

The influence of culture on real earnings management

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Abstract

Purpose – The purpose of this paper is to extend prior literature regarding the interrelationships between national culture and accounting practices.

Design/methodology/approach – Using Hofstede's (1980) cultural indices, the authors employ hierarchical linear modeling to examine the impact of economic growth (emerging markets), country, and culture on real earnings management (REM) for a sample of firms from 31 countries.

Findings – The results reveal a negative association between REM and Hofstede's (1980) measures of individualism, masculinity, and uncertainty avoidance, but a positive association with power distance. These results hold even after controlling for discretionary accruals. The results further reveal that measures of investor protection are subsumed by culture.

Research limitations/implications – The findings are limited by the use of Hofstede's (1980) data. There is, however, a significant body of research that continues to rely on and support the use of Hofstede's model.

Practical implications – The results should be of significant importance to investors who should consider cultural characteristics when assessing firm reported performance, and should prompt auditors and regulators to apply greater scrutiny to the financial reports in cultures characterized by high levels of power distance, especially given the apparent tradeoffs between accruals and REM.

Social implications – The results reveal that status as an emerging market does not influence managers' use of REM, and that the strength of a country's investor protection mechanisms are subsumed by culture. Similarly, accounting systems (e.g. International Financial Reporting Standards), by themselves, do not bring about a convergence of managerial behavior. Rather, investors should consider culture when making decisions regarding capital allocation.

Originality/value – The increasing trend toward economic globalization and accounting harmonization makes the understanding of differences in accounting practices, and the possible impact of national culture on manager's decisions, more important than ever. This research links REM to cultural values and tests for evidence that national culture, values, and structures of investor protection affect REM in the ways they affect managers' attitudes toward the management of earnings through accruals.

Keywords Emerging markets, Culture, Real earnings management

Paper type Research paper

Introduction

The increasing trend toward economic globalization and accounting harmonization makes the understanding of differences in accounting practices, and the possible impact of national culture on manager's decisions, more important than ever. This research links real earnings management (REM) to cultural values and tests for evidence that market status (emerging or developed) national culture, values, and structures of investor protection affect REM in the ways they affect managers' attitudes toward the management of earnings through accruals. We find that there is a positive association between REM and Hofstede's (1980) measures of individualism, masculinity and uncertainty avoidance, and a negative association with his measure of power distance. Interestingly, we find that with the exception of REM through abnormal discretionary expense, there is no relationship between investor protection and REM. This may be indicative of managers being more comfortable

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with REM because it does not violate accounting principles. We further find that market status, emerging or developed, is not associated with REM. These findings should be of use in management practice as well as being of use to auditors and regulators in developing an integrated understanding of global competition and corporate effectiveness.

The remainder of the manuscript is organized as follows. The next section reviews the relevant literature. The third section develops the models and describes the sample. The fourth section presents our results, and the final section provides conclusions and suggestions for future research.

Literature review

According to Healy and Wahlen (1999) earnings management can be classified into two categories: accruals management and REM. The former involves generally accepted accounting principles (GAAP), and occurs when managers manage reported earnings by using the accounting discretion allowed under GAAP. Contractor (2013), among others, notes how culturally rooted behavior shapes corporate behavior, and Leuz *et al.* (2003), Nabar and Boonlert-U-Thai (2007) and Han *et al.* (2010), provide evidence that the management of accruals is, in fact, influenced by national culture. The latter form of earnings management, REM, occurs when managers take actions that change the timing or structure of actual business activities. REM has received considerable attention since Graham *et al.* (2005) reported that 80 percent of the US executives they surveyed, were willing to decrease expenditures on R&D, advertising, and maintenance in order to meet earnings benchmarks. Their finding is significant in that it suggests that managers in the US are willing to sacrifice the future performance of their companies in order to meet current-period financial reporting targets.

REM has been shown to be an alternative to accruals management (Cohen *et al.*, 2008; Zang, 2012). Moreover, Ewert and Wagenhofer (2005) demonstrate that when accruals management is constrained by tighter accounting standards, the benefits of REM actually increase. We examine REM in an international setting to assess whether it also, is influenced by market status and culture. Specifically, we examine the relation between national culture and REM across a broad spectrum of 31 countries that include both emerging and developed economies. We undertake this investigation because even though earnings management through accruals manipulation has been the subject of extensive accounting research, no study to date has examined explicitly, the role of culture on managers' decisions to engage in real activities management. Furthermore, since REM may be more damaging to future performance than accruals management (Roychowdhury, 2006; Cohen and Zarowin, 2010; Zang, 2012; Kim and Sohn, 2013; Kim and Park, 2014), while at the same time violating no rules or regulations (Chi *et al.*, 2011), the identification of factors associated with REM should be of economic importance to stakeholders. Roychowdhury (2006, p. 337) defines REM as "departures from normal operational practices motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations." The motivations for managers to engage in REM are the same as those that motivate accruals management, and include concealing undesirable performance, limiting earnings variability, and maximizing bonus compensation (Healy and Wahlen, 1999). However, while earnings management through accruals is costless to firms and, in the long run (since accruals reverse), has no impact on overall firm performance, REM can be costly to firms and shareholders. The overwhelming majority of studies have focused on the negative economic consequences of REM (Roychowdhury, 2006; Cohen and Zarowin, 2010; Zang, 2012; Kim and Sohn, 2013; Kim and Park, 2014), and the evidence from these prior studies indicates that REM increases a firm's cost of capital and imposes greater long-term costs on shareholders because of its negative impact on future cash flows. Cohen and Zarowin (2010), for example, find that declining

operating performance after seasoned equity offerings is more severe when managers engage in REM than when they engage in accruals management.

Declining firm performance and financial health may also increase auditor risk and increased auditor risk impacts client retention. Kim and Park (2014) find, for example, that auditors are more likely to resign when clients engage in aggressive REM practices, and Commerford *et al.* (2016) find anecdotal evidence that the detection of REM leads auditors to look more closely at accruals. As noted above, research on REM has revealed negative consequences resulting from this practice, Gunny (2010) finds, however, that firms engaged in REM to meet or beat earnings benchmarks have better operating performance in the following year.

Cohen *et al.* (2008) examined changes in earnings management practices over time. Their evidence suggests that US firms shifted from using accrual-based to REM after SOX, because real activities methods are harder to detect and accrual manipulations are more likely to draw auditors' or regulators' scrutiny. According to Zang (2012), REM in the US increased due to the higher level of scrutiny of accounting practices after the passage of SOX. This is because regulatory bodies like the US Securities and Exchange Commission (2000) are focusing more attention on "an apparent increase in abusive earnings management" and, as a consequence, auditors pay more attention to accruals management than to REM. Another reason for this scrutiny is that accruals management can take place after the fiscal year has ended while REM decisions must be made prior to fiscal year end. Hence, REM requires *ex ante* planning by managers while accruals management can be done *ex post*. Put more succinctly, the presence of a rigorous litigation and regulatory regimen drives firms to choose real activities methods over accrual methods. Chi *et al.* (2011) suggest that this occurs because REM does not involve the violation of any regulations and that in the presence of high quality auditors, managers are reluctant to manipulate earnings through accruals.

The accounting literature classifies REM by the three cash flows classifications: operating, investing, and financing (Xu *et al.*, 2007). Figure 1 outlines some of the

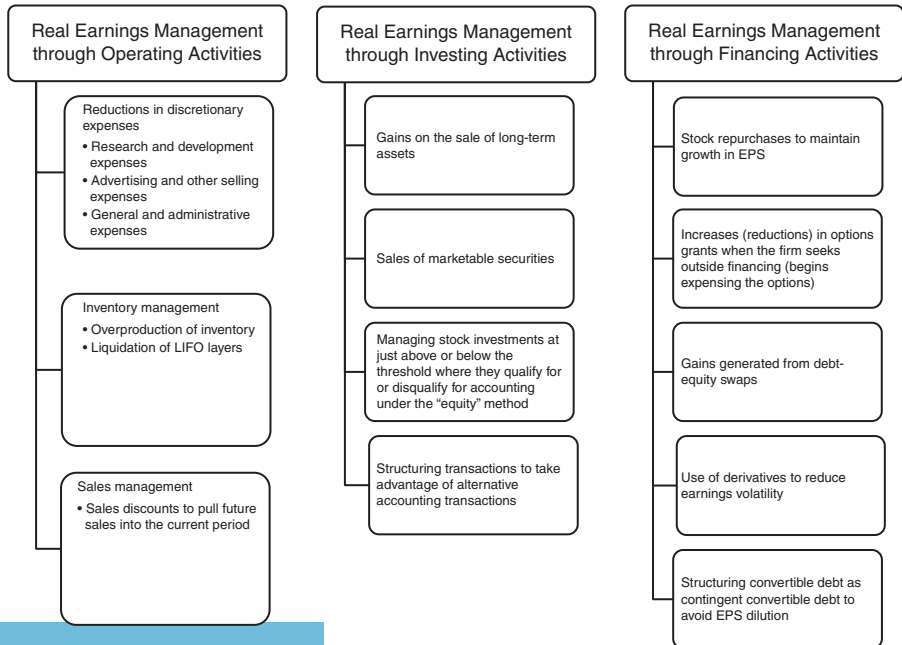


Figure 1.
Mechanisms of real earnings management

mechanisms that can be employed in each area. While different proxies for REM have been used in past studies, Roychowdhury's (2006) variable approximations have proved most popular (Gunny, 2010; Cohen *et al.*, 2008). Employing this approach, we consider abnormal levels of cash flows from operations (sales manipulation), discretionary expense reduction and overproduction as indicative of REM.

Cash flow from operations or sales manipulation consists of those actions used by managers to increase sales during a specific period with the objective of increasing earnings. Some examples of this are price discounts and more lenient credit terms. The escalated sales are, however, likely to disappear once the firm reverts to old prices and may, in fact, be seen as being "borrowed" from future periods. Sales manipulation leads to lower current-period operating cash flows for a given level of sales.

Discretionary expense reductions often include cuts to advertising, R&D, SG&A, and other expenses. Firms generally pay discretionary expenditures with cash. Reducing such expenses will lower cash outflows and increase current-period earnings.

Overproduction refers to the potential to produce more goods than necessary to increase earnings. The cost of products sold appears as the cost of goods sold in the income statement and the cost of products unsold appears as inventory in the balance sheet. When managers decide to produce more units than are needed to meet demand, the associated fixed overhead costs can be spread over more units of production. This results in lower per unit costs and a lower cost of goods sold for a given sales levels.

In the international arena, there have been efforts to document systematic differences in accruals management across countries (Ding *et al.*, 2007). Still other research has highlighted the link between investor protection and earnings management through accruals (Leuz *et al.*, 2003; Burgstahler *et al.*, 2006; Nabar and Boonlert-U-Thai, 2007) and through REM (Enomoto *et al.*, 2015). These papers show that investor protection is a key component that influences managers' choices. While managers are said to have incentives to manage earnings and reduce external inferences, the incentive to manage earnings through accruals has been shown to be lower in those countries with legal systems that effectively protect investors. Studies such as those by Leuz *et al.* (2003), Nabar and Boonlert-U-Thai (2007) and Han *et al.* (2010) have also established the link between accruals management and cultural values. These papers show that culture affects not only corporate disclosures but also the quality of the information disclosed.

Hofstede (1980) defines culture as "the collective programming of the mind which distinguishes the members of one human group from another" (Hofstede, 1980, p. 25). In order to distinguish one culture from another the author developed a cultural framework that decomposes culture into four societal values or dimensions: individualism (IND), power distance (PD), masculinity (MA), and uncertainty avoidance (UA). His framework provides quantitative measures for each of the four cultural dimensions.

Based on Hofstede's model, Gray (1988) developed a framework that links culture with the accounting practices within countries – what he terms "national" accounting systems. In this perspective, culture is considered an environmental factor that affects the accounting system of a country as well as individual perceptions and uses of accounting information. Gray extended Hofstede's model by linking accounting component values and systems to societal values and institutional consequences. Gray hypothesized that accountants' value systems are related to and derived from societal values (Hofstede's four dimensions). Accounting values, on the other hand affect accounting systems. Accounting systems are also influenced by institutional factors such as legal systems and capital markets regulation (which are also influenced by societal values). His model suggests that cultural factors influence the accounting system in two ways: through their influence on value systems and their influence on institutional factors and consequences. This cultural framework is the most commonly employed metric for explaining the impact of culture on financial reporting.

This is because Hofstede's indices operationalize culture in a way that facilitates the use of the dimensions as independent variables in statistical models.

Han *et al.* (2010) for example, predicts that Hofstede's characteristic of individualism will be associated with greater earnings management because high levels of individualism are associated with more flexibility. When individualism is high, accountants and preparers will be "predisposed to report the most optimistic numbers allowed" (p. 126). This characterization applies, however, only to earnings management through accruals, because earnings management through real activities is neither optimistic nor pessimistic, it simply reflects the reality of transactions. If, as shown by Zang (2012), earnings management through accruals and real activities are substitutes, then it may be the case that high levels of individualism, by encouraging accruals management, will be associated with less earnings management through real activities.

High levels of power distance are characterized by hierarchical organizations and high levels of authority vested in top managers. Since managers in cultures with high levels of power distance will have the greatest power in managing operations it is likely that power distance will be positively associated with earnings management of all types.

Gray's (1988) model asserts that countries with high levels of uncertainty avoidance will prefer conservatism. This may lead to a greater use of REM to avoid the risk associated with the potentially negative assessment of accruals management. On the other hand, conservative managers may be reluctant to engage in REM given that it may be damaging to firm performance in the future.

Cultures with high levels of masculinity are characterized by Hofstede as being (among other things) ego oriented, valuing money and property, prioritizing high economic growth and preferring high pay. We might then predict that as with power distance, high levels of masculinity would be associated with all types of earnings management. It is equally likely, however, that managers in cultures characterized by high levels of masculinity might be unconcerned with external monitoring (ego) and would be reluctant to engage in costly REM to meet externally derived performance benchmarks.

When it comes to emerging markets existing organic growth may temper managers' motivations to manage earnings upward. Indeed, Lin *et al.* (2012) show that earnings management in emerging markets may be motivated by more practical concerns, i.e., that when confronted with the prospect of lower future tax rates, Chinese companies used accruals management to reduce earnings in the year prior to the rate reduction. In a similar vein, Liu and Lu (2007) show that firms in emerging markets also use accruals management, not to meet benchmarks, but to transfer resources from firms to controlling shareholders. This paper extends these streams of research investigating the association of earnings management with culture and economic growth, by examining whether market type and national culture are associated with variability in REM.

As described above, societal values affect not only the accounting systems, but also the institutional and legal level systems within countries. The institutional and legal systems within a country also impact the financial markets because of the effect they have on investor's decisions. A strong legal system, for example, protects potential financiers against expropriations and raises their willingness to exchange money for securities (La Porta *et al.*, 1997).

Institutions and culture are, however, interdependent (Hutchings and Michailova, 2006), and a country's legal system is moderated by its national culture. According to Licht *et al.* (2005) laws reflect cultural values. This linkage supports Hofstede's proposition that societal values have institutional consequences in the form of legal, political, and economic systems – including patterns of corporate ownership and the structure of capital markets. These values, therefore, interact with the other institutional consequences of culture to arrive at a final set of accounting systems (Salter and Niswander, 1995).

REM reflects managers' opportunistic attitudes toward financial reporting (Kim and Park, 2014). Managers' attitudes toward certain practices at the same time reflects the cultural values of the society in which they live and work. Unlike accruals management, REM is less constrained by investor protection since it does not involve a direct violation of any law and depends, instead, on opportunistic operating decisions. Managers may, therefore, be more likely to behave opportunistically regarding REM in an environment with strong shareholder protection. On the other hand, cultures where managers are constrained by greater external monitoring may be more reluctant to engage in activities that are seen as detrimental to future performance (Cohen *et al.*, 2008; Chi *et al.*, 2011; Zang, 2012).

Model construction and sample selection

Dependent variables (REM)

To measure REM, we rely on the three proxies of Roychowdhury (2006): abnormal cash flow from operations, abnormal discretionary expenses, and abnormal production costs. In order to measure the three variables, it is necessary to generate the normal levels of: cash flow from operations (CO), discretionary expenses (DX), and production costs (PC). Ideally, we would also address the effect of earnings management through the other real activities of investing and financing. If culture is associated with operational decisions, it is entirely likely to be associated with investing and financing decisions as well. Unfortunately, however, we know of no way to model the normal levels of those activities and this inability may bias our results.

The residuals from the following models serve as the measures of abnormal cash from operations (CFO), discretionary expenses (DISCEXP) and production costs (PROD). We also create a composite measure (REMALL) to control for measurement errors. To obtain the residuals, we run the following cross-sectional regression for each real management activity.

Operating cash flows:

$$\frac{CO_t}{ASSETS_{t-1}} = \alpha_0 \frac{1}{ASSETS_{t-1}} + \alpha_1 \frac{SALES_t}{ASSETS_{t-1}} + \alpha_2 \frac{\Delta SALES_t}{ASSETS_{t-1}} + \varepsilon_t \quad (1)$$

where CO is the cash flow from operations; ASSETS the total assets; SALES the net sales; and $\Delta SALES$ the change in sales from time $t-1$ to t .

Discretionary expenses:

$$\frac{DX_t}{ASSETS_{t-1}} = \alpha_0 \frac{1}{ASSETS_{t-1}} + \alpha_1 \frac{SALES_{t-1}}{ASSETS_{t-1}} + \varepsilon_t \quad (2)$$

where DX is the discretionary expense measured as the sum of advertising expense, R&D, and selling, general, and administrative expenses and the other variables are as defined above.

Production costs:

$$\frac{PC_t}{ASSETS_{t-1}} = \alpha_0 \frac{1}{ASSETS_{t-1}} + \alpha_1 \frac{SALES_t}{ASSETS_{t-1}} + \alpha_2 \frac{\Delta SALES_t}{ASSETS_{t-1}} + \alpha_2 \frac{\Delta SALES_{t-1}}{ASSETS_{t-1}} + \varepsilon_t \quad (3)$$

where PC is the sum of the cost of goods sold and change in inventory.

Independent variables (cultural indices)

In order to examine the association between REM and culture we follow the study by Han *et al.* (2010) where Hofstede's four cultural dimensions and Leuz's *et al.* (2003) indices are employed as proxies for the cultural and institutional form variables[1].

Control variables

Because prior research (Leuz *et al.*, 2003; Nabar and Boonlert-U-Thai, 2007; Han *et al.*, 2010) has established the link between accruals management and culture, it is incumbent on us to control for earnings management through accruals when we conduct our tests. Abnormal accruals have the added benefit of also acting as a proxy for audit quality (Myers *et al.*, 2003), and Chi *et al.* (2011) show that audit quality is associated with earnings management. Thus we include abnormal accruals as a control variable in our models. We estimate abnormal accruals (ABACC) following Kothari *et al.* (2005). We estimate cross-sectional modified Jones discretionary accruals, adjusted for prior year performance. The major difference between Kothari *et al.* (2005) and Dechow *et al.* (1995) lies in the former's consideration of the impact of firm performance on the estimation models. Specifically, ROA_{t-1} was added as an additional independent variable in the modified Jones model used to obtain the residuals (discretionary accruals).

In a similar vein, since managers have reputation and compensation incentives to meet or beat earnings benchmarks (Roychowdhury, 2006), and since meeting these benchmarks is seen as a reason for earnings management, we follow prior literature and include an indicator variable for firms that meet or beat (MEETBEAT) those benchmarks. As in Gunny (2010) we set earnings benchmarks equal to 1 percent of total assets. MEETBEAT is an indicator variable equal to 1 if earnings in year t are positive and the change in earnings from year $t-1$ to t is equal to or greater than 1 percent of total assets.

The failure of Enron and the subsequent passage of SOX by the US Congress prompted a number of countries to enact accounting reforms. Taiwan, for example, enacted a quasi-mandatory auditor rotation policy[2] and Canada mandated that audit committee members be financially literate. Because these post-SOX changes in the global regulatory environment may influence our results, we control for post-SOX changes by including a 0(1) indicator variable (POSTSOX) equal to 1 if the year is 2002 or greater and 0 otherwise.

During our sample period, a large number of countries permitted or mandated adherence to International Financial Reporting Standards (IFRS). As a consequence, our tests could be biased by these changes in the reporting and regulatory environments. To control for this possibility, we include a 0(1) indicator variable equal to 1 if the company's financial statements were presented in conformity with IFRS and 0 otherwise. Compustat determines the accounting standard designation based on company disclosure of the standards employed. It is therefore possible, that some observations may be in accordance with IFRS, but are miscoded as domestic GAAP because the firm made no specific disclosure of the standards employed. Furthermore, the fact that national GAAP can vary across countries and across sectors may impact our measures of REM and bias our results.

Finally, since the global financial crisis of 2008-2009 may have influenced managerial behavior in patterns similar to REM (e.g. reducing discretionary expenses and offering sales discounts), we control for the financial crisis (CRISIS) by including a 0(1) indicator variable equal to 1 if the firm-year is 2008 or 2009 and 0 otherwise[3].

Following Roychowdhury (2006) and Han *et al.* (2010) we also include controls for debt, profitability, and firm size (leverage, return on assets, and the natural log of total assets) in our model. Leverage (LEV) is defined as the sum of short-term and long-term debt divided by total assets. Return on assets (ROA) is net income divided by the average of beginning and ending total assets. Firm size (SIZE) is equal to the natural log of total assets at the beginning of the fiscal year[4]. Because investor protection is moderated by culture (Leuz *et al.*, 2003), and because Han *et al.* (2010) show that it is associated with accruals management, we also include the interactions of INVPRO with IND, PD, MA and UA. Since financial variables tend to increase over time we deflate those by total assets.

Since market type (emerging or developed), country, and culture are nested and clustered, they lack independence, and the data violates the assumptions necessary for

reliable tests using simple linear regressions. This leads to an increased risk of type 1 errors. Indeed, the results of prior research into country-level effects and culture may not be reliable given the deficiencies of OLS. We address these deficiencies by employing the hierarchical linear modeling (HLM) technique to conduct our empirical tests. We have two levels in our data. Individual firms (level 1) are nested within countries (level 2) which are nested within market type (level 3). Using HLM allows us to simultaneously determine whether the different forms of REM are associated with; emerging or developed markets; individual countries; and national culture. Our resulting test model is thus:

$$\begin{aligned}
 \text{REM} = & \alpha_0 + \alpha_1 \text{IND} + \alpha_2 \text{PD} + \alpha_3 \text{MA} + \alpha_4 \text{UA} + \alpha_5 \text{INVPRO} + \alpha_6 \text{MEETBEAT} + \alpha_7 \text{LEV} \\
 & + \alpha_8 \text{ROA} + \alpha_9 \text{SIZE} + \alpha_{10} \text{ABACC} + \alpha_{11} \text{CRISIS} + \alpha_{12} \text{POSTSOX} \\
 & + \alpha_{13} \text{IFRS} + \alpha_{14} \text{IND} \times \text{INVPRO} + \alpha_{15} \text{PD} \times \text{INVPRO} \\
 & + \alpha_{16} \text{MA} \times \text{INVPRO} + \alpha_{17} \text{UA} \times \text{INVPRO} + \alpha_{18} \text{CYR} \\
 & + u_0 \text{emerging market} + u_1 \text{country} + u_2 \text{firm}
 \end{aligned} \tag{4}$$

where REM is the abnormal: CFO, discretionary expense, production costs, or the combination of the three; IND, PD, MA and UA the orthogonalized rank transformations of the country-specific cultural scores from Hofstede (1980)[5]; INVPRO the orthogonalized rank transformations of the average of the five legal variables from La Porta *et al.* (1998)[6]; CYR the data year centered on 2000 (data year – 2000); u_0 , u_1 , u_2 represent the random effects of emerging markets, country and firm, respectively; and the other variables are as defined above.

Sample selection and descriptive statistics

The data are obtained from Compustat North America and from Compustat Global. Because these data are reported in various currencies, all financial data were converted to US dollars using the US Treasury Department exchange rate at the end of each fiscal period. For countries or years with high exchange rate variability, this end-of-period conversion may cause us to identify instances of REM where none exist. As such, however, this possibility should work against us finding an association with culture. We are able to obtain 292,269 firm-year observations that have the data necessary for our CFO model, 291,224 that met the data requirements for the computation of DISCEXP and 266,089 for the computation of PROD. Our sample yielded 252,935 firm years with data for all three measures of REM. The sample includes data from firms in 31 countries for the period from 1987 to 2012. Seven of the countries are considered emerging markets[7]. The largest sample observations by country are from the USA and Japan (109,760 and 33,724 observations, respectively). The sample includes 182,509 non-US firm years (62 percent of the sample) of which 48,723 (27 percent) are from emerging markets. The fewest country-level observations are from Portugal, Ireland, and Austria (363, 506, and 510 firm years, respectively).

Table I – Panel A presents the number of firm-year observation per country as well as descriptive statistics for the sample. Hofstede's scores for IND range from a high of 91 for the USA, to a low of 14 in Indonesia and Pakistan. Malaysia has the highest PD score (104), while Austria has the lowest (11). Greece has the highest UA score (112) and the lowest is Singapore's (8). The average of the INVPRO scores is 17.52 and the range from a high of 24.05 for Singapore to a low of 2.56 for Indonesia. The median LEV values average 53 percent, while median ROA averages 3 percent. Median total assets averages 214.79 and median ABACC averages –0.001.

Table I – Panel B presents descriptive statistics for our measures of REM. The median values are 0 for CFO, DISCEXP, and PROD while the median for REMALL is slightly

Table I.
Descriptive statistics

Country	<i>n</i>	IND	PD	MA	UA	INVPRO	LEV (median)	ROA (median)	Total assets (median)	ABACC (median)
Australia	12,083	90	36	61	51	22.56	0.34	(0.02)	28.64	0.003
Austria	510	55	11	79	70	14.58	0.59	0.04	395.96	-0.008
Belgium	733	75	65	54	94	16.46	0.56	0.03	274.71	-0.013
Canada	12,316	80	39	52	48	22.47	0.44	0.02	112.93	-0.010
Denmark	1,074	74	18	16	23	18.88	0.54	0.03	131.14	0.007
Finland	1,175	63	33	26	59	20.81	0.55	0.05	206.76	-0.011
France	5,628	71	68	43	86	18.05	0.60	0.03	190.03	-0.010
Germany	5,228	67	35	66	65	15.52	0.56	0.03	142.24	-0.005
Greece	1,221	35	60	57	112	15.20	0.60	0.01	187.99	0.010
Hong Kong	9,347	25	68	57	29	22.45	0.39	0.03	126.95	0.004
India ^a	21,292	48	77	56	40	16.41	0.57	0.04	31.34	0.006
Indonesia ^a	2,986	14	78	46	48	2.56	0.55	0.03	91.69	0.000
Ireland	506	70	28	68	35	7.52	0.53	0.04	249.54	-0.002
Italy	1,256	76	50	70	75	15.44	0.65	0.02	462.02	-0.002
Japan	33,724	46	54	95	92	19.03	0.54	0.02	328.24	0.007
Korea ^a	6,411	18	60	39	85	16.30	0.56	0.02	272.76	0.006
Malaysia ^a	9,918	26	104	50	35	22.70	0.41	0.03	58.74	0.005
Netherlands	1,357	80	38	14	53	19.12	0.59	0.05	425.96	-0.014
Norway	1,439	69	31	8	50	21.72	0.57	0.03	178.60	-0.003
Pakistan	1,937	14	55	50	70	4.15	0.63	0.05	39.32	0.007
Philippines ^a	1,228	32	94	64	44	15.54	0.43	0.03	79.16	0.008
Portugal	363	27	63	31	104	11.72	0.73	0.01	523.12	0.000
Singapore	6,381	20	74	48	8	24.05	0.45	0.04	78.48	0.020
South Africa ^a	2,511	65	49	63	49	19.64	0.49	0.08	207.18	-0.017
Spain	577	51	57	42	86	16.56	0.63	0.03	993.80	-0.009
Sweden	3,397	71	31	5	29	22.60	0.53	0.04	78.16	0.005
Switzerland	1,817	68	34	70	58	21.06	0.50	0.05	380.07	-0.011
Taiwan	13,191	17	58	15	69	17.77	0.43	0.04	101.27	-0.002
Thailand ^a	4,377	20	64	34	64	17.14	0.45	0.05	55.14	-0.004
UK	18,526	89	35	66	35	23.47	0.52	0.04	102.91	-0.009
USA	109,760	91	40	62	46	21.78	0.50	0.03	123.57	-0.001
Total	292,269				Average	17.52	0.53	0.03	214.79	-0.001

(continued)

Panel B – dependent variables all countries

Variable	Mean	SD	0.25	Median	0.75
CFO	-0.006	0.10	-0.05	0.00	0.05
REMALL	0.001	0.23	-0.16	-0.01	0.16
DISCEXP	0.006	0.11	-0.08	-0.00	0.08
PROD	0.003	0.13	-0.10	-0.00	0.09

Panel C – dependent variables emerging markets

Variable	Mean	SD	0.25	Median	0.75
CFO	0.006	0.07	-0.04	0.00	0.06
REMALL	-0.016	0.20	-0.17	-0.03	0.12
DISCEXP	-0.016	0.09	-0.07	-0.02	0.04
PROD	-0.012	0.12	-0.10	-0.02	0.07

Panel D – tests of differences in means: emerging vs developed markets

Variable	Mean difference	SE of mean difference	t-value	Probability
CFO	-0.0125	0.0005	-25.98	Pr($ T > t $) = 0.000
REMALL	0.0236	0.0015	19.62	Pr($ T > t $) = 0.000
DISCEXP	0.0160	0.0017	30.34	Pr($ T > t $) = 0.000
PROD	0.0180	0.0007	27.39	Pr($ T > t $) = 0.000

Notes: IND, PD, MA and UA are the country-specific cultural scores from Hofstede (1980); INVPRO is the average of the five legal variables from La Porta *et al.* (1998); LEV is the sum of short-term and long-term debt divided by total assets; ROA is the net income divided by the average of beginning and ending total assets; total assets are the total assets at the beginning of the fiscal year; ABACC is the abnormal accruals; CFO is the abnormal cash from operations; DISCEXP is the abnormal discretionary expense; PROD is the abnormal production expense; REMALL = CFO + DISCEXP + PROD. ^aEmerging market country

negative at -0.01 . REMALL also has the largest standard deviation at 0.23 as compared with 0.10-0.13 for the other variables. Panel C of Table I presents descriptive statistics for the emerging markets countries and Panel D presents t -tests of differences between developed and emerging markets. The developed countries are characterized by more earnings management through CFO, while emerging markets countries are characterized by more DISCEXP and PROD earnings management.

Table II presents Pearson correlations for the sample variables. Other than the interaction variables and the combination measure of REM, the only correlation greater than 0.50 is ROA with CFO. The correlation table also shows that there is a significant and positive correlation ($r=0.50$) between abnormal discretionary expenses and abnormal production expenses. We also find a negative correlation of ABACC with the measures of REM. Both of these results are consistent with Zang (2012) in that it implies that firms may use a combination of real activities manipulation at the same time, and that firms treat accruals management and REM as substitutes.

Model estimation

The normal levels of cash flow from operations, production costs, and discretionary expenditures are estimated cross-sectionally by country and year. The residuals from these estimations measure the abnormal levels of production costs, discretionary expenditures, and cash flows for the sample firms[8]. When actual levels are lower than expected, the residuals are negative. Thus lower values of abnormal cash flow from operations, production costs, and discretionary expenditures indicate more REM.

We control for outliers in measuring REM by obtaining Cook's D (Cook, 1977) for each observation, and then dropping any observation with a Cook's D greater than 1. In a subsequent iterative process we calculate weights based on absolute residuals. We employ two types of weights. First we employ Huber weighting (Huber, 1964), where observations with small residuals get a weight of 1, and the larger the residual, the smaller the weight. Next we employ bi-weighting (see Maronna *et al.*, 2006) where all observations with a non-zero residual get down-weighted to some extent. The two different types of weights are employed because Huber weights can have difficulties with severe outliers, and bi-weights can have difficulties converging. Employing Huber weights before bi-weights, helps to minimize problems with the bi-weights converging. The adjusted residuals are then used as the dependent variables in our HLM regressions.

Since there is a suspicion that our models may suffer from omitted variables bias related to culture, we choose investor protection and legal system (code or common law) as instrumental variables. In separate regressions, both variables are significant in explaining the variability in our cultural measures. We conduct a Hausman test by incorporating the residuals from these regressions into our test model. None of the coefficients on the residuals are significantly different from zero at conventional levels. This result leads us to conclude that endogeneity is not a problem in our models.

Empirical results

Main results

The coefficients and t -statistics from our regression analyses are presented in Table III. Our results indicate that while certain countries are associated with more earnings management through REM. The COUNTRY intercepts are all negative and significant at the $p \leq 0.01$ level, and COUNTRY explains 0.7, 4.4, 3.1 and 5.3 percent of the differences among firms for the CFO, REMALL, DISCEXP, and PROD models, respectively. Status as an emerging market, however, explains virtually none of the firm-level differences (none of the EMERGE intercepts are significantly different from zero in our tests). We find that in the CFO, REMALL, and PROD models, the coefficients on IND are positive and significantly different

	CFO	DISCEXP	PROD	REBALL	IND	PD	MA	UA	INVPRO	MEETBEAT	LEV	ROA	SIZE	ABACC	CRISIS	POST SOX	IFRS	IND× INVPRO	PD× INVPRO	MA× INVPRO	UA× INVPRO	
CFO	1.00																					
DISC EXP	-0.13	1.00																				
PROD	0.36	0.50	1.00																			
REBALL	0.51	0.69	0.91	1.00																		
IND	-0.02	-0.01	0.07	0.02	1.00																	
PD	0.01	-0.10	-0.08	-0.08	0.03	1.00																
MA	-0.03	0.14	0.04	0.08	-0.02	0.06	1.00															
UA	-0.03	0.15	0.04	0.08	-0.03	-0.07	0.05	1.00														
INVPRO	-0.02	0.00	-0.04	-0.03	-0.03	-0.05	0.04	0.03	1.00													
MEETBEAT	0.33	-0.02	0.18	0.21	-0.09	0.07	0.00	0.04	-0.07	1.00												
LEV	-0.09	-0.02	-0.05	-0.07	0.02	-0.01	0.02	0.00	-0.02	-0.04	1.00											
ROA	0.62	-0.11	0.25	0.32	-0.13	0.11	-0.04	0.05	-0.11	0.48	1.00											
SIZE	0.19	-0.10	0.02	0.04	-0.01	-0.11	0.11	0.22	-0.02	0.13	0.02	-0.19	1.00									
ABACC	-0.36	-0.01	-0.12	-0.20	-0.02	0.03	0.01	0.00	0.00	0.06	0.01	0.02	0.23	1.00								
CRISIS	0.02	0.00	0.00	0.01	-0.13	0.08	-0.06	0.07	-0.08	-0.03	-0.01	-0.01	-0.04	-0.04	1.00							
POST SOX	0.02	0.06	0.00	0.03	-0.41	0.25	-0.13	0.23	-0.22	0.05	-0.03	0.05	0.10	0.00	0.26	1.00						
IFRS	0.00	0.02	0.07	0.05	-0.07	-0.07	-0.13	0.03	-0.02	0.01	-0.01	0.01	0.06	0.01	0.09	0.28	1.00					
IND×INVPRO	0.01	-0.02	0.06	0.01	0.99	-0.72	0.31	-0.46	0.64	-0.10	0.02	0.00	-0.09	-0.01	-0.00	-0.03	-0.01	1.00				
PD×INVPRO	-0.00	-0.09	-0.11	-0.09	-0.50	0.84	-0.20	-0.15	0.04	0.04	-0.01	-0.01	0.07	-0.01	0.00	0.00	-0.27	-0.40	1.00			
MA×INVPRO	-0.01	0.09	0.05	0.06	0.52	-0.42	0.92	-0.07	0.51	-0.03	0.01	0.01	0.12	0.01	-0.02	-0.00	-0.22	-0.03	-0.28	1.00		
UA×INVPRO	-0.01	0.12	0.07	0.09	0.06	-0.06	0.08	0.36	-0.49	0.02	0.01	0.01	0.02	-0.01	-0.00	-0.00	-0.14	0.51	-0.14	0.11	1.00	

Notes: CFO is the abnormal cash from operations; DISCEXP is the abnormal discretionary expense; PROD is the abnormal production expense; REBALL = CFO + DISCEXP + PROD; IND, PD, MA and UA are the orthogonalized rank transformations of the country-specific cultural scores from Hofstede (1980); INVPRO is the rank transformations of the average of the five legal variables from La Porta *et al.* (1998); MEETBEAT is an indicator variable equal to 1 if earnings in year *t* are positive and the change in earnings from year *t*-1 to *t* is equal to or greater than 1 percent of total assets; LEV is the sum of short-term and long-term debt divided by total assets; ROA is the net income divided by the average of beginning and ending total assets; SIZE is the natural log of total assets at the beginning of the fiscal year; ABACC is the abnormal accruals; CYR is the data year centered on 2000 (year -2000); CRISIS is a (0/1) indicator variable equal to 1 if the firm-year is 2008 or 2009 and 0 otherwise; POSTSOX is an indicator variable equal to 1 if the year is 2002 or greater and 0 otherwise; IFRS is a (0/1) indicator variable equal to 1 if the company's financial statements were presented in conformity with IFRS and 0 otherwise

Table II. Pearson correlations

	CFO	REMALL	DISCEXP	PROD ^a
IND	0.00422 (2.76)***	0.0329 (3.15)***	-0.000718 (-0.16)	0.0247 (3.68)***
PD	0.000875 (0.80)	-0.0302 (-4.07)***	-0.0145 (-4.67)***	-0.0149 (-3.12)***
MA	-0.000174 (-0.16)	0.0167 (2.33)**	0.0182 (6.08)***	0.00157 (0.34)
UA	-0.00204 (-2.23)**	0.0235 (3.79)***	0.0141 (5.46)***	0.0106 (2.66)***
INVPRO	0.00181 (1.31)	0.00543 (0.58)	0.00654 (1.68)*	-0.00227 (-0.38)
MEETBEAT	0.0110 (30.89)***	0.0505 (44.40)***	0.00740 (15.27)***	0.0391 (66.03)***
LEV	0.00261 (92.35)***	-0.000766 (-1.45)	-0.00255 (-76.26)***	0.000127 (7.26)***
ROA	0.252 (417.34)***	0.376 (148.52)***	-0.0417 (-79.40)***	0.0701 (107.55)***
SIZE	0.00272 (37.87)***	-0.0119 (-52.73)***	-0.00820 (-81.93)***	-0.00445 (-36.05)***
ABACC	-0.00240 (-29.94)***	-0.415 (-123.80)***	-0.000158 (-2.26)**	-0.000104 (-7.99)***
CRISIS	0.00977 (22.86)***	0.00565 (4.46)***	-0.000558 (-0.92)	0.00298 (4.11)***
POSTSOX	0.00108 (2.05)**	0.00622 (3.74)***	0.0151 (20.23)***	-0.00154 (-1.63)
IFRS	-0.00508 (-9.76)***	0.00718 (4.40)***	0.0262 (35.37)***	-0.00299 (-3.22)***
IND × INVPRO	0.00152 (1.34)	-0.00102 (-0.13)	0.000177 (0.06)	-0.00214 (-0.44)
PD × INVPRO	0.000260 (0.44)	-0.00190 (-0.48)	-0.000190 (-2.51)**	0.000534 (0.21)
MA × INVPRO	0.000727 (0.87)	0.00405 (0.73)	0.00193 (0.83)	0.00200 (0.56)
UA × INVPRO	0.000347 (0.53)	0.00715 (1.63)	0.00740 (4.04)***	0.00127 (0.45)
CYR	-0.00001 (-2.64)***	0.00082 (6.17)***	-0.00040 (6.45)***	0.00051 (6.79)***
cons	-0.0193 (-11.38)***	0.0413 (3.70)***	0.0109 (2.34)**	0.0125 (1.74)*
<i>EMERGE</i>				
_cons	-15.55 (-0.93)	-15.10 (-1.03)	-12.30 (-0.87)	-16.19 (-1.08)
var (_cons)	3.11E-14	7.68E-14	2.06E-11	8.59E-15
<i>COUNTRY</i>				
_cons	-5.049 (-37.52)***	-3.114 (-23.77)***	-3.990 (-30.91)***	-3.555 (-27.59)***
var (_cons)	0.0000412	0.0019729	0.0003424	0.0008167
<i>FIRM</i>				
_cons	-2.627 (-2008.38)***	-1.576 (-1116.56)***	-2.273 (-1734.66)***	-2.116 (-1543.20)***
var (_cons)	0.0052262	0.0427421	1.0106037	0.014534
<i>n</i>	292,269	252,935	291,224	266,089
<i>R</i> ²	0.475	0.201	0.106	0.127

Notes: z-statistics in parentheses. CFO is the abnormal cash from operations; DISCEXP is the abnormal discretionary expense; PROD is the abnormal production expense; REMALL = CFO + DISCEXP + PROD; IND, PD, MA and UA are the orthogonalized rank transformations of the country-specific cultural scores from Hofstede (1980); INVPRO is the rank transformations of the average of the five legal variables from La Porta *et al.* (1998); MEETBEAT is an indicator variable equal to 1 if earnings in year *t* are positive and the change in earnings from year *t*-1 to *t* is equal to or greater than 1 percent of total assets; LEV is the sum of short-term and long-term debt divided by total assets; ROA is the net income divided by the average of beginning and ending total assets; SIZE is the natural log of total assets at the beginning of the fiscal year; ABACC are the abnormal accruals; CYR is the data year centered on 2000 (year - 2000); CRISIS is a 0(1) indicator variable equal to 1 if the firm-year is 2008 or 2009 and 0 otherwise; POSTSOX is an indicator variable equal to 1 if the year is 2002 or greater and 0 otherwise; IFRS is a 0(1) indicator variable equal to 1 if the company's financial statements were presented in conformity with IFRS and 0 otherwise. ^aAbnormal production expense is multiplied by negative one so that the interpretations of the signs of the coefficients are consistent with those of abnormal CFO and abnormal discretionary expense. **p* < 0.10; ***p* < 0.05; ****p* < 0.01

Table III.
Regression results –
all countries

from zero ($p \leq 0.01$). The coefficient on IND is not significantly different from zero in the DISCEXP model. The coefficients on PD are, however, negative (not significant in the CFO model). These results indicate that managers employ less REM in cultures distinguished by high-level individualism, but more earnings management in cultures characterized by high levels of power distance. MA is associated with less earnings management both in the aggregate measure and through discretionary expense reduction as is UA. UA is also associated with less earnings management through overproduction. In contrast to REM through discretionary expense reduction and overproduction, the coefficient on CFO

indicates that uncertainty awareness is associated with more earnings management through sales discounts. This result is consistent with Han *et al.*'s (2010) finding regarding accruals management. We also see that the coefficient on abnormal accruals (ABACC) is negative and significant in all of our models. This result (consistent with Cohen *et al.*, 2008; Zang, 2012) depicts a tradeoff between accruals management and REM and indicates that firms use more accruals management and less REM in countries where it is more costly to engage in REM.

The coefficient on INVPRO is positive and weakly significant ($p \leq 0.10$) in only the DISXEXP model. The lack of general significance may result from our culture variables capturing much of the variance in investor protection or because REM, which violates no laws or standards, is simply unrelated to levels of investor protection. The interactions of INVPRO with the culture measures are likewise only significant in the DISCEXP model. Here, high levels of INVPRO and PD are associated with more earnings management through DISCEXP while high levels INVPRO and of UA are associated with less.

The coefficients on MEETBEAT are positive and significant. This is indicative of firms that just meet or beat earnings targets engaging in less REM and may indicate a preference for accruals management over costly and potentially harmful REM. Indeed, the significantly negative coefficients on abnormal accruals confirm prior research that indicates firms use both accruals earnings management and REM to achieve financial reporting goals (Cohen *et al.*, 2008; Zang, 2012). Consistent with Filip and Raffournier (2014) and Cimini (2014) the financial crisis is significantly associated with lower levels of earnings management[9].

POSTSOX is associated with less earnings management overall, and may reflect the greater scrutiny of auditors toward all forms of earnings management (Commerford *et al.*, 2016). The use of IFRS is associated with more earnings management through sales discounts and overproduction, but less earnings management through discretionary expense reduction.

Additional tests

Outside the British Commonwealth

Firms from the former British Commonwealth and the USA comprise over 52 percent of our sample. Given the cultural ties between those nations, our results may be an artifact of overweighting that group of nations. To test for this, we partition the sample and rerun our tests to isolate the impact of culture on REM in non-Commonwealth countries.

Table IV presents descriptive statistics for the dependent variables when the British Commonwealth countries and the USA are excluded from the data. The means, standard deviations, and interquartile range are qualitatively identical to those of the sample as a whole.

Table V presents the regression results. With the exception of CFO with IND and UA, which are not significant in these tests, the results are qualitatively identical to those for the sample as a whole. Again, COUNTRY is associated with earnings management through REM, here accounting for 0.9, 4.2, 3.4 and 4.1 percent of the differences among firms for the CFO, REMALL, DISCEXP, and PROD models, respectively, and status as an emerging

Variable	Mean	SD	0.25	Median	0.75
CFO	0.00	0.07	-0.04	0.00	0.05
REBALL	0.01	0.22	-0.14	-0.01	0.15
DISCEXP	0.00	0.10	-0.07	-0.01	0.07
PROD	0.00	0.12	-0.09	-0.01	0.08

Notes: CFO is the abnormal cash from operations; DISCEXP is the abnormal discretionary expense; PROD is the abnormal production expense; REMALL = CFO + DISCEXP + PROD. ^aRemoved from the sample are: the UK, Canada, Australia, South Africa, Ireland and the USA

Table IV.
Descriptive statistics – dependent variables for sample firms excluding British Commonwealth countries and the USA^a

	CFO	REMALL	DISCEXP	PROD ^a
IND	0.000327 (0.14)	0.0517 (3.43)***	-0.00570 (-0.88)	0.0440 (5.00)***
PD	0.000951 (0.93)	-0.0260 (-3.81)***	-0.0142 (-4.86)***	-0.0120 (-3.02)***
MA	-0.00107 (-0.99)	0.0196 (2.72)***	0.0174 (5.64)***	0.00456 (1.09)
UA	-0.00104 (-1.12)	0.0160 (2.59)***	0.0127 (4.79)***	0.00520 (1.44)
INVPRO	-0.000261 (-0.15)	0.0107 (0.92)	0.00304 (0.61)	0.00629 (0.93)
MEETBEAT	0.00510 (10.47)***	0.0291 (17.47)***	0.00514 (7.15)***	0.0263 (27.92)***
LEV	0.00223 (13.88)***	-0.00807 (-6.04)***	-0.00149 (-4.00)***	0.000232 (11.95)***
ROA	0.282 (193.98)***	0.500 (91.68)***	-0.0129 (-7.07)***	0.122 (51.96)***
SIZE	0.00174 (17.76)***	-0.00632 (-18.69)***	-0.00479 (-32.19)***	-0.00209 (-10.65)***
ABACC	-0.0391 (-80.09)***	-0.469 (-96.59)***	-0.000239 (-1.67)*	-0.00242 (-8.19)***
CRISIS	0.0112 (25.10)***	0.00938 (6.42)***	0.000881 (1.29)	0.00590 (6.86)***
POSTSOX	-0.00151 (-2.34)**	0.00959 (4.08)***	0.0260 (26.49)***	-0.00866 (-6.23)***
IFRS	0.0000822 (0.14)	0.00673 (3.24)***	0.0221 (24.21)***	-0.00165 (-1.36)
IND × INVPRO	-0.000510 (-0.33)	0.00201 (0.20)	-0.00344 (-0.79)	0.00414 (0.70)
PD × INVPRO	0.0000436 (0.08)	-0.000634 (-0.17)	-0.00428 (-2.76)***	0.00168 (0.79)
MA × INVPRO	0.000545 (0.65)	0.00147 (0.27)	0.000683 (0.29)	0.000849 (0.27)
UA × INVPRO	0.000968 (1.12)	0.0129 (2.27)**	0.0102 (4.18)***	0.00364 (1.09)
CYR	-0.00012 (-2.67)***	0.00075 (5.36)***	-0.00037 (5.72)***	0.00050 (6.31)***
cons	-0.0132 (-4.88)***	0.0570 (3.24)***	-0.0252 (-3.36)***	0.0455 (4.44)***
<i>EMERGE</i>				
_cons	-16.09 (-0.86)	-15.18 (-0.85)	-12.64 (-0.71)	-16.50 (-1.16)
var (_cons)	1.07E-14	6.54E-14	1.05E-11	4.69E-15
<i>COUNTRY</i>				
_cons	-5.134 (-34.03)***	-3.220 (-22.29)***	-4.071 (-28.38)***	-3.760 (-25.91)***
var (_cons)	0.0000348	0.0015961	0.0002912	0.0005426
<i>FIRM</i>				
_cons	-2.822 (-1470.33)***	-1.667 (-811.68)***	-2.398 (-1257.28)***	-2.186 (-1067.62)***
var (_cons)	0.0035752	0.0356515	0.0082614	0.0126322
<i>n</i>	136,567	118,931	137,463	121,334
<i>R</i> ²	0.309	0.232	0.128	0.155

Notes: *z*-statistics in parentheses. Removed from the sample are: the UK, Canada, Australia, South Africa, Ireland and the USA; CFO is the abnormal cash from operations; DISCEXP is the abnormal discretionary expense; PROD is the abnormal production expense; REMALL = CFO + DISCEXP + PROD; IND, PD, MA and UA are the orthogonalized rank transformations of the country-specific cultural scores from Hofstede (1980); INVPRO are the rank transformations of the average of the five legal variables from La Porta *et al.* (1998); MEETBEAT is an indicator variable equal to 1 if earnings in year *t* are positive and the change in earnings from year *t*-1 to *t* is equal to or greater than 1 percent of total assets; LEV is the sum of short-term and long-term debt divided by total assets; ROA is the net income divided by the average of beginning and ending total assets; SIZE is the natural log of total assets at the beginning of the fiscal year; ABACC is the abnormal accruals; CYR is the data year centered on 2000 (year - 2000); CRISIS is a 0(1) indicator variable equal to 1 if the firm-year is 2008 or 2009 and 0 otherwise; POSTSOX is an indicator variable equal to 1 if the year is 2002 or greater and 0 otherwise; IFRS is a 0(1) indicator variable equal to 1 if the company's financial statements were presented in conformity with IFRS and 0 otherwise. ^aAbnormal production expense is multiplied by negative one so that the interpretations of the signs of the coefficients are consistent with those of abnormal CFO and abnormal discretionary expense. **p* < 0.10; ***p* < 0.05; ****p* < 0.01

Table V.
Regression results –
excluding British
Commonwealth
countries and the USA

market is not associated with our measures of REM. Cultures characterized by high levels of individualism, masculinity and uncertainty avoidance have less REM while cultures characterized by high power distance have more. The interaction of INVPRO with PD and UA are as noted above for the sample as a whole.

Secrecy

Hope *et al.* (2008) establish a link between national culture and financial reporting quality by demonstrating that in cultures characterized by secrecy, companies will be less likely to

engage a Big 4 (quality) auditor. They construct a measure of secrecy using Hofstede's cultural values where:

$$\text{SECRECY} = \text{UA} + \text{PD} - \text{IND} \quad (5)$$

Hope *et al.*'s (2008) results when coupled with those of Zang (2012), who demonstrates that after the passage of SOX REM increased due to increased levels of scrutiny, logically leads to the prediction that in cultures where there is more scrutiny, i.e., less secrecy, managers will engage in less earnings management through accruals and more earnings management through REM. To test this conjecture, we replace our cultural indices with Hope *et al.*'s measure of secrecy and, again, rerun our tests. Table VI presents the results of our regressions.

Consistent with our conjecture, high levels of SECRECY are associated with more REM in all of our models ($p \leq 0.01$) with the exception of the DISCEXP model (where the coefficient is not significantly different from zero). Consistent with our prior results, INVPRO is apparently subsumed by culture. And while REM varies by country, it does not vary by whether or not a country is considered an emerging market.

Conclusions

Other research has examined whether the cultural values of a country are associated with managers' discretionary practices when making accrual adjustments to accounting earnings.

	CFO	REMALL	DISCEXP	PROD ^a
SECRECY	-0.0000631 (-2.31)**	-0.000741 (-3.03)***	-0.0000195 (-0.16)	-0.000525 (-3.61)***
INVPRO	0.000245 (0.23)	0.00198 (0.21)	-0.000344 (-0.07)	-0.000722 (-0.13)
MEETBEAT	0.0110 (30.89)***	0.0505 (44.39)***	0.00740 (15.27)***	0.0391 (66.02)***
LEV	0.00261 (92.35)***	-0.000765 (-1.45)	-0.00255 (-76.26)***	0.000127 (7.26)***
ROA	0.252 (417.36)***	0.376 (148.51)***	-0.0417 (-79.40)***	0.0700 (107.54)***
SIZE	0.00272 (37.84)***	-0.0118 (-52.71)***	-0.00820 (-81.91)***	-0.00445 (-36.03)***
ABACC	-0.00240 (-29.93)***	-0.415 (-123.80)***	-0.000158 (-2.26)**	-0.000104 (-7.99)***
CRISIS	0.00976 (22.86)***	0.00565 (4.46)***	-0.000557 (-0.91)	0.00298 (4.11)***
POSTSOX	0.00106 (2.03)**	0.00621(3.73)***	0.0151 (20.23)***	-0.00155 (-1.64)
IFRS	-0.00514 (-9.91)***	0.00717 (4.39)***	0.0263 (35.41)***	-0.00298 (-3.21)***
SECRECY × INVPRO	0.00000514 (0.78)	-0.0000906 (-1.51)	-0.0000315 (-1.03)	-0.0000395 (-1.11)
CYR	-0.00011 (-2.60)***	0.00009 (6.17)***	-0.00039 (6.43)***	0.00051 (6.78)***
cons	-0.0200 (-5.77)***	0.0988 (3.19)***	0.0148 (0.94)	0.0494 (2.69)***
<i>EMERGE</i>				
_cons	-13.21 (-0.30)	-15.99 (-0.09)	-16.64 (-1.02)	-11.69 (-0.21)
var (_cons)	2.27E-13	2.62E-13	3.85E-14	2.3409E-12
<i>COUNTRY</i>				
_cons	-4.978 (-37.21)***	-2.755 (-21.49)***	-3.434 (-26.91)***	-3.279 (-25.55)***
var (_cons)	0.0000474	0.0043138	0.0010751	0.00145988
<i>FIRM</i>				
_cons	-2.627 (-2008.40)***	-1.576 (-1121.06)***	-2.273 (-1733.82)***	-2.116 (-1543.20)***
var (_cons)	0.0052262	0.0427421	0.0106037	0.01453705
<i>n</i>	292,269	252,935	291,224	266,089
<i>R</i> ²	0.474	0.159	0.046	0.091

Notes: *z*-statistics in parentheses. SECRECY = UA+PD-IND; IND, PD, MA and UA are the orthogonalized rank transformations of the country-specific cultural scores from Hofstede (1980); INVPRO is the rank transformations of the average of the five legal variables from La Porta *et al.* (1998); MEETBEAT is an indicator variable equal to 1 if earnings in year *t* are positive and the change in earnings from year *t*-1 to *t* is equal to or greater than 1 percent of total assets; LEV is the sum of short-term and long-term debt divided by total assets; ROA is the net income divided by the average of beginning and ending total assets; SIZE is the natural log of total assets at the beginning of the fiscal year; ABACC is the abnormal accruals; CYR is the data year centered on 2000 (year - 2000); CRISIS is a 0(1) indicator variable equal to 1 if the firm-year is 2008 or 2009 and 0 otherwise; POSTSOX is an indicator variable equal to 1 if the year is 2002 or greater and 0 otherwise; IFRS is a 0(1) indicator variable equal to 1 if the company's financial statements were presented in conformity with IFRS and 0 otherwise. ^aAbnormal production expense is multiplied by negative one so that the interpretations of the signs of the coefficients are consistent with those of abnormal CFO and abnormal discretionary expense. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table VI. Regression results – secrecy and real earnings management

We examine the impact of national culture on accounting by examining its impact on real activities management for a sample of 31 countries. We also examine how the influence of culture is moderated or enhanced by economic growth (emerging markets). This influence is important because the general consensus of the literature is that REM can be costly to firms and shareholders through negative consequences for future cash flows (Roychowdhury, 2006) and an increased cost of capital (Kim and Sohn, 2013).

Our results reveal that while country is associated with REM, status as an emerging market is not. Perhaps this is because high economic growth nullifies the basic motivations for earnings management, or perhaps because the negative impact on future performance outweighs any short-term benefit from REM. Whatever the explanation, from an investor perspective, it seems that market type cannot be used to predict earnings management through real activities. We also find that while accounting regime is associated with REM, culture is incrementally associated as well. We find that while cultures characterized by high levels of individualism have been shown to engage in more earnings management through accruals (Han *et al.*, 2010), such cultures are prone to engage in less REM. We also find, however, that in cultures characterized by high levels of uncertainty avoidance and masculinity, earnings management of all types is apparently constrained, but in national cultures characterized by high levels of power distance, where managers have greater power in managing operations, there is more earnings management through REM.

Together, these results suggest that culture incrementally impacts accounting decisions beyond the effect of accounting regime. This should be of significant importance to investors who should not assume that common accounting methods yield common accounting practices. Rather they should consider cultural characteristics when assessing firm reported performance. Additionally, our results should prompt auditors and regulators to apply greater scrutiny to the financial reports in cultures characterized by high levels of power distance, especially given the apparent tradeoffs between accruals and REM. This is especially true for multinational enterprises since our results also reveal that the strength of a country's investor protection mechanisms are subsumed by culture. Future research focused on accounting practices across nations should take our findings into account, and investigate the influence that culture plays in shaping managerial decisions.

As in other research of this type, our study is limited by our reliance on Hofstede's (1980, 2001) data, and his scores may be outdated (McSweeney, 2002; Tang and Koveos, 2008). There is, however, a significant body of research that continues to rely on and support the use of Hofstede's model, and as noted by Taras *et al.* (2010, p. 405) "Hofstede-inspired empirical research is increasing exponentially."

Finally, prior research on REM has focused on the mechanisms through with REM is conducted, and on the consequences of this type of earnings management. Our research reveals, however, that there are other factors that influence this kind of managerial behavior. Future research into international business and the behavior of capital market participants across countries should consider culture as a possible determinant of how accounting discretion and managerial actions are likely to be conducted. This may aid regulators in determining disclosure practices and reporting requirements because, as noted by Hope (2003), it is easier to change a nation's accounting than it is to change a nation's culture.

Notes

1. Because these measurements are not normally distributed, OLS regression may yield biased estimates "raising the number of spurious associations and [...] failing to detect true ones" (Lourenco *et al.*, 2011, p. 815). To control for this, and for the possibility of outliers influencing our inferences, we first make monotonic transformations of the scores, as per Iman and Conover (1979). Second, because these culture variables are highly correlated with each other and with our

measure of investor protection (below), to avoid issues with multicollinearity we orthogonalize these variables and use the residuals from the regressions in our tests (the resulting variables have VIF scores of 1.32 or less).

2. The policy is called “quasi-mandatory” because while audit partner rotation is not mandatory, financial statements audited by the same partner for more than five years are subject to government investigation and assessment of their presentation and adequacy.
3. Because the global financial crisis may have impacted different countries for differing durations we also test alternative specifications of this variable.
4. Our inclusion of MEETBEAT effectively controls for firms with losses.
5. Because the distribution of Hofstede’s (1980) cultural values are not normally distributed, we follow Nabar and Boonlert-U-Thai (2007) in employing rank transformations of those scores to reduce the influence of extreme values.
6. La Porta *et al.* (1998) characterizes the investor protection environment as involving: efficiency of the judicial system; rule of law; corruption; risk of expropriation; and risk of contract repudiation. As with Hofstede’s (1980) cultural scores, we employ rank transformations of the average of La Porta *et al.*’s measures to reduce the influence of extreme values and orthogonalize the ranks to address their correlation with Hofstede’s cultural measures.
7. The emerging markets countries in our sample are: India, Indochina, South Korea, Malaysia, The Philippines, South Africa, and Thailand.
8. Abnormal production expense is multiplied by negative one so that the results of our tests can be interpreted consistently across all measures of REM.
9. Because the financial crisis may have persisted longer in different countries and sectors, we employ alternative windows (2008-2010 and 2008-2011) in our tests (untabulated). While our main results are qualitatively identical in these tests, the coefficients on CRISIS for the CFO, REMALL, and PROD models become less significant as the time period is increased. Interestingly, the coefficient on CRISIS in the DISCEXP model becomes (consistent with the other models), significantly positive when the time period is increased.

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