reject	Reject
H6	IVR	-	Reject	Reject	Reject

H1 is rejected but there is a significant relationship in the opposite direction to the hypothesis.

SUMMARY AND CONCLUSIONS

This study confirms that a relationship exists between national culture and earnings management and contributes to the literature through the inclusion of the Long-term Orientation and Indulgence dimensions of national culture. After controlling for regulatory characteristics, the incidence of earnings management was found to be higher in nations with higher Uncertainty Avoidance and Long-Term Orientation scores and lower in nations with higher Individualism scores. The results also confirm previous findings linking a lower incidence of earnings management to stronger corporate governance and common law nations.

While there was no significant association between Indulgence and the incidence of earnings management, results indicate a significant positive association between Long-term Orientation and earnings management. The association with Long-Term Orientation was found to hold for earnings smoothing but not earnings discretion. This may be explained by the unsustainability of income-increasing behavior, which is typical of the earnings discretion approach to earnings management.

Of the three earnings management metrics examined, the explanatory power of national culture is strongest for the aggregate metric with similar results for earnings smoothing. The relationship for earnings discretion is considerably weaker but still significant. The explanatory power of these models is greater than that found in prior research, possibly due to the inclusion of the two additional national culture variables and alternative control variables. The identification of a relationship between earnings management and Long-term Orientation at the national level provides opportunities for further investigation, particularly in the context of income-smoothing earnings management. The confirmation of a relationship between earnings management and Uncertainty Avoidance and Individualism suggest that these dimensions should be used as control variables in future cross-national earnings management studies.

This additional evidence of the impact of national culture on the quality of accounting information reinforces the need for the IASB to consider culture when developing future standards. While standard setters may already be conscious of cultural differences, recognition of time horizon effects is important given the significant impact of timing differences in accrual accounting. Furthermore, investors would be wise to avoid the assumption that management will interpret and apply the standards consistently across nations. Differences in national cultures may limit the comparability of financial statements despite the use of IFRS. This is also true in terms of the signals that earnings management may send to the market. While

investors may consider the country in which a company is based when making an investment decision, they would likely evaluate economic conditions rather than national culture.

A limitation of this study is the time period from which the data is sourced. The earnings management metrics drawn from Leuz *et al.* (2003) were constructed using data from 1990-1999. Hofstede's national culture dimensions have been developed over several decades from the late 1960s to the late 2000s. However, cross-cultural differences are considered relatively stable over time, thereby supporting the use of the dimension scores for comparative purposes only. Similarly, the legal system used in a nation should not change over time. The earnings management metrics developed by Leuz *et al*. (2003) provide an opportunity for comparison over time. These metrics could be replicated using more recent data to enable a comparison of the incidence of earnings management pre and post-adoption of IFRS. A replication of the metrics should also include a larger selection of nations. This would address one of the shortcomings of this study whereby the examination of data from only 31 nations limits the generalizability of the results. These limitations highlight the opportunity to replicate or extend this research using a more comprehensive and more recent data set.

The significant relationships identified in this study provide further support for the potential impact of national culture on financial reporting. With the push for global harmonization of accounting standards, the influence of culture on the transparency and comparability of financial reporting should not be underestimated.

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