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# National Culture and Earnings Management in Developed and Emerging Countries

## Abstract

**Purpose** – This study investigates how the association between national culture and earnings management compares between developed and emerging countries.

**Design/methodology/approach** – The empirical analysis relies on a sample of 6,313 firm-year observations from 11 emerging markets and 27,605 firm-year observations from 22 developed countries. We use Ordinary Least Squares regression methods to test the hypotheses of the study.

**Findings** – Based on Hofstede's (2011) cultural dimensions, we find that firms from countries with a higher level of uncertainty avoidance and individualism are less likely to engage in earnings management, but the effect of uncertainty avoidance (individualism) is more (less) pronounced in the emerging countries. Moreover, we demonstrate that firms from emerging (developed) countries with higher levels of power distance and masculinity are less (more) likely to engage in earnings management. Finally, we find evidence of a trade-off between accruals-based and real earnings management in firms from countries with greater long-term orientation and an indulgence cultural dimension.

**Originality** – This paper adds to the literature by theoretically discussing and empirically analysing the role that developed and emerging countries' development plays on the effect of national culture on earnings management.

**Keywords** – National culture, Earnings management, Emerging and developed countries.

## 1 Introduction

This study investigates how the association between national culture and earnings management compares between developed and emerging countries. More specifically, we investigate whether Hofstede's (2011) cultural dimensions (uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence) are associated with the degree of firm-level earnings management, and whether this association differs between firms from developed and emerging countries.

Prior literature provides convincing arguments and empirical evidence suggesting that there is an influence of national culture on accounting practices. In a broad way, given that countries' cultural values permeate a nation's social system, it may then be hypothesized that there should be a close match between national culture and patterns of accounting systems internationally (Gray, 1988). Therefore, cultural values at country-level can affect a variety of decisions related to accounting choices, including those regarding earnings discretion (Guan *et al.*, 2005). Empirical research provides evidence on the association between national cultural factors and the extent of earnings management at the firm level (Paredes and Wheatley, 2017; Gray *et al.*, 2015; Kanagaretnam *et al.*, 2011; Callen *et al.*, 2011; Guan and Pourjalali, 2010; Han *et al.*, 2010).

In general, the studies cited above take into account Hofstede's cultural dimensions of uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence as measures of the national culture of each country. Nevertheless, most of these studies are focused only on developed countries, or at least on samples composed predominantly of firms from developed countries, and they report mixed empirical findings. For instance, while Gray *et al.* (2015) suggest a significant negative (positive) association between countries' uncertainty avoidance (power distance) and earnings management, Riahi and Omri (2013) demonstrate the opposite. A possible explanation for these conflicting findings may be the differences in the economic and institutional environment of the countries under analysis. For example, Gray *et al.* (2015) analysed a sample composed of 14 developed (European Union) countries, while Riahi and Omri (2013) analysed two developed countries, France and Canada, and Tunisia, a developing country. We add to this literature by analysing whether the association between national culture and earnings management differs between firms from developed and emerging countries.

Several characteristics distinguish developed and emerging markets. In broad terms, developed countries afford greater investor protection and financial markets development (DeFond *et al.*, 2007) and more ambitious enforcement (Preiato *et al.*, 2015; Brown *et al.*, 2014). On the other hand, emerging countries are characterized by a weaker information environment (Shroff *et al.*, 2014) and by “institutional voids” whereby firms must respond to unpredictable (but frequent) shocks – political instability, aggressive macroeconomic fluctuations, and even wars – without the benefit of specialized intermediaries that can analyse market information, facilitate transactions, or provide signals related to credibility (Gao *et al.*, 2017). The differences in the economic and institutional characteristics of developed and emerging countries are often mentioned in the literature as determinants of the differences between the quality of accounting information of firms from these two groups of countries (emerging and developed). In fact, the literature provides evidence that the factors that distinguish developed and emerging markets may influence the incentives of managers to provide useful financial information (Pinkowitz *et al.*, 2003; Lin and Wu, 2014; Flores *et al.*, 2016; Lourenço *et al.*, 2018; Zaini *et al.*, 2018). We develop a set of hypotheses on the association between national culture and earnings management, considering a potentially different effect in emerging countries when compared to developed countries.

The empirical study relies on a sample comprising 6,313 firm-year observations from 11 emerging markets and 27,605 firm-year observations from 22 developed countries. In our main analysis, earnings management is a dependent variable, and our independent variables include the characteristics of the national culture of the respective countries analysed. These independent variables are based on the six cultural dimensions proposed by Hofstede (2011), a highly influential national cultural classification (Kirkman *et al.*, 2006). Hofstede provides a wide database that allows an empirical analysis of cultural values for a wide range of countries. A vast literature on the association between cultural factors and earnings management draws

upon Hofstede's national culture classification, and this allows us to compare our findings with those reported in previous literature.

Overall, we find that firms from countries with a higher level of uncertainty avoidance and individualism are less likely to engage in earnings management, but the effect of uncertainty avoidance (individualism) is more (less) pronounced in emerging countries. Our findings also show that firms from emerging (developed) countries with higher levels of power distance and masculinity are less (more) likely to engage in earnings management. In addition, we find that firms from countries with greater long-term orientation (indulgence) are more (less) likely to engage in accruals-based earnings management, at the expense of a decrease (increase) in the level of real earnings management, but the association between indulgence and earnings management is observable only in the developed countries. Our results remain the same as when we consider alternative earnings management measures, the joint effect of culture with enforcement and with corruption, and when we account for time-period and econometric variations.

This study contributes to the literature in several ways. First, we extend previous studies on the association between national culture and earnings management by providing theoretical arguments and empirical findings concerning differences in the association between national culture and earnings management in developed and emerging countries – which to the best of our knowledge has not yet been specifically addressed. As we demonstrate in our literature review, the majority of previous studies on national culture and earnings management seems to focus only on developed countries (e.g., Gray *et al.*, 2015), or at least samples assembled predominantly from developed economies (e.g., Paredes and Wheatley, 2017; Zhang *et al.*, 2013) – the latter without addressing the role that countries' economic development plays on the association between national culture and firm-level earnings management tactics. We argue and show empirically that differences in the economic and institutional characteristics between

developed and emerging countries impact the way cultural factors affect the incentives of managers to engage in earnings management practices.

Second, we add to the international accounting literature focused on finding differences in the incentives of managers from developed and emerging countries to provide useful accounting information. Some studies show empirically that the incentives of managers to engage in earnings management practices differ between emerging and developed countries (e.g., Lin and Wu, 2014; Flores *et al.*, 2016; Lourenço *et al.*, 2018). We demonstrate that national cultural factors influence these incentives differently in emerging and developed countries.

Finally, we complement the empirical evidence on the association between national culture and earnings management by considering two of Hofstede's (2011) national cultural dimensions that are less explored in previous literature: long-term orientation and indulgence. Apparently, only Gray *et al.* (2015) provide empirical findings concerning the association between Hofstede's long-term orientation dimension and firm-level earnings management strategy, and none of the previous studies seems to address the role of Hofstede's indulgence dimension on this association.

Our empirical findings also contribute to an important debate among investors, standard setters, regulators, and other stakeholders on how earnings management strategies differ between emerging and developed countries. By demonstrating how the effect of culture on the quality of the financial reports (i.e., earnings management) differs between developed and emerging countries, we provide an important discussion for standard setters and regulators who must take into account the role of institutional and economic characteristics simultaneously in the development of accounting standards and monitoring firm strategies. Similarly, international investors and analysts should be aware of these characteristics when dealing with

accounting information provided by firms from different countries (e.g., emerging versus developed countries).

The remainder of this paper is structured as follows. Section 2 discusses previous literature and presents the hypothesis development. Section 3 describes the research design, data, and sample selection procedure. Sections 4 and 5 present the results and discussion, as well as robustness tests. Finally, Section 6 concludes the article.

## **2 Background**

Financial reporting is viewed as a key determinant of the efficiency of resource-allocation decisions and economic growth (Bushman *et al.*, 2004). The quality of financial reporting is thus a key issue in improving, for instance, investment efficiency by mitigating the information asymmetry between corporate managers and capital suppliers, allowing firms to better attract capital from investors and mitigate underinvestment problems (Zhong, 2018).

Therefore, regulators have been paying attention to financial reporting quality and, more specifically, to accounting fraud and earnings manipulation tactics. Notwithstanding this, notarial scandals such as the Enron and WorldCom cases in the US, the Petrobras and Odebrecht scandals originated by the Operation CarWash (an ongoing criminal investigation) of the Federal Police of Brazil, or even the Toshiba incident in Japan, show that managers have been able to rely on accounting choices to distort the reality of economic facts and serve their self-interests to the detriment of others. Although the concept of earnings management per se does not necessarily involve fraud, there is a consensus among academics and practitioners that high levels of earnings management can be classified as fraud. Around the world, local regulatory bodies continually strive to avoid the abusive practice of earnings management by firms' managers, but some accounting scandals and even corporate failings have eroded the

public trust on accounting and reporting practices and, consequently, in the effectiveness of these regulatory bodies.

Given the increasing market globalization and consequently the high levels of cross-listing, the efforts to avoid earnings management became of international nature. Some international regulatory bodies have taken actions to guarantee that firms provide high-quality accounting information, irrespective of the country location. For example, the European Securities and Markets Authority, the European Union's securities markets regulator, issues regularly guidelines to achieve supervisory convergence in the European Union.

The International Financial Reporting Standards Foundation has also been making efforts to develop, in the public interest, a single set of high quality, understandable, enforceable, and globally accepted financial reporting standards, which should require high quality, transparent, and comparable information in financial statements to help investors, other participants in the world's capital markets, and other users of financial information when making economic decisions. A majority of countries around the world have adopted these International Financial Reporting Standards (IFRS), which have been seen as a way of increasing the quality of accounting information worldwide (Barth *et al.*, 2008; Chen *et al.*, 2010) and promoting an improvement of the efficiency of the capital markets at an international level (Daske *et al.*, 2008; Li, 2010).

However, despite all these efforts, there are still some significant differences in how each country has applied the IFRS (Kvaal and Nobes, 2010, 2012; Nobes, 2011). The expected improvement in the capital markets seem to be highly dependent on the level of enforcement of the accounting standards in each country (Daske *et al.*, 2008; Li, 2010). Previous literature shows that, even in the IFRS era, there are significant differences in the level of earnings management of firms from different countries, namely between developed and emerging countries (e.g., Lin and Wu, 2014; Flores *et al.*, 2016; Lourenço *et al.*, 2018). It seems that



firms from emerging countries have different incentives to manage earnings when compared to firms from developed countries, which should be taken into account by national and international standard setters and regulators when making policy decisions. We aim to contribute to this debate by analysing whether the national culture of each country influences the managers' incentives to engage in earnings management practices differently in emerging and in developed countries.

### **3 Theory, Empirical Literature, and Hypotheses Development**

Previous literature consistently provides empirical evidence on the role of national culture as a key determinant of several issues linked to firms' financial reports, such as accounting conservatism (Wronski and Klann, 2020; Salter *et al.*, 2013), voluntary disclosure (Adnan *et al.*, 2018; Luo, and Tang, 2016), financial statement comparability (Prescott and Vann, 2015), meet-or-beat earnings benchmarks (Kanagaretnam *et al.*, 2011), and auditing and reporting standards (Karaibrahimoglu and Cangarli, 2016). There is also some evidence on the effect of national culture on earnings management strategies (Paredes and Wheatley, 2017; Gray *et al.*, 2015; Kanagaretnam *et al.*, 2011; Callen *et al.*, 2011; Guan and Pourjalali, 2010; Han *et al.*, 2010).

This previous evidence, overall, is in line with the explanations of Gray's (1988) theory of accounting values. According to this theory, "cultural characteristics shared across a country or a society lead to shared accounting values that influence the nation's accounting system" (El-Helaly *et al.*, 2020, p. 4). Thus, Gray's (1988) seminal paper lays out an important theoretical framework on the effect of national culture on accounting practices, taking into account Hofstede's (1980, 2011) cultural dimensions.

Hofstede's framework (Hofstede, 1980, 2011; Hofstede *et al.*, 2010) defines culture as a collective mental programming that distinguishes members of one group or category of

people from others. Based on more than 117,000 IBM employees and considering their responses to 32 value statements between 1967-1969, Hofstede's (1980) pioneering work defines four cultural dimensions that, according to Desender *et al.* (2011), remain at the heart of much cultural research: individualism, power distance, uncertainty avoidance, and masculinity. More recently, in a process of expanding these concepts, Hofstede *et al.* (2010) and Hofstede (2011) formally point out two more important national cultural dimensions, based on more recent data and covering more economies: long-term orientation and indulgence.

Commonly based on Gray's (1988) theory of accounting values, and also discussing Hofstede's cultural dimensions, previous literature has empirically analysed the consequences of differences between countries' national culture on earnings quality, specifically on earnings manipulation levels by managers. Table I shows the samples analysed and the main results of these studies.

(Insert Table I here)

Most of these studies are focused only on developed countries, or at least on samples composed predominantly by firms from developed countries – the latter without addressing the role that countries' economic development plays in the association between national culture and earnings management. Additionally, these studies report mixed empirical findings. For instance, while Paredes and Wheatley (2017) and Gray *et al.* (2015) suggest a significant negative (positive) association between countries' uncertainty avoidance (power distance) and earnings management, Riahi and Omri (2013) demonstrate the opposite. Additionally, Kanagaretnam *et al.* (2011) find a significant negative (positive) association between countries' uncertainty avoidance (individualism) and earnings management, and Callen *et al.* (2011) find an opposite association. A possible explanation for these conflicting findings may be the

differences in the economic and institutional environment of the countries under analysis. For example, Gray *et al.* (2015) analysed a sample composed of 14 developed European Union countries, while Riahi and Omri (2013) analysed two developed countries, France and Canada, and one developing country, Tunisia.

Additionally, almost all of the studies presented in Table I analyse the effect of Hofstede's cultural dimensions of uncertainty avoidance and individualism on earnings management, but few studies analyse the effect of the dimensions of power distance, masculinity, and long-term orientation, and none of the studies investigates the effect of the cultural dimension of indulgence.

We add to this literature by providing theoretical arguments and empirical findings concerning how the association between national culture and earnings management differs between firms from developed and emerging countries – which to the best of our knowledge has not been specifically investigated in previous research. Moreover, we complement the literature by analysing two national cultural dimensions of Hofstede (2011) that are less explored, i.e., long-term orientation and indulgence. By analysing all six of Hofstede's cultural dimensions, we also offer a broader view on the effect of national culture on earnings management.

Several characteristics distinguish developed and emerging markets. Developed countries generally present higher levels of financial innovation (Hsu *et al.*, 2014), lower levels of economic and social inequality<sup>1</sup>, greater investor protection and financial markets development (DeFond *et al.*, 2007), and enforcement that is more ambitious (see e.g., Preiato *et al.*, 2015; Brown *et al.*, 2014). On the other hand, emerging markets are characterized by lower levels of international experience and exposure, and weaker corporate governance systems and government regulation (Bhagat *et al.*, 2011). Moreover, emerging countries are

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<sup>1</sup> See, e.g., Human Development Report, United Nations, 2019. Full report: <http://hdr.undp.org/en/2019-report/download>

also characterized by lower levels of monitoring by shareholders and protection of minority investors (Djankov *et al.*, 2008), higher-risk markets for lending purposes (Ballester and González-Urteaga, 2017), and lower levels of litigation risk (Arthur *et al.*, 2015). Less developed countries are also characterized by greater ownership concentration and the presence of family-owned firms (Claessens and Yurtoglu, 2013) compared with developed economies.

These characteristics that distinguish developed and emerging markets may influence the incentives of managers to provide useful financial information. Pinkowitz *et al.* (2003), for instance, argue that managers make different decisions in countries with poor protection of investor rights and poor financial development. Previous accounting literature has shown differences in the factors explaining earnings management practices in developed countries compared to emerging countries. Lin and Wu's (2014) findings suggest that corporate governance regulations play an important role in reducing the earnings-manipulation behaviour, and that this phenomenon seems to be greater in developed than in emerging markets. Flores *et al.* (2016) also identify different implications of the subprime crisis on earnings management practices when comparing empirical results based on companies from a developed and an emerging economy. Lourenço *et al.* (2018) find that higher levels of corruption perception are associated with a higher level of earnings management in emerging countries but not in developed countries. We extend this literature by examining how the association between national cultural dimensions and earnings management compares between developed and emerging countries.

### **3.1 *Uncertainty avoidance***

Hofstede's uncertainty avoidance dimension refers to the extent to which the members of a society feel threatened by ambiguous or unknown situations, expressed through nervous stress and a need for predictability, among other manifestations (Hofstede *et al.*, 2010). Strong uncertainty avoidance societies maintain rigid codes of belief and behaviour and are intolerant

of deviant persons and ideas. Weak uncertainty avoidance societies maintain a more relaxed atmosphere in which practice counts more than principles and deviance is more easily tolerated.

Countries with high levels of uncertainty avoidance usually are more likely to rely on accounting uniformity, with a need for detailed rules and regulation and respect for conformity, and to be associated with an accounting profession that is subject to public statutory control, with limited self-governance (Gray, 1988). Thus, uncertainty avoidant societies are inclined to allow fewer chances and incentives for earnings manipulation practices (Gray *et al.*, 2015).

Another stream of literature, supported on the gender socialization theory, also argues and demonstrates that the inherent risk aversion of women makes them less likely to engage in earnings management (e.g., Srinidhi *et al.*, 2011; Lakhal *et al.*; 2015; Harakeh *et al.*, 2019), which also supports the assumption that preferences for uncertainty avoidance discourage earnings management practices. The majority of the studies presented in Table I also provide empirical evidence of a negative association between uncertainty avoidance and earnings management. Few studies report the opposite, but they mostly have a country-level approach, relying on an estimation model with about 30 observations. Based on the arguments presented above, we expect to find a negative association between uncertainty avoidance and earnings management.

Additionally, we expect the influence of uncertainty avoidance in earning management to be more pronounced in emerging countries compared to developed countries. Emerging countries are characterized by lower levels of accounting enforcement compared to developed economies (Preiato *et al.*, 2015; Brown *et al.*, 2014), as well as greater frequency of political instability, aggressive macroeconomic fluctuations, and unpredictable shocks (Gao *et al.*, 2017). In this environment (emerging countries), there is, therefore, a lower probability of earnings management to be uncovered, which may provide managers with an incentive to engage in this practice. In fact, the literature points out that firms from emerging countries

present a higher level of earnings management than firms from developed countries (e.g., Flores *et al.*, 2016; Rathke *et al.*, 2016), which is a matter of concern for regulators. Thus, it is likely that strong uncertainty avoidance societies in emerging markets should be even more concerned about creating more detailed rules and guaranteeing effective control on how firms report their financial information. This concern would be less evident in the developed countries, given a higher quality of the informational environment and greater coverage by analysts and sophisticated investors (Martins and Barros, 2021) – typically inherent to more developed economies. In other words, such characteristics of developed countries should constrain potential abusive and unethical practices by managers, thereby making the effect of aversion to uncertainty less pronounced in these markets.

Another argument prompting our expectation is the finding that risk aversion among women discourages earnings management practices only in environments of lower equity-based compensation (Harris *et al.*, 2019), which is more common in emerging countries than in developed countries (Albuquerque and Miao, 2013).

Overall, we hypothesize as follows:

*H1: There is a negative association between uncertainty avoidance and earnings management in both developed and emerging countries, but this association is greater in emerging countries.*

### **3.2 Individualism**

Hofstede's individualism dimension refers to a preference for a society in which the ties between individuals are loose, and everyone is expected to look after him- or herself and his or her immediate family. Its opposite, collectivism, refers to the preference for a society in which people are integrated from birth into strong, cohesive in-groups, which throughout a person's lifetime protect them in exchange for unquestioning loyalty (Hofstede *et al.*, 2010).

Compared with individualist cultures, economic agents in collectivist cultures are relatively less likely to follow social norms such as integrity, law obedience, and honesty (Zhang *et al.*, 2013). It is likely that managers may therefore prefer corporate insider interests when there is a conflict of interest between corporate insiders (the in-group) and outside investors (the out-group), resulting in higher agency costs in collectivist cultures. Thus, managers and controlling shareholders tend to manage reported earnings to mask true firm performance and conceal their private benefits from outsiders. Callen *et al.* (2011) also argue that low individualism countries are characterized by the development of powerful networks of kinship and nepotism that are more susceptible to corruption and that as a result, earnings management practices are more likely to be acceptable in these countries. Indeed, the majority of the studies presented in Table I also provide empirical evidence of a negative association between individualism and earnings management (e.g., Paredes and Wheatley, 2017; Riahi and Omri, 2013; Zhang *et al.*, 2013; Callen *et al.*, 2011). Few studies report the opposite and they mostly rely on very old data (e.g., Guan *et al.*, 2005). Based on the arguments presented above, we expect to find a negative association between individualism and earnings management.

We also expect the influence of individualism in earnings management to be more pronounced in emerging countries when compared to developed countries. In emerging countries, there is greater ownership concentration and a higher presence of family-owned firms (Claessens and Yurtoglu, 2013), which are associated with a higher level of earnings management due to the expropriation of minority shareholders by the family owners (entrenchment effect) facilitated by the weak environment of investor protection in these countries (Chi *et al.*, 2015). Lyu *et al.* (2017) argue that the social connections among corporate insiders are stronger in collectivist societies, thereby reducing corporate monitoring and efficiency and exacerbating the entrenchment incentives of large shareholders. They also show empirically that the poor earnings quality that normally goes hand-in-hand with concentrated

ownership is improved when the firm's national culture is individualist. We expect this effect of individualism in mitigating earnings management practices to be more visible in the emerging countries, where the levels of ownership concentration and entrenchment agency problem are more present. Overall, we hypothesize as follows:

*H2: There is a negative association between individualism and earnings management in both developed and emerging countries, but this association is greater in emerging countries.*

### **3.3 Power distance**

Hofstede's power distance dimension refers to the extent to which the less powerful members of institutions and organizations in a country accept and expect that power is distributed unequally (Hofstede *et al.*, 2010). People in stronger power distance societies accept a hierarchical order in which everybody has a place that needs no further justification. People in weaker power distance societies strive for power equalization and demand justification for power inequalities.

Gray *et al.* (2015) argue that in higher power distance countries the power is more concentrated in the hands of only a few privileged individuals, which inhibits the free exchange of ideas and is contradictory to informational openness. Thus, high levels of power distance are expected to increase the tendency for earnings management, given that management is less likely to care about the community benefit and shareholder interest and tends to abuse power and manage earnings to achieve their personal goals.

Hence, given that managers in cultures with high levels of power distance would have the greatest power in the management of operations, it is likely that the power distance is positively associated with earnings manipulation (Paredes and Wheatley, 2017). Indeed, the majority of the studies presented in Table I provide empirical evidence of a positive association between power distance and earnings management. However, it is also possible to argue and



find the opposite. Riahi and Omri (2013) empirically demonstrate a negative association between power distance and earnings management, arguing on a potential acceptability of power distribution in countries with higher levels of power distance, which could reduce managers' motivation to show that their firms are more competent than others. Based on the divergence of these theoretical arguments, we expect the influence of the countries' power distance in earning management to differ depending on whether they are developed countries or emerging countries, as we explain in greater detail below.

There is a stream of literature showing that chief executive officers (CEOs) engage in earnings management activities to inflate earnings, and accordingly boost the value of their compensation packages (e.g. Healy, 1985; Holthausen *et al.*, 1995; Sloan, 1996; Bergstresser and Philippon, 2006; Laux and Laux, 2009). The so-called “managerial short-termism,” whereby managers, in their self-interest, aim to maximize the firm's earning and stock prices (and consequently their compensation) by sacrificing long-term growth opportunities, is a powerful incentive for earnings management practices (Harris *et al.*, 2019). However, some studies provide empirical evidence that in emerging countries, or at least in countries with lower investment protection, the CEO compensation is not associated with firm performance, or is at least less associated with it (e.g., Osei-Bonsu and Lutta, 2016). This eliminates, or lessens, the role of CEO compensation in explaining earnings management practices in firms from such countries, as opposed to what happens in developed countries.

Therefore, other incentives seem to play a major role in explaining earnings management in emerging countries. There is a great ownership concentration and a high presence of family-owned firms in emerging countries (Claessens and Yurtoglu, 2013), which is associated with lower monitoring costs for large shareholders (e.g., Balsmeier and Czarnitzki, 2017; Gaur *et al.*, 2015; Burkart and Panunzi, 2006). However, given the weak environment of investor protection in emerging countries, large shareholders have higher

incentives and the ability to expropriate minority shareholders (Paiva *et al.*, 2019). Previous literature argues and demonstrates empirically that in emerging countries the lower probability of earnings management being uncovered makes it easier to camouflage the effects of minority shareholders' expropriation through earnings management practices (e.g., Chi *et al.*, 2015; Razzaque *et al.*, 2016).

Based on these differences in the incentives for earnings management practices in emerging and developed countries, we expect to find a different role of the cultural dimension power distance in these two groups of countries. More specifically, we argue that in the emerging countries with higher levels of power distance (i.e., where less powerful members of institutions and organizations in a country accept and expect that power is distributed unequally), managers are less motivated to hide the effects of shareholders' expropriation and are consequently less likely to engage in earnings management. By contrast, in developed countries, it is likely that stronger power distance societies increase the tendency for earnings management, given that managers, whose compensation would probably be associated with firm performance, are less likely to care about the community benefit and shareholder interest and tend to abuse power and manage earnings to achieve their personal goals.

Overall, we hypothesize as follows:

*H3: There is a positive (negative) association between power distance and earnings management in developed (emerging) countries.*

### **3.4 Masculinity**

Hofstede's masculinity dimension refers to the extent to which emotional gender roles are clearly distinct in a society where men are supposed to be assertive, tough, and focused on material success, while women are supposed to be more modest, tender, and concerned with the quality of life (Hofstede *et al.*, 2010).

Gray *et al.* (2015) argue that in a society with a high level of masculinity, managers

tend to focus on material success and financial achievement. It is likely, therefore, that decision-makers from such societies will present aggressive behaviour that includes decisiveness and competitiveness (Kanagaretnam *et al.*, 2011). Thus, their priority is likely an economic objective, which increases the likelihood of engaging in earnings management. Guan and Pourjalali (2010) also argue that the masculinity dimension addresses the values that the society gives to performance and visible achievement, which is why managers in masculine societies tend to manage earnings more often (to show their achievement in case of upward earnings choices or to reduce it – “take a bath” – in anticipation of future increases in earnings).

Most of the studies presented in Table I provide empirical evidence of a positive association between power masculinity and earnings management. However, it is also possible to argue and find the opposite. Paredes and Wheatley (2017) empirically demonstrate a negative association between masculinity and earnings management, arguing that managers in cultures characterized by high levels of masculinity might be unconcerned with external monitoring, because of their ego, and would be reluctant to engage in earnings management to meet externally-derived performance benchmarks. We expect the influence of the country’s level of masculinity in earning management to differ depending on whether it is a developed country or an emerging one.

As discussed in the power distance section, firms in emerging countries are less likely to be managed for the benefit of the wide range of shareholders because the poor protection of investor rights makes it easier for management and controlling shareholders to appropriate corporate resources for their benefit (Pinkowitz *et al.* 2003). Additionally, the CEO’s compensation contract departs from the standards of the optimal contracting perspective and is shaped to better accommodate the CEO’s preferences, i.e., higher total compensation and lower performance-related pay. Therefore, we argue that in the emerging countries with a higher level of masculinity, managers are less likely to engage in earnings management to meet external

pressure when compared to more “feminine” emerging countries. By contrast, in the developed countries a higher level of masculinity is expected to increase the tendency for earnings management, given that managers, whose compensation would probably be associated with firm performance, tend to focus on material success and financial achievement, engaging in earnings management as a way of maximizing their personal economic benefit. Overall, we hypothesize as follows:

*H4: There is a positive (negative) association between masculinity and earnings management in developed (emerging) countries.*

### **3.5 Long-term orientation**

Hofstede’s long-term orientation dimension stands for the fostering of virtues oriented toward future rewards — in particular, perseverance and thrift. Its polar opposite, short-term orientation, stands for the fostering of virtues related to the past and present — in particular, respect for tradition, preservation of “face,” and fulfilling social obligations (Hofstede *et al.*, 2010).

This dimension is less explored in previous empirical research. Gray *et al.* (2015) argue and find empirically that managers use earnings management to achieve a long-term goal and, therefore, countries with a long-term orientation are associated with a higher level of earnings management (in a way that focuses on long-term effects). Also, using the socioemotional wealth theory to explain the reporting practices of family firms, Achleitner *et al.* (2014) argue that because family firms might care more about the long-term value of the firm, they are more likely than non-family firms to manage reported earnings downward. In so doing, lower reported earnings would, for instance, relieve shareholder pressure for higher dividends, and this strategy would help the family retain value for future investments and help the business survive in the long run. Therefore, and considering that long-term orientation is associated with a tendency toward long-term views and preservation of firms’ reputation (Hofstede *et al.*,

2010), we suspect that in firms from countries with greater long-term orientation the managers would be involved in more ambitious practices of earnings manipulation to maintain such performance and reputation over time. Thus, we hypothesize as follows:

*H5: There is a positive association between long-term orientation and earnings management in both developed and emerging countries.*

### **3.6 Indulgence**

Hofstede's indulgence dimension stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its polar opposite, restraint, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms (Hofstede *et al.*, 2010).

This dimension is a relatively new addition to the Hofstede model, and to the best of our knowledge there is no published study providing empirical evidence on the specific relationship between indulgence and earnings management. Indeed, Gray *et al.* (2015) call for research analyzing the relationship between the indulgence dimension and accounting. High levels of indulgence are related to societies that feel free speech is important, that give higher importance to leisure, and where a higher percentage of people declare themselves very happy (Hofstede, 2011). We argue that the feelings of "satisfaction" and "pleasure" that characterize indulgent societies may persuade economic agents to be involved in lower levels of earnings management, given that they feel less pressured for better results, or even consider performance less important than business competition. Thus, we hypothesize as follows:

*H6: There is a negative association between indulgence and earnings management in both developed and emerging countries.*

## 4 Research Design

### 4.1 *Sample and data*

Our empirical study relies on a sample composed of 6,313 firm-year observations of non-financial listed firms from 11 emerging countries, and 27,605 firm-year observations from 22 developed countries. We classify countries as emerging and developed according to International Monetary Fund guidelines<sup>2</sup>. Overall, the analysis includes only countries with available data on the national cultural dimensions of Hofstede – our main independent variable (this is further detailed in section 4.3, Estimation model). Intending to guarantee the homogeneity of the sample, we also consider only observations from countries whose listed firms are required to apply IFRS (based on the information available in the IFRS Foundation website), and we use data reported after the mandatory adoption of IFRS, ranging from 2006 to 2018. The data is collected from the Thompson Reuters Datastream database; we exclude firm-year observations with negative total equity and missing values needed to calculate earnings management and control variables. Table II details our sample selection procedure.

(Insert Table II here)

Table III shows the sample distribution by country. Among the emerging countries, Poland and Brazil are the most representative countries, which together represent about half of the sample. The smallest representation is for Egypt, Morocco, and Ukraine, which together represent around 2 percent of the sample. Concerning the developed countries, the United Kingdom, Germany, France, and Canada are the most representative of the sample,

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<sup>2</sup> Despite some small differences, in general the classification of emerging economies proposed by international institutions such as International Monetary Fund, World Bank, Organization for Economic Co-operation and Development, and United Nations are similar.

representing together about half of the sample, while New Zealand, Slovenia, and the Czech Republic are the least representative, together representing only 2 percent.

(Insert Table III here)

#### 4.2 Earnings management measures

The dependent variable we use in the empirical analysis is a measure of earnings management (accruals-based earnings management and real earnings management). We proxy accruals-based earnings management at the firm-level through the absolute amount of discretionary accruals, as consistently recommended by a large body of relevant previous literature (e.g., Lara, 2020; Osma, 2020; Trimble, 2018; Black *et al.*, 2017; Gray *et al.*, 2015; Ahmed, 2015; Kothari *et al.*, 2005). We employ the modified Jones (1991) model as proposed by Dechow *et al.* (1995), according to Equation (1). Additionally, to control for the influence of firm performance, we follow the recommendations of Kothari *et al.* (2005) and also include as regressors a measure of firm performance, namely return on assets. The absolute values of the estimated residuals from Equation (1) are our main measure for accruals-based earnings management. Equation (1) is estimated in clusters requiring at least eight observations, segregating the parameter estimates for each year, industry (SIC two digits), and type of country (emerging versus developed). We also control accruals-based earnings management estimations for specific country-level variation components by including lagged gross domestic product (GDP) growth (see, e.g., Trimble, 2018; Chaney *et al.*, 2011).

$$TA_{it} = \alpha_0 + \beta_1 \frac{1}{Ats_{it-1}} + \beta_2 \frac{(\Delta Sales_{it} - \Delta REC_{it})}{Ats_{it-1}} + \beta_3 \frac{GPPE_{it}}{Ats_{it-1}} + \beta_4 ROA_{it} + \varepsilon_{it} \quad (1)$$

where

$$TA_{it} = \frac{(\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STDEBT_{it} - DEP_{it})}{\Delta Ts_{it-1}} \quad (2)$$

where, for each firm  $i$  in year  $t$ ,  $TA$  are the total accruals.  $\Delta CA$  is the change in current assets for each firm  $i$  from year  $t-1$  to year  $t$ .  $\Delta CL$  is the change in current liabilities.  $\Delta CASH$  is the change in total cash reserve.  $\Delta STDEBT$  is the change in the short-term debt.  $\Delta DEP$  is the amount of depreciation expenses.  $\Delta Ts$  is the change in total assets.  $\Delta Sales$  is the change in sales.  $\Delta REC$  is the change in net receivables.  $GPPE$  is the gross amount of property, plant, and equipment.  $ROA$  is the net income before extraordinary items scaled to total assets.

Concerning real earnings management estimations, we rely on Roychowdhury's (2006) empirical models, which examine real earnings management based on three distinct metrics: the abnormal level of production costs ( $ABN\_PROD$ ), cash flows from operations ( $ABN\_CFO$ ), and discretionary expenses ( $ABN\_DISX$ ), according to estimated residuals from Equations (3), (4), and (5), respectively. As for accruals-based earnings management estimation, Equations (3), (4), and (5) are estimated for each for each year, industry (SIC two digits), and type of country (emerging versus developed) clusters requiring at least eight observations. We control for country-level variation components by including lagged GDP growth (see, e.g., Trimble, 2018; Chaney *et al.*, 2011). We multiply  $ABN\_CFO$  and  $ABN\_DISX$  by negative one so that the higher amount, the more likely it is that managers are engaged in price discounts and cutting discretionary expenses, respectively<sup>3</sup>. Finally, we aggregate all of the three real earnings management proxies into a single variable,  $REM$ , which represents the sum of  $ABN\_PROD$ ,  $ABN\_CFO$ , and  $ABN\_DISX$  (e.g., Doukakis, 2014; Black *et al.*, 2017; Trimble, 2018).

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<sup>3</sup> Similar to Cohen and Zarowin (2010) and Doukakis (2014), we do not multiply  $ABN\_PROD$  by negative one because higher production costs, as noted earlier, are indicative of overproduction to reduce cost of goods sold.



$$\frac{PROD_{it}}{Ats_{it-1}} = \alpha_0 + \beta_1 \frac{1}{Ats_{it-1}} + \beta_2 \frac{Sales_{it}}{Ats_{it-1}} + \beta_3 \frac{\Delta Sales_{it}}{Ats_{it-1}} + \beta_4 \frac{\Delta Sales_{it-1}}{Ats_{it-1}} + \varepsilon_{it} \quad (3)$$

$$\frac{CFO_{it}}{Ats_{it-1}} = \alpha_0 + \beta_1 \frac{1}{Ats_{it-1}} + \beta_2 \frac{Sales_{it}}{Ats_{it-1}} + \beta_3 \frac{\Delta Sales_{it}}{Ats_{it-1}} + \varepsilon_{it} \quad (4)$$

$$\frac{DISX_{it}}{Ats_{it-1}} = \alpha_0 + \beta_1 \frac{1}{Ats_{it-1}} + \beta_2 \frac{Sales_{it}}{Ats_{it-1}} + \varepsilon_{it} \quad (5)$$

where, for each firm  $i$  in year  $t$ ,  $PROD$  is the amount of production costs, defined as the sum of cost of goods sold and changes in inventory from the year  $t-1$  to  $t$ .  $CFO$  is the amount of cash flows from operations calculated indirectly as net income minus total accruals.  $DISX$  is the amount of discretionary expenses defined as the sum of research and development (R&D), and selling, general, and administrative (SG&A) expenses. All other variables are as previously defined.

### 4.3 Estimation model

To investigate how the association between national culture and earnings management compares between developed and emerging countries, we estimate the following regression model:

$$EM_{itj} = \beta_0 + \delta_1 CULTURE_j + \gamma \sum Controls_{ijt} + \varepsilon \quad (6)$$

where for each firm  $i$  in year  $t$  from country  $j$ , the dependent variable ( $EM$ ) represents both accruals-based earnings management (AEM) and real earnings management (REM). The independent variable ( $CULTURE$ ) represents the national cultural dimensions of Hofstede (2011), namely uncertainty avoidance ( $UNC$ ), individualism ( $INDIV$ ), power distance ( $POWER$ ), masculinity ( $MASC$ ), long-term orientation ( $LONG$ ), and indulgence ( $INDULG$ ) for each country  $j$ .

Hofstede's national cultural dimensions framework is one of the most influential national cultural classifications (Kirkman *et al.*, 2006). Hofstede provides a wide database that allows the empirical analysis of cultural values for a wide range of both developed and emerging countries. The majority of culture research in management and international business is built on the scores of these dimensions (Gray *et al.*, 2015). In addition, Gray's (1988) theory of accounting values, which explains how cultural factors influence the nation's accounting systems, is actually based on Hofstede's national culture framework. These factors together may justify the vast literature on the association between cultural factors and earnings management that relies on Hofstede's culture classification (see Table I). By focusing on Hofstede's national cultural dimensions, we also maintain the comparability of our findings with those reported in the previous literature.

Equation (6) includes a vector of control variable that prior research identifies as being associated with earnings management levels (e.g., Lara, 2020; Osma, 2020; Pham *et al.* 2019; Larson *et al.*, 2018; Trimble, 2018; Abdallah, 2018; Black *et al.*, 2017; Gray *et al.*, 2015; Doukakis, 2014; Han *et al.*, 2010; Kothari *et al.*, 2005).

Table IV identifies and explains the way each of the dependent, independent, and control variables are measured.

(Insert Table IV here)

Moreover, Equation (6) is estimated separately for the emerging and the developed countries samples. Considering the hypotheses H1 through H6, we expect the coefficient  $\delta_1$  to be statistically significant in both emerging and developed economies, and to have a positive or negative sign depending on the different cultural dimensions analysed (uncertainty avoidance, individualism, distance from power, masculinity, long-term orientation, and indulgence)<sup>4</sup>. In addition, to test the difference of national culture variables coefficients between emerging and developed countries regressions, we perform a generalized Hausman specification test (see, e.g., Weesie, 2000).

We estimate Equation (6) by using Ordinary least squares (OLS), with  $t$ -statistics based on standard errors that are robust to heteroscedasticity, by taking into account clusters at the firm level (Peterson, 2009). All continuous firm-level variables are winsorized at 1 percent and 99 percent tails (Cox, 2006). We also control Equation (6) for industry- and year-fixed effects. To guarantee no bias effect regarding outliers, we exclude observations with absolute value of studentized residuals greater than three. Finally, we also follow the suggestions of Chen *et al.* (2018) concerning the high probability of having biased coefficients and standard errors that can lead to incorrect inferences, with both Type I and Type II errors in the typical “two-step” procedure concerning both accruals-based and real earnings management estimations. Thus, we also include in Equation (6), among the control variables, the regressors of the first-step regressions in all estimations<sup>5</sup>.

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<sup>4</sup> We also consider estimating Model (6) with all the culture variables and their interactions at the same time. However, as the national culture variables are at the country level and do not vary over time (Hofstede, 2011), we discard this possibility for obvious bias issues related to confounding effects and multicollinearity (e.g., Isidro *et al.*, 2020).

<sup>5</sup> Chen *et al.* (2018) evaluate the two-step regression procedure usually used in discretionary accruals literature. The typical procedure used in these studies is to first estimate the discretionary or unexpected component as the residual from an ordinary least squares (OLS) regression, in which the predicted value represents the normal, non-discretionary, or expected component. The unexpected component (i.e., the first-stage residual) is then used as the dependent variable in a second-step OLS regression designed to test hypotheses about its determinants. Chen *et al.* (2018) show that when the first-step regressors are not included in the second-step regression, the two-step procedure generates biased estimates of the second-step regressors and can result in Type I and Type II errors. According to the authors, “There is no econometric justification for this two-step procedure and we emphasize that the most straightforward way to avoid the bias generated by the procedure is to simply estimate the model in a single regression” (Chen *et al.*, 2018, p. 752).

## 5 Empirical Findings

### 5.1 Descriptive statistics and correlations

Table V presents the values of the six national cultural dimensions provided by Hofstede (the main independent variable), which differ from country to country but remain stable in each of them over the years, given that national culture is a society construct with a more permanent characteristic when compared to other institutional factors. On average, the emerging countries score statistically significantly higher in the Uncertainty Avoidance dimension, while the developed countries score statistically significantly higher in the Individualism and Long-Term Orientation dimensions. In fact, previous literature points out high uncertainty levels in emerging countries, given that they are more exposed to general fluctuations and more domestic political shocks (like coups, revolutions, and wars), are more susceptible to natural disasters (like epidemics and floods), and have less-effective fiscal and monetary stabilization policies (e.g., Bloom, 2014). In addition, previous research also reports a positive relationship between individualism and characteristics linked to developed markets, such as lower numbers of synchronized stock price movements (Zhan, 2019) and higher levels of entrepreneurship (Baena, 2012). In the same vein, the economic stability of developed countries is likely to strengthen a longer-term view of these economies (Tang and Koveos, 2008). Finally, we find no statistically significant difference at conventional levels between the average of emerging and developed countries concerning the Masculinity and Indulgence dimensions.

Regarding the group of emerging countries, we find that Russia and Ukraine present the highest scores for Uncertainty Avoidance ( $UNCER = 0.93$  and  $0.92$ , respectively), for Masculinity ( $MASC = 0.95$  for both countries), and for Long-Term Orientation ( $LONG = 0.81$  and  $0.86$ , respectively), while Poland presents the highest scores for Individualism ( $INDIV = 0.60$ ) and Mexico presents the highest scores for Power Distance and Indulgence ( $POWER =$

0.69, and *INDULG* = 0.97). Regarding the group of developed countries, we find that Slovenia, Australia, Austria, Greece, Germany, and Sweden present the highest scores for Uncertainty Avoidance (*UNCER* = 0.71), Individualism (*INDIV* = 0.90), Power Distance (*POWER* = 0.79), Masculinity (*MASC* = 1.00), Long-Term Orientation (*LONG* = 0.83), and Indulgence (*INDUL* = 0.78), respectively.

(Insert Table V here)

Table VI presents the descriptive statistics of the dependent and control variables included in the empirical study. The mean value of the dependent variable *AEM* (*REM*) for the emerging countries – 0.0635 (0.0022) – is statistically higher than for the developed economies – 0.0571 (-0.0590). Although these descriptive univariate statistics do not control for other factors, they suggest higher levels of earnings management of firms in emerging countries. Moreover, those findings generally corroborate previous literature, which demonstrates that firms in emerging countries engage in more earnings management than those in developed economies (e.g., Lourenço *et al.*, 2018; Flores *et al.*, 2016; Lin and Wu, 2014)

(Insert Table VI here)

Table VII presents the correlation matrix for the emerging and developed countries samples. Overall, the findings demonstrate a significant correlation between the earnings management measures (*AEM* and *REM*) and the national cultural dimensions in the case of both emerging and developed countries. These results suggest the relevance of a country's culture in shaping firms' earnings manipulation strategies. Concerning the control variables,

we highlight that there are not many high values of correlations among them, which suggests that there is no multicollinearity problem in our estimations.

(Insert Table VII here)

## **5.2 Regression results**

Tables VIII and IX present the summary statistics resulting from the estimation of Model (6) for both accruals-based and real earnings management, respectively. As mentioned, we estimate this model separately for the emerging and the developed countries samples. We find that the estimates for the coefficients of the cultural variable Uncertainty Avoidance are negative and statistically significant when taking into account REM in both emerging (-0.283,  $t$ -stat = -4.04) and developed countries (-0.039,  $t$ -stat = -2.49). Moreover, by applying the traditional Hausman test, we find that the coefficient of the variable Uncertainty Avoidance is significantly higher in the group of emerging countries when compared to developed countries. These findings partially support H1. It seems that strong uncertainty avoidance societies are more likely to rely on detailed rules and regulation and respect for conformity, linked to an accounting profession that is subject to public statutory control, with limited self-governance (Gray, 1988), and hence tending to provide fewer opportunities and incentives for earnings management. However, this effect is more pronounced in the set of emerging countries, in which there are lower levels of accounting enforcement and a greater frequency of unpredictable shocks, political instability, and aggressive macroeconomic fluctuations.

Our findings also show that the estimates for the coefficients of the cultural dimension Individualism are negative and statistically significant when taking into account accruals-based earnings management in both emerging (-0.011,  $t$ -stat = -1.62) and developed countries (-0.026,  $t$ -stat = -7.74). Therefore, our findings support the hypothesis of a negative association

between individualism and earnings management in both developed and emerging countries (H2). However, the coefficient of the cultural dimension Individualism is significantly higher in the group of developed countries when compared to the emerging countries, which goes against H2.

(Insert Table VIII here)

Tables VIII and IX reveal that the coefficients of the cultural variable Power Distance are negative and statistically significant in emerging countries by taking into account both accruals-based earnings management (-0.027,  $t$ -stat = -2.80) and real earnings management (-0.370,  $t$ -stat = -8.55), but are positive and statistically significant in developed economies when considering both accruals-based earnings management (0.013,  $t$ -stat = 4.46) and real earnings management (0.065,  $t$ -stat = 2.75). This means that higher levels of power distance are associated with a higher (lower) inclination of firms to engage in earnings management in developed (emerging) countries, either by accruals-based or real earnings management strategies. These results allow us to confirm H3. It seems that in the group of emerging countries, managers (whose compensation would probably not be strongly linked to firm performance) in countries with a higher level of power distance are less motivated to show that their firms are more competent than others and thus are less likely to engage in earnings management. Moreover, considering that less powerful economies' agents of institutions and organizations in less developed countries accept and expect that power is distributed unequally (Riahi and Omri, 2013), managers could feel less motivated to hide the effects of shareholders' expropriation and, consequently, less likely to engage in earnings management. By contrast, in the developed countries large power distance is expected to increase the tendency for earnings management, given that managers (whose compensation would probably be associated with

firm performance) are less likely to care about the community benefit and shareholder interest, and tend to abuse power and manage earnings to achieve their personal goal.

The results also show that the coefficients of the cultural variable Masculinity are negative and statistically significant in emerging countries when taking into account accruals-based earnings management (-0.025,  $t$ -stat = -4.00), but are positive and statistically significant in developed economies, by considering either accruals-based earnings management (0.009,  $t$ -stat = 4.65) or real earnings management (0.097,  $t$ -stat = 6.36). This suggests that higher levels of masculinity are associated with a higher (lower) propensity of firms to engage in earnings management in developed (emerging) countries. These results also allow us to confirm H4. It seems that in the emerging countries with a higher level of masculinity, managers are less likely to engage in earnings management to meet external pressure when compared to the other emerging countries. By contrast, in the developed countries a higher level of masculinity is expected to increase the tendency for earnings management, given that managers (whose compensation would probably be associated with firm performance) tend to focus on material success and financial achievement, engaging in earnings management as a way of boosting their personal economic benefit.

(Insert Table IX here)

Tables VIII and IX also reveal that the estimates for the coefficients of the cultural variable Long-Term are positive and statistically significant when considering accruals-based earnings management in both emerging (0.011,  $t$ -stat = 1.90) and developed countries (0.011,  $t$ -stat = 4.32) and, by contrast, they are negative and statistically significant when considering real earnings management in either emerging (-0.043,  $t$ -stat = -1.69) or developed countries (-0.121,  $t$ -stat = -6.74). These results also allow us to confirm H5, but only taking into account



accruals-based earnings management. It seems that in countries where the long-term perspective is more valued in formulating strategies, goals, and objectives, managers prefer to engage more in accruals-based earnings management but at the expense of a lower level of real earnings management. There is a trade-off, or substitution effect, between accruals-based and real earnings management by firms in countries with a higher level of Long-Term Orientation. Indeed, the previous literature provides consistent discussions regarding the substitution effect between the two earnings management strategies (e.g., Cohen and Zarowin, 2010; Zang, 2012).

Given that both accruals-based and real earnings management are costly activities, firms engage in a trade-off between them based on their relative costliness – in other words, when one activity is relatively more costly, firms engage in more of the other. Thus, because firms face different costs and constraints for the two earnings management approaches, they show differing abilities to use the two strategies (Zhang, 2012). Besides, real earnings management must occur during the fiscal year and is realized by the fiscal year-end, after which managers still have the chance to adjust the level of accruals-based earnings management. Therefore, there is also a direct, substitutive relationship between the two; if real earnings management turns out to be unexpectedly high (low), then managers will decrease (increase) the level of accruals-based earnings management they undertake (Zhang, 2012). Moreover, “real earnings management activities are significantly different than accrual-based ones as they have direct effects on cash flows” (Cohen and Zarowin, 2010, p. 4). In fact, previous literature suggests that real earnings management “increases a firm’s cost of capital and imposes greater long-term costs on shareholders because of its negative impact on future cash flows” (Paredes and Wheatley, 2017, p. 39). Thus, in countries with a long-term orientation, firms could prefer earnings management practices that have a less negative effect in the long term – fostering greater involvement in accruals-based earnings management in detriment of real earnings management, which can have negative effects in the long term.

Our results also point out that the estimates for the coefficients of the cultural variable Indulgence are statistically significant but only in developed countries, with a negative sign for accruals-based earnings management ( $-0.030$ ,  $t\text{-stat} = -10.38$ ), and a positive one for real earnings management ( $0.112$ ,  $t\text{-stat} = 5.66$ ). These results also allow us to confirm H6, but only when taking into account accruals-based earnings management in developed countries. Overall, these findings indicate that in developed countries with high levels of indulgence, firms tend to engage less (more) in accruals-based earnings management (real earnings management). Hence, we again find hints of a potential trade-off, or substitution effect, between accruals-based and real earnings management by firms in developed countries with a higher level of indulgence. As mentioned, previous literature indeed provides evidence of a substitution effect between accruals-based and real earnings management in certain contexts (e.g., Cohen and Zarowin, 2010; Zhang, 2012).

Concerning control variables, consistent with prior literature we find overall evidence that less profitable, high growth firms, and those with negative earnings engage in higher levels of earnings management, in both developed and emerging countries, which is consistent with previous literature (e.g., Paredes and Wheatley, 2017; Doukakis, 2014). Moreover, consistent with Ipino and Parbonetti (2017), we also find evidence that smaller (larger) firms are associated with higher levels of accruals-based earnings management (real earnings management) and that high levels of leverage are linked with high levels of earnings manipulations only by accruals.

Overall, we find that firms from countries with a higher level of uncertainty avoidance and individualism are less likely to engage in earnings management, but the effect of the uncertainty avoidance (indulgence) is more (less) pronounced in emerging countries. Our findings also show that firms in emerging (developed) countries with higher levels of power distance and masculinity are less (more) likely to engage in earnings management. In addition,

we find that firms in countries with a higher level of long-term orientation (indulgence) are more (less) likely to engage in accruals-based earnings management, at the expense of a decrease (increase) in the level of real earnings management, but the association between indulgence and earnings management is observable only in the developed countries.

While the previous literature reports the effects of national culture on earnings management, relying on samples mostly composed of developed countries, we add to this discussion by analysing the emerging and developed countries separately. Our results suggest that the effect of culture on earnings management differs between firms in developed countries and emerging countries. Furthermore, we also demonstrate that some of the cultural dimensions proposed by Hofstede (2011) seem to exhibit a substitution effect between accruals-based and real earnings management tactics (e.g., Cohen and Zarowin, 2010; Zang, 2012), while other factors seem to reveal a complementary effect (e.g., Li *et al.*, 2018; Khunkaew and Qingxiang, 2019; Li, 2019).

## **6 Robustness Analysis**

Seeking greater robustness in our results, we also perform several robustness checks. First, we estimate our main model by considering alternative variables for both accruals-based and real earnings management.

Concerning the accruals-based earnings management alternative proxies, we take into account Larcker and Richardson's (2004) amendments to the modified Jones model (*AEM\_Alternative1*), which additionally include two regressors: the book-to-market ratio and current operating performance. As an alternative measure for accruals-based earnings management, we also estimate a modified Jones model by including the one-year lag of total accruals as discussed by Dechow *et al.* (2012), given the inherent property of accrual accounting that any accrual-based earnings management in one period must reverse in another

period (*AEM\_Alternative2*). The estimations for these accruals-based earnings management sensitivity tests are reported in Table X. Overall, the results remain qualitatively the same as those presented in our main analysis.

(Insert Table X here)

Regarding the real earnings management alternative proxies, instead of considering a single proxy by the sum of *ABN\_PROD*, *ABN\_CFO*, and *ABN\_DISX*, we segregate *REM* in order to form two different variables, as pointed out by previous studies (Cohen and Zarowin, 2010; Zang, 2012; Abad *et al.*, 2018): *REM\_Alternative1*, which represents the sum of abnormal levels of productions costs (*ABN\_PROD*) and abnormal levels of discretionary expenses (*ABN\_DISX* multiplied by negative -1); and *REM\_Alternative2*, which represents the sum of abnormal levels of cash flows from operations (*ABN\_CFO* multiplied by negative one) and abnormal levels of discretionary expenses (*ABN\_DISX* multiplied by negative one). The estimations for these real earnings management sensitivity tests are in Table XI. Overall, the results remain qualitatively the same as those presented in our main analysis.

(Insert Table XI here)

Second, we explore whether the association between national culture and earnings management can also be found even after considering the joint effect of culture and enforcement. Indeed, “enforcement is an important element of the institutional framework that assures the quality of financial reporting by listed companies” (Ewert and Wagenhorfer, 2019, p. 122). Therefore, considering the relevance of accounting systems enforcement factors to earnings manipulation (e.g., Christensen *et al.*, 2013), we estimate our main model by

additionally considering an interaction term between national cultural dimensions and enforcement (*CULTURE*  $\times$  *Enforcement*). More specifically, *Enforcement* is a dummy that assumes one for observations that the *RULE OF LAW* value is greater than its median, and zero otherwise. We make this classification in enforcement by the *RULE OF LAW* median for emerging and developed countries observations separately. The results are presented in Table XII. Overall, the effect of Hofstede's cultural dimensions on earnings management remains qualitatively the same as those presented in our main analysis, and the level of enforcement seems to moderate the effect of these cultural dimensions on earnings management.

(Insert Table XII here)

Third, we investigate whether the association between national culture and earnings management can also be found even after considering the joint effect of culture and corruption. A higher country level of corruption can create an unethical atmosphere that encourages individuals to accept earnings management practices to a greater extent. Pappas (2010) demonstrates empirically that earnings management is higher in more corrupted European Union countries because insiders might be more prone to exercise incentives to mask corporate performance. Lourenço *et al.* (2018) also show empirically that country-level perceived corruption is positively related to earnings management in emerging economies. We estimate our main model by additionally considering the variable *Corruption* and its interactions with the national cultural dimensions. The variable *Corruption* is computed based on the Transparency International's Corruption Perception Index (CPI), which is a leading measure of perceptions regarding corruption that ranks countries by perceived levels of corruption among public officials. A higher index indicates lower levels of perceived corruption. *Corruption* is a dummy variable that assumes one for observations that the CPI is lower than

its median (i.e., higher corruption) and zero otherwise. We make this classification in *Corruption* by the CPI median for emerging and developed countries observations separately. The results are presented in Table XIII. Overall, the results regarding the effect of Hofstede's cultural dimensions on earnings management remain qualitatively the same as those presented in our main analysis, and the level of corruption seems to moderate the effect of these cultural dimensions on earnings management.

(Insert Table XIII here)

Fourth, in view of potential inference errors related to the subprime crisis period (2007-2009), we estimate our main model by considering a more recent period of only five years, from 2014 through 2018. Fifth, similar to Callen *et al.* (2011), we estimate our main models without any country-level control variables, and introduce them one by one, interchangeably. Sixth, we also follow Leuz *et al.* (2003) and construct alternative measures for both accruals-based and real earnings management by ranking our main dependent variables such that a higher score suggests a higher level of earnings management. Finally, considering possible inconsistencies of the estimated parameters due to the truncation of the dependent variable (absolute values), as robustness tests we also re-run all accruals-based earnings management models based on the Tobit (1958) regression approach, following previous earnings management literature (e.g., Chaney *et al.*, 2011; Kim *et al.*, 2012; Cassell *et al.*, 2015). In all of these last alternative scenarios, untabulated findings show fundamentally the same results regarding the coefficient of our main variables.

## **7 Summary and Conclusion**

This study investigates the association between national culture and earnings management, and how it differs between developed and emerging countries. The empirical analysis relies on a sample of 6,313 firm-year observations of non-financial listed firms from 11 emerging countries and 27,605 observations from 22 developed countries. Our findings suggest that Hofstede's (2011) cultural dimensions (uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence) are associated with both accruals-based and real earnings management, but this association differs between firms from developed and emerging countries. In other words, our empirical findings suggest that earnings management practices by managers seem to be influenced by the national culture where the firms are headquartered and that this influence seems to differ between firms from emerging and developed countries. Given the clear differences in the institutional and economic environments between developed and emerging countries, our results determine that the influences of national culture on firms' earnings management strategies differ between those two types of countries. We add to the literature on national culture and earnings management by providing evidence on how the association between Hofstede's cultural dimensions and earnings management compares between developed and emerging countries.

Our empirical findings also contribute to an important debate among investors, standard setters, regulators, and other stakeholders on how earnings management strategies differ between emerging and developed countries. By demonstrating how the effect of culture on the quality of the financial reports (i.e., earnings management) differs between developed and emerging countries, we provide an important discussion for standard setters and regulators who must take into account the role of institutional and economic characteristics simultaneously in the development of accounting standards and monitoring firms strategies. Similarly, international investors and analysts should be aware of these characteristics when dealing with

accounting information provided by firms from different countries (e.g., emerging versus developed countries).

Our empirical findings raise an important discussion for the accounting profession, investors, and standard setters by pointing out how earnings management tactics can be associated not only with firm-level incentives but also with institutional (i.e., national culture) and economic factors (i.e., country-level development). In addition to the discussions of how the culture of the countries matters for the formulation of earnings management strategies, we provide an important empirical and theoretical discussion about how this effect is not consistent among companies from emerging and developed countries – which should therefore be taken into account by standard setters and regulators, as well as by international investors, analysts, and other stakeholders who rely on accounting information to make economic decisions. Using the same approach when dealing with accounting information provided by firms from different countries (e.g., emerging versus developed countries) may not be an appropriate strategy for standard setters, regulators, international investors, and other stakeholders. In other words, using a “one size fits all” strategy may not be appropriate when applied internationally. Thus, regulators and policymakers should develop different strategies depending on the level of development of the country (emerging versus developed), as well as its cultural characteristics.

Despite the methodological rigor and the robustness of our results in the face of several additional tests, there are some limitations in our analyses that should be addressed. First, Hofstede’s cultural dimensions may have some element of bias in their composition (Ugrin *et al.*, 2017), despite being widely used by previous international accounting researchers (see Table I). Second, although our results are robust with and without control variables at the country level, it is difficult to fully control for the potential impact of other country factors and to disentangle them from the direct effect of cultural dimensions (Zhang *et al.*, 2013). Finally, we limit our analyses taking into accounting only IFRS mandatory periods, given the potential



bias related to the IFRS adoption. Future researchers may be interested in including other national cultural measures (e.g., Global Leadership & Organizational Behaviour Effectiveness – GLOBE) to address country factors, complementing issues with different types of estimation methods, and also expanding the period of analysis controlling IFRS adoption periods and their consequences regarding earnings management strategies.

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**Table I. Cross-country studies on Hofstede’s cultural dimensions and earnings management**

| References                        | Sample – Countries |                 |                | Covered Period | Earnings Management approach                            | Hofstede’ National Culture Dimensions |              |              |             |             |              |  |
|-----------------------------------|--------------------|-----------------|----------------|----------------|---|---------------------------------------|--------------|--------------|-------------|-------------|--------------|--|
|                                   | <i>Developed</i>   | <i>Emerging</i> | <b>Overall</b> |                |   | <i>UNC</i>                            | <i>INDIV</i> | <i>POWER</i> | <i>MASC</i> | <i>LONG</i> | <i>INDUL</i> |  |
| Paredes and Wheatley (2017)       | 23                 | 8               | 31             | 1987-2012      | Real earnings management at firm level                  | -                                     | -            | +            | -           |             |              |  |
| Gray <i>et al.</i> (2015)         | 14                 | 0               | 14             | 2000-2010      | Accruals earnings management at firm level              | -                                     | -            | +            | +           | +           |              |  |
| Riahi and Omri (2013)             | 2                  | 1               | 3              | 2003-2009      | Accruals earnings management at firm level              | +                                     | -            | -            |             |             |              |  |
| Zhang <i>et al.</i> (2013)        | 25                 | 16              | 41             | N/A*           | Index at country level (Leuz <i>et al.</i> , 2003)      |                                       | -            |              |             |             |              |  |
| Callen <i>et al.</i> (2011)       | 23                 | 8               | 31             | N/A*           | Index at country level (Leuz <i>et al.</i> , 2003)      | +                                     | -            |              |             |             |              |  |
| Desender <i>et al.</i> (2011)     | 23                 | 8               | 31             | 1990-1999      | Index at country level (Leuz <i>et al.</i> , 2003)      |                                       | -            |              |             |             |              |  |
| Kanagaretnam <i>et al.</i> (2011) | 23                 | 16              | 39             | 1993-2008      | Meet-or-beet prior year’s earnings and income smoothing | -                                     | +            | +            | +           |             |              |  |
| Guan and Pourjalali (2010)        | 20                 | 7               | 27             | 1987-2001      | Accruals earnings management at firm level              | -                                     | +            | +            | +           |             |              |  |
| Han <i>et al.</i> (2010)          | 23                 | 9               | 32             | 1992-2003      | Accruals earnings management at firm level              | -                                     | +            |              |             |             |              |  |
| Doupnik (2008)                    | 23                 | 8               | 31             | N/A*           | Index at country level (Leuz <i>et al.</i> , 2003)      | +                                     | -            |              |             |             |              |  |
| Nabar and Boonlert-U-Thai (2007)  | 23                 | 7               | 30             | N/A*           | Index at country level (Leuz <i>et al.</i> , 2003)      | +                                     |              |              | +           |             |              |  |
| Guan <i>et al.</i> (2005)         | 4                  | 2               | 6              | 1987-1995      | Accruals earnings management at firm level              | -                                     | +            |              |             |             | -            |  |

*UNC*, *INDIV*, *POWER*, *MASC*, *LONG*, and *INDUL* represent uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence, respectively, according to Hofstede (2011) cultural dimensions.

\* The paper does not explicitly cover a specific period, usually by relying on country-level variables from different sources (e.g., World Bank, Organisation for Economic Co-operation and Development, International Monetary Fund), which are measured at different time periods.

**Table II. Sample selection procedure**

|  | <b>Total</b>   |
|--|----------------|
| <b>Overall Datastream available data of firm-year observations (2000-2018)</b> | <b>330,154</b> |
| <i>Exclusions</i>  |                |
| Countries without Hofstede and/or IFRS mandatory period data                   | (200,305)      |
| Observations regarding the pre-IFRS mandatory adoption                         | (68,720)       |
| Financial institutions   | (6,372)        |
| Observations with negative equity  | (179)          |
| Missing values needed to calculate earnings management and control variables   | (20,660)       |
| <b>Final Sample</b>  | <b>33,918</b>  |
| Emerging Countries   | 6,313          |
| Developed Countries  | 27,605         |

**Table III. Sample distribution by country**

|                            | N             | %             | % Cum  |
|----------------------------|---------------|---------------|--------|
| <b>Emerging Countries</b>  |               |               |        |
| Argentina                  | 184           | 2.91          | 2.91   |
| Brazil                     | 1,481         | 23.46         | 26.37  |
| Chile                      | 824           | 13.05         | 39.43  |
| Egypt                      | 28            | 0.44          | 39.87  |
| Mexico                     | 491           | 7.78          | 47.65  |
| Morocco                    | 44            | 0.70          | 48.34  |
| Peru                       | 205           | 3.25          | 51.59  |
| Poland                     | 1,602         | 25.38         | 76.97  |
| Russia                     | 539           | 8.54          | 85.51  |
| Turkey                     | 851           | 13.48         | 98.99  |
| Ukraine                    | 64            | 1.01          | 100.00 |
|                            | <b>6,313</b>  | <b>100.00</b> | -      |
| <b>Developed Countries</b> |               |               |        |
|                            | N             | %             | % Cum  |
| Australia                  | 919           | 3.33          | 3.33   |
| Austria                    | 555           | 2.01          | 5.34   |
| Belgium                    | 800           | 2.90          | 8.24   |
| Canada                     | 1,999         | 7.24          | 15.48  |
| Czech Republic             | 71            | 0.26          | 15.74  |
| Denmark                    | 660           | 2.39          | 18.13  |
| Finland                    | 1,065         | 3.86          | 21.99  |
| France                     | 3,608         | 13.07         | 35.06  |
| Germany                    | 3,621         | 13.12         | 48.17  |
| Greece                     | 1,145         | 4.15          | 52.32  |
| Hong Kong                  | 604           | 2.19          | 54.51  |
| Ireland                    | 310           | 1.12          | 55.63  |
| Italy                      | 1,803         | 6.53          | 62.16  |
| Luxembourg                 | 304           | 1.10          | 63.26  |
| Netherlands                | 1,114         | 4.04          | 67.30  |
| New Zealand                | 62            | 0.22          | 67.52  |
| Norway                     | 1,119         | 4.05          | 71.58  |
| Portugal                   | 399           | 1.45          | 73.02  |
| Slovenia                   | 165           | 0.60          | 73.62  |
| Spain                      | 1,076         | 3.90          | 77.52  |
| Sweden                     | 1,874         | 6.79          | 84.31  |
| United Kingdom             | 4,332         | 15.69         | 100.00 |
|                            | <b>27,605</b> | <b>100.00</b> | -      |

**Table IV. Variables description**

| Dependent variables       |   |
|---------------------------|---|
| $AEM_{ij}$                | represents the accruals-based earnings management, based on the modified version of the model proposed by Jones (1991) to measure discretionary accruals, proposed by Dechow <i>et al.</i> (1995), by additionally considering return on assets (Kothari <i>et al.</i> , 2005).                 |
| $REM_{ij}$                | represents the real earnings management according to Roychowdhury (2006), by the sum of abnormal production costs ( $ABN\_PROD$ ), abnormal discretionary expenses ( $ABN\_DISX$ ) multiplied by minus 1, and abnormal cash flows from operations ( $ABN\_CFO$ ) multiplied by minus 1.         |
| Independent variables     |   |
| $CULTURE_j$               | represents uncertainty avoidance ( $UNC$ ), individualism ( $INDIV$ ), power distance ( $POWER$ ), masculinity ( $MASC$ ), long-term orientation ( $LONG$ ), and indulgence ( $INDULG$ ), respectively, according to Hofstede (2011) culture dimensions.  |
| Control variables         |   |
| $SIZE_{ij}$               | is the natural logarithm of end of year total assets.   |
| $ROA_{ij}$                | is the net income scaled by end of year total assets.   |
| $LEVERAGE_{ij}$           | is the end of year total liabilities scaled by end of year total assets.  |
| $GROWTH_{ij}$             | is the percentage change in sales from the year $t-1$ to $t$ .  |
| $LOSS_{tj}$               | is a dummy variable that equals 1 for firm-year observations if net income is lower than 0, and zero otherwise.   |
| $BIG4_{ij}$               | is a dummy variable that equals 1 for firm-year observations if the firm's auditor is PwC, KPMG, EY, or DTT, and zero otherwise.  |
| $GDP_{ij}$                | Is a natural logarithm of GDP per capita of each country-year.  |
| $RULE\ OF\ LAW_{ij}$      | is the index of law enforcement for each country-year.  |
| $CRISIS_{ij}$             | is a dummy variable that assumes 1 for 2007, 2008, and 2009, and zero otherwise.  |
| Robustness test variables |   |
| $AEM\_Alternative1_{ij}$  | is an alternative measure of the accruals-based earnings management, based on the modified version of the model proposed by Jones (1991) to measure discretionary accruals, proposed by Dechow <i>et al.</i> (1995), by additionally following Larcker and Richardson's (2004) recommendations. |
| $AEM\_Alternative2_{ij}$  | is an alternative measure of the accruals-based earnings management, based on the modified version of the model proposed by Jones (1991) to measure discretionary accruals, proposed by Dechow <i>et al.</i> (1995), by additionally following Dechow <i>et al.</i> 's (2012) recommendations.  |
| $REM\_Alternative1_{ij}$  | is an alternative measure of the real earnings management according to Roychowdhury (2006), by the sum of abnormal levels of productions costs ( $ABN\_PROD$ ) and abnormal levels of discretionary expenses ( $ABN\_DISX$ multiplied by negative 1).   |
| $REM\_Alternative2_{ij}$  | is an alternative measure of the real earnings management according to Roychowdhury (2006), by the sum of abnormal levels of cash flows from operations ( $ABN\_CFO$ multiplied by negative 1) and abnormal levels of discretionary expenses ( $ABN\_DISX$ multiplied by negative 1).           |

**Table V. Values of the national culture dimensions provided by Hofstede**

|                            | <i>UNCER</i> | <i>INDIV</i> | <i>POWER</i> | <i>MASC</i> | <i>LONG</i> | <i>INDULG</i> |
|----------------------------|--------------|--------------|--------------|-------------|-------------|---------------|
| <b>Emerging countries</b>  |              |              |              |             |             |               |
| Argentina                  | 0.49         | 0.46         | 0.56         | 0.86        | 0.20        | 0.62          |
| Brazil                     | 0.69         | 0.38         | 0.49         | 0.76        | 0.44        | 0.59          |
| Chile                      | 0.63         | 0.23         | 0.28         | 0.86        | 0.31        | 0.68          |
| Egypt                      | 0.70         | 0.25         | 0.45         | 0.80        | 0.07        | 0.04          |
| Mexico                     | 0.81         | 0.30         | 0.69         | 0.82        | 0.24        | 0.97          |
| Morocco                    | 0.70         | 0.46         | 0.53         | 0.68        | 0.14        | 0.25          |
| Peru                       | 0.64         | 0.16         | 0.42         | 0.87        | 0.25        | 0.46          |
| Poland                     | 0.68         | 0.60         | 0.64         | 0.93        | 0.38        | 0.29          |
| Russia                     | 0.93         | 0.39         | 0.36         | 0.95        | 0.81        | 0.20          |
| Turkey                     | 0.66         | 0.37         | 0.45         | 0.85        | 0.46        | 0.49          |
| Ukraine                    | 0.92         | 0.25         | 0.27         | 0.95        | 0.86        | 0.14          |
| Mean                       | 0.71***      | 0.35***      | 0.47***      | 0.85        | 0.38***     | 0.43          |
| Sd                         | 0.13         | 0.13         | 0.13         | 0.08        | 0.26        | 0.28          |
| <b>Developed Countries</b> |              |              |              |             |             |               |
| Australia                  | 0.38         | 0.90         | 0.61         | 0.51        | 0.21        | 0.71          |
| Austria                    | 0.11         | 0.55         | 0.79         | 0.70        | 0.60        | 0.63          |
| Belgium                    | 0.65         | 0.75         | 0.54         | 0.94        | 0.82        | 0.57          |
| Canada                     | 0.39         | 0.80         | 0.52         | 0.48        | 0.36        | 0.68          |
| Czech Republic             | 0.57         | 0.58         | 0.57         | 0.74        | 0.70        | 0.29          |
| Denmark                    | 0.18         | 0.74         | 0.16         | 0.23        | 0.35        | 0.70          |
| Finland                    | 0.33         | 0.63         | 0.26         | 0.59        | 0.38        | 0.57          |
| France                     | 0.68         | 0.71         | 0.43         | 0.86        | 0.63        | 0.48          |
| Germany                    | 0.35         | 0.67         | 0.66         | 0.65        | 0.83        | 0.40          |
| Greece                     | 0.60         | 0.35         | 0.57         | 1.00        | 0.45        | 0.50          |
| Hong Kong                  | 0.68         | 0.25         | 0.57         | 0.29        | 0.61        | 0.17          |
| Ireland                    | 0.28         | 0.70         | 0.68         | 0.35        | 0.24        | 0.65          |
| Italy                      | 0.50         | 0.76         | 0.70         | 0.75        | 0.61        | 0.30          |
| Luxembourg                 | 0.40         | 0.60         | 0.50         | 0.70        | 0.64        | 0.56          |
| Netherlands                | 0.38         | 0.80         | 0.14         | 0.53        | 0.67        | 0.68          |
| New Zealand                | 0.22         | 0.79         | 0.58         | 0.49        | 0.33        | 0.75          |
| Norway                     | 0.31         | 0.69         | 0.08         | 0.50        | 0.35        | 0.55          |
| Portugal                   | 0.63         | 0.27         | 0.31         | 0.99        | 0.28        | 0.33          |
| Slovenia                   | 0.71         | 0.27         | 0.19         | 0.88        | 0.49        | 0.48          |
| Spain                      | 0.57         | 0.51         | 0.42         | 0.86        | 0.48        | 0.44          |
| Sweden                     | 0.31         | 0.71         | 0.05         | 0.29        | 0.53        | 0.78          |
| United Kingdom             | 0.35         | 0.89         | 0.66         | 0.35        | 0.51        | 0.69          |
| Mean                       | 0.44***      | 0.63***      | 0.45***      | 0.62        | 0.50***     | 0.54          |
| SD                         | 0.18         | 0.19         | 0.22         | 0.24        | 0.18        | 0.17          |

*UNCER*, *INDIV*, *POWER*, *MASC*, *LONG*, and *INDUL* represent uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence, respectively, according to Hofstede (2011) cultural dimensions.

\*, \*\*, \*\*\* denote significant difference of means between emerging and developed countries (Student's t-test) at 10%, 5%, and 1%, respectively.

**Table VI. Descriptive statistics**

|                            | <b>N</b> | <b>Mean</b> | <b>Median</b> | <b>SD</b> | <b>Min</b> | <b>Max</b> |
|----------------------------|----------|-------------|---------------|-----------|------------|------------|
| <b>Emerging Countries</b>  |          |             |               |           |            |            |
| <i>AEM</i>                 | 6,313    | 0.0635***   | 0.0425        | 0.0644    | 0.4720     | 0.0001     |
| <i>REM</i>                 | 4,965    | 0.0022***   | 0.0265        | 0.2967    | 1.0495     | -1.3477    |
| <i>SIZE</i>                | 6,313    | 20.5408***  | 20.4812       | 1.9290    | 25.4383    | 14.0834    |
| <i>ROA</i>                 | 6,313    | 0.0277***   | 0.0378        | 0.1324    | 0.3083     | -1.7641    |
| <i>LEVERAGE</i>            | 6,313    | 0.5572***   | 0.5403        | 0.2546    | 1.9795     | 0.0226     |
| <i>GROWTH</i>              | 6,313    | 0.1131      | 0.0733        | 0.3792    | 3.9868     | -0.8911    |
| <i>LOSS</i>                | 6,313    | 0.2047***   | -             | -         | -          | -          |
| <i>BIG4</i>                | 6,313    | 0.7005***   | -             | -         | -          | -          |
| <b>Developed Countries</b> |          |             |               |           |            |            |
| <i>AEM</i>                 | 27,605   | 0.0571***   | 0.0357        | 0.0635    | 0.4720     | 0.0000     |
| <i>REM</i>                 | 17,826   | -0.0590***  | -0.0180       | 0.4006    | 1.0495     | -1.3477    |
| <i>SIZE</i>                | 27,605   | 20.2884***  | 20.1249       | 2.2763    | 25.4383    | 14.0834    |
| <i>ROA</i>                 | 27,605   | -0.0118***  | 0.0312        | 0.2152    | 0.3083     | -1.7641    |
| <i>LEVERAGE</i>            | 27,605   | 0.5741***   | 0.5736        | 0.2616    | 1.9795     | 0.0226     |
| <i>GROWTH</i>              | 27,605   | 0.1127      | 0.0472        | 0.5128    | 3.9868     | -0.8911    |
| <i>LOSS</i>                | 27,605   | 0.2811***   | -             | -         | -          | -          |
| <i>BIG4</i>                | 27,605   | 0.7589***   | -             | -         | -          | -          |

*AEM* represents the accruals-based earnings management proxy calculated based on Kothari *et al.*'s (2005) model. *REM* represents the real earnings management proxy calculated based on Roychowdhury (2006). *SIZE* is the natural logarithm of total assets. *ROA* is the net income divided by total assets. *LEVERAGE* is the total liabilities divided by total assets. *GROWTH* is the percentage growth of net sales from the year. *LOSS* is a dummy variable that assumes 1 for company-year observations with negative net income and zero otherwise. *BIG4* is a dummy variable that assumes 1 for company-year observations audited by PwC, KPMG, E&Y, or Deloitte, and zero otherwise.

\*, \*\*, \*\*\* denote significant difference of means between emerging and developed countries (Student's t-test) at 10%, 5%, and 1%, respectively.



**Table VII. Correlation matrix**

| <b>Emerging Countries</b> |            |            |            |            |            |            |            |            |            |            |            |            |            |            |
|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                           | <b>1.</b>  | <b>2.</b>  | <b>3.</b>  | <b>4.</b>  | <b>5.</b>  | <b>6.</b>  | <b>7.</b>  | <b>8.</b>  | <b>9.</b>  | <b>10.</b> | <b>11.</b> | <b>12.</b> | <b>13.</b> | <b>14.</b> |
| <b>1. AEM</b>             | —          |            |            |            |            |            |            |            |            |            |            |            |            |            |
| <b>2. REM</b>             | 0.0647***  | —          |            |            |            |            |            |            |            |            |            |            |            |            |
| <b>3. UNC</b>             | 0.0551***  | -0.0416**  | —          |            |            |            |            |            |            |            |            |            |            |            |
| <b>4. INDIV</b>           | 0.1003***  | 0.0115     | 0.4487***  | —          |            |            |            |            |            |            |            |            |            |            |
| <b>5. POWER</b>           | -0.0404**  | -0.0928*** | 0.2452***  | -0.0451*** | —          |            |            |            |            |            |            |            |            |            |
| <b>6. MASC</b>            | 0.0518***  | -0.0225    | 0.0952***  | 0.7017***  | -0.0214*** | —          |            |            |            |            |            |            |            |            |
| <b>7. LONG</b>            | 0.0212***  | -0.0003    | 0.2956***  | 0.0815***  | 0.7001***  | -0.3461*** | —          |            |            |            |            |            |            |            |
| <b>8. INDUL</b>           | -0.0960*** | -0.0131    | -0.6490*** | -0.6133*** | -0.2091*** | -0.0378*** | -0.5441*** | —          |            |            |            |            |            |            |
| <b>9. SIZE</b>            | -0.2376*** | -0.0338**  | -0.3166*** | -0.3460*** | 0.2335***  | -0.2095*** | 0.1195***  | 0.2663***  | —          |            |            |            |            |            |
| <b>10. ROA</b>            | -0.1161*** | -0.4098*** | 0.0115     | -0.0360*** | -0.0270**  | -0.0357*** | -0.0271**  | 0.0150     | 0.1134***  | —          |            |            |            |            |
| <b>11. LEVERAGE</b>       | 0.0920*    | 0.2065***  | -0.1415*** | -0.0666*** | 0.0472***  | -0.0379*** | 0.0571***  | 0.0656***  | 0.1257***  | -0.4890*** | —          |            |            |            |
| <b>12. GROWTH</b>         | 0.0817***  | -0.0313**  | 0.0318**   | 0.0226*    | -0.0560*** | -0.0091    | 0.0083     | -0.0278**  | -0.0102    | 0.0992***  | 0.0006     | —          |            |            |
| <b>13. GDP</b>            | -0.0176    | -0.0222    | 0.2251***  | 0.2576***  | -0.2773*** | 0.0213***  | -0.0749*** | 0.0703***  | -0.1103*** | 0.0190     | -0.0671*** | -0.0069    | —          |            |
| <b>14. RULE OF LAW</b>    | -0.0053    | 0.0379**   | 0.2243***  | 0.1684***  | -0.5297*** | -0.1006*** | -0.4042*** | -0.0233*** | -0.2645*** | 0.0135     | -0.1583*** | -0.0368*** | 0.5438***  | —          |

Table VII. (continued)

| Developed Countries    |            |            |            |            |            |            |            |            |            |            |            |           |           |     |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----|
|                        | 1.         | 2.         | 3.         | 4.         | 5.         | 6.         | 7.         | 8.         | 9.         | 10.        | 11.        | 12.       | 13.       | 14. |
| 1. <i>AEM</i>          | —          |            |            |            |            |            |            |            |            |            |            |           |           |     |
| 2. <i>REM</i>          | 0.0874***  | —          |            |            |            |            |            |            |            |            |            |           |           |     |
| 3. <i>UNC</i>          | -0.0646*** | 0.0026     | —          |            |            |            |            |            |            |            |            |           |           |     |
| 4. <i>INDIV</i>        | 0.0334***  | -0.0405*** | -0.4803*** | —          |            |            |            |            |            |            |            |           |           |     |
| 5. <i>POWER</i>        | -0.0210*** | 0.0381***  | 0.7098***  | -0.3889*** | —          |            |            |            |            |            |            |           |           |     |
| 6. <i>MASC</i>         | 0.0433***  | 0.0466***  | 0.1643***  | 0.1377***  | 0.0511***  | —          |            |            |            |            |            |           |           |     |
| 7. <i>LONG</i>         | -0.0551*** | -0.0575*** | 0.3088***  | -0.0587*** | 0.1903***  | 0.2737***  | —          |            |            |            |            |           |           |     |
| 8. <i>INDUL</i>        | 0.0371***  | 0.0438***  | -0.5977*** | 0.5648***  | -0.5300*** | -0.3343*** | -0.4655*** | —          |            |            |            |           |           |     |
| 9. <i>SIZE</i>         | -0.3200*** | -0.0191**  | 0.1409***  | -0.1146*** | 0.0946***  | -0.0551*** | 0.1014***  | -0.1484*** | —          |            |            |           |           |     |
| 10. <i>ROA</i>         | -0.2928*** | -0.3508*** | 0.0720***  | -0.0965*** | 0.0420***  | -0.0589*** | 0.1176***  | -0.0920*** | 0.3374***  | —          |            |           |           |     |
| 11. <i>LEVERAGE</i>    | 0.0446***  | 0.1635***  | 0.1487***  | -0.0850*** | 0.0983***  | 0.0111*    | 0.0619***  | -0.1221*** | 0.1600***  | -0.2459*** | —          |           |           |     |
| 12. <i>GROWTH</i>      | 0.1542***  | -0.0219*** | -0.0862*** | 0.0739***  | -0.0488*** | 0.0192***  | -0.0556*** | 0.0641***  | -0.0741*** | 0.0135**   | -0.0768*** | —         |           |     |
| 13. <i>GDP</i>         | 0.0157***  | -0.0473*** | -0.5108*** | 0.4251***  | -0.5335*** | -0.3670*** | -0.1258*** | 0.4416***  | -0.0319*** | -0.0322*** | -0.0950*** | 0.0508*** | —         |     |
| 14. <i>RULE OF LAW</i> | 0.0434***  | 0.0055     | -0.6436*** | 0.3448***  | -0.5719*** | -0.3470*** | -0.1171*** | 0.5990***  | -0.0859*** | -0.0338*** | -0.1326*** | 0.0626*** | 0.6790*** | —   |

*UNC*, *INDIV*, *POWER*, *MASC*, *LONG*, and *INDUL* represent uncertainty avoidance, individualism, power distance, masculinity, long-term orientation, and indulgence, respectively, according to Hofstede (2011) cultural dimensions. *AEM* represents the accruals-based earnings management proxy calculated based on Kothari *et al.*'s (2005) model. *REM* represents the real earnings management proxy calculated based on Roychowdhury (2006). *SIZE* is the natural logarithm of total assets. *ROA* is the net income divided by total assets. *LEVERAGE* is the total liabilities divided by total assets. *GROWTH* is the percentage growth of net sales from the year. *GDP* is natural logarithm of GDP per capita of each country-year. *RULE OF LAW* is the index of law enforcement for each country-year. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries.

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

**Table VIII. Effect of national culture on accruals-based earnings management**

|                                | Uncertainty Avoidance |                       | Individualism        |                       | Power Distance       |                       | Masculinity           |                       | Long-Term Orientation |                       | Indulgence           |                       |
|--------------------------------|-----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|
|                                | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging      | (B)<br>Developed      | (A)<br>Emerging      | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging      | (B)<br>Developed      |
| Constant                       | 0.251***<br>(6.10)    | 0.216***<br>(9.93)    | 0.213***<br>(5.84)   | 0.102***<br>(3.91)    | 0.235***<br>(6.54)   | 0.194***<br>(8.72)    | 0.218***<br>(6.10)    | 0.226***<br>(10.55)   | 0.239***<br>(6.54)    | 0.240***<br>(11.02)   | 0.224***<br>(6.24)   | 0.248***<br>(11.57)   |
| <i>CULTURE</i>                 | -0.020<br>(-1.29)     | 0.002<br>(1.21)       | -0.011*<br>(-1.62)   | -0.026***<br>(-7.74)  | -0.027***<br>(-2.80) | 0.013***<br>(4.46)    | -0.025***<br>(-4.00)  | 0.009***<br>(4.65)    | 0.011*<br>(1.90)      | 0.011***<br>(4.32)    | -0.001<br>(-0.21)    | -0.030***<br>(-10.38) |
| <i>SIZE</i>                    | -0.005***<br>(-9.85)  | -0.004***<br>(-19.32) | -0.005***<br>(-9.77) | -0.004***<br>(-19.91) | -0.005***<br>(-9.45) | -0.004***<br>(-19.55) | -0.005***<br>(-10.14) | -0.004***<br>(-19.34) | -0.005***<br>(-9.67)  | -0.004***<br>(-19.72) | -0.005***<br>(-9.53) | -0.004***<br>(-19.99) |
| <i>ROA</i>                     | -0.015**<br>(-1.98)   | -0.035***<br>(-16.52) | -0.015**<br>(-2.00)  | -0.035***<br>(-16.46) | -0.017**<br>(-2.27)  | -0.035***<br>(-16.37) | -0.016**<br>(-2.16)   | -0.035***<br>(-16.53) | -0.014*<br>(-1.92)    | -0.035***<br>(-16.71) | -0.014*<br>(-1.94)   | -0.035***<br>(-16.47) |
| <i>LEVERAGE</i>                | 0.025***<br>(7.05)    | 0.005***<br>(3.36)    | 0.025***<br>(7.09)   | 0.004***<br>(3.06)    | 0.024***<br>(6.67)   | 0.005***<br>(3.42)    | 0.024***<br>(6.86)    | 0.005***<br>(3.77)    | 0.025***<br>(7.20)    | 0.005***<br>(3.51)    | 0.025***<br>(7.16)   | 0.005***<br>(3.30)    |
| <i>GROWTH</i>                  | 0.015***<br>(6.04)    | 0.015***<br>(18.80)   | 0.015***<br>(6.07)   | 0.014***<br>(18.45)   | 0.015***<br>(6.10)   | 0.015***<br>(18.81)   | 0.015***<br>(5.98)    | 0.014***<br>(18.46)   | 0.015***<br>(6.10)    | 0.015***<br>(18.88)   | 0.015***<br>(6.10)   | 0.014***<br>(18.44)   |
| <i>LOSS</i>                    | 0.000<br>(0.03)       | 0.005***<br>(5.78)    | 0.000<br>(0.05)      | 0.005***<br>(5.71)    | -0.000<br>(-0.03)    | 0.005***<br>(5.83)    | -0.000<br>(-0.10)     | 0.005***<br>(5.60)    | 0.000<br>(0.07)       | 0.005***<br>(5.79)    | 0.000<br>(0.07)      | 0.006***<br>(5.85)    |
| <i>BIG FOUR</i>                | 0.002<br>(1.16)       | 0.001<br>(1.19)       | 0.002<br>(1.03)      | 0.002***<br>(2.64)    | 0.003<br>(1.46)      | 0.001<br>(1.37)       | 0.002<br>(1.27)       | 0.001<br>(1.53)       | 0.003<br>(1.54)       | 0.002*<br>(1.77)      | 0.002<br>(1.29)      | 0.002**<br>(2.35)     |
| <i>GDP</i>                     | 0.002<br>(0.52)       | -0.003*<br>(-1.83)    | -0.000<br>(-0.03)    | 0.003*<br>(1.77)      | -0.002<br>(-0.45)    | -0.002<br>(-0.86)     | -0.001<br>(-0.14)     | -0.002<br>(-1.21)     | -0.002<br>(-0.40)     | -0.004**<br>(-2.19)   | -0.001<br>(-0.29)    | -0.003*<br>(-1.92)    |
| <i>RULE OF LAW</i>             | -0.011***<br>(-4.27)  | 0.002**<br>(1.99)     | -0.009***<br>(-3.95) | 0.002<br>(1.57)       | -0.010***<br>(-4.52) | 0.003***<br>(2.92)    | -0.010***<br>(-4.36)  | 0.003**<br>(2.53)     | -0.008***<br>(-3.70)  | 0.002*<br>(1.89)      | -0.009***<br>(-4.01) | 0.007***<br>(6.13)    |
| <i>CRISIS</i>                  | -0.014<br>(-1.53)     | -0.008***<br>(-4.60)  | -0.015<br>(-1.59)    | -0.009***<br>(-5.23)  | -0.014<br>(-1.56)    | -0.008***<br>(-4.65)  | -0.015<br>(-1.61)     | -0.008***<br>(-4.60)  | -0.014<br>(-1.50)     | -0.008***<br>(-4.48)  | -0.014<br>(-1.56)    | -0.008***<br>(-4.41)  |
| Diff. <i>Culture</i> (A) - (B) | -                     |                       | 0.015*<br>[3.65]     |                       | -0.040***<br>[13.95] |                       | -0.034***<br>[29.95]  |                       | 0.001<br>[0.01]       |                       | -                    |                       |
| Test F                         | 41.73***              | 243.60***             | 41.82***             | 244.90***             | 41.55***             | 244.30***             | 42.24***              | 244.40***             | 41.90***              | 243.00***             | 41.76***             | 246.90***             |
| R <sup>2</sup>                 | 0.1754                | 0.2204                | 0.1757               | 0.2214                | 0.1747               | 0.2210                | 0.1772                | 0.2210                | 0.1760                | 0.2200                | 0.1755               | 0.2227                |

Dependent variable is *AEM*, the absolute discretionary accruals calculated based on Kothari *et al.* (2005). *SIZE* is the natural logarithm of total assets. *ROA* is the net income divided by total assets. *LEVERAGE* is the total liabilities divided by total assets. *GROWTH* is the percentage growth of net sales from the year. *LOSS* is dummy variable that assumes 1 for company-year observations with negative net income and zero otherwise. *BIG4* is a dummy variable that assumes 1 for company-year observations audited by PwC, KPMG, E&Y, or Deloitte, and zero otherwise. *GDP* is natural logarithm of GDP per capita of each country-year. *RULE OF LAW* is the index of law enforcement for each country-year. *CRISIS* is a dummy variable that assumes 1 for 2007, 2008, and 2009, and zero otherwise. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluding those with studentized residuals greater than 3, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning *AEM* are included in all estimations (Chen *et al.*, 2018).  $\chi^2$  Hausman test on the difference of national culture variables coefficient (*CULTURE*) between emerging and developed countries in brackets (see, e.g., Weesie, 2000).

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

**Table IX. Effect of national culture on real earnings management**

|                         | Uncertainty Avoidance |                       | Individualism         |                       | Power Distance        |                       | Masculinity           |                       | Long-Term Orientation |                       | Indulgence            |                       |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                         | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      | (A)<br>Emerging       | (B)<br>Developed      |
| Constant                | 0.925***<br>(4.55)    | 1.611***<br>(9.78)    | 0.461**<br>(2.51)     | 1.447***<br>(7.46)    | 0.717***<br>(4.07)    | 1.395***<br>(8.10)    | 0.489***<br>(2.76)    | 1.518***<br>(9.31)    | 0.474***<br>(2.67)    | 1.393***<br>(8.44)    | 0.522***<br>(2.95)    | 1.420***<br>(8.63)    |
| <i>CULTURE</i>          | -0.283***<br>(-4.04)  | -0.039**<br>(-2.49)   | -0.031<br>(-0.96)     | -0.022<br>(-0.92)     | -0.370***<br>(-8.55)  | 0.065***<br>(2.75)    | -0.023<br>(-0.83)     | 0.097***<br>(6.36)    | -0.043*<br>(-1.69)    | -0.121***<br>(-6.74)  | 0.016<br>(0.90)       | 0.112***<br>(5.66)    |
| <i>SIZE</i>             | 0.013***<br>(5.68)    | 0.030***<br>(20.26)   | 0.013***<br>(5.70)    | 0.029***<br>(19.98)   | 0.015***<br>(6.84)    | 0.029***<br>(19.58)   | 0.013***<br>(5.91)    | 0.030***<br>(20.11)   | 0.014***<br>(6.07)    | 0.031***<br>(20.59)   | 0.013***<br>(5.88)    | 0.030***<br>(20.45)   |
| <i>ROA</i>              | -0.858***<br>(-26.15) | -0.677***<br>(-43.80) | -0.851***<br>(-25.87) | -0.675***<br>(-43.73) | -0.865***<br>(-26.51) | -0.674***<br>(-43.62) | -0.851***<br>(-25.92) | -0.670***<br>(-43.48) | -0.850***<br>(-25.89) | -0.674***<br>(-43.63) | -0.850***<br>(-25.87) | -0.677***<br>(-43.81) |
| <i>LEVERAGE</i>         | 0.007<br>(0.47)       | 0.010<br>(0.96)       | 0.011<br>(0.70)       | 0.008<br>(0.71)       | 0.006<br>(0.36)       | 0.009<br>(0.81)       | 0.011<br>(0.74)       | 0.012<br>(1.14)       | 0.011<br>(0.72)       | 0.012<br>(1.09)       | 0.011<br>(0.72)       | 0.009<br>(0.86)       |
| <i>GROWTH</i>           | 0.003<br>(0.27)       | 0.023***<br>(3.87)    | 0.003<br>(0.24)       | 0.023***<br>(3.80)    | 0.001<br>(0.07)       | 0.023***<br>(3.76)    | 0.002<br>(0.20)       | 0.023***<br>(3.80)    | 0.003<br>(0.22)       | 0.023***<br>(3.71)    | 0.003<br>(0.22)       | 0.023***<br>(3.76)    |
| <i>LOSS</i>             | 0.069***<br>(7.15)    | 0.135***<br>(20.06)   | 0.070***<br>(7.24)    | 0.135***<br>(20.04)   | 0.065***<br>(6.74)    | 0.135***<br>(19.99)   | 0.070***<br>(7.19)    | 0.135***<br>(19.98)   | 0.070***<br>(7.24)    | 0.132***<br>(19.59)   | 0.070***<br>(7.25)    | 0.134***<br>(19.89)   |
| <i>BIG FOUR</i>         | -0.054***<br>(-7.04)  | -0.079***<br>(-12.02) | -0.052***<br>(-6.78)  | -0.074***<br>(-11.23) | -0.049***<br>(-6.54)  | -0.076***<br>(-11.74) | -0.051***<br>(-6.72)  | -0.071***<br>(-10.83) | -0.053***<br>(-6.88)  | -0.084***<br>(-12.82) | -0.052***<br>(-6.76)  | -0.081***<br>(-12.47) |
| <i>GDP</i>              | -0.066***<br>(-3.19)  | -0.154***<br>(-11.63) | -0.106***<br>(-5.68)  | -0.146***<br>(-10.06) | -0.111***<br>(-6.07)  | -0.141***<br>(-10.34) | -0.107***<br>(-5.82)  | -0.132***<br>(-9.71)  | -0.110***<br>(-5.97)  | -0.155***<br>(-11.77) | -0.109***<br>(-5.97)  | -0.151***<br>(-11.43) |
| <i>RULE OF LAW</i>      | 0.049***<br>(4.41)    | 0.060***<br>(7.25)    | 0.071***<br>(6.94)    | 0.069***<br>(9.47)    | 0.044***<br>(4.22)    | 0.077***<br>(9.97)    | 0.069***<br>(6.74)    | 0.078***<br>(10.47)   | 0.068***<br>(6.60)    | 0.070***<br>(9.65)    | 0.070***<br>(6.82)    | 0.052***<br>(6.39)    |
| <i>CRISIS</i>           | -0.019<br>(-0.61)     | -0.018<br>(-1.42)     | -0.020<br>(-0.63)     | -0.021<br>(-1.64)     | -0.019<br>(-0.61)     | -0.022*<br>(-1.69)    | -0.024<br>(-0.75)     | -0.022*<br>(-1.71)    | -0.025<br>(-0.79)     | -0.018<br>(-1.43)     | -0.024<br>(-0.75)     | -0.017<br>(-1.31)     |
| Diff. Culture (A) - (B) | -0.244***<br>[9.70]   |                       | -                     |                       | -0.435***<br>[69.56]  |                       | -                     |                       | 0.078**<br>[5.72]     |                       | -                     |                       |
| Test F                  | 56.36***              | 154.30***             | 55.54***              | 154.40***             | 58.48***              | 154.60***             | 55.75***              | 153.70***             | 55.62***              | 155.30***             | 55.54***              | 155.10***             |
| R <sup>2</sup>          | 0.2739                | 0.2212                | 0.2710                | 0.2213                | 0.2813                | 0.2216                | 0.2718                | 0.2204                | 0.2713                | 0.2223                | 0.2710                | 0.2221                |

Dependent variable is *REM*, the real earnings management proxy calculated based on Roychowdhury (2006). *SIZE* is the natural logarithm of total assets. *ROA* is the net income divided by total assets. *LEVERAGE* is the total liabilities divided by total assets. *GROWTH* is the percentage growth of net sales from the year. *LOSS* is dummy variable that assumes 1 for company-year observations with negative net income and zero otherwise. *BIG4* is a dummy variable that assumes 1 for company-year observations audited by PwC, KPMG, E&Y, or Deloitte, and zero otherwise. *GDP* is natural logarithm of GDP per capita of each country-year. *RULE OF LAW* is the index of law enforcement for each country-year. *CRISIS* is a dummy variable that assumes 1 for 2007, 2008 and 2009, and zero otherwise. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluding those with studentized residuals greater than 3, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning REM are included in all estimations (Chen *et al.*, 2018).  $\chi^2$  Hausman test on the difference of national culture variables coefficient (*CULTURE*) between emerging and developed countries in brackets (see, e.g., Weesie, 2000).

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

**Table X. Robustness test: Effect of national culture on accruals-based earnings management**

**Accruals-Based Earnings Management – Larcker and Richardson (2004)**

|                   | Uncertainty Avoidance |                    | Individualism        |                      | Power Distance       |                    | Masculinity          |                     | Long-Term Orientation |                     | Indulgence         |                       |
|-------------------|-----------------------|--------------------|----------------------|----------------------|----------------------|--------------------|----------------------|---------------------|-----------------------|---------------------|--------------------|-----------------------|
|                   | (A)<br>Emerging       | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed     | (A)<br>Emerging      | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed    | (A)<br>Emerging       | (B)<br>Developed    | (A)<br>Emerging    | (B)<br>Developed      |
| Constant          | 0.381***<br>(6.84)    | 0.300***<br>(9.83) | 0.285***<br>(5.71)   | 0.127***<br>(3.48)   | 0.325***<br>(6.63)   | 0.268***<br>(8.60) | 0.304***<br>(6.21)   | 0.312***<br>(10.39) | 0.318***<br>(6.32)    | 0.322***<br>(10.58) | 0.314***<br>(6.38) | 0.337***<br>(11.21)   |
| <i>CULTURE</i>    | -0.056***<br>(-2.68)  | 0.002<br>(0.81)    | -0.024***<br>(-2.61) | -0.040***<br>(-8.43) | -0.055***<br>(-4.19) | 0.017***<br>(4.35) | -0.036***<br>(-4.28) | 0.012***<br>(4.27)  | 0.006<br>(0.73)       | 0.011***<br>(3.11)  | 0.005<br>(0.90)    | -0.044***<br>(-10.84) |
| Control Variables | YES                   | YES                | YES                  | YES                  | YES                  | YES                | YES                  | YES                 | YES                   | YES                 | YES                | YES                   |
| Test F            | 30.99***              | 163.50***          | 30.98***             | 166.10***            | 31.37***             | 164.20***          | 31.40***             | 164.20***           | 30.75***              | 163.90***           | 30.76***           | 167.90***             |
| R <sup>2</sup>    | 0.1394                | 0.1603             | 0.1394               | 0.1624               | 0.1409               | 0.1608             | 0.1410               | 0.1608              | 0.1385                | 0.1606              | 0.1385             | 0.1638                |

**Accruals-Based Earnings Management – Dechow *et al.* (2012)**

|                   | Uncertainty Avoidance |                    | Individualism      |                      | Power Distance       |                    | Masculinity          |                     | Long-Term Orientation |                     | Indulgence         |                       |
|-------------------|-----------------------|--------------------|--------------------|----------------------|----------------------|--------------------|----------------------|---------------------|-----------------------|---------------------|--------------------|-----------------------|
|                   | (A)<br>Emerging       | (B)<br>Developed   | (A)<br>Emerging    | (B)<br>Developed     | (A)<br>Emerging      | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed    | (A)<br>Emerging       | (B)<br>Developed    | (A)<br>Emerging    | (B)<br>Developed      |
| Constant          | 0.266***<br>(4.47)    | 0.299***<br>(9.79) | 0.196***<br>(3.65) | 0.139***<br>(3.80)   | 0.236***<br>(4.49)   | 0.268***<br>(8.58) | 0.194***<br>(3.70)   | 0.313***<br>(10.39) | 0.207***<br>(3.90)    | 0.326***<br>(10.61) | 0.208***<br>(3.96) | 0.341***<br>(11.29)   |
| <i>CULTURE</i>    | -0.045**<br>(-2.08)   | 0.003<br>(1.14)    | -0.008<br>(-0.83)  | -0.037***<br>(-7.99) | -0.062***<br>(-4.56) | 0.018***<br>(4.51) | -0.024***<br>(-2.68) | 0.013***<br>(4.69)  | 0.000<br>(0.01)       | 0.011***<br>(3.29)  | 0.002<br>(0.31)    | -0.043***<br>(-10.61) |
| Control Variables | YES                   | YES                | YES                | YES                  | YES                  | YES                | YES                  | YES                 | YES                   | YES                 | YES                | YES                   |
| Test F            | 31.19***              | 144.90***          | 31.05***           | 147.30***            | 31.82***             | 145.60***          | 31.30***             | 145.70***           | 31.02***              | 145.30***           | 31.03***           | 149.20***             |
| R <sup>2</sup>    | 0.1601                | 0.1570             | 0.1595             | 0.1591               | 0.1629               | 0.1576             | 0.1606               | 0.1577              | 0.1594                | 0.1573              | 0.1594             | 0.1608                |

Dependent variables are alternative variables for accruals-based earnings management based on Larcker and Richardson (2004) and Dechow *et al.* (2012) for Panel A and B, respectively. Control variables are inserted in all estimations. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluding those with studentized residuals greater than 3, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning AEM are included in all estimations (Chen *et al.*, 2018).

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

**Table XI. Robustness test: Effect of national culture on real earnings management**

**Real Earnings Management – Sum of Abnormal Levels of Productions Costs and Discretionary Expenses**

|                   | Uncertainty Avoidance |                      | Individualism     |                    | Power Distance       |                    | Masculinity        |                    | Long-Term Orientation |                      | Indulgence         |                    |
|-------------------|-----------------------|----------------------|-------------------|--------------------|----------------------|--------------------|--------------------|--------------------|-----------------------|----------------------|--------------------|--------------------|
|                   | (A)<br>Emerging       | (B)<br>Developed     | (A)<br>Emerging   | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed   | (A)<br>Emerging    | (B)<br>Developed   | (A)<br>Emerging       | (B)<br>Developed     | (A)<br>Emerging    | (B)<br>Developed   |
| Constant          | 0.955***<br>(4.89)    | 1.689***<br>(10.44)  | 0.421**<br>(2.39) | 1.587***<br>(8.32) | 0.700***<br>(4.13)   | 1.451***<br>(8.57) | 0.463***<br>(2.72) | 1.576***<br>(9.84) | 0.444***<br>(2.60)    | 1.422***<br>(8.77)   | 0.504***<br>(2.97) | 1.461***<br>(9.04) |
| <i>CULTURE</i>    | -0.320***<br>(-4.75)  | -0.052***<br>(-3.39) | -0.042<br>(-1.36) | -0.004<br>(-0.16)  | -0.385***<br>(-9.25) | 0.066***<br>(2.86) | -0.029<br>(-1.08)  | 0.106***<br>(7.11) | -0.052**<br>(-2.14)   | -0.140***<br>(-7.95) | 0.022<br>(1.29)    | 0.124***<br>(6.37) |
| Control Variables | YES                   | YES                  | YES               | YES                | YES                  | YES                | YES                | YES                | YES                   | YES                  | YES                | YES                |
| Test F            | 12.89***              | 32.79***             | 12.35***          | 32.23***           | 14.81***             | 32.51***           | 12.38***           | 33.52***           | 12.44***              | 34.27***             | 12.34***           | 33.75***           |
| R <sup>2</sup>    | 0.0794                | 0.0569               | 0.0763            | 0.0560             | 0.0902               | 0.0565             | 0.0765             | 0.0581             | 0.0768                | 0.0593               | 0.0763             | 0.0585             |

**Real Earnings Management – Sum of Abnormal Levels of Cash Flows from Operations and Discretionary Expenses**

|                   | Uncertainty Avoidance |                    | Individualism     |                    | Power Distance       |                    | Masculinity          |                    | Long-Term Orientation |                      | Indulgence           |                    |
|-------------------|-----------------------|--------------------|-------------------|--------------------|----------------------|--------------------|----------------------|--------------------|-----------------------|----------------------|----------------------|--------------------|
|                   | (A)<br>Emerging       | (B)<br>Developed   | (A)<br>Emerging   | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed   | (A)<br>Emerging      | (B)<br>Developed   | (A)<br>Emerging       | (B)<br>Developed     | (A)<br>Emerging      | (B)<br>Developed   |
| Constant          | 0.231**<br>(2.38)     | 0.819***<br>(9.94) | 0.212**<br>(2.43) | 0.856***<br>(8.82) | 0.264***<br>(3.13)   | 0.727***<br>(8.44) | 0.189**<br>(2.25)    | 0.798***<br>(9.78) | 0.243***<br>(2.87)    | 0.709***<br>(8.60)   | 0.201**<br>(2.39)    | 0.724***<br>(8.80) |
| <i>CULTURE</i>    | -0.007<br>(-0.20)     | -0.009<br>(-1.12)  | -0.004<br>(-0.26) | 0.011<br>(0.95)    | -0.077***<br>(-3.73) | 0.034***<br>(2.85) | -0.039***<br>(-2.85) | 0.037***<br>(4.82) | 0.028**<br>(2.34)     | -0.073***<br>(-8.11) | -0.023***<br>(-2.80) | 0.068***<br>(6.84) |
| Control Variables | YES                   | YES                | YES               | YES                | YES                  | YES                | YES                  | YES                | YES                   | YES                  | YES                  | YES                |
| Test F            | 113.40***             | 300.90***          | 113.00***         | 301.50***          | 113.70***            | 301.70***          | 113.90***            | 298.10***          | 113.30***             | 302.90***            | 113.40***            | 302.70***          |
| R <sup>2</sup>    | 0.4315                | 0.3564             | 0.4306            | 0.3570             | 0.4321               | 0.3571             | 0.4325               | 0.3542             | 0.4312                | 0.3580               | 0.4315               | 0.3578             |

Dependent variable are alternative variables for real earnings management based on Roychowdhury (2006). Control variables are inserted in all estimations. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluded those with studentized residuals greater than three, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning REM are included in all estimations (Chen *et al.*, 2018).

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

**Table XII. Effect of national culture on earnings management: The role of enforcement**

**Accruals-Based Earnings Management**

|                              | Uncertainty Avoidance |                     | Individualism        |                      | Power Distance       |                    | Masculinity         |                    | Long-Term Orientation |                     | Indulgence          |                      |
|------------------------------|-----------------------|---------------------|----------------------|----------------------|----------------------|--------------------|---------------------|--------------------|-----------------------|---------------------|---------------------|----------------------|
|                              | (A)                   | (B)                 | (A)                  | (B)                  | (A)                  | (B)                | (A)                 | (B)                | (A)                   | (B)                 | (A)                 | (B)                  |
|                              | Emerging              | Developed           | Emerging             | Developed            | Emerging             | Developed          | Emerging            | Developed          | Emerging              | Developed           | Emerging            | Developed            |
| Constant                     | 0.214***<br>(4.96)    | 0.228***<br>(10.33) | 0.274***<br>(7.02)   | 0.092***<br>(3.38)   | 0.214***<br>(5.86)   | 0.223***<br>(9.81) | 0.216***<br>(6.03)  | 0.223***<br>(9.96) | 0.274***<br>(6.95)    | 0.247***<br>(10.89) | 0.212***<br>(5.88)  | 0.243***<br>(11.31)  |
| <i>CULTURE</i>               | 0.023<br>(1.07)       | -0.005*<br>(-1.91)  | 0.068***<br>(3.54)   | -0.029***<br>(-7.17) | -0.029***<br>(-2.89) | -0.002<br>(-0.65)  | -0.026**<br>(-2.51) | 0.011***<br>(2.58) | 0.019***<br>(3.01)    | 0.016***<br>(4.08)  | -0.011**<br>(-2.32) | -0.027***<br>(-6.33) |
| <i>CULTURE x Enforcement</i> | -0.086***<br>(-2.69)  | 0.014***<br>(3.08)  | -0.088***<br>(-4.35) | 0.014**<br>(2.38)    | -0.170**<br>(-2.52)  | 0.040***<br>(5.24) | 0.002<br>(0.18)     | -0.002<br>(-0.42)  | 0.148**<br>(2.50)     | -0.013**<br>(-2.56) | 0.029***<br>(3.42)  | -0.003<br>(-0.58)    |
| Control Variables            | YES                   | YES                 | YES                  | YES                  | YES                  | YES                | YES                 | YES                | YES                   | YES                 | YES                 | YES                  |
| Test F                       | 39.58                 | 230.4               | 40.07                | 231.1                | 39.38                | 231.4              | 39.77               | 230.9              | 39.77                 | 229.5               | 39.81               | 232.6                |
| R <sup>2</sup>               | 0.1765                | 0.2213              | 0.1784               | 0.2218               | 0.1758               | 0.2220             | 0.1773              | 0.2217             | 0.1772                | 0.2206              | 0.1774              | 0.2229               |

**Real Earnings Management**

|                              | Uncertainty Avoidance |                      | Individualism        |                      | Power Distance       |                     | Masculinity        |                    | Long-Term Orientation |                      | Indulgence         |                      |
|------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|--------------------|--------------------|-----------------------|----------------------|--------------------|----------------------|
|                              | (A)                   | (B)                  | (A)                  | (B)                  | (A)                  | (B)                 | (A)                | (B)                | (A)                   | (B)                  | (A)                | (B)                  |
|                              | Emerging              | Developed            | Emerging             | Developed            | Emerging             | Developed           | Emerging           | Developed          | Emerging              | Developed            | Emerging           | Developed            |
| Constant                     | 1.137***<br>(5.30)    | 1.710***<br>(10.22)  | 0.231<br>(1.14)      | 1.245***<br>(6.22)   | 0.707***<br>(3.94)   | 1.764***<br>(9.82)  | 0.498***<br>(2.81) | 1.511***<br>(9.00) | 0.908***<br>(4.90)    | 1.272***<br>(7.55)   | 0.554***<br>(3.11) | 1.366***<br>(8.27)   |
| <i>CULTURE</i>               | -0.453***<br>(-4.98)  | -0.074***<br>(-3.71) | -0.242***<br>(-2.83) | -0.084***<br>(-2.97) | -0.395***<br>(-8.90) | -0.078**<br>(-2.44) | -0.076*<br>(-1.65) | 0.087**<br>(2.49)  | 0.018<br>(0.68)       | -0.194***<br>(-7.23) | 0.034<br>(1.63)    | 0.196***<br>(7.00)   |
| <i>CULTURE x Enforcement</i> | 0.319**<br>(2.29)     | 0.107***<br>(3.34)   | 0.226**<br>(2.52)    | 0.135***<br>(3.48)   | -0.241<br>(-0.81)    | 0.459***<br>(8.56)  | 0.081<br>(1.32)    | 0.014<br>(0.38)    | 1.766***<br>(7.74)    | 0.133***<br>(3.88)   | -0.045<br>(-1.18)  | -0.182***<br>(-4.59) |
| Control Variables            | YES                   | YES                  | YES                  | YES                  | YES                  | YES                 | YES                | YES                | YES                   | YES                  | YES                | YES                  |
| Test F                       | 53.50                 | 146                  | 52.66                | 146.2                | 55.39                | 148.8               | 52.66              | 145.1              | 54.83                 | 146.9                | 52.45              | 147.1                |
| R <sup>2</sup>               | 0.2753                | 0.2218               | 0.2721               | 0.2221               | 0.2823               | 0.2252              | 0.2722             | 0.2207             | 0.2802                | 0.2229               | 0.2714             | 0.2231               |

In Panel A, the dependent variable is *AEM*, the absolute discretionary accruals calculated based on Kothari *et al.* (2005). In Panel B, the dependent variable is *REM*, the real earnings management proxy calculated based on Roychowdhury (2006). *Enforcement* is a dummy which assumes 1 for observations that the *RULE OF LAW* value is greater than its median, and zero otherwise. Control variables are inserted in all estimations. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluding those with studentized residuals greater than 3, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning *AEM* and *REM* are included in all estimations, according to Chen *et al.* (2018).

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

**Table XIII. Effect of national culture on earnings management: The role of corruption**

**Accruals-Based Earnings Management**

|                             | Uncertainty Avoidance |                      | Individualism       |                      | Power Distance     |                      | Masculinity         |                      | Long-Term Orientation |                     | Indulgence           |                      |
|-----------------------------|-----------------------|----------------------|---------------------|----------------------|--------------------|----------------------|---------------------|----------------------|-----------------------|---------------------|----------------------|----------------------|
|                             | (A)                   | (B)                  | (A)                 | (B)                  | (A)                | (B)                  | (A)                 | (B)                  | (A)                   | (B)                 | (A)                  | (B)                  |
|                             | Emerging              | Developed            | Emerging            | Developed            | Emerging           | Developed            | Emerging            | Developed            | Emerging              | Developed           | Emerging             | Developed            |
| Constant                    | 0.261***<br>(5.93)    | 0.225***<br>(10.51)  | 0.247***<br>(6.21)  | 0.093***<br>(3.41)   | 0.228***<br>(4.56) | 0.171***<br>(8.10)   | 0.185***<br>(5.15)  | 0.191***<br>(9.21)   | 0.202***<br>(5.45)    | 0.229***<br>(10.64) | 0.162***<br>(4.39)   | 0.221***<br>(10.66)  |
| <i>CULTURE</i>              | -0.071***<br>(-2.95)  | 0.014***<br>(4.01)   | -0.016**<br>(-2.01) | -0.026***<br>(-5.44) | -0.071<br>(-1.12)  | 0.038***<br>(5.54)   | -0.016**<br>(-1.96) | 0.014***<br>(5.79)   | 0.115***<br>(3.22)    | 0.010***<br>(3.49)  | 0.015**<br>(2.07)    | -0.033***<br>(-9.12) |
| <i>CULTURE x Corruption</i> | 0.111***<br>(3.97)    | -0.018***<br>(-4.31) | 0.073***<br>(3.65)  | 0.000<br>(0.02)      | 0.053<br>(0.85)    | -0.029***<br>(-3.84) | -0.012<br>(-0.86)   | -0.018***<br>(-3.84) | -0.099***<br>(-2.84)  | 0.001<br>(0.11)     | -0.028***<br>(-3.25) | 0.020***<br>(3.89)   |
| Control Variables           | YES                   | YES                  | YES                 | YES                  | YES                | YES                  | YES                 | YES                  | YES                   | YES                 | YES                  | YES                  |
| Test F                      | 40.78                 | 236.80               | 40.77               | 237.40               | 39.98              | 237.50               | 40.62               | 237.40               | 40.84                 | 235.60              | 40.73                | 238.80               |
| R <sup>2</sup>              | 0.1765                | 0.2209               | 0.1765              | 0.2213               | 0.1736             | 0.2214               | 0.1760              | 0.2213               | 0.1767                | 0.2200              | 0.1763               | 0.2223               |

**Real Earnings Management**

|                             | Uncertainty Avoidance |                      | Individualism     |                      | Power Distance       |                      | Masculinity        |                      | Long-Term Orientation |                      | Indulgence         |                    |
|-----------------------------|-----------------------|----------------------|-------------------|----------------------|----------------------|----------------------|--------------------|----------------------|-----------------------|----------------------|--------------------|--------------------|
|                             | (A)                   | (B)                  | (A)               | (B)                  | (A)                  | (B)                  | (A)                | (B)                  | (A)                   | (B)                  | (A)                | (B)                |
|                             | Emerging              | Developed            | Emerging          | Developed            | Emerging             | Developed            | Emerging           | Developed            | Emerging              | Developed            | Emerging           | Developed          |
| Constant                    | 0.948***<br>(4.42)    | 1.488***<br>(8.98)   | 0.456**<br>(2.08) | 0.401**<br>(2.04)    | 1.116***<br>(4.82)   | 0.857***<br>(5.23)   | 0.617***<br>(3.40) | 0.852***<br>(5.57)   | 0.579***<br>(3.22)    | 0.777***<br>(4.97)   | 0.719***<br>(3.95) | 1.125***<br>(7.30) |
| <i>CULTURE</i>              | -0.128<br>(-1.24)     | -0.007<br>(-0.27)    | -0.050<br>(-1.40) | 0.184***<br>(5.25)   | -0.882***<br>(-3.13) | 0.278***<br>(5.74)   | -0.044<br>(-1.16)  | 0.116***<br>(6.72)   | 0.298*<br>(1.84)      | -0.107***<br>(-5.07) | 0.029<br>(0.89)    | 0.140***<br>(5.47) |
| <i>CULTURE x Corruption</i> | -0.400***<br>(-3.36)  | -0.112***<br>(-3.57) | -0.095<br>(-1.08) | -0.310***<br>(-7.96) | 0.468*<br>(1.68)     | -0.316***<br>(-5.85) | -0.022<br>(-0.36)  | -0.126***<br>(-3.60) | -0.363**<br>(-2.30)   | -0.063*<br>(-1.78)   | 0.015<br>(0.40)    | 0.040<br>(1.12)    |
| Control Variables           | YES                   | YES                  | YES               | YES                  | YES                  | YES                  | YES                | YES                  | YES                   | YES                  | YES                | YES                |
| Test F                      | 54.92                 | 148.80               | 52.81             | 149.70               | 56.73                | 148.60               | 53.01              | 146.80               | 53.16                 | 148.30               | 52.84              | 149.7              |
| R <sup>2</sup>              | 0.2747                | 0.2201               | 0.2670            | 0.2212               | 0.2812               | 0.2199               | 0.2678             | 0.2177               | 0.2683                | 0.2195               | 0.2671             | 0.2211             |

In Panel A, the dependent variable is *AEM*, the absolute discretionary accruals calculated based on Kothari *et al.* (2005). In Panel B, the dependent variable is *REM*, the real earnings management proxy calculated based on Roychowdhury (2006). *Corruption* is a dummy which assumes 1 for observations that the Transparency International's Corruption Perception Index is lower than its median, and zero otherwise. Control variables are inserted in all estimations. Overall statistics based on 6,313 (27,605) firm-year observations for emerging (developed) countries, excluding those with studentized residuals greater than 3, by default. Continuous firm-level variables were winsorized at 1% and 99% tail in order to avoid outliers (Cox, 2006). All models are estimated by using OLS approach, controlling for industry-, year-fixed effects. The regressors of the first-step regressions concerning *AEM* and *REM* are included in all estimations, according to Chen *et al.*, (2018).

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