

Regulatory accounting environment, cultural values and board efficacy in developing countries

Accounting regulation in developing countries

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Abstract

Purpose – This cross-country study aims to investigate from an interdisciplinary perspective the impacts of the accounting regulation's strength and cultural values of long-term orientation (LTO) and indulgence (ND) on board efficacy in developing countries.

Design/methodology/approach – Board Efficacy Index scores for 54 developing countries over the period 2007–2016 were employed to ascertain predictors of management's accountability to boards of directors and investors. Two types of explanatory variables – formal and informal – were employed in a pooled Ordinary Least Squares (OLS) analysis.

Findings – The research is the first to empirically show that more LTO and ND in a country have significant and positive effects on board efficacy. The findings also show that the strength of auditing and reporting standards (SARS) has a dominant impact on board efficacy, and the SARS' consideration is recommended in future cross-country research on board efficacy.

Practical implications – To restore investor confidence and increase the credibility toward firms, regulatory authorities in developing countries are called upon to integrate compliance with accounting and auditing regulations combined with cultural values in the implementation of good governance practices.

Originality/value – This study contributes to the board efficacy literature in two significant ways. First, the study constructs and empirically tests a conceptual model that integrates both informal factors, the six cultural dimensions of Hofstede *et al.* (2010), and formal factors, the strength of accounting regulations. Second, conducting a study on a sample not widely used in the literature, over a fairly long

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period of time, highlights the governance characteristics of this context and strengthens the internal and external validity of the study.

Keywords Corporate governance, Board efficacy, Long-term orientation, Indulgence, Auditing and reporting standards, National culture, Hofstede

Paper type Research paper

1. Introduction

The acuteness of the issue of corporate governance continues to be on the global scene following corporate scandals and financial crises that have shaken the confidence of stakeholders in the financial ecosystem, including investors, regulators, analysts, lenders, auditors, rating agencies and other stakeholders (Rafiee and Sarabdeen, 2012; Nurunnabi, 2017; De Villiers and Dimes, 2021; Espig *et al.*, 2021; Lu and Wang, 2021). Faced with this emblematic situation, scholars and international organizations, such as the Organization for Economic Co-operation and Development (OECD), have established fundamental principles of good governance practices formulated in reports and codes (e.g. Cadbury report, 2000; World Bank Annual Report, 2008; OECD report, 2009, 2010).

The application of the good governance principles is disparate at the global level. While it has been beneficial for developed countries, it is not the case for developing countries. The narrowness of financial markets characterized by low transaction volumes, the absence of an enforcement system that monitors the application of these principles, the concentration of family ownership, the weakness of minority shareholders' rights and the lack of transparency through a low level of communication constitute the main obstacles to the successful implementation of the corporate governance principles (Millar *et al.*, 2005; Chan and Cheung, 2008; Okpara, 2011; Rafiee and Sarabdeen, 2012). These findings have prompted several researchers to conceptualize and experiment with different governance models that improve the quality of board control (Williamson, 2000; Boolaky and O'Leary, 2011; Boolaky *et al.*, 2013; Boolaky and Cooper, 2015; De Villiers and Dimes, 2021; Soschinski *et al.*, 2021).

Defining governance as an *“exercise of ethical and effective leadership by the governing body towards the achievement of the following governance outcomes: ethical culture, good performance, effective control and legitimacy”* (IODSA, 2016, p. 20), few studies have examined how informal and formal factors explain board control quality. More explicitly, some studies have incorporated cultural values and the accounting regulatory environment, respectively, in explaining board control efficacy (Nobes, 1983; Vanasco *et al.*, 1995; Haniffa and Cooke, 2002; Gorga, 2003; Li and Harrison, 2008a, b; Licht *et al.*, 2005; Checherita and Rother, 2010; Dutta and Mukherjee, 2012; Boolaky and O'Leary, 2011; Boolaky *et al.*, 2013; Boolaky and Cooper, 2015; Soschinski *et al.*, 2021). Efficacy is defined as *“the level of accountability by management to the investors and the board, and the extent to which the boards and investors exert strong supervision of management decisions”* (World Economic Forum, 2009, p. 363, as cited in Boolaky and Cooper, 2015). This study fills this gap by examining from a global perspective the effects of the strength of accounting and auditing standards (SARS) and cultural values on the efficacy of board in developing countries.

Distinguishing from the work of Nurunnabi (2017) who investigated only Hofstede's four cultural dimensions of power distance (PDI), uncertainty avoidance (UAI), individualism (IDV) and masculinity (MAS), this study develops and empirically tests a conceptual framework of counseling efficacy by examining the other two cultural values of Hofstede *et al.* (2010) namely LTO and indulgence (ND) without omitting two control variables, Ethical corporation (EC) and Religious Diversity (RDI). While the research of Boolaky and O'Leary (2011), Boolaky *et al.* (2013), Boolaky and Cooper (2015) and Avram *et al.* (2015) empirically demonstrates that board characteristics, particularly efficacy, improve the accounting

regulatory environment, the SARS, this study tests via the constructed model the inverse relationship, precisely the effect of this environment on efficacy.

The study is conducted on a sample of 54 developing countries during the period 2007 to 2016. Using multiple and standardized regressions on 509 observations from pooled data, the results show that SARS, LTO and ND positively and significantly affect board efficacy. An accounting environment characterized by strong regulatory reporting and auditing standards reduces earnings management, improves audit work in detecting irregularities and increases the level of transparency via an increased level of communication. As a result, the board of directors becomes more effective (Nurunnabi, 2017; Lu and Wang, 2021). Culturally, an attachment of board members to LTO and ND values increases its efficacy as these members accept changes based on a long-term view and prefer to enjoy a comfortable job (Espig *et al.*, 2021; De Villiers and Dimes, 2021; Lu and Wang, 2021). With the three exceptions of MAS, UAI and RDI, PDI, IDV and ethical behavior (EB) values significantly affect board efficacy.

The results of this study contribute to the literature in several aspects: first, the construction of a model inspired by previous studies that combines both informal factors, the six cultural dimensions of Hofstede *et al.* (2010), and formal factors, the strength of accounting regulations, allows for a better explanation of board efficacy. Second, scholars and regulators could provide guidance and solutions to a better implementation of governance practices. Finally, conducting a study on a sample not widely used in the literature, as developing countries, over a fairly long period of time, ten years, highlights the governance characteristics of this context and strengthens the internal and external validity of the research.

The reminder of the paper is organized as follows: the first two sections will be devoted to the presentation of a model testing first the effect of SARS on board efficacy and second, the impact of the two cultural dimensions, LTO and ND, on efficacy. The third section and the fourth section, respectively, exhibit the methodology followed and the results obtained. We conclude in the last section.

2. Conceptual framework and hypothesis development

Based on a review of previous studies (Gray, 1988; Vanasco *et al.*, 1995; Shleifer and Vishny, 1997; Haniffa and Cooke, 2002; Licht *et al.*, 2005; Li and Harrison, 2008a, b; Checherita and Rother, 2010; Hofstede *et al.*, 2010; Boolaky and O'Leary, 2011, Boolaky *et al.*, 2013, Boolaky and Cooper, 2015, Khlif, 2016; Soschinski *et al.*, 2021), this section is devoted to the presentation of the conceptual framework explaining the effect of SARS and cultural values on board efficacy of firms belonging to developing countries.

2.1 *The auditing and reporting standards' strength and efficacy of the board*

The SARS is defined as “*the perceptions of a country's competitiveness from the perspective of auditing and reporting standards on a global scale. This is brought about through the use of standards, as well as auditing and accounting practices that provide reliable information, increase transparency and ensure access to information in a timely manner*” (World Economic Forum, 2009, p 19, as cited in Boolaky and Cooper, 2015). The SARS refers to the perception of managers of the strength of financial and audit regulations in the country in which they work compared to other countries according to a survey of 137 countries.

The strength of regulation is closely related to the efficacy of the directors' board based on two theoretical foundations, namely agency theory and transaction theory. The agency theory, as developed by Jensen and Meckling (1976), is based on conflicts of interest between shareholders as principals and managers as agents on the one hand and creditors and

managers on the other hand. These conflicts create agency costs that can be reduced through several mechanisms, mainly board independence and increasing the level of voluntary communication (Shleifer and Vishny, 1997; Licht *et al.*, 2005; Rafiee and Sarabdeen, 2012; Khlif, 2016; Nurunnabi, 2017; De Villiers and Dimes, 2021; Liu and Wu, 2020; Lu and Wang, 2021). The latter can be improved through a strong framework in terms of reporting standards, such as International Financial reporting Standards (IFRS), which lays down the principles, rules and procedures for the accounting treatment of the economic facts carried out by the company. In such a framework, the interests of minority shareholders are protected and the manager is more inclined to apply the financial reporting standards and to comply with the provisions of the International Auditing Standards (ISAs), particularly in the presence of a renowned audit firm, the Big Four and the audit committee of directors' board. As a result, its discretionary power in accounting manipulations is reduced and the quality of information is improved (Levitt, 1998; Francis *et al.*, 2003; Cohen *et al.*, 2004; Licht *et al.*, 2005; Boolaky *et al.*, 2013; Nurunnabi, 2017; Liu and Wu, 2020; Soschinski *et al.*, 2021; Boateng *et al.*, 2021). According to transaction theory, corporate governance aims "to clarify the carrying out of the economic transactions by the efficacy of the chosen governance structures that have been adopted to carry out the transactions at hand" (Williamson, 1996). In order to ensure the efficacy and efficiency of the transaction, formal and informal structures must be in place. The application of accounting standards relating to reporting and auditing is part of the formal structures that inhibit inappropriate transactions and, therefore, management opportunistic behavior.

Empirically, little research has examined the relationship between the strength of accounting regulations and board efficacy. Boolaky *et al.* (2013) show that the strength of a country's reporting and auditing standards is positively and significantly associated with the protection of minority shareholders' interests based on regression results from questionnaires sent to Chief Executives Officers (CEOs) in 133 countries during 2009. Further, Boolaky and Cooper (2015) compare the SARS scores of 41 European countries versus 31 Asian countries. They find that the strength of the legal and regulatory system as well as the size of the foreign stock markets of Asian countries affect SARS more than that of European countries. Avram *et al.* (2015) study the effect of governance levels on the strength of reporting and auditing standards using a sample of 139 countries during 2009–2011. They conclude that board efficacy, regulatory quality and rules of law significantly and positively affect SARS scores. Nurunnabi (2017) investigates the relationship between SARS and board efficacy in 69 countries from 2006 to 2014. The results confirm that SARS raises the level of board efficacy. Following the results of these studies, we formulate the hypothesis as follows:

- H1. The strength of reporting and auditing standards impacts positively the efficacy of the board.

2.2 Cultural values and board efficacy

Culture is a key factor in the success of board efficacy. Hofstede (1980, p. 25) defines culture as "the collective programming of the mind which distinguishes the members of one human group from another". National culture can affect governance through psychological factors related to the perception and the shaping of individuals' decision-making behavior, the country's reporting system and the allocation of resources (Zarzeski, 1996; House *et al.*, 2004; Salter and Doupnik, 1992; Stulz and Williamson, 2003). Culture is placed according to the theoretical model of Williamson (2000) in Level 1 which represents informal institutions. It includes norms, values, customs, beliefs and religion. At this level, considered as acquired, the change of institutions is gradual and slow. Level 2 concerns formal institutions such as laws, political, economic, environmental and social regulations. Level 3 includes governance structures such as investor protection, capital and board structure, corporate control and takeover activities.

Licht (2001), Licht *et al.* (2005) and Li and Harrison (2008a, b) argue that cultural differences between countries explain the diversity of their governance mechanisms.

Geert Hofstede's cultural classification (1980, 1994 and 2010) is the most widely used in the literature. Six dimensions measure culture, which are PDI, MAS (MAS), IDV, UAI, LTO and ND. PDI captures the degree of equality and inequality among individuals in a country. A high PDI score indicates the existence of power and wealth unevenly in a country. IDV refers to the degree of achievement of individual or collective goals. A high score of IDV shows that the rights of individuals prevail in the country. MAS takes into consideration the weight of gender (men versus women) in the attribution of social roles. In highly masculine societies, managers give more importance to financial performance which gives them social recognition. UAI reflects the degree to which individuals are tolerant to uncertainty and ambiguity. A high UAI score represents intolerance of high levels of uncertainty as individuals in this country are oriented toward institutional rules and laws. LTO is the temporal dimension of the individual's decision-making. A high score means that people of a country weave a good network of relationships with the financial ecosystem in order to preserve them in the future. ND expresses the degree of optimism and comfort perceived by the people of a country.

It is the latter two dimensions that we study in this paper since they have been ignored by previous research (Booлакy and O'Leary, 2011; Booлакy *et al.*, 2013; Booлакy and Cooper, 2015; Rafiee and Sarabdeen, 2012; Nurunnabi, 2017). In fact, initially, Hofstede's (1984) model contained four cultural dimensions, namely PDI, MAS, IDV and UAI. By expanding the database, the model of Hofstede *et al.* (2010) adds two other dimensions which are LTO and ND. The six dimensions reflect the preferences of one situation over another that differentiate one country from another (Espig *et al.*, 2021).

Rafiee and Sarabdeen (2012) provide a review of studies that examine the effect of cultural differences, according to the Hofstede's (1984) model, on the level of adherence to good governance practices in emerging countries. They argue that the weakness of governance mechanisms in these countries is partly explained by high levels of PDI. In these countries, workers fear conflict with managers and execute their decisions (Hofstede, 1984). According to Rafiee and Sarabdeen (2012), these countries are characterized by a low level of IDV insofar as corporate leaders and shareholders are influenced by traditional authorities, roles and social obligations. This is in contrast to developed countries having a high level of IDV. Decision-makers think individually before any investment act and are less influenced by any group decision. The demand for information is high as well as the level of transparency. In terms of UAI and MAS, emerging countries are less tolerant to uncertainty. Managers, shareholders and investors are conservative and less accepting the risky projects. MAS is prevalent in these countries. Most managers and directors are men. Khlif (2016) concurs with these findings by outlining the results of 35 studies during the period 1995–2015.

Nurunnabi (2017) shows that cultural diversity affects board efficacy. He finds that while corporate ethics (CE) act positively and significantly on governance, RDI as well as UAI reduce board efficacy.

De Villiers and Dimes (2021) explain that governance is related to culture. Thus, when employees view the leader's behavior as trustworthy and ethical, they are better aligned with decisions and improve company performance. Moreover, corporate scandals are caused by unethical executive behavior.

Liu and Wu (2020) link cultural diversities to the legal system and fraud. They show that in countries with high levels of PDI and MAS, managers follow accounting rules and are less involved in earnings management. Auditors tend to follow accounting and auditing regulations and are less subject to their clients' preferences. When the level of IDV is low, managers look out for the stakeholders' interests and stand together in case of fraud. As a result, the level of transparency is reduced. A high level of LTO accentuates management's

commitment to the best allocation of resources and to setting strategic objectives as a priority. In this situation, earnings management is less practiced, since improving forecasted results is more important than focusing on current results. Indulgent societies spend more time on social welfare, while restricted communities believe more in regulation through the enforcement of strict standards. Leaders in indulgent countries ensure a comfortable work environment to improve performance.

In a specific context related to the countries' innovation, [Espig et al. \(2021\)](#) show in a sample of 71 countries during 2015–2018 that high levels of IDV, LTO and ND propel innovation. Low levels of PDI and UAI reduce innovation. Female gender dominance is positively and significantly related to innovation.

Recently, in a particular study, [Baatwah et al. \(2021\)](#) have examined the effect of tribal culture, which was measured by tribal directors on financial reporting quality on a sample of 119 firms listed on the Oman capital market during 2007–2014. They find that tribal culture negatively impacts financial reporting quality, which is approximated by earnings management. This tribal culture negatively moderates both the effectiveness of internal governance mechanisms and audit quality. Based on the results of the previous studies, we formulate the hypotheses as follows:

H2. The higher the LTO, the higher is the efficacy of the board.

H3. The higher the ND level, the higher is the efficacy of the board.

3. Methods and data

3.1 Sample

The empirical analysis in this interdisciplinary research builds from the premise that the efficacy of corporate boards is affected both by formal factors, including possibly the SARS, and by informal factors, such as LTO. It was decided to test the research hypotheses on developing countries, as this type of countries has drawn little attention in the good governance literature as regards to board efficacy. This subset encompasses a mixture of developing nations distinguished by accounting and auditing regulations, cultural dimensions, religion and geography. The Hofstede Insights website covered 118 countries worldwide. In total, 80 of those countries are developing ones. The sample was restricted to 54 developing countries over the period 2007–2016 (see [Appendix](#)) due to the lack of complete data.

3.2 Dependent variable

In this interdisciplinary research, the explained variable is represented by the Efficacy of Corporate Boards (ECB). This is a continuous variable that varies between 1 (extremely weak) and 7 (extremely strong) capturing perceptions about the extent to which managers are accountable to boards of directors and investors. Country-year scores for board efficacy are gathered from the [World Economic Forum \(2016\)](#).

3.3 Independent variables

The key test variables are the SARS, LTO and ND. We follow previous research (e.g. [Nurunnabi, 2017](#)) by using CEOs' perceptions about the SARS as a measure of a country's regulatory accounting environment. The Executive Opinion Survey of the [World Economic Forum \(2016\)](#) asked firm respondents, "In your country, how strong are financial auditing and reporting standards? [1 = extremely low; 7 = extremely high]." As mentioned earlier, two cultural dimensions were then employed to check if they were strong predictors of the corporate boards' efficacy. These cultural dimensions were not considered in the study of

Nurunnabi (2017). Each nation is assigned a score between 0 and 100 for each cultural value. Data on these cultural values are collected from Hofstede Insights: <https://www.hofstede-insights.com/country-comparison/>.

3.4 Control variables

Given the findings of the study by Nurunnabi (2017), we consider the following set of control variables:

- (1) The remaining four Hofstede's cultural dimensions: PDI, IDV, UAI and MAS.
- (2) CE: This country-year index, gathered from the World Economic Forum (2016), captures perceptions about the CE of companies (ethical conduct in interactions with other companies, public officials and politicians). It ranges from 1 (extremely poor) to 7 (excellent among the best in the world).
- (3) RDI: This variable, obtained from the Pew Research Center (2014), is based on the scores in "Global Religious Diversity". It varies between 0 and 10, where a higher score indicates that a country's population is equally distributed among the eight major religious groups:
 - Hinduism;
 - Buddhism;
 - Islam;
 - Folk or traditional religions;
 - Judaism;
 - Christianity;
 - Other religions and
 - The religiously unaffiliated.

3.5 Model specification

To test potential relationships between accounting regulatory environments, LTO, ND and board efficacy across nations, we estimate the following pooled OLS model:

$$ECB_{i,t} = \gamma_0 + \gamma_1 SARS_{i,t} + \gamma_2 LTO_i + \gamma_3 ND_i + \gamma_4 PDI_i + \gamma_5 IDV_i + \gamma_6 MAS_i + \gamma_7 UAI_i + \gamma_8 RDI_i + \gamma_9 CE_{i,t} + \varepsilon_{i,t}$$

Where

$ECB_{i,t}$ = board efficacy score for country i in year t ;

$SARS_{i,t}$ = strength of auditing and reporting standards score for country i in year t ;

LTO_i = long-term orientation score for country i ;

ND_i = indulgence score for country i ;

PDI_i = power distance score for country i ;

IDV_i = individualism score for country i ;

MAS_i = masculinity score for country i ;

UAI_i = uncertainty avoidance score for country i ;
 RDI_i = religious diversity score for country i ;
 $CE_{i,t}$ = ethical behavior of firms score for country i in year t and
 $\varepsilon_{i,t}$ = random error term for country i in year t .

The concept of our research model is drafted in [Figure 1](#).

4. Empirical results and analysis

4.1 Summary statistics

Summary statistics for the variables considered in this research from a cross-section of 54 countries are reported in [Table 1](#). Significant variation exists with regard to board efficacy levels among developing countries. The efficacy of corporate boards in a country ranges from 2.64 to 5.64 with a mean of 4.37 during the ten-year period. The lowest board efficacy score was found in Angola for the year 2014, while the highest score was found in Zambia for the year 2007. The first independent variable has a reasonable range of variation. SARS has a mean of 4.36 and ranges from 2.33 to 5.86. Moreover, [Table 2](#) shows that the culture dimensions lie between 0 and 100, with means of roughly between 27 and 75. The highest RDI score was found in Vietnam (7.7), while the lowest was found in Morocco (0). CE score in our sample averaged 3.74 and this control variable ranged from 2.38 to 5.56.

4.2 Correlation matrix

[Table 2](#) indicates that there are a number of significant correlations between board efficacy and the interest variables. Specifically, there are positive and significant correlations ($p < 0.01$) between ECB and SARS ($r = 0.703$) and ECB and ND ($r = 0.167$). This constitutes an interesting result which suggests that cultural factors are essential and should be examined along with formal institutional factors in “hybrid models” of board efficacy across countries. These significant correlation coefficients provide a preliminary support for [H1](#) and [H3](#) of this

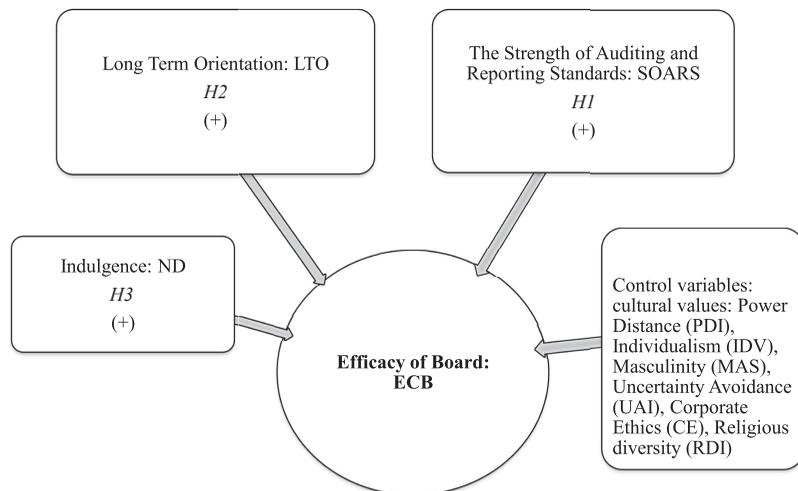


Figure 1.
Research model

Source(s): Research data

Variables	Mean	SD	Min	Max	Median	Skewness	Kurtosis	N
ECB	4.37	0.42	2.64	5.64	4.37	0.14	3.45	509
SARS	4.36	0.57	2.33	5.86	4.31	0.10	2.95	509
LTO	39.65	23.16	4	87	34	0.41	2.03	509
ND	43	24.40	0	100	38	0.62	2.58	509
PDI	75.12	12.76	46	100	75	-0.26	2.50	509
IDV	26.90	12.16	10	80	25	1.71	8.04	509
MAS	48.78	13.14	15	88	46	0.60	3.81	509
UAI	71.38	19.11	30	98	80	-0.60	2.12	509
RDI	2.9	2.18	0	7.7	2.3	0.56	2.07	509
CE	3.74	0.57	2.38	5.56	3.7	0.70	3.75	509

Note(s): ECB = Board efficacy; SARS = strength of auditing and reporting standards; LTO = long-term orientation versus short-term orientation; ND = indulgence versus restraint; PDI = power distance; IDV = individualism versus collectivism; MAS = masculinity versus femininity; UAI = uncertainty avoidance; RDI = religious diversity and CE = corporate ethics

Source(s): Authors' results

Table 1.
Summary statistics

research. The highest correlation coefficient in Table 2 is below 0.8. No problem of multicollinearity is found (Gujarati, 2003).

4.3 Hypothesis testing

Table 3 reports the pooled OLS regression results for the effects of the SARS and cultural values of ND and LTO on board efficacy in developing countries. The expected sign for the abovementioned two cultural dimensions and for the SARS is positive.

Table 3 shows that the model is highly significant at the one percent level (F -statistic = 68.91), while the independent and control variables explain a relatively high percentage of the variations in board efficacy (adjusted R^2 of 0.55).

For H1, stronger accounting and auditing standards positively relate to board efficacy as anticipated ($\gamma_1 = 0.490$, t -statistic = 15.62). This result is in line with earlier research (La Porta *et al.*, 1998; Boolaky and Cooper, 2015; Nurunnabi, 2017). For instance, Nurunnabi (2017) finds that the SARS influence the efficacy of corporate boards in 69 countries.

In addition, Table 3 shows that the coefficient on LTO ($\gamma_2 = 0.002$) is significant at the five percent level, while the coefficient on ND ($\gamma_3 = 0.003$) is significant at the one percent level. These two cultural dimensions are positive predictors of board efficacy, so H2 and H3 are supported. These findings evidence that the board efficacy model constructed by Nurunnabi (2017) could suffer from an omitted variables problem. These are important empirical results, because they demonstrate that when studying board efficacy in developing countries, predictors pertaining to LTO and ND should be considered together with the SARS.

Hypotheses examination is followed by a discussion of control variables. For the cultural control variables, PDI significantly increases the level of board efficacy ($\gamma_4 = 0.003$; t -statistic = 2.58). IDV has a weak and negative effect on board efficacy ($\gamma_5 = -0.002$; t -statistic = 1.73). Results show that MAS, UAI and RDI do not significantly influence board efficacy. Table 3 also reports a significant association between CE and board efficacy across developing countries. The regression coefficient for CE is positive and highly significant ($\gamma_9 = 0.088$). Thus, consistent with the study of Nurunnabi (2017), higher levels of CE are associated with higher levels of board efficacy.

In sum, our regression results are in line with the research hypotheses postulated in this study, providing the first empirical evidence for the impact of the regulatory accounting

Table 2.
Pearson correlations

	ECB	SARS	LTO	ND	PDI	IDV	MAS	UAI	RDI	CE
ECB	1.00									
SARS	0.703 ^{***}	1.00								
LTO	-0.007	-0.090 ^{**}	1.00							
ND	0.167 ^{***}	0.121 ^{***}	-0.607 ^{***}	1.00						
PDI	0.025	-0.169 ^{***}	0.406 ^{***}	-0.161 ^{***}	1.00					
IDV	0.050	0.246 ^{***}	0.075 [*]	-0.187 ^{***}	-0.286 ^{***}	1.00				
MAS	0.093 ^{**}	0.200 ^{***}	-0.018	0.061	-0.065	0.287 ^{***}	1.00			
UAI	-0.123 ^{***}	-0.100 ^{**}	0.220 ^{***}	-0.101 ^{**}	0.026	0.067	-0.148 ^{***}	1.00		
RDI	0.087 ^{**}	-0.057	0.206 ^{***}	0.084 [*]	0.135 ^{***}	-0.082 [*]	0.086 [*]	-0.391 ^{***}	1.00	
CE	0.512 ^{***}	0.597 ^{***}	0.006	-0.022	0.012	0.068	-0.101 ^{**}	-0.069	0.051	1.00

Note(s): *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively. See Table 1 for variable definitions

Source(s): Authors' results

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	ECB
SARS	0.490 (15.62) ^{***}
LTO	0.002 (2.28) ^{**}
ND	0.003 (3.63) ^{***}
PDI	0.003 (2.58) ^{**}
IDV	-0.002 (1.73) [*]
MAS	-0.001 (0.62)
UAI	-0.001 (1.01)
RDI	0.011 (1.47)
CE	0.088 (2.94) ^{***}
_cons	1.601 (9.75) ^{***}
<i>F</i> statistic	68.91
Prob > <i>F</i>	0.000
Adjusted <i>R</i> -squared	0.55
No. of observations	509

Note(s): *, **, and *** indicate significance at the 10, 5, and 1% levels, respectively. See Table 1 for variable definitions

Source(s): Authors' results

Table 3.
OLS regression results

environment and the cultural dimensions of LTO and ND on board efficacy in developing countries from 2007 to 2016.

4.4 Additional analyses

In the next stage, the relative strength of the three independent variables (i.e. SARS, LTO and ND) within the model was estimated using the standardized beta coefficients. The higher the value of the standardized beta coefficient, the greater is the impact of that independent variable on the explained variable (board efficacy). As depicted in Table 4, the standardized betas imply that the SARS has the largest impact upon board efficacy, followed by ND versus restraint, CE and then LTO versus short-term orientation. Based on these findings, it is suggested that policymakers and regulatory authorities should concentrate on the independent variable which has the largest standardized beta coefficient of 0.658, SARS, to affect board efficacy. These findings also show that, in addition to the

	ECB
SARS	0.658 ^{***}
LTO	0.106 ^{**}
ND	0.151 ^{***}
PDI	0.091 ^{**}
IDV	-0.060 [*]
MAS	-0.020
UAI	-0.036
RDI	0.054
CE	0.117 ^{***}
Adjusted <i>R</i> -squared	0.55
No. of observations	509

Note(s): *, **, and *** indicate significance at the 10, 5 and 1% levels respectively. See Table 1 for variable definitions

Source(s): Authors' results

Table 4.
OLS
standardized betas

enforcement of the accounting and auditing regulations, it is important to take into account the cultural dimensions of ND and LTO to explain board efficacy. These findings clearly support the idea that national culture should be embedded in codes of good governance around the world. The current research is one of the first steps toward a deeper understanding of inter-connection between regulatory accounting environment, national culture and board efficacy.

5. Conclusion

Studying the corporate governance of developing countries context is interesting since it is known by its weak practices notably the inefficacy of the board of directors and the lack of enforcement system, transparency and availability of public information (Millar *et al.*, 2005; Okpara, 2011; Rafiee and Sarabdeen, 2012). It is important to take a closer look at the factors that impede the successful implementation of these practices.

In this study, we explore from a global perspective the impacts of the accounting regulation's strength and cultural values on board efficacy in developing countries from 2007 to 2016. Compared to previous research, we are the first to study, through a conceptual model, the relationship between an important formal factor as regulatory accounting environment and board efficacy in a little explored research context (Boolaky and O'Leary, 2011; Boolaky *et al.*, 2013; Avram *et al.*, 2015; Boolaky and Cooper, 2015; Nurunnabi, 2017). We integrate in this model two important Hofstede's cultural values that have been omitted previously, the LTO and the ND values.

Regression results from a cross-sectional sample of 509 years observations using 54 developing countries during 2007–2016 show that strong enforcement of regulatory accounting environment enhances board efficacy as predicted in the *first hypothesis*. This finding shows that the strength of enforcement of accounting and auditing standards improves the efficacy of the board by reducing management's opportunistic behavior, including fraud, increasing the level of mandatory disclosure and reducing the level of auditor engagement risk (Avram *et al.*, 2015; Nurunnabi, 2017). Besides, Hofstede's cultural values affect corporate governance in developing countries. A commitment to LTO and a high degree of ND improves board efficacy. In this sense, the major concern of management is the best allocation of resources and the setting of strategic goals rather than a focus on current results. ND, another little-studied cultural value, improves board efficacy because it provides a peaceful and comfortable working environment. These two results confirm, respectively, our second and *third hypotheses*. The results found are robust since they are maintained after using the standardized beta coefficients. The control variables, namely PDI, IDV and CE influence the board efficacy, consistent with the results of previous studies (Boolaky and O'Leary, 2011; Rafiee and Sarabdeen, 2012; Boolaky *et al.*, 2013; Avram *et al.*, 2015; Boolaky and Cooper, 2015).

Ultimately, through an empirically tested model, this study has the merit of shedding light on the factors that explain the weakness of governance practices, particularly the efficacy of the board in developing countries. To restore investor confidence and increase the credibility toward firms, these countries are called upon to integrate compliance with accounting and auditing regulations combined with cultural values in the implementation of good governance practices. Thus, investors can choose the country that best applies good governance practices and accounting regulations. Cultural diversity should be taken into consideration in implementing practices that improve board effectiveness to reduce conflicting board relationships for each developing country. In the same vein, future research should focus on how to apply strongly accounting and auditing standards and to explore other cultural factors in the conception and the implementation of corporate governance practices that are specific to developing countries.

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Appendix

The 54 countries included in the study

Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Cape Verde, Chile, China, Colombia, Croatia, Dominican Republic, Egypt, El Salvador, Georgia, Ghana, Hungary, India, Indonesia, Iran, Jordan, Kazakhstan, Lebanon, Malaysia, Mexico, Moldova, Montenegro, Morocco, Mozambique, Nigeria, North Macedonia, Pakistan, Paraguay, Peru, the Philippines, Romania, Russian Federation, Saudi Arabia, Serbia, Tanzania, Thailand, Trinidad and Tobago, Turkey, Ukraine, Uruguay, Venezuela, Vietnam and Zambia.

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