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The effect of earnings management on firm performance: The moderating role of corporate governance quality

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ABSTRACT

This paper investigates the relationship between earnings management and financial performance of firms in Anglophone sub-Saharan African Countries in a dynamic framework. The study shows how this relationship is moderated by aggregate disclosure and best-practice corporate governance quality metrics. The findings indicate that earnings management's performance effects persist even after controlling for dynamic endogeneity, simultaneity, and unobserved time-invariant heterogeneity inherent in the earnings management and performance relationship. Again, the results support the prediction of agency theory regarding the efficient monitoring effect of adherence to best-practice internal governance systems in constraining firms' earnings management practices and subsequently enhancing firms' performance. Moreover, the study's findings regarding the positive effect of earnings management on performance, which suggests efficiency motives behind earnings management practices in Africa, demonstrate that the African context is uniquely different from other emerging markets that report opportunistic motives. Concerning the moderating role, our study reveals that the positive effect of earnings management on the financial performance of firms tends to be stronger in the presence of corporate governance quality.

1. Introduction

This paper undertakes a cross-country study on the relationship between earnings management (EM) and firm performance[1] within Anglophone sub-Saharan African Countries (ASSAC) using a dynamic modelling approach. The present study is novel in several ways. It is the first multi cross-country study of the relationship between EM and firm performance using samples from ASSAC and a dynamic modelling approach for firms in ASSAC. Moreover, it is the first African cross-country study to utilise aggregate corporate governance indices instead of separate corporate governance mechanisms used by other studies as moderating variables (Salah & Jarboui, 2021) in the EM–firm performance relationship. This study contributes to the literature in the following ways. First, the impact of EM on the current and future financial performance of firms in sub-Saharan Africa is scarcely studied in the literature. Second, the study finds a moderating role of firm corporate governance quality in the association between EM and firm performance. Third, it applies and extends the agency theory by employing corporate governance as moderating variable. Fourth, the effect of EM on profitability has been a subject of intense debate in the literature, both theoretically and empirically. While some studies found positive effects of EM on firms' profitability (Fang, 2008; Ngunjiri, 2017), others found negative effects of EM on firms' profitability (Alhadab & Al-Own, 2017; Debnath, 2017). However, some other studies found mixed or insignificant results (Lee, Li, & Yue, 2006; Moshi, 2016). These studies' results appear inconclusive. Moreover, the methodologies employed in EM studies, from aggregate accruals, specific accruals, and earnings distributions models to case studies in earnings management as identified in the literature, call for further testing.

Therefore, the significance of this research emanates from its application of a better model specification and estimator to an institutional setting where corporate governance quality (CGQ) and arrangements are considerably different from those of the US from where most of the studies in this area originate. This study also provides the first cross-

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[1] Performance is used synonymously with profitability in this study. Again, by performance, we mean financial performance as measured by return on assets (ROA).

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country exploration within a setting where corporate governance (CG) structures, though similar in orientation,[2] yet have differing legal and regulatory frameworks for their implementation. Furthermore, previous mature-market-based studies have observed other institutional issues that may have confounded the EM–firm performance relationship. The motivation of this research is encapsulated in three essential questions: (i) why should the study employ a dynamic modelling approach? (ii) why should composite CGQ indices be involved? and (iii) why should the study focus on ASSAC? The reasons and justification for these questions are provided in Sections 1.1, 1.2, and 1.3.

1.1. Why use a dynamic modelling approach?

It is well-documented in the EM literature that managers are usually inclined to utilise the discretion allowed by accounting standards to create financial statements that inflate or smooth-out earnings for various reasons. Drawing from both Positive Accounting Theory (Watts & Zimmerman, 1978, 1990) and the agency theory (Jensen & Meckling, 1976), we posit that individuals (or managers) will always act opportunistically to increase their wealth. Thus, in response to this managerial self-interest, which often leads to the agency problem of managerial opportunism, corporate governance systems are instituted to align managerial self-interest with the interests of shareholders. Shareholders rely on two broad strategies, which are external and internal governance mechanisms, to ensure adequate return on their investment (Heugens, Van Essen, & Van Oosterhout, 2009). The external governance mechanisms, such as takeover markets or legal systems, serve to play a disciplinary role in monitoring managerial behaviour to mitigate agency problems and thus help to increase performance (Gillan, 2006). Alternatively, internal corporate governance systems are also at the disposal of shareholders as essential mechanisms to mitigate agency problems raised by the separation of ownership and control (Jensen & Meckling, 1976). This is based on what is referred to as 'interest alignment', which assumes that effective governance systems can discipline and monitor management. Theoretically, good corporate governance can reduce the risk that the board may take with decisions that favour their own interests. For example, it has been noted that audit committee presence (Bedard, Chtourou, & Courteau, 2004), board independence (Dechow & Dichev, 2002), and adequate managerial compensation (Gaver & Gaver, 1998) tend to mitigate opportunistic management behaviour such as EM, which affect firm value. Corporate governance structures aim to reduce or moderate EM practices, boost investor confidence and enhance the performance of firms. Thus, the supervisory role of a sound CG system involves an independent and diversified board, with board sub-committees such as audit, risk, remuneration and nomination committees coupled with institutional ownership and engagement of an auditor with a good reputation. They all serve to provide excellent supervision to management through interest alignment, thus limiting opportunistic EM, consequently contributing to profitability enhancements. This may sum up the mechanism through which CG moderates EM towards performance enhancement in firms. The agency theory predicts that the causal relationship between EM and performance should run from EM to performance. Some studies, however, have challenged this traditional agency theory view by empirically demonstrating reverse causality (Alexander & Hengky, 2017; Debnath, 2017; Sari, Djohanputro, & Kountur, 2021). It has been argued that a firm's managers may attempt to reduce current reported earnings when the previously reported earnings are high. On the other hand, the argument holds that a firm's managers may increase current reported earnings when the previously reported earnings are low (Kallunki & Martikainen, 2003; Tabassum, Kaleem, & Nazir, 2015; Zang, 2012). From the preceding, we submit that firm performance is path-dependent, and as such, the EM – performance relationship can be observed from a dynamic perspective. Some recent studies have endeavoured to model the interrelationships between EM, CG and performance using dynamic panel estimation (Chaity & Islam, 2021; Kumar, Vij, & Goswami, 2021; Ndu, Chuwuogor, Arize, & Malindretos, 2019) or via an endogenous switching model (Tang & Chang, 2013). Moreover, in a system where performance goal is a component, and both EM and performance are simultaneously determined, one would expect that variations in EM should not be systematically related to variations in firm performance. Thus, EM should be unrelated to firm performance when endogeneity stems from simultaneity and unobserved heterogeneity.

Arguably, the dynamic nature of the relationship between EM and firm performance is largely unknown and poorly understood in African markets and elsewhere. Again, in consonance with Tang and Chang (2013), we challenge the causal relationship between earnings management and performance predicted by traditional agency theory and submit that EM and CGQ are dynamically related to firm performance. This dynamic nature implies that the current EM, CG structure and performance of a firm are affected by past performance (Wintoki, Linck, & Netter, 2012). Empirically, the significant coefficient of the lagged dependent variable in the study's models lends some support for this intimated dynamic nature of the EM-cum-CGQ – performance relationship. The causality may also run in the opposite direction, i.e., from past performance to current governance structure and EM. This is recognised as another source of endogeneity identified in the EM or corporate governance–performance relationship, called dynamic endogeneity (Wintoki et al., 2012).

With the presence of potential dynamic endogeneity in view, we question the efficacy of EM in contributing to firm performance within the African context once its dynamic nature is taken into consideration in modelling. Thus, our study is pertinently concerned with examining whether the causal relationship between EM and performance exists as suggested by agency theory in typical African markets after controlling for dynamic endogeneity. We find no prior study in sub-Sahara Africa that has treated the EM–performance relationship this way. Besides, by doing so, our study also responds to calls from prior researchers in this area for using dynamic panel models in corporate finance, reporting and governance research (see e.gs. Flannery & Hankins, 2013; Wintoki et al., 2012; and Zhou, Faff, & Alpert, 2014).

1.2. Why should composite corporate governance quality indices be involved?

Prior single or dual-country studies on EM determinants and the EM–performance nexus have advanced various factors that influence EM practices and the performance of firms. Aggregate CGQ, quite surprisingly, seems to be inadvertently missing in the debate. This study thus seeks to unearth the role aggregate CGQ plays in this discourse. This is because EM appears to be practised within the implicit bounds of CG systems and structures. Poor CG structures allow managers discretion in exercising their stewardship responsibilities, leading to unacceptable practices such as opportunistic EM, making firms unattractive for investment. Therefore, effective CG systems are expected to limit opportunistic EM practices and subsequently enhance the credibility and profitability of firms. Thus, the current study's point of entry into the debate is its introduction of aggregate CGQ indices (i.e., best-practice and disclosure indices) as moderating variables in the EM–profitability nexus, which has not been considered by prior research. In similitude with prior studies such as Abbadi, Hijazi, and Al-Rahahleh (2016), Ashfaq, Kayani, and Saeed (2017), Chen, Kao, Tsao, and Wu (2007), Gompers, Ishii, and Metrick (2003), Leventis and Dimitropoulos (2012), and Leventis, Dimitropoulos, and Owusu Ansah (2013), CGQ structures are jointly considered because CG is enhanced when selected combinations of these variables are adopted. The IFC (2014) has noted the importance of indices and scorecards as tools that measure CG codes'

[2] Corporate governance systems of firms in ASSAC are largely based on the CG principles of the Commonwealth Association for Corporate Governance (CACG).

observance and encourage better governance practices without the intrusiveness of legislation. This study considers the several roles 'best-practice' and 'disclosure' corporate governance indices play in its units of analysis.

1.3. Why focus on ASSAC?

Countries within sub-Saharan Africa share similar characteristics. The area is a storehouse of minerals, many preserves and national parks. Economically, a large percentage of the population is engaged in agriculture, mainly subsistence. However, the region is transitioning into commercial and industrialised areas and is a significant exporter of raw materials. Many landlocked countries are entirely cut off from the sea, making it difficult to trade with others. The culture and demographics of most nations south of the Sahara are typical of developing countries: low per capita GDP, high population growth rates, low literacy rates, poorly developed infrastructure, and high incidence of corruption and mismanagement. However, the region has the highest potential for development because of its rich natural resource endowment, making it one of the most attractive trade destinations for all other regional blocs.

The advent of globalisation offers the transfer of skills, technology, and best practice CG models across and within the Sub-Saharan region, having the capacity to steer corporations on the path of profitability and growth. The Commonwealth Association for Corporate Governance (CACG) in 1999 and the Organisation for Economic Cooperation and Development (OECD) in 2004 developed CG principles aimed at prescribing guidelines for the development and implementation of localised CG codes for countries and their capital markets. The International Finance Corporation (IFC) in 2005 developed a toolkit of *Corporate Governance Codes of Best Practice*, based mainly on the OECD framework, which was used extensively to aid countries in drafting their codes and improving their governance standards. Many countries developed CG codes, and the awareness of governance and its impact on companies, markets and societies grew significantly globally. However, the African experience in terms of developments in its CG structures and an understanding of its impact on firms' EM practices and performance remains largely unexplored. These CG developments around the world, and the advocacy for their adoption and adaptation by countries and their capital markets, prompted this study to consider CG systems used by firms within ASSAC and whether CGQ matters when discussing the EM–firm performance nexus in ASSAC. Furthermore, many rich and diverse cultures are to be found throughout the Commonwealth countries. However, all have standard features, which means that consensus on a global scale is more easily achieved than among equally diverse countries which do not enjoy such commonalities. This unique characteristic of "commonwealthness" dramatically facilitates communication and understanding among various nations across the globe. To harness this diversity in the Commonwealth to achieve a degree of consensus in developing corporate governance guidelines by the Commonwealth Association for Corporate Governance (CACG) demonstrates the possibility for all countries to reach consensus. This role of the Commonwealth is especially significant in the current process of globalisation (see also Cumming, Hou, & Wu, 2017).

The structure of the remainder of this paper is as follows. A brief literature review is provided in Section 2, from which research hypotheses are developed. The next section, Section 3, follows with an introduction of the study method, a description of the sources of data collection, and definitions of the study variables. Section 4 after that presents the empirical results and discussions. The final section, Section 5, concludes the paper by indicating its limitations with some suggestions for further studies.

2. Literature review

2.1. Earnings management and firm performance from the perspective of agency theory

The agency theory by Jensen and Meckling (1976) underscores the inherent agency problem of conflict of interest, which arises from the separation of ownership and control. The gap between the interest of owners and managers often leads to managerial mischief (Nyberg, Fulmer, Gerhart, & Carpenter, 2010). The agency theory recognises that individuals will always act opportunistically, including 'managing earnings' to the extent that their actions will increase their wealth. Thus, from the agency theory perspective, management may view EM as a natural self-interest-serving device to improve their lot. This view is also corroborated by the positive accounting theory (PAT), which intimates that the flexibility allowed by accounting standards creates incentives and opportunities for management to use EM by focusing on specific choices of accounting methods. PAT recognises that economic consequences exist from accounting policy choice, which could be firm value maximising (Deegan, 2009) or opportunistic (Healy & Wahlen, 1999) depending on whether managers act in the best interest of shareholders (Tang & Chang, 2013). Watts and Zimmerman (1990) find that EM occurs when managers exercise their discretion over the accounting numbers with or without restrictions. This study considers CGQ as an effective mechanism or strategy to constrain earnings management practices, influence managerial behaviour, mitigate agency problems and enhance the performance of firms. Overall, CGQ influences the use of accounting choices, which consequently affects performance.

Conceptually, EM may be defined as the process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about the desired level of reported earnings (Davidson, Stickney, & Weil, 1988). Schipper (1989) defines EM as a purposeful external financial reporting process intervention to obtain private gain. The primary goal of EM is to smooth out income and present a steady picture of stability in a firm's performance. Graham, Harvey, and Rajgopal (2005) report that executives have solid preferences for smooth earnings. An overwhelming majority of CFOs they surveyed (i.e., 78% of the executives) prefer smooth earnings to volatile earnings and give up economic value for smooth earnings. In addition, volatile earnings are thought to be riskier than smooth earnings. Furthermore, smooth earnings allow for accuracy in analysts' forecasts as smoother earnings improve the predictability of future earnings, increasing stock price. Firms may use different EM strategies to smooth income. On the one hand, a firm's managers may reduce reported earnings when the previously reported earnings are high. However, a firm's managers may increase reported earnings when the previously reported earnings are low (Kallunki & Martikainen, 2003; Tabassum et al., 2015; Zang, 2012). Moreover, executives may use EM to maintain good performance and achieve personal contractual goals tied to "reported accounting numbers" (El Sood, 2012). For example, executives may increase or decrease the reported income to show a favourable firm performance to obtain higher compensation related to the future stock performance of the firm. Therefore, EM practices can be beneficial or harmful to the firm's performance based on how managers employ them (Bornemann, Kick, Memmel, & Pfingsten, 2012; Ronen & Yaari, 2008; Tang & Chang, 2013).

Prior research has shown that EM affects a firm's performance. The debate on the association between EM and performance has gained even more prominence for at least two reasons. Firstly, the demand for credibility in the "bottom-line" of financial reports since financial performance is the primary source of information for external users and investors — finally, the quest to prevent future accounting scandals emanating from the last financial crisis of 2007/8. Notably, the demand for research on the reasons for manipulating accounting figures and their effects on firms' performance and stability to prevent future scandals has been raised (Cimini, 2015; Debnath, 2017Filip &

Raffournier, 2014).

The examination of the relationship between EM and firms' performance continues to be an ongoing debate (see e.gs., Gill, Biger, Mand, & Mathur, 2013; Debnath, 2017; and Chakroun & Amar, 2022). However, there is mixed evidence in the literature regarding the relationship between firm performance and EM. Gill et al. (2013) and Chakroun and Amar (2022) find that EM practice is negatively related to firm performance measured by return on assets. Ardekani, Nejat, and Hashemijo (2012) investigated the association between acquisition, earnings management, and firm performance in Malaysian firms from 2004 to 2010. Their results show that EM activities are negatively correlated with a firm's financial performance after the acquisition date for share acquirer firms. Bhojraj, Hribar, and Picconi (2009) document evidence that firms engaged in EM activity have a worse stock market performance. Taylor and Xu (2010) argue that firms try to avoid EM activities when these activities damage the company's future value. A long line of literature documents positive linkages between earnings management and firms' performance. For example, Lee, Li, and Yue (2016) sampled data from 67 non-financial firms from 1988 to 2001 to investigate the relationship between EM and firms' performance. They show that managed earnings positively affect a firm's performance and growth. Their results show that firms with higher performance increase reported earnings. However, they find a negative association between reported earnings and expected growth. Dechow, Sloan, and Sweeney (1995) and Kasznik (1999) demonstrate that discretionary accruals are positively correlated with firm performance. McNichols (2000) also finds a positive association between discretionary accruals and analysts' long-term earnings growth forecasts. Recently, Mangala and Dhanda (2019), who investigated EM and the performance of IPOs in India, demonstrated that the post-issue performance of Indian IPO firms is a derivation of issue year EM. Afrizal, Gamayuni, and Syaipudin (2021), in their conceptual paper, also report that EM has a positive effect on firm value as moderated by CG. Furthermore, Hernawati, Ghozali, Yuyetta, and Prastiwi (2021) reported that Indonesian manufacturing firms that go public use an income-increasing EM strategy to transfer potential welfare from the company to stakeholders.

Traditionally, the causal relationship predicted by agency theory implies that the causality should run from EM to firm performance. However, some studies have challenged this traditional approach (Alexander & Hengky, 2017; Sari et al., 2021). Empirically, it has long been voiced by Tang and Chang (2013) that EM is endogenously determined by the profit-maximisation process, as well as observable and unobservable firm characteristics. Given that both EM and performance are simultaneously determined in a system in which performance goal is a component, variations in EM should not be systematically related to variations in firm performance. In other words, EM should be unrelated to firm performance when endogeneity which stems from simultaneity and unobserved heterogeneity, exists. Besides, another source of endogeneity, namely dynamic endogeneity, can be observed in studies on the EM – performance relationship (Kumar et al., 2021; Ndu et al., 2019) and CG – the performance relationship in general (Wintoki et al., 2012). The dynamic nature of the EM – performance relationship implies that current EM and performance are influenced by past performance (Wintoki et al., 2012), hence the need to include a lagged performance term in the model of the relationship between EM and performance to mitigate possible omitted variable bias. Based on the conflicting predictions of agency theory regarding the EM and CG – performance relationship, coupled with inconclusive empirical arguments, we propose from a dynamic perspective a highly significant link between EM and performance in the presence of CGQ but do not determine any particular direction for this relationship. Our first hypothesis is thus formulated as follows:

Hypothesis 1. In the presence of corporate governance quality, earnings management has a highly significant association with the financial performance of firms in ASSAC.

2.2. Agency theory and the role of corporate governance quality

The agency theory by Jensen and Meckling (1976) underscores the essential role of effective corporate governance systems (Proimos, 2005) in mitigating agency problems such as opportunistic EM (Cornett, McNutt, & Tehranian, 2009Krishnan, 2003Shen & Chih, 2007) or managerial mischief (Nyberg et al., 2010) arising from the separation of ownership and control. Krishnan (2003) observed that CG mechanisms are crucial in constraining opportunistic EM and influencing the EM type used. The moderating role of CGQ in the EM – performance relationship, until quite recently,[3] had not been given attention in the empirical debate. However, some scholars have observed and noted this role (Khan, 2012).

The current study submits that an examination of EM and its association with performance would be incomplete without the presence of CG variable(s). EM seems to be practised within the implicit bounds of CG systems and structures. Poor or weak CG structures allow managers wanton discretion in exercising their stewardship responsibilities, which often leads to unacceptable practices, making firms unattractive for investment. However, excellent and robust CG structures are expected to limit EM practices and subsequently enhance the credibility and profitability of firms (see, e.g., Tang & Chang, 2013). The current study thus submits that the presence of CGQ would significantly influence or moderate earnings management and, consequently, the profitability of firms. Again, it is worth noting that almost all prior studies conducted on the EM – performance relationship (Alhadab & Al-Own, 2017; Chakroun & Amar, 2022; Debnath, 2017; Hernawati et al., 2021; Ngunjiri, 2017; Sari et al., 2021; Wang, Shan, He, & Zhao, 2022), do not control for the potential dynamic endogeneity inherent in the EM cum CG – performance relationship. Based on the arguments mentioned above and with the dynamic endogeneity in mind, we propose our second hypothesis as follows:

Hypothesis 2. The relationship between earnings management and financial performance of firms in ASSAC is significantly moderated by corporate governance quality.

3. Data and method

3.1. Data collection and data sources

A sample is drawn from listed firms in their respective stock markets within the selected Anglophone countries from sub-Saharan Africa. Following previous studies (Dittmar & Mahrt-Smith, 2007; Schultz, Tan, & Walsh, 2010), we exclude insurance companies and banks from our sample because financial firms are very different in many respects from non-financial firms. The choice of a suitable earnings management model adopted for non-financial firms may not be appropriate for financial firms. The choice of the study's final sample is guided by the availability of firms' annual reports and corresponding financial data for 13 years spanning from 2007 to 2019. The year 2007 is selected because the timeline for developing CG codes among the sampled countries indicates that many of the surveyed countries introduced or revised their CG codes around 2006.[4] Hence, 2007 and afterwards were deemed appropriate for CG quality assessments across sampled countries. 2019 represented the most recent year for which data was available when the study was carried out.

Digital information sources such as the databases of the *Library of*

[3] The few studies we came across that investigated earnings management in the presence of corporate governance quality were Tang and Chang (2013), and Khan et al. (2019), albeit, the focus of these studies, as well as their models of analysis are different from that of the current study.

[4] KPMG and ACCA (2014). Balancing Rules and Flexibility for Growth: A Study of Corporate Governance Requirements across Global Markets. Phase 2 - Africa. KPMG and ACCA Joint Study.

African Markets, Africanfinancials, Machameratios and respective *Stock Exchanges* of selected ASSAC were consulted to obtain financial data. Data on firm-level CG mechanisms were hand-collected from firms' annual reports using CACG cum OECD principles on CG as the guide.

3.2. Variables

3.2.1. Dependent variable: performance

Performance may be conceived and measured in several ways for different organisations, such as ROA, ROE and Tobin's Q. Performance, however, refers to how well a firm has generated returns or value for its finance providers and other stakeholders. This research uses ROA as a measure of performance. ROA measures the competitiveness of the company and the efficiency of management. The current study utilises ROA as its measure of financial performance, similar to other studies conducted (Farooqi, Harris, & Ngo, 2014; Lin & Fu, 2017Sow & Tozo, 2019). ROA was computed as follows:

$$\mathrm{ROA}_{i,t} = EBIT_{i,t}/TA_{i,t.}$$

where $\mathrm{EBIT}_{i,\,t}$ refers to profit before interest and tax for firm (i) in year (t), and $\mathrm{TA}_{i,\,t}$ also refers to total assets for firm (i) in year (t).

Firm performance is a crucial variable having an association with such as growth and length of the operating cycle that naturally destroy accruals, while the discretionary part identifies management choices (Keefe, 2013). Pulling discretionary accrual amounts from the total accrual amounts is a metric that reflects accruals due to management's choice alone. Thus, there appears to be no business reason for these accruals; hence, discretionary accrual is a better proxy for EM. Of the several aggregate accruals proxies advanced in the literature for measuring EM, the current study settles on the Pae (2005) model of discretionary accrual. Pae (2005) extends the Jones model's widely used by adding lagged total accruals or cash flows or lagged cashflows and lagged total accruals. This is because accruals are negatively correlated with current cash flow from operations but positively correlated with lagged cash flow from operations (Dechow, 1994; Dechow & Dichev, 2002). Further, Pae (2005) makes the same adjustments to the modified-Jones model. His empirical results prove that the inclusion of the current and lagged CFOs significantly improves the explanatory power of the Jones model. There is, however, no qualitative difference between the Pae model and the Jones' or modified-Jones model in the demonstrated explanatory power of the added items. That notwithstanding, the present study adopts the Pae (2005) model of discretionary accrual as suitable for the characteristics of the study's sample data.[5] The following Pae (2005) model for total accruals was specified for the present study:

$$TA_t = \alpha_1 1/A_{t-1} + \alpha_2 \Delta Rev_t/A_{t-1} + \alpha_3 PPE_t/A_{t-1} + \alpha_4 CFO_t/A_{t-1} + \alpha_5 CFO_{t-1}/A_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

EM. Gunawan, Darmawan, and Purnamawati (2015) intimate that managers will undertake EM to show the best performance of their company. This suggests that to make the firm more attractive, managers tend to manipulate the earnings upwardly (Kothari, Leone, & Wasley, 2005; Machuga & Teitel, 2007). Managers of a stable profit-making company would have little need to modify their earnings. Studies such as Ali, Noor, Khurshid, and Mahmood (2015), and Debnath (2017) report that EM affects company performance negatively. Besides, Sow and Tozo (2019) found mixed evidence of different corporate governance mechanisms affecting firm performance, with CEO-duality and board size having a negative effect on performance. In contrast, board independence had a positive effect on performance. Other authors, such as Wallison (2006), who found a negative effect of board independence on performance, argue that having independent directors on the board is for better governance instead of for better performance. The literature on the association between EM and firm performance reports mixed shreds of evidence; hence, the issue is still deemed an open question.

3.2.2. Independent variable: earnings management measured via discretionary accruals

Khan (2012) explains a discretionary accrual (DA) as a non-mandatory expense or asset recorded within the accounting system that has yet to be realised. An example is an anticipated bonus for management. Using the raw accruals amounts as a proxy for EM is a simple method to evaluate earnings quality because firms can have high accruals for legitimate business reasons such as sales growth. A more complicated proxy can be created by attempting to categorise total accruals (TA) into non-discretionary (NDA) and discretionary (DA) accruals. The non-discretionary component reflects business conditions

Whereas the non-discretionary accruals component is specified by the following model:

$$NDA_t = \alpha_1 1/A_{t-1} + \alpha_2 \Delta Rev_t/A_{t-1} + \alpha_3 PPE_t/A_{t-1} + \alpha_4 CFO_t/A_{t-1} + \alpha_5 CFO_{t-1}/A_{t-1} \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

where; TA_t is total accruals calculated as net operating income (NOPI) minus cashflows from operations for each year t (i.e. $\mathrm{TA}_t = \mathrm{NOPI}_t - \mathrm{CFO}_t$); NDA_t is the non-discretionary accruals for each year t; $\mathrm{CFO}_{t(t-1)}$ is cashflows from operations for each year t, or (t-1); $\Delta \mathrm{Rev}_t$ is the changes in the revenue (from credit sales) for each year t; PPE_t is the Property, Plant and Equipment for each year t; A_{t-1} is the total assets at the end of period (t-1); ε_t is the random error, which is used as the estimate for EM (i.e. discretionary accruals which is ordinarily calculated as total accruals minus non-discretionary accruals). The coefficients: α_1 $\alpha_2\alpha_3$ are estimates of firm-specific parameters α_1, α_2, α_3 respectively through OLS regression from Eq. (1).

The causal effects and relationships between EM and profitability or between CG and profitability have been studied extensively in the The causal effects and relationships between EM and profitability or between CG and profitability have been studied extensively in the literature, both theoretically and empirically. While some studies such as Fang (2008) and Ngunjiri (2017) found positive effects of EM on firms' profitability, others such as Alhadab and Al-Own (2017), Amarjit, Nahum, Harvinder, and Neil (2013), Chakroun and Amar (2022), Debnath (2017) and Gong, Louis, and Sun (2008) found a negative effect of EM on the profitability of firms. However, some other studies found mixed or insignificant

[5] In an unreported analysis, we find that the Jones' and modified-Jones models when applied to the study's datasets produces results that are robust with the findings from the study's chosen Pae model.

results (Lee et al., 2016; Moshi, 2016). Concerning CG, EM and performance relationship, Abbadi et al. (2016) reported that EM is negatively affected by overall CGQ index categories in Jordan. Ashfaq et al. (2017) also reported that the CG index has a significant positive impact on firms' performance for conventional and Islamic financial institutions. Their findings indicate that, as CGQ improves, its ability to constrain EM also improves, leading to performance enhancements in firms. Overall, prior studies regarding the association between EM, CG and performance appear inconclusive and thus lend themselves to further studies in this area.

3.2.3. *Independent variable: corporate governance quality used as a moderating variable*

Corporate Governance Quality refers to compliance with codified laws, best-practice ethics, systems, internal and external mechanisms, and factors that control operations at an organisation and to which the organisation remains accountable. Corporate governance may be severally measured, often based on its mechanisms such as board size, board meetings, board independence, board committees, and so on. However, an index measure of corporate governance may be constructed based on the aggregation of individual mechanisms. Brown, Beekes, and Verhoeven (2011) stated that the quality of a firm's corporate governance is best seen as its score according to some index constructed from a set of governance indicators or characteristics. The current study constructs its CGQ indices in similitude to governance indices used by other authors (Biswas, 2013; Larcker, Richardson, & Tuna, 2007; Prommin, Jumreornvong, & Jiraporn (2012); Prommin, Jumreornvong, & Jiraporn, 2014; Sawicki, 2009) in measuring corporate governance quality. However, the current study follows the CG principles required by the Commonwealth Association for Corporate Governance (CACG) in constructing its CGQ indices. Moreover, CACG's principles were further gauged through other institutional CG lenses, such as the factors used by RiskMetrics Group Inc. in constructing the Corporate Governance Quotient,[6] whiles at the same time considering the CG provisions of respective countries' CG codes and disclosure practices. All the CG mechanisms are reorganised to generate the study's CGQ index for each firm. The study does this because corporate governance is enhanced when selected individual mechanisms are adopted (Leventis et al., 2013Leventis & Dimitropoulos, 2012Tang & Chang, 2013). After that, the study's CGQ indices are generated via rotated principal component analysis (Larcker et al., 2007). The study constructs two separate aggregate indices of 'disclosure' and 'best practice' governance structures to examine their respective effects on performance. Overall, 49 items comprising 22 and 27 disclosure and best-practice items were used to construct the study's two CGQ indices for firms based on firm-level disclosures and best-practice metrics.[7] These CGQ indices range from approximately −1.5 to +2.6, with larger values indicating better corporate governance quality. We justify our choice of CGQ indices on two grounds: (1) Considering that so little work has been done on governance in general in emerging economies, we sought to cast our net widely in our search for components that may shed light on our research questions (Biswas, 2013); (2) As reported earlier on by Tang and Chang (2013), appraising a firm's governance quality based on individual mechanisms or isolated dimensions might be inadequate. CG is a complex system consisting of numerous monitoring mechanisms from various dimensions, such as board characteristics and ownership structure. To achieve optimal CG supervision, the mechanisms must work closely together. Moreover, as earlier indicated by Chen et al. (2007), most previous studies have investigated the effect of CG by using specific governance characteristics, ignoring the possibility that other governance mechanisms serve as a complement or that, one characteristic is a proxy of another characteristic (see also, Wang et al., 2022). Again, Yeh, Shu, and Su (2012), who used a governance index covering variables of ownership structure and board structure, argued that the benefit of incorporating governance mechanisms from various dimensions avoids the confounding effects in which different perspectives yield different predictions on CGQ. Therefore, given the lack of theory on corporate governance structure, we argue that governance quality jointly measured according to various governance facets accurately represents a firm's overall governance quality. Moreover, given the inherent limitations with all constructs of CGQ indices,[8] the authors believe that CGQ indices constructed by an efficient data reduction technique known as the rotated principal component analysis (RPCA) is appropriate for the study.[9] RPCA seems to be a more appropriate process of constructing a measure of CG since it identifies the governance indicators which are highly correlated (Dey, 2008).

Studies on the role and effect of CG on EM or performance abound. To ensure that managers use accounting discretion responsibly, establishing CG mechanisms or systems is imperative. CG systems are mechanisms that limit the agency cost of self-interested managers. Previous studies have indicated that a comprehensive CG system is essential in deterring the abuse of EM (Leuz, Nanda, & Wysocki, 2003; Lo, Wong, & Firth, 2010; Tang, Chen, & Chang, 2013). It has been argued that board governance can directly affect managers' decisions and activities. It can also influence choosing, hiring and controlling of external auditors, as well as internal control mechanisms through the audit committee. Effective board governance can use the internal control system to monitor opportunistic EM (Brickley, Coles, & Terry, 1994; Carcello, Hollingsworth, Klein, & Neal, 2006; Klein, 2002). Prior literature has also documented how board independence can constrain EM (Dechow & Dichev, 2002). These studies argue that since independent directors do not seek self-interests such as executive compensation, it better places them to oversee executive management activities. Some of which are directed towards their self-seeking and sometimes fraudulent dealings in the company's assets and actions delude investors from meeting their objectives. Bedard et al. (2004) also observed that audit committees with financial expertise in the US could prohibit EM. Furthermore, Agrawal and Chadha (2005) point out that audit expertise can prevent fraud and manipulation of earnings. Vuong (2021) found out that mere women's representation on boards encourages more EM in Vietnam. In contrast, women occupying chair positions on boards are associated with less EM. The authors reasoned that the mere presence of women on boards could likely lead to weaker EM monitoring. Therefore, the authors suggested policies and reforms emphasise the promotion of women to leading positions such as chairwomen instead of merely putting pressure on increasing the number of women in the boardroom. Gaver and Gaver (1998) found a significant and positive association between cash compensation and earnings only if those earnings are positive. Baber, Kang, and Kumar (1998) support this view by arguing that firms with higher compensation functions have more persistent earnings components. Cheng (2004) depicted a significant positive relation between option compensation changes and R&D expenditures as the executive's terminal year approaches. Moreover, Huson, Tian, Wier, and Wiedman (2012) and Man and Wong (2013) observed that the compensation committee makes decisions related to discretionary

[6] Details of the rating factors used by RiskMetrics Group Inc., in constructing the *Corporate Governance Quotient*, comprises 67 variables divided into eight core topics.

[7] The governance standards used in developing the CGQ indices which ranges from 1 to 26 for the "disclosure sub-index," and 1 to 25 for the "best-practice sub index," have been omitted from the paper to save space, but are available upon request.

[8] Several studies have long recognised that, there is no single approach in structuring governance mechanisms to optimise firm performance (see e.gs, Bhagat, Bolton, & Romano, 2007; Beekes, Le, & Owen, 2008; Beekes, Hong, & Owen, 2009).

[9] This approach was first used by Larcker et al. (2007), who demonstrated the effectiveness of PCA as a measure of corporate governance.

expenditure in the executive's terminal year when setting cash compensation for executives. They intervene to minimise payments when managers make up accruals. With regard to the aggregate CG index, Abbadi et al. (2016) showed that EM is affected negatively by overall categories of governance index represented by board size, board meetings, audit, nomination and compensation committee presence. Khan et al. (2020) noted that the monitoring system of corporate governance is very instrumental in curbing the opportunistic behaviour of EM. Moreover, Xie, Davidson, and Dadalt (2003) mentioned that the monitoring system of CG decreases EM. Ashfaq et al. (2017) also reported that the CG index has a significant positive impact on firms' market performance for conventional and Islamic financial institutions. These findings indicate that, as CGQ improves, its ability to constrain EM also heightens, thus leading to performance enhancements in firms.

3.2.4. Other independent variables used as control variables

Factors other than EM and CGQ have been documented to affect firm performance. From our theoretical and empirical reviews of the literature, we identified firm size, age, leverage, growth, IFRS adoption, and asset tangibility as the most prominent variables affecting firm performance. Hence, our study controlled for these variables. Firm size can show the scale of how big a company is. It was measured as the natural logarithm of total assets at the end of the year to control firm size's effects on performance. Due to their economies of scale, large companies can save costs and thus enhance profitability. Thus, it is expected that size would positively affect a firm's performance. Similarly, as firm ages, it is expected to acquire the necessary experience and know-how to operate efficiently in its market. Hence, firm age is expected to show a positive relationship with performance. Several other studies have also controlled for firm size and age in similar estimations (Agustini, 2016; Ashfaq et al., 2017; Heinrich & Dai, 2016; Lin & Fu, 2017).

We also include leverage measured as the ratio of total liabilities to total assets as a control variable. Leverage is used to determine the amount needed to finance a company from external sources. The higher the value of leverage, the higher the risk investors face. Thus, financial leverage is expected to have an inverse relationship with performance. Investors do not perceive a firm's increases in its leverage as a positive indication of the firm's growth; instead, it is considered a bailout plan to avoid financial distress. Excessive debt financing increases the interest burden and raises the cost of capital, adversely affecting the firm's profitability and market value. Similar to the current study, prior studies have controlled leverage in their estimations (Farooqi et al., 2014; Gombola, Ho, & Huag, 2016; Pham, Oh, & Pech, 2015).

Consistent with Kothari, Leone, & Wasley (2002) and Francis and Wang (2004), this study includes growth opportunities measured by a market-to-book ratio as another control variable to account for the effect of market growth prospects on firms' financial performance. Companies with solid growth prospects also benefit from a substantial market share, leading to a grander scale in their operations and consequently enhancing profitability. A company will be gaining market share as long as it maximises growth (Wernerfelt, 1986). Growth has been used in the extant EM literature and for firm performance (e.g., Debnath, 2017; Fang, 2008; Lee et al., 2016).

Finally, the study controlled for the effects of asset tangibility and IFRS adoption on firm performance. Companies' manipulation behaviour with accounting numbers to affect the "bottom-line" usually thrives and flourishes with the pervasiveness of intangible assets of the firm such as goodwill, patents, and capitalised development costs. As significant proportions of a firm's total assets are identified as tangible assets, one would expect EM practices to be relatively lower than their counterparts, with a more significant chunk of their assets tied to intangibles. Hence, asset tangibility is expected to show a positive relationship with performance. Besides, the IFRS or the local GAAP has been observed to have significant effects on EM and, consequently, performance in firms. However, the evidence regarding the effect of IFRS adoption on performance and the direction of this relationship have

Table 1
Measurement of variables used in the study's models.

Variable	Scale	Source	Expected Sign
ROA Return on Assets (Proxy for Firm-Performance/ Profitability)	This is measured by $ROA_{i,\,t} = EBIT_{i,\,t}/TA_{i,\,t}$ Where: $EBIT_{i,\,t}$ = Profit before interest and tax for firm i in year t $TA_{i,\,t}$ = Total Assets for firm i in year t	Annual reports of firms	
DA Discretionary Accruals (Proxy for Earnings Management)	This is measured using the Pae (2005) Discretionary Accrual's Model; $NA_t = \alpha_1 1/A_{t-1} + \alpha_2 \Delta Rev_t/A_{t-1} + \alpha_3 PPE_t/A_{t-1} + \alpha_4 CFO_t/A_{t-1} + \alpha_5 CFO_{t-1}/A_{t-1}$ Where: A_{t-1}= total assets in the year t-1 ΔRev_t= the change in revenues from the preceding year PPE_t= the gross value of property, plant and equipment in the year t CFO_t= operating cashflows in the year t CFO_{t-1}= operating cashflows in the year t-1 α_1, α_2, α_3, α_4, α_5= firm-specific parameters Estimates of the firm specific parameters are done via the model: $TA_t/A_{t-1} = \alpha_1 1/A_{t-1} + \alpha_2 \Delta Rev_t/A_{t-1} + \alpha_3 PPE_t/A_{t-1} + \alpha_4 CFO_t/A_{t-1} + \alpha_5 CFO_{t-1}/A_{t-1} + \varepsilon_t$ Where: Total accruals (TA) is defined as income before extraordinary items and discontinued operations minus operating cash flows, that is, $TA_t = NOPI_t - CFO_t$ ε_t is discretionary accruals (DA) in the year t.	Annual reports of firms	+/−
CGQ Corporate Governance Quality	This is measured as an index for firm i in year t, on the basis of firm-level disclosures and best-practice mechanisms. Disclosure CGQ is represented as DCGQ whereas best-practice CGQ is represented as BPCGQ.	CACG & OECD CG Guidelines, SEC CG Codes for respective countries, Annual reports of firms	+/−
CONTROLS:			
LEV Leverage	This is measured by the total liabilities to total assets. It is represented in logarithm form	Annual reports of firms	−
SIZE Firm size	This is measured the logarithm of a firm's total assets	Annual reports of firms	+
			+

(continued on next page)

Table 1 (*continued*)

Variable	Scale	Source	Expected Sign
GRWTH Growth Opportunities	This is measured by calculating the price-to-book ratio for firm i in year t.	Annual reports of firms	
AGE Age of Firm	The is measured as the age of a firm from the date of incorporation to the end of the sample period. It is represented in logarithm form.	Annual reports of firms	+
IFRS IFRS Adoption	This is a dummy variable measured as 1 since a firm's adoption of IFRS and 0 otherwise.	Annual reports of firms	+/−
ASSTANG Asset Tangibility	This is measured as the ratio of tangible assets to total assets of firm i in year t.	Annual reports of firms	+
$\varepsilon_{i,\,t}$ Error term	The error term		

Source: Authors' Compilation, 2022.

been mixed (Bakker, 2017), with plausible reasons adduced for each study's findings. As such, we expect no particular direction of this relationship.

3.2.5. Model specification

A general specification for first-order autoregressive [AR(1)] panel models can be expressed as the following equation:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \sum_{j=1}^{N} \alpha_j X_{jit} + \nu_t + \mu_t + \eta_t + \varepsilon_{it} \quad (3)$$

Where, Y_{it} is ROA which is a proxy for financial performance of firm i in year t; α_0 is the constant; and α_1 and α_j are unknown estimated coefficients; X_j is the vector of explanatory variables used in the model, including: EM, CGQ, and other firm-level control variables. The definitions and measurements of these variables have been mentioned in Subsection 3.2, and also summarised in Table 1. The model also controls for unobserved country heterogeneity (ν_t), firm-fixed effects (μ_t), as well as time-specific effects (η_t) that are time-variant and common to all companies such as the effects of inflation rates, GDP growth, market fluctuations or other macroeconomic conditions. And finally, ε_{it} represents the classical error term which is assumed to be independent and identically distributed.

Noteworthy here is that the number of lags of the dependent variable, which one should consider on the right-hand side of the model, is an empirical question. Prior EM and CG studies have typically employed AR(1) structure (e.g., Munisi & Randøy, 2013; Ndu et al., 2019; Nguyen, Locke, & Reddy, 2014, 2015) or AR(2) structure (Wintoki et al., 2012) to control for the potential effects of the autoregressive process on the stochastic term. Recognising that financial performance is typically path-dependent (Bebchuk & Roe, 1999), it is plausible to expect that performance beyond the first lag may negatively affect current performance. Thus the general first-order autoregressive AR(1) structure used in our model may not completely capture the dynamic nature of the EM and CG – performance relationship. Following Wintoki et al. (2012), we confirm our model specification displayed by Eq. (3) by estimating an OLS regression of *Yit* on *Yit-1* and *Yit-2* and *Xit*. We find no statistical evidence on the effect of *Yit-2* on *Yit*, suggesting that one-year lagged ROA appears to be adequate to capture all influence of the past on the current realisations of performance. This is in line with Zhou et al. (2014), who argue that, given the limitation of the time dimension in corporate finance panel datasets, an AR(1) panel model seems unavoidable in almost all empirical corporate finance studies. Using the measures of EM and CGQ together with other firm-level characteristics controlled for, Eq. (3) can be displayed in more detail as follows:

$$ROA_{it} = \alpha_0 + \alpha_1 ROA_{it-1} + \alpha_2 DA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 GRWTH_{it} + \alpha_6 AGE_{it} + \alpha_7 IFRS_{it} + \alpha_8 ASSTANG_{it} + \nu_t + \mu_t + \eta_t + \varepsilon_{it} \quad (4)$$

Following Antoniou, Guney, and Paudyal (2008); and Krivogorsky and Grudnitski (2010), our empirical models are developed from baseline Eq. (4) via a two-step procedure. Firstly, the effects of EM and other firm-level characteristics on performance will be investigated by estimating Eq. (4). This step allows us to determine which of our explanatory variables are significantly correlated with the performance of the sampled firms. After taking CGQ (being 'disclosure' and 'best-practice' metrics) into consideration, the second step examines the direct effect of CGQ on the financial performance of these listed firms. We are also interested in the potential interaction between CGQ and EM and other explanatory variables that are significantly related to performance. We can empirically test the two research hypotheses concerning the effects of EM and CGQ and their interplay on firm performance. The model specified to perform this analysis is as follows:[10]

$$ROA_{it} = \alpha_0 + \alpha_1 ROA_{it-1} + \alpha_2 DA_{it} + \alpha_3 SIZE_{it} + \alpha_4 LEV_{it} + \alpha_5 GRWTH_{it} + \alpha_6 AGE_{it} + \alpha_7 IFRS_{it} + \alpha_8 ASSTANG_{it} + \alpha_9 CGQ_{it} + \alpha_{10} CGQ^{*} EM_{it} + \nu_t + \mu_t + \eta_t + \varepsilon_{it} \quad (5)$$

3.2.6. Estimation approach

One of the most documented problematic issues in corporate finance and governance literature relates to the credibility of causal inferences about the relationship between firm-specific financial and governance characteristics and performance (Brown et al., 2011). As discussed earlier, the endogenous determination and the dynamic correlation between current EM-cum-CG structures with past performance have been documented by previous research (e.g., Wintoki et al., 2012). Therefore, a regression of performance variable on EM in which CGQ variable(s) are controlled should be examined in a dynamic framework as displayed in Eq. (5). Nevertheless, the presence of the AR(1) structure and endogenous explanatory variable(s) in Eq. (5) introduces serious estimation biases (Flannery & Hankins, 2013). It is well-documented in econometric literature that estimating Eq. (5) via the ordinary least squares (OLS) method yields biased and inconsistent coefficients because OLS ignores the time-invariant unobserved individual effects and endogeneity of the lagged dependent variable (Flannery & Hankins, 2013; Wintoki et al., 2012). The OLS with fixed-effects estimator still wipes out unobserved individual effects. Moreover, it is fraught with Nickell bias since it produces inconsistent parameter estimates if T is fixed regardless of the size of N, coupled with its inability to deal with the endogeneity of the lagged dependent variable (Nickell, 1981). Two widely-used techniques to correct this inconsistency if T is fixed are (i) AB difference GMM estimator proposed by Arellano and Bond (1991) and (ii) BB system GMM estimator recommended by Blundell and Bond (1998).

Blundell and Bond (1998) documented that the AB difference GMM estimator may suffer from finite-sample bias and perform poorly on highly persistent data due to weak instruments. In contrast, the BB system GMM estimator is testified to be more efficient and less small-sample biased when compared with its AB difference GMM counterpart (Blundell & Bond, 1998). In addition, by construction, the BB system GMM estimator mitigates the influence of the high persistence of EM and CG variables, which helps to improve the power of estimations (Antoniou et al., 2008; Hoechle, Schmid, Walter, & Yermack, 2012). The BB system GMM estimator appears well-suited for the characteristics of this study's dataset, namely: (i) an unbalanced panel with short to moderate length ($T = 13$) and larger sample size ($N = 106$); (ii) CGQ

[10] Note that, the CGQ variable have been used as generic in Eq. 5 to capture "disclosure," "best-practice," as well as "aggregate of disclosure-and-best-practice" corporate governance indices alike in three separate estimations.

considered endogenous; (iii) CG-cum-EM – performance relationship is, by nature, dynamic; and (iv) financial performance may be driven by individual fixed effects which are unobservable. The simulation analyses were undertaken by Flannery and Hankins (2013) and Zhou et al. (2014), further demonstrating that the BB system GMM emerges as the best-performing estimator across the datasets with conditions mentioned above. Therefore, we use the BB two-step System GMM (SGMM) as our primary estimation technique to alleviate dynamic panel bias and endogeneity concerns. This econometric technique has also been employed in several corporate governances and EM studies (see, e.g., Ndu et al., 2019; Nguyen et al., 2014, 2015; Wintoki et al., 2012). The two-step SGMM technique involves a system of equations at different levels, allowing the authors to treat all or some of the explanatory variables in Eq. (5) as endogenous. As such, all the explanatory variables except *firm age* were considered endogenous. We also employed a finite-sample robust corrected estimate of variance, suggested by Windmeijer (2005), to consider the concern of Blundell and Bond (1998) about the downward-biased tendency of resistive standard errors estimated by the two-step SGMM approach for small samples. Finally, we tested for instrument validity or over-identification of our SGMM model using the Hansen-J test of over-identification, which proved that our model was over-identified and well specified. This finding was also supported by the Difference-in-Hansen test of exogeneity of instrument subsets, which showed that the instruments used in our estimations were exogenous. In order to check the robustness of our findings across different econometric estimation techniques and to facilitate a comparison of our findings with those of prior relevant studies, the following estimators were also applied to the study's dataset: the Pooled OLS, the Fixed-effects (within-groups) estimator, as well as the Difference-GMM and the Panel-corrected Standard Errors estimators. Our estimation practice is in line with the suggestion of Bond (2002) that the consistent SGMM estimator should be compared with simpler estimators such as the OLS and Fixed-effects (FE) estimators to detect potential biases in empirical results as well as to ensure dynamic stability. The SGMM estimator was considered superior, and dynamically stable since its estimate of the coefficient of the lagged dependent variable in all our models lies in between the OLS and FE estimators. The Difference-GMM estimator only exhibited dynamic stability in Eq. (4) estimation. Hence the SGMM estimator was considered superior to the Difference-GMM estimator because of its dynamic stability in all our estimations, its finite sample properties relative to that of the Difference-GMM estimator, as well as the proximity of its coefficient estimate of the lagged dependent variable to the median of the upper (OLS estimate) and lower (FE estimate) boundaries.

Table 2
Descriptive statistics.

Variables	(1)	(2)	(3)	(4)	(5)
	N	Mean	SD	Min	Max
Firm Size (SIZE)	1295	5.125	0.802	2.754	7.183
Firm Growth (GRWTH)	1288	3.134	6.085	−36.47	96.98
IFRS Adoption (IFRS)	1295	0.859	0.348	0	1
Asset Tangibility (ASSTANG)	1254	0.400	0.237	0.00140	0.995
Firm Performance (ROA)	1294	6.032	15.53	−179.9	295.7
Discretionary Accruals (DA)	1295	0.0200	0.755	−2.268	26.10
Best Practice CGQ (BPCGQ)	1276	2.98e-09	1.000	−1.544	2.562
Disclosure CGQ (DCGQ)	1295	2.07e-09	1.000	−0.831	1.203
Firm Age (AGE)	1295	3.669	0.743	0	5.136
Leverage (LEV)	1264	3.755	0.779	−1.926	4.604

Note: This table reports descriptive statistics based on aggregate samples of which the sizes may vary because of missing values. The variables are as defined in Table 1. For interpretation purposes, the descriptive statistics are calculated on the basis of levels except *for IFRS Adoption*, which was computed from a dummy scale, *BPCGQ & DCGQ*, which were calculated as indices from normalized rotated principal component analysis, and *Firm Size, Age and Leverage* were calculated based on logarithmic form. The ROA, being the dependent variable in our model, was not transformed but allowed to retain its original form for 1) ease of interpretation, and 2) because its histogram distribution appears normal.

4. Empirical results and discussion

4.1. Descriptive statistics

Table 2 summarises the descriptive statistics for the study's sample firms from ASSAC. The mean of ROA is 6.03%, suggesting that the returns generated for all providers of finance of firms in ASSAC during the sample period are, on average, low relative to returns on government securities in these countries. This reflects the poor capability of firms in exploiting their resources to generate decent returns for investors. The means of the CGQ indices are 2.98e-09 and 2.07e-09 for best-practice and disclosure metrics, respectively. These mean CGQ indices appear fairly normally distributed with standard deviations of 1.000, which likely results from the normalized RPCA. Along the continuum line from −1.544 to +2.562, these reported aggregate CGQ indices for firms in ASSAC are pretty low, suggesting minimal gains in the effort to strengthen corporate governance systems. The average level of discretionary accruals or the proportion of managed earnings for sampled firms was about 2.00%, suggesting that EM practices of firms are relatively high within ASSAC compared to those reported by other developing economies (Tang & Chang, 2013; Zimon, Andrea, Hossein, Seyedmohammadali, & Ebrahim, 2021). The average size of sampled firms was 5.13 with a standard deviation of 0.80, whereas leverage was 3.75 with a standard deviation of 0.78. The sampled firms showed high growth opportunities represented by a mean price-to-book ratio of 3.13 with a standard deviation of 6.09. An average of 40% of the sampled firms' assets were tangible assets. The proportion of firm-year observations wherein IFRS had been adopted as the financial reporting standard was about 86%.

The correlation diagnostics as presented in Table 3 show that almost all the independent variables included in the study's models have a statistically significant correlation with the dependent variable, which is likely to offer at least some evidence for the proposition that these independent variables interact with the performance variable. This evidence confirms the necessity of including these independent variables in our empirical models to alleviate potential bias caused by variable omission. Notably, the correlation coefficient between ROA and its 1-year lag (L.ROA) is positive and statistically significant (0.47***), supporting the well-documented proposition that firm performance is path-dependent. Moreover, 1-year lagged ROA is significantly correlated with EM and CG variables and almost all the other independent variables. Together, these findings tentatively reveal the dynamic nature of the EM cum CG – performance relationship, which has an important implication for the choice of estimation method.

It is also evident from Table 3 that multicollinearity seems an unlikely problem in the study's empirical models, as none of the correlation coefficients among the independent variables is larger than the value of 0.80. Damodar (2004) suggested that unless correlation coefficients among regressors exceed the threshold of 0.80, multicollinearity will not be a severe problem for multiple regression analysis. This is confirmed by the variance inflation factors (VIFs) formally calculated to detect multicollinearity among the study's independent variables. Chatterjee and Hadi (2012, p. 236) suggest that a value of VIF larger than ten is usually considered an indication of collinearity problems. As reported in column 12 of Table 3, the VIF coefficient values are below two, which are well below the ceiling value of ten.

4.2. Multiple regression analysis

4.2.1. The effect of EM on performance – the moderating role of CGQ

It is well-documented in the EM and firm performance literature that EM, CGQ, and the other independent variables used in the study's models are endogenous (Nguyen et al., 2015Tang & Chang, 2013). That

Table 3
Pair-wise correlation coefficients and variance inflation factor coefficients.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		VIFS
(1) ROA	1.000											
(2) DA	0.545***	1.000										1.04
	(0.000)											
(3) DCGQ	0.016	−0.017	1.000									1.02
	(0.559)	(0.536)										
(4) BPCGQ	0.046*	0.050*	0.012	1.000								1.12
	(0.098)	(0.076)	(0.676)									
(5) SIZE	0.161***	−0.007	0.091***	−0.150***	1.000							1.09
	(0.000)	(0.810)	(0.001)	(0.000)								
(6) GRWTH	0.226***	−0.011	0.048*	0.101***	0.051*	1.000						1.10
	(0.000)	(0.700)	(0.087)	(0.000)	(0.065)							
(7) AGE	0.042	−0.009	0.122***	0.105***	0.133***	0.092***	1.000					1.07
	(0.130)	(0.734)	(0.000)	(0.000)	(0.000)	(0.001)						
(8) LEV	−0.068**	0.009	0.060**	0.057**	0.094***	0.040	0.083***	1.000				1.03
	(0.016)	(0.759)	(0.034)	(0.045)	(0.001)	(0.152)	(0.003)					
(9) IFRS	0.001	0.027	−0.075***	−0.038	0.152***	−0.042	0.028	−0.046*	1.000			1.03
	(0.979)	(0.327)	(0.007)	(0.177)	(0.000)	(0.136)	(0.313)	(0.102)				
(10) ASSTANG	0.070**	−0.047*	−0.004	0.223***	−0.030	0.061**	0.130***	−0.026	−0.041	1.000		1.10
	(0.013)	(0.094)	(0.892)	(0.000)	(0.286)	(0.031)	(0.000)	(0.357)	(0.149)			
(11) L.ROA	0.472***	0.053*	0.031	0.047*	0.172***	0.261***	0.061**	−0.084***	0.021	0.077***	1.000	1.11
	(0.000)	(0.068)	(0.289)	(0.108)	(0.000)	(0.000)	(0.037)	(0.004)	(0.462)	(0.009)		

Note: This table presents pair-wise correlation coefficients which are based on samples of which the sizes may be various because of missing values. The variance inflation factors (VIFs) are based on the common sample of 1113 firm-year observations. The variables are as defined under Section 3.2 – Variables. Asterisks indicate significance at 10% (*) 5% (**) and 1% (***).

Table 4
The effect of earnings management on performance without CGQ variable.

Variables	(1)	(2)	(3)	(4)	(5)
	Panel-corrected Standard Errors Estimator	Pooled OLS Estimator	System-GMM Estimator	Fixed Effect Estimator	Difference-GMM Estimator
L.ROA	0.274***	0.305**	0.266*	0.137	0.144*
	(0.0721)	(0.144)	(0.151)	(0.0975)	(0.0832)
DA	39.00***	39.90**	30.05*	37.81**	29.91**
	(4.867)	(16.85)	(15.45)	(16.70)	(15.02)
SIZE	0.899**	0.786	0.886	−6.108	−7.993
	(0.425)	(0.701)	(0.800)	(8.417)	(5.092)
GRWTH	0.200***	0.204*	0.184	0.128	0.0796
	(0.0686)	(0.117)	(0.149)	(0.0968)	(0.0787)
AGE	0.364	0.612	0.431	−1.356	8.416**
	(0.418)	(0.418)	(0.495)	(2.366)	(3.585)
LEV	−2.088***	−1.220*	−1.899*	−4.748*	−5.858***
	(0.687)	(0.678)	(1.068)	(2.412)	(1.656)
IFRS	−2.365***	−0.445	−2.378***	−1.961**	0.924
	(0.758)	(0.838)	(0.766)	(0.881)	(0.924)
ASSTANG	7.060***	6.790**	5.175*	4.436	2.517
	(1.814)	(3.082)	(2.699)	(3.993)	(3.415)
Constant	7.059**	871.5***		59.28	
	(3.553)	(241.7)		(40.94)	
Country fixed-effects	Yes	Yes	Yes	No	Yes
Time fixed-effects	No	Yes	Yes	No	Yes
Firm fixed-effects	No	No	Yes	No	Yes
Observations	1126	1126	1126	1126	1020
R-squared	0.554	0.511		0.426	
Number of groups	106		106	106	106
F statistic		34.43***		10.92***	
Wald Chi-squared statistic	196.19***		340.37***		206.61***
Number of instruments			20		19
Hansen-J test of over-identification, chi2(9), chi2(10) (*p*-value)			(0.355)		(0.800)
Difference-in-Hansen tests of exogeneity of instrument subsets, chi2(1), chi2(8) (*p*-value)			(0.278)		(0.789)

Note: This table reports empirical results from estimating Eq. (4) using the SGMM approach (column 3). Columns 1, 2, 4, and 5 present the results of robustness checks with alternative estimators PCSE, OLS, FE and Diff-GMM, respectively. Asterisks indicate significance at 10% (*), 5% (**) and 1% (***). The notations in all the regression tables are as defined under Section 3.2 – Variables.

notwithstanding, we further check the endogeneity of the regressors before proceeding with the two-step SGMM specification. Accordingly, the Durbin-Wu-Hausman (DWH) test for endogeneity of all the regressors is executed under the null hypothesis that the endogenous regressors may be treated as exogenous variables (Baum, Stephan, & Talavera, 2009). Test statistics follow a Chi-squared (*Chi-sq*) distribution with the degrees of freedom equal to seven, which is the number of suspected endogenous regressors (*EM, CGQ, firm size, firm growth*

Table 5
The effect of earnings management on performance in the presence of CGQ (best-practice variable).

Variables	(1)	(2)	(3)	(4)	(5)
	Panel-corrected Standard Errors Estimator	Pooled OLS Estimator	System-GMM Estimator	Fixed Effect Estimator	Difference-GMM Estimator
L.ROA	0.206***	0.273**	0.237*	0.115	0.0990*
	(0.0462)	(0.119)	(0.131)	(0.0707)	(0.0583)
DA	39.53***	40.05***	38.62***	37.13***	33.10***
	(2.610)	(6.782)	(8.220)	(6.726)	(5.965)
BPCGQ	0.801***	0.775**	0.767**	0.345	1.082
	(0.307)	(0.360)	(0.388)	(1.087)	(0.783)
BPCGQ#DA	20.98***	21.55***	19.21***	21.33***	19.13***
	(2.275)	(6.189)	(7.003)	(6.236)	(6.428)
SIZE	1.297***	1.017	0.736	−6.574	−5.174
	(0.445)	(0.714)	(0.845)	(8.307)	(4.857)
GRWTH	0.176***	0.189**	0.173*	0.109	0.100*
	(0.0602)	(0.0940)	(0.103)	(0.0683)	(0.0597)
AGE	0.409	0.793*	0.441	−2.799	7.804**
	(0.422)	(0.436)	(0.476)	(2.674)	(3.981)
LEV	−3.429***	−1.621*	−2.227*	−5.633**	−6.310***
	(0.694)	(0.930)	(1.204)	(2.159)	(1.768)
IFRS	−2.453***	0.198	−2.303***	−1.704*	0.818
	(0.732)	(0.905)	(0.760)	(0.925)	(0.896)
ASSTANG	6.916***	5.989**	6.284**	5.798	3.694
	(1.700)	(2.344)	(2.576)	(3.877)	(3.429)
Constant	8.773**	1046***		70.16*	
	(3.858)	(270.6)		(39.97)	
Country fixed-effects	Yes	Yes	Yes	No	Yes
Time fixed-effects	No	Yes	Yes	No	Yes
Firm fixed-effects	No	No	Yes	No	Yes
Observations	1113	1113	1113	1113	1009
R-squared	0.642	0.602		0.543	
Number of groups	104		104	104	104
F statistic		47.79***		28.55***	
Wald Chi-squared statistic	470.25***		651.99***		278.24***
Number of instruments			14		21
Hansen-J test of over-identification, chi2(1), chi2(10) (*p*-value)			(0.399)		(0.723)
Difference-in-Hansen tests of exogeneity of instrument subsets, chi2(1), chi2(10) (*p*-value			(0.399)		(0.723)

Note: This table reports empirical results from estimating Eq. (5) (using CG-best-practice metric) through the use of the SGMM approach (column 3). Columns 1, 2, 4, and 5 present the results of robustness checks with alternative estimators PCSE, OLS, FE and Diff-GMM, respectively. Asterisks indicate significance at 10% (*), 5% (**) and 1% (***). The notations in all the regression tables are as defined under Section 3.2 – Variables.

opportunities, leverage, IFRS adoption, and asset tangibility). We follow Schultz et al. (2010) and conduct the test based on the equation (in levels) of firm performance, EM, and CG together with the other independent variables in which 1-year lagged differences of the regressors are employed as instrumental variables. Only firm age was included in the test specification and treated as exogenous. The result indicates that the null hypothesis cannot be accepted at any conventional levels of significance ($\chi 2(7) = 22.98$; $p = .0017$), suggesting that the SGMM model will be consistent in terms of consistency compared with the OLS and FE models. Moreover, given that the OLS and FE estimates of $\alpha 1$ (the coefficient on *L.roa*) tend to be biased in opposite directions when the length of the panel is short (Bond, 2002; Nickell, 1981), a reasonable estimate of $\alpha 1$ should lie in-between the FE estimate (lower bound) and the OLS estimate (upper bound) (Bond, 2002). It is evident from Tables 4, 5 and 6 that $\alpha 1$ obtained from the two-step SGMM is higher than that obtained from FE but well below the OLS estimates. This is consistent with what one would expect for dynamic stability, thus suggesting that the two-step SGMM is likely to produce reasonable estimates, at least better than the OLS and FE estimates. Again, the Wald chi-squared statistics reported in Tables 4, 5 and 6 confirm the overall fit of the SGMM models. Hence, the results from the Hansen-J test, Difference-in-Hansen tests, and Wald chi-square test of overall model fit, together with the reasonable estimate of $\alpha 1$, suggest that the SGMM model appears to be well-specified.

Furthermore, we tested for the possible non-linearity of the EM – performance relationship (Mazumder, 2017; Wu, 2014), which supports the alignment-entrenchment hypothesis by including quadratic and cubic terms of the EM variable in the study's models to allow for possible non-linearity in the EM – performance relationship. Applying pooled OLS, FE, and two-step SGMM estimators, and the Prais-Winsten'sPrais-Winsten's heteroskedastic Panel, Corrected Standards Errors (PCSE) and Difference-GMM estimators (Diff-GMM) on Eq. (5), we find the coefficients on the quadratic and cubic terms of the EM variable to be insignificant regardless of the econometric approaches employed,[11] thus, the assumption of linearity was upheld. This robustness check indicates that the EM – performance relationship does not follow a U-shaped pattern (Mazumder, 2017; Wu, 2014) or a cube root function (Wu, 2014), at least for the sampled firms in ASSAC used herein. This finding of linearity in the EM – performance relation is consistent with the extant literature. Even with studies such as Wu (2014), which reported evidence of non-linearity, the author cautioned other researchers in designing non-linear models while investigating such relationships because of the study's conflicting findings, which raises questions about the appropriateness of non-linear models in studies like this.

The results of the two-step SGMM estimator with the Windmeijer (2005) finite-sample correction are reported in column 3 of Tables 4, 5 and 6. Our hypothesis 1, which states that "In the presence of corporate governance quality, earnings management has a highly significant association with the financial performance of firms in ASSAC," is thus confirmed by Table 5. It is suggested that CGQ matters if the coefficient

[11] The results possible non-linearity analyses are not reported to save space, but available from the authors upon request.

Table 6
The effect of earnings management on performance in the presence of CGQ (disclosure variable).

Variables	(1)	(2)	(3)	(4)	(5)
	Panel-corrected Standard Errors Estimator	Pooled OLS Estimator	System-GMM Estimator	Fixed Effect Estimator	Difference-GMM Estimator
L.ROA	0.213***	0.300**	0.275**	0.148*	0.130*
	(0.0422)	(0.121)	(0.140)	(0.0865)	(0.0689)
DA	34.30***	34.23***	30.46***	31.17***	28.34***
	(2.350)	(6.132)	(5.464)	(4.872)	(5.268)
DCGQ	−0.0121	−0.0866	−0.400	−0.317	−0.0794
	(0.265)	(0.363)	(0.366)	(0.685)	(0.483)
DCGQ#DA	22.91***	23.84***	23.01***	24.85***	23.65***
	(2.264)	(4.742)	(4.906)	(4.043)	(4.401)
SIZE	1.341***	1.104	1.221*	−8.508	−6.888
	(0.408)	(0.672)	(0.741)	(7.921)	(5.091)
GRWTH	0.102*	0.135	0.136	0.0699	0.0397
	(0.0572)	(0.0947)	(0.116)	(0.0663)	(0.0605)
AGE	0.240	0.591	0.470	−2.968	7.241
	(0.411)	(0.406)	(0.476)	(2.962)	(4.408)
LEV	−2.030***	−1.192*	−1.890*	−5.379***	−6.062***
	(0.665)	(0.677)	(1.057)	(2.016)	(1.811)
IFRS	−2.584***	0.128	−2.121***	−1.388*	1.111
	(0.719)	(0.873)	(0.668)	(0.829)	(0.927)
ASSTANG	6.072***	5.888***	5.153***	5.182*	3.198
	(1.565)	(2.136)	(1.791)	(3.072)	(2.360)
Constant	5.246	1026***		79.25**	
	(3.614)	(282.8)		(39.49)	
Country fixed-effects	Yes	Yes	Yes	No	Yes
Time fixed-effects	No	Yes	Yes	No	Yes
Firm fixed-effects	No	No	Yes	No	Yes
Observations	1126	1126	1126	1126	1020
R-squared	0.638	0.621		0.582	
Number of groups	106		106	106	106
F statistic		83.05***		39.35***	
Wald Chi-squared statistic	533.74***		516.98***		419.92***
Number of instruments			23		21
Hansen-J test of over-identification, chi2(10), chi2(10) (*p*-value)			(0.584)		(0.715)
Difference-in-Hansen tests of exogeneity of instrument subsets, chi2(1), chi2(10) (*p*-value)			(0.516)		(0.715)

Note: This table reports empirical results from estimating Eq. (5) (using CG-disclosure metric) through the use of the SGMM approach (column 3). Columns 1, 2, 4, and 5 present the results of robustness checks with alternative estimators PCSE, OLS, FE and Diff-GMM, respectively. Asterisks indicate significance at 10% (*), 5% (**) and 1% (***). The notations in all the regression tables are as defined under Section 3.2 – Variables.

on the CGQ variable is statistically significant. As in Table 4, the coefficient (i.e., 30.05) of the EM variable in the study's dynamic model without CGQ, although it is significant at 10%, becomes even highly significant at all conventional levels of significance when any of the CGQ variables is introduced in the models (see Tables 5 and 6). This confirms our assertion that EM seems to be practised within the implicit bounds of CG systems and regulations and that CG systems tend to amplify EM practices of firms. Moreover, CGQ matters when considering the EM – performance relationship since the coefficient of the CGQ variable is significant in our baseline model (see Table 5). These findings further suggest that excluding CG variable(s) in EM – performance relationship models may result in potential model misspecification problems. Our findings are corroborated by those of Leung and Horwitz (2010), Tang (2012) and Tang and Chang (2013), who also reported the significance of the corporate governance variable in the EM – performance relationship. We further observe that CGQ (i.e., both best-practice and disclosure metrics) plays a moderating role in the EM – firm performance relationship (see Tables 5 and 6), with the effect of EM on firm performance being stronger (i.e., the coefficients of the interaction terms being positive in both Tables). We, therefore, conclude that hypothesis 2, which states that "*The relationship between earnings management and financial performance of firms in ASSAC is significantly moderated by corporate governance quality,"* is thus, supported.

As we suggested earlier, CGQ matters if the coefficient on the CGQ variable is statistically significant. However, the effect of CGQ on performance cannot be fully explained without considering its interaction with other independent variables that are significant in the model. A negative value on the interaction term would imply that the higher the CGQ is, the weaker the effect of EM on performance. On the contrary, a positive value on the interaction term would be inferred that the higher the CGQ is, the stronger the effect of EM on performance is. Alternatively, the coefficient of the interaction term could be interpreted as follows: "If the coefficient of the interaction term is negative, then CG is less effective in constraining EM. Hence opportunistic outcomes of EM will result, whereas if the coefficient of the interaction term is positive, then CG is more effective in constraining EM; hence efficiency outcomes of EM will result."

In our model without CGQ (see Table 4), we find that EM affects firms' performance at the level of significance of 10%. When our model is re-estimated with the CGQ variables (see Tables 5 and 6), the direction of the EM coefficient remains unchanged. However, the EM coefficient becomes significant with our baseline SGMM estimator at all conventional levels. Moreover, the coefficient of the interaction term between EM and CGQ is also revealing and instructive concerning the possible interpretation of the EM coefficient. The coefficients of the interaction terms (i.e., coefficients of BPCGQ#DA =19.21***; and DCGQ#DA = 23.01***) demonstrate that the effect of EM on performance is contingent on CGQ and that the higher the CGQ is, the stronger the effect of EM on performance becomes. Furthermore, with a positive interaction coefficient, we conclude that CG is more effective in constraining EM, hence efficiency outcomes of EM results.

Our findings regarding the positive effect of EM on performance are in agreement with prior studies such as Dechow et al. (1995), Kasznik (1999) and McNichols (2000). They also reported EM as having a

positive correlation with firm performance and growth. Our empirical evidence thus supports the efficiency perspective (Deegan, 2009) that EM appears to be an effective performance enhancement strategy that serves the interest of both managers and shareholders as opposed to the opportunistic view (see, e.g.,Elkalla, 2017; Rezaei & Roshani, 2012).[12] It is worth noting that this EM – performance enhancement strategy is only efficiently deployed in connection with firms' current income, with no present evidence suggesting that this will necessarily reflect future profitability.

Our findings reveal the ability of CGQ to moderate EM practices and consequently reflected in the performance enhancement in firms. The robustness of our findings displays little variability and negligible biases across different econometric techniques. Therefore, the authors are confident that the results can be relied upon in making inferences and generalisations about populations with similar characteristics.

Overall, although previous research has typically supported the opportunistic perspective on accounting choices (i.e., EM has a negative effect on firm value – see, for example, Chakroun & Amar, 2022), we find that EM practices among our sampled firms from Africa tend to gravitate towards efficiency motives by exhibiting positive relationship with firm performance. Furthermore, the effect of EM on performance is significantly contingent upon a firm's CGQ, be it best-practice or disclosure metrics. These findings from the SGMM estimator concerning the moderating role of the study's CGQ variable(s) in the EM – performance nexus are novel within the African sub-region and thus, serve as a contribution to knowledge in this area of research. Besides, the study's findings regarding the positive effect of earnings management on performance which is suggestive of efficiency motives behind earnings management practices in Africa, demonstrate that the African context seems to be uniquely different from those of other emerging markets, which primarily report opportunistic motives (Elkalla, 2017; Rezaei & Roshani, 2012). Concerning the moderating role, our study reveals that the positive effect of earnings management on the financial performance of firms tends to be stronger in the presence of corporate governance quality. The results also prove robust when plausible alternative estimators such as the PCSE, OLS, FE and Diff-GMM were employed in the same analysis.

Firm size, growth opportunities, leverage, IFRS adoption and asset tangibility were also significant determinants of firm performance. Consistent with our expectations, leverage has a significantly negative association with performance, whereas firm size, growth and asset tangibility exhibited a positive association with performance. These findings are corroborated by the study of Sow and Tozo (2019) and Khan, Shamin, and Goyal (2018), which reported that firm size and asset tangibility have a significant positive association with performance. Zimon et al. (2021) and Tang and Chang (2013) also reported leverage as having a significantly negative relationship with performance. The IFRS adoption coefficient consistently churned out a negative effect on performance. Firm age turned out insignificant in all our SGMM estimations.

[12] Rezaei and Roshani (2012) have suggested that in examining efficient vs opportunistic EM, a positive and significant EM coefficient indicates efficient EM. In contrast, a negative or insignificant EM coefficient indicates opportunistic EM behaviour. The current study also recognises contrasting interpretations from some authors (e.g., Hernawati et al., 2021) regarding opportunistic earnings management when the coefficient is positive. These authors cite those positive discretionary accruals indicate management use of income increasing techniques that tend to be viewed as opportunistic behaviour of managers. However, in consonance with the efficiency perspective, the current study espouses a different view that earnings management is efficient if the coefficient is positively significant and opportunistic if otherwise.

5. Conclusions and limitations

5.1. Conclusions

The EM and CG literature primarily focuses on the performance impacts of firm-level specific and isolated governance characteristics. It does not pay sufficient attention to the importance of model enhancements with aggregate governance indices in the debate. Motivated by recent development in integrating aggregate CG indices with the traditional agency perspective in EM studies (Abbadi et al., 2016; Khan, Ghafar, & Nair, 2019), this study attempted to document the interactive role of CGQ in the EM – performance relationship by applying a dynamic estimation approach on the dataset from ASSAC.

First, given the robustness of our empirical evidence to alternative estimation approaches with our dataset, we plausibly conclude that EM has a significant effect on the performance of firms. This conclusion remains unchanged even after controlling for the dynamic nature of the EM – performance relationship.

Second, the strength of the relationship between EM and performance depends on the CGQ, whether disclosure or best-practice CGQ. Our study demonstrates that the diverse mechanisms of CG examined in a unified framework are effective in constraining EM practices of firms and consequently lead to performance enhancements in firms. Also, the positive results from the interaction effects indicate that, as a firm's CGQ improves, the stronger the performance-enhancement effect of its EM becomes, thus, further pointing to possible efficiency motives behind ASSAC firms' EM practices. We, therefore, conclude that both disclosure and best-practice CGQ indices significantly moderate the relationship between EM and performance in a positive way.

The contribution of this study to the EM and CG literature is at least twofold. First, unlike most prior studies examining the EM – performance relationship from a static perspective, our study re-investigates this relationship in a dynamic framework. The possible impact of EM, CG structures and other firm-specific characteristics on performance is fully controlled. By considering dynamic endogeneity and other forms of endogeneity that stems from simultaneity and time-invariant unobserved heterogeneity, we expect to achieve more reliable inferences about the causal link between EM and performance. Secondly, by providing robust empirical evidence from Anglophone sub-Saharan Africa, we support the emergent proposition that the performance effect of EM practices can be contingent upon the CG systems of firms (Tang & Chang, 2013) and other country-specific characteristics. Also, by its demonstration of the possible efficiency motives behind EM practices by sampled firms, the study reveals the uniqueness of the sub-Saharan African context from those of other developed and emerging economies, which largely report opportunistic motives behind EM practices (Chakroun & Amar, 2022; Mahrani & Soewarno, 2018). Nevertheless, given that Anglophone sub-Saharan African countries are typical examples of underdeveloped, developing or emerging economies, our findings are, to some extent, generalisable to markets having similar characteristics. Therefore, this study enriches the understanding of the interplay between EM and CGQ and their impact on corporate financial performance.

5.2. Implications

Our findings regarding the significant relationship between EM and firm performance and the moderating effect of CGQ on this relationship imply that EM practices of firms are contingent upon the CG systems in which firms operate within their respective jurisdictions. This will invariably reflect the credibility of reported accounting numbers and subsequently translate to enhanced performance. Therefore, shareholders and regulators of firms in ASSAC may observe that instituting mechanisms for management to adhere to best-practice CG regulations and systems could serve as an effective tool to constrain the opportunistic EM behaviour of firms. Hence, the comprehensive governance

mechanisms constituting a CG system should work together to achieve optimal best-practice governance systems and ensure adherence.

Our findings also offer some implications for policy formulation. First, given that firm performance is significantly driven by EM in the presence of CGQ, the effort by regulators in setting up and strengthening CG regulations in markets characterised by high EM activities, such as in ASSAC, should not undervalue the role of adherence to best-practice CG systems (Proimos, 2005). Second, regulatory enforcement with CG disclosure practices should be prioritised alongside actual adherence to acceptable best practices in organisations. This neutralises any potential adverse effects that weak disclosure CG practices may have on performance.[13] Finally, CG reforms in countries with high EM practices should incorporate this into policy considerations. Efforts to promulgate CG policies towards mere disclosure compliance to the neglect of actual adherence to best-practice systems may be counterproductive.

5.3. Limitations

Similar to other studies, this study suffers from some limitations. Our study observes an adverse role in the disclosure-corporate governance metric in Table 6, although this is insignificant. This may be due to the weak corporate governance disclosure practices among sampled firms culminating in this weak relationship (Coskun & Sayilir, 2012). Moreover, it is plausible to attribute any weak relationship to a possible non-monotonic relationship between CG and performance (see, Bozec & Dia, 2007; Elsayed & Wahba, 2013; Wahba, 2015), which possibly neutralises at a certain point. Recognising that the relationship between CG mechanisms and performance may not be monotonic, it might be interesting for future research to consider investigating at which point the effect of CG on performance may turn from favourable to adverse or at which point any neutralisation of significant results may occur. Bozec and Dia (2007), Elsayed and Wahba (2013), and Wahba (2015) have also noted that the quality of CG is affected by the interaction of CG mechanisms, which may substitute for or complement each other. Therefore, future research is encouraged to investigate several such potential interrelationships between different CG variables and financial performance in a unified yet non-monotonic framework.

Unlike developed countries, there is neither a formal CG database nor any data on external monitoring by analysts in ASSAC. Because of the unavailability of reliable, extensive data on corporate governance covering a wide range of governance indices, our study relied on disclosures in publicly available annual reports in constructing its CGQ indices. We ignored the potential of segregating CG elements into smaller sub-indices (e.g., that of the RiskMetrics Group Inc.) for a severed and more comprehensive analysis of the effects of these sub-indices on the EM – performance relationship to ascertain the contribution of each sub-index to this nexus. With new data, it would be desirable for further research to understand how other CGQ indices from other perspectives, such as the Worldwide Governance Indicators, G-Index, the *E*-Index, to mention a few, are related to performance, as well as their effectiveness in constraining EM practices of firms within emerging economies, especially the African sub-region.

[13] One may corroborate this with the results and findings from the study's Table 6 concerning the DCGQ variable whose coefficient is statistically insignificant, or refer to other prior studies such as Abdullah and Page (2009), Coskun and Sayilir (2012), and Peters and Bagshaw (2014), all of which reported insignificant relationship between CG and firm performance. Coskun and Sayilir (2012) attributed this weak, insignificant relationship to biased accounting numbers that become the measurement of company performance. Companies with better governance tend to report earnings more conservatively rather than discretionary accounting procedures. So corporate accounting procedures that do not refer to international auditing and accounting standards cannot assist users in observing a healthier comparison in financial performance and resulting in a more effective evaluation.

Finally, the current study ignored the potential segregation of its CGQ indices along a continuum from weak to strong. It has been argued that managers in firms with 'weak governance quality' are more likely to abuse accounting choices for self-interest, thereby reducing firm value. By contrast, managers in 'strongly governed' firms are less likely to use accounting discretion in response to a varied environment, potentially enhancing firm value (Tang & Chang, 2013). Therefore, the relationship between EM and firm performance is not constant but varies according to corporate governance quality (be it 'strong' or 'weak'). It will thus be helpful if future research, especially within the African sub-region, considers segregating CGQ into 'strong' and 'weak' components along a defined continuum to ascertain their effects on the relationship between EM and firm performance.

Data availability

Data for the study is obtained from publicly available sources

Declaration of interest

None.

Data availability

Data will be made available on request.

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