

# EXAMINING THE IMPACT OF CORPORATE GOVERNANCE REFORMS ON FIRM PERFORMANCE IN EMERGING MARKETS: THE MEDIATING EFFECT OF BOARD ROLES

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## Abstract

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The notion of corporate governance has been given credence on the policy agenda in many countries across the globe, especially after the frequent non-stop worldwide cases of corporate fraud and scandals. This has brought about the massive campaign on corporate governance reforms on finding dynamic corporate practices, structures, and systems that ensure that firms remain profitable, attractive, and sustainable. This study examines the effect of board structural characteristics (BSC) to achieve firm performance (FP) via the mediating effects of board roles (BRs) (frequency of board meetings (FOBM) and board size (BZ)) and the intervening role of corporate governance (CG) code which is an innovative model. By collecting data for 392 listed companies in South Africa for the period 2006-2018 and by employing the generalized method of moments (GMM) model, the findings of the study reveal that FOBM and BZ mediate the relationship between BSC and FP. Furthermore, the study finds a novelty in the interactive effect of corporate governance reforms with BSC on BRs. The study uncovers significant incremental effects of corporate governance reforms interacting with the BSC. These interactions significantly increase the relation after the implementation of the CG code.

**Keywords:** Corporate Governance, Corporate Governance Reforms, Board Roles, Firm Performance, GMM Model

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## 1. INTRODUCTION

The concept of corporate governance (CG) has been a priority on the policy agenda in both developed and developing market economies and the world

at large, especially after the frequent on-going worldwide cases of corporate fraud, scandals, gross mismanagement of corporate organizations, and concerns of the global financial crisis (Van Driel, 2019; Baydoun, Maguire, Ryan, & Willett, 2013). This

has brought about a massive crusade on corporate governance reforms (CGRs) on finding dynamic corporate practices, structures, and systems that ensure that firms remain profitable, attractive, and sustainable in meeting the needs of stakeholders and at the same time in conformance with the regulatory requirements (Palaniappan, 2017; Oussii & Taktak, 2018).

The need to adopt good CG practices is very important for emerging economies like South Africa. Most emerging economies are characterized by weak legal and judicial systems, undeveloped capital markets, and poor governance structures thereby exacerbating their exposure to corporate failures (Agyemang & Castellini, 2013). As a result, African countries have also not escaped the drive in the world for greater reforms on CG. There have been reforms on CG in most African countries, in Nigeria; for instance, the Code of CG best practice was issued in 2003 by the Securities Exchange Commission (SEC). In 2006, there was a Code of CG for banks post-consolidation issued by the Central Bank of Nigeria (CBN) and then the Securities Exchange Commission issued another Code of CG in 2011 which all listed firms were supposed to comply. South Africa's King Report on CG in 1994 as updated in 2002 was further reviewed in 2009. Likewise in Ghana, the reforms leading to the promulgation of the 2010 Code of best practice were issued by the SEC. Furthermore, international organizations such as the Organization for Economic Cooperation and Development (OECD), and the Economic Commission for Africa (ECA) introduced principles of CG of firms suggesting the global nature of CGRs. However and regardless of the late start, the basic reason for CGRs was more indigenous as the local banks were not having sufficient liquidity to finance the growing operations of the corporate sector. This led to CGRs in order to mobilize domestic savings and foreign portfolio investment (Younas, Siddiqi, Saeed, & Mehmood, 2011).

Research into CGR has proven useful in terms of strengthening and better positioning corporate leadership (board and management) and its accountability to stakeholders. In addition, it has helped immensely in terms of developments of the financial system, deepening the legal system of the business environment, growth and building investors' confidence (Mira, Goergen, & O'Sullivan, 2019; Singh, Tabassum, Darwish, & Batsakis, 2018; Claessens & Yurtoglu, 2012; Filatotchev & Boyd, 2009; Parker, Peters, & Turetsky, 2002). However, these extant researches which established the relationship between CG and performance have produced a mixed report. Barely do we have research that explores board roles (BR) as an intervening variable and most importantly on a cross-sectional basis from the perspective of emerging Africa (South Africa) under the background of CGRs. Some studies under the conventional input-output approach have reported significant association (Pearce & Patel, 2018; Agrawal & Cooper, 2017; Zagorchev & Gao, 2015; Aren, Kayagil, & Aydemir, 2014; Vahid, Elham, Mohsen, & Mohammadreza, 2012; Munisi & Randøy, 2013) others have reported weak relationships (Zabri, Ahmad, & Wah, 2016; Rose, 2016) and no association was reported by other researchers (Akbar, Poletti-Hughes, El-Faitouri, & Shah, 2016; Chaghadari & Chaleshtori, 2011). The different

reports from the various research works on the association between practices involved in governing corporate entities and performance leave inconclusive results on the subject. These mixed reports have opened windows of opportunities for empirical and theoretical research on CG and firm performance (FP) nexus through an intervening variable. This study, therefore, seeks to contribute to our understanding of board structure characteristics (BSC), BR, and FP under the background of CGRs.

From the African perspective particularly the emerging economies within the continent like South Africa, the lack of adequate evidence to show has certainly compromised policymakers in falsifying proper cause for better CG. Consequently, the vagueness is due to this type of misrepresenting the relationship between CG and FP. Moreover, there is still an absence of inclusive and exhaustive study on the relationship between CGR and FP that incorporates the board structure (BS) and BR from a multi-theoretic perspective, particularly in the African setting on a cross-sectional basis. Also, there are still scanty studies on CGRs and their impact on BS and BR in countries within Sub-Saharan Africa. The contribution of this paper to the extant literature can be viewed in diverse ways; first, the study discloses that the monitoring and resource dependence roles (MRDRs) of board members mediate the relationship between BSC and FP. The result provides a workable framework that by equipping the governing board of firms with the requisite structural components they will be able to deliver on their mandate to ensure sustainable value creation for all stakeholders. Second, the study finds a novelty in the interactive effect of CGRs with BSC on BR. The study uncovers significant incremental effects of CGRs interacting with the BSC. These interactions significantly increase the relation after the implementation of the CG code. The method used in showing the mediation role of CGRs differs from most existing research that uses structural equation modelling to show mediation.

Following the introduction section, the rest of the paper is structured as follows. Section 2 provides the literature review and hypothesis development. Section 3 provides the methodology while Section 4 presents the empirical analysis and hypothesis testing. The paper ends with Section 5 containing some concluding remarks and further research directions.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Establishing and maintaining good CG leads an organization towards achieving its ultimate goals, provides assurance to the stakeholders of providing transparent disclosure and relevant information that are stakeholder-friendly and this is the actual reason for which CG is attaining significant attention now (Okiro, Aduda, & Omoro, 2015). Pillai and Al-Malkawi (2018) contend that the ability of an organization to ensure operational efficiency, have access to finance easily, preserve and enhance goodwill, deliver quality accounting information, mitigate risks, and thus maximizing the long-term value of the firm is the essence of CG. That is to say that each CG structure must be able to achieve these goals. Other studies have found that good CG is important for economic growth and mitigating risk among

organizations (Di Bernardino, 2016; Andrieş & Nistor, 2016; Calomiris & Carlson, 2016). From the foregoing review, CG can generally be defined as those structures, systems, procedures, and policies that exist in organizations for the purposes of controlling, monitoring, and compliance with rules and regulations regarding the conduct of business to maximize the wealth of shareholders and other stakeholders. Thus, CG seeks to ensure accountability and transparency through effective reporting systems. These systems enable the organization to build goodwill or reputational capital, minimize the risk of losses, and hence increase the sustainability of the entity. In this way, an effective CG framework should ensure coordinated internal and external mechanisms to control and pursue the organization's goals.

## 2.1. Board roles (BRs) and firm performance (FP)

The role of the corporate board and its influence on FP is of increasing interest to the global community as a result of high-profile corporate scandals and collapses worldwide. However, despite this increased interest, our knowledge and understanding of how the board's structure and its roles impact corporate performance are relatively underdeveloped, especially from the perspective of Africa. The corporate board is the "heart" of CG where the outcome of a firm is often determined (Guerra, Fischmann, & Filho, 2009; Clarke, 2007; Fama & Jensen, 1983; Gillan, 2006).

Although developing a mechanism for measurement of BRs is still a problem, researchers are gradually converging to a point that understanding the BRs is vital to understand the CG and FP relationship (Hillman, Withers, & Collins, 2009; Huse, 2005, 2007). Drawing on this literature, this research proposes that FP is determined by the boards' ability to successfully carry out their MRDRs.

The need to study BRs arises directly from two main concerns. Firstly, as a result of CGRs worldwide, boards are beginning to pay more attention to the way they operate (Sarbanes-Oxley (SOX) Act 2002; UK combined codes; Aguilera & Cuervo-Cazurra, 2009). Secondly, Cohen, Krishnamoorthy, and Wright (2008) noted that board effectiveness has to depend on the roles which the boards perform besides solid structure and substantive content. They argue that recent calls for stringent CG mechanisms have given further impetus to study the BRs in relation to BSC and FP. The conceptual development of BRs is due to various theoretical domains existing in BRs research (Van den Heuvel, Van Gils, & Voordeckers, 2006). Forbes and Milliken (1999) are of the view that boards' performance can be measured in terms of their functions of monitoring and resource dependence. Similarly, Petrovic (2008) is of the view that these BRs in terms of MRDRs help achieve the shareholder objectives. Therefore, it can be said that there is no clarity in terms of BRs and different researchers have different views on them (Nicholson & Kiel, 2007; Van den Heuvel et al., 2006). However, we stick to literature in the next sub-section that resource provision and strategy role are not mutually exclusive rather they grossly overlap with regards to the set of tasks performed by the board, and therefore, discuss the board meeting frequency as the mechanism for monitoring role and FP relationship in the next section.

### 2.1.1. Monitoring role: FOBM and FP

As per the agency theory, monitoring/control is the main role that the board plays to ensure that the goals of the firm are attained (Jensen & Meckling, 1976; Fama & Jensen, 1983). Though the importance of board of directors' monitoring function has been documented by many researchers (Dalton & Kesner, 1987; Kesner, Victor, & Lamont, 1986; Mace, 1971), only a few empirical studies have however attempted to measure to what degree BSCs support the fulfillment of monitoring/control role of the board (Gabrielsson & Winlund, 2000; Van den Heuvel et al., 2006). Therefore, the intensity of the board activity is an important aspect of agency and other theories that are linked with CG and performance.

The ability of the board to perform is demonstrated through meetings as the frequency of their meeting increases, the more it offers them the opportunity in the performance of their roles as a steward of shareholders' wealth and rights. Conger, Finegold, and Lawler (1998) and Vafeas (1999) opined that the FOBM measures the intensity and quality of the board monitoring role. Again, higher FOBM offers them more time and opportunity in strategy formulation, appraise management and would be better informed on important developments as well as timely addressing the critical issue (Mangena, Taurigana, & Chamisa, 2006), which can be instrumental in strengthening the strategic and the resource dependence role of the directors as well. Roberts (2005) suggested that the governing boards are more active after the implementation of SOX.

In other words, boards play a monitoring role to make sure that management follows shareholders' interests. Many empirical studies have found support for a positive relationship between the two variables. For instance Aktan, Turen, Tvaronavičienė, Celik, and Alsadeh (2018), Salim, Arjomandi, and Seufert (2016), Andreou, Louca, and Panayides (2014) in their studies reported a positive relationship between FOBM and FP. For example, a study by García-Ramos and García-Olalla (2011), Conger et al. (1998) indicated that more meeting improves boards' performance while achieving shareholders' interests. Equally, Lipton and Lorsh (1992) suggested that as boards have lesser meeting frequencies, the organization faces more problems. Lorsh concluded that directors who meet frequently perform their functions well and achieve shareholders' interests. Therefore, the FOBM may be a significant resource for the board and may have a positive influence on its performance. This study uses the FOBM to capture the effect of board structure and board activity on FP in the light of compliance with CG codes of South Africa. The following hypothesis is to be tested.

*H1a: Frequency of board meetings is positively associated with firm financial performance.*

### 2.1.2. Resource dependence role (RDR): BZ and FP

As postulated by the resources dependency theory, the provision of resources is the most significant role performed by the board in corporate governance, and therefore the board of directors serves as the primary link between the firm and the external world. Literature from this theory suggests that the corporate board provides vital

resources for the firm through counselling for better management in strategy formulation and providing appropriate direction in achieving firm objectives, networking, finance, and expertise (Huse, 2007). Hillman, Cannella, and Paetzold (2000) are of the view that corporate board members, per their background, bring different kinds of useful qualities to management. This theory, therefore, advocates for a large BZ with appropriate representation of outside independent members. Guest (2009) is of the view that BZ and its members' background are necessary for the provision of counsel, management, advice, policy oversight, monitoring and also argued that US firms in compliance with SOX increased their BZ by adding more outside directors. BZ is simply the number of members of the board. Theories such as agency and resource dependency theories explain the importance of an appropriate BZ for controlling agency costs and give important resources to the firm in terms of finance and capital. It has been explained that the role of the board of directors in enhancing FP is achieved through access to resources including finance, human, technology, and communication (Pfeffer, 1973; Pfeffer & Salancik, 1978). Also, the board of directors is an important tool to link the organization and the rest of the world through the provision of resources as well as the reduction of uncertainties that the firm faces (Boyd, 1990; Hillman et al., 2009). Thus, this benefits suppliers, customers, and key stakeholders (Jackling & Johl, 2009).

The effects of a larger board on FP are well discussed in the literature. For instance, one of the advantages of a large board is that they can use their management skills and expertise to respond to inappropriate resolutions made by the CEO (Forbes & Milliken, 1999).

Again, studies by Aktan et al. (2018) and Salim et al. (2016) reported a significant positive association between larger BZ and FP.

However, a larger board has been criticized to raise agency costs, increase free riders, and detain the decision-making process as well as supervision of the firm (Goodstein, Gautam, & Boeker, 1994; Shaw, 1976). The link between BZ and FP are empirically elusive. Jackling and Johl (2009), Kyereboah-Coleman and Biekpe (2006), Yermack (1996), for example, found a positive relationship between the two amongst others. Other extant literature by Naushad and Malik (2015), Aljifri and Moustafa (2007) reported a negative association between BZ and FP. Similarly, studies by O'Connell and Cramer, (2010), Guest (2009), Kumar and Singh, (2013) all reported a significant negative relationship between BZ and FP; all suggesting that BZ performance nexus is still debatable.

The study however attempts to empirically investigate the link between board structure, board resource role as measured by BZ and FP through the years to after the implementation of CG codes from the context of South Africa. On the basis of the literature, the following hypothesis is formulated:

*H2a: Board size is positively associated with firm financial performance.*

## 2.2. Board structure provisions from CGRs

The reforms in CG require that non-executive directors will not be related to the organization or the executive directors on the basis of family

relationships as well as will not have any business or pecuniary relationship (SEC, 2010). Usually, it is expected that NEDs will monitor the role of the CEO which may be difficult to be monitored by the executive directors as being the subordinates who are close to the agency perspective. In addition to that, resource dependence theory proposes that organizations appoint these outsiders on their boards to make more resources from outside and therefore aid the strategic role of the board. Following the reforms in CG and the enforcement of it (Cadbury, 1993; OECD, 1999, 2004; Sarbanes-Oxley Act of 2002) – a US government legislation relating to CGRs, a number of developing countries follow these codes (Mallin, 2007; Aguilera & Cuervo-Cazurra, 2009). For example, the Code of Corporate Governance of Nigeria (2011), SANS (2009).

These codes of CG for South Africa give recommendations concerning board structure following the reforms. For example, it specifies the number of non-executive directors (NEDs) and independent board members, the presence or absence of dual board leadership structure, and board committees. For instance, the South African code (SANS, 2009) all recommend that there should be a split of the roles of the chairperson and managing director/chief executive officer specifically, in publicly-quoted firms. These codes believe that an independent board chairperson paves way for a balance of power and authority in the highest levels of the firm; it further recommends that a decision to combine these two roles in one individual should be explained to shareholders, and the board should put some measures in place to ensure its independence. In regards to the composition of the board, the Code recommends that “the board should include a balance of executive and NEDs with a complement of independent non-executive directors” (pp. 23). The Code also suggests that at least a third of the constituents of the board should be independent.

### 2.2.1. NEDs, BRs, and FP

The shared body that requires the mixture of executive and NEDs that should act in the best interest of shareholders is the board of directors. The persons entrusted by shareholders to act in their capacity and for them to be able to exercise their duties effectively and provide the impartial corporate decision to help reduce agency problems that are supposed to be separate from management are known as NEDs. If a board is being dominated by executive directors as per the agency and resource dependence theorists, are somewhat less accountable to different shareholders (Fama, 1980; Sonnenfeld, 2002). Consequently, the presence of NEDs on the board is considered valuable for the external investors and regarded as resourceful for noninterference in the board's decision (Mira et al., 2019; Unda, Ahmed, & Mather, 2019; Chhaochharia & Grinstein, 2007).

However, as noted, there has not been any direct relationship between the proportion of NEDs and FP (McNulty, Zattoni, & Douglas, 2013). Moreover, notwithstanding that there are some current studies on the role of independent directors (Cotter, Shivdasani, & Zenner, 1997; Boone, Field, Karpoff, & Raheja, 2007), the effect NEDs has on the FP cannot be considered as a direct one (Forbes

& Milliken, 1999; Hermalin & Weisbach, 2003; McNulty et al., 2013). Given these arguments, one can maintain that the relationship between BSC and FP is still open to debate, and the kind of relationship between BSC and FP is not direct. This is due to the fact that the relationship is mediated via BRs (McNulty et al., 2013).

Moreover, the key roles accomplished by directors to improve FP has been emphasized in CG literature (Ruigrok, Peck, & Keller, 2006; Arosa, Iturralde, & Maseda, 2010; Hamdan, Buallay, & Alareeni, 2017) with particular focus on the resource dependence and monitoring roles of the board in firm management (Hillman & Dalziel, 2003; Hung, 1998).

In regards to the structure of the board, it recommends that the board should encompass a balance of executive and NEDs, with a majority of NEDs in the CGRs in which the provisions are specified in the national codes (i.e., Kings Code of South Africa). A third of the sum of board members should at least be independent and NEDs. As clearly numbered by the codes, the issue of director independence focuses on six key elements and these are a major shareholder in the firm should not be an independent director, an employee of the firm in an executive capacity for the past three years, a consultant to the firm, a substantial supplier or customer, in a contractual relationship with the firm, free from any other association with the firm which may influence in his capacity to act independently. This suggests that the CG codes expect firms with more NEDs on their board to be better monitors of the firm management and resultantly improved financial performance. In lieu of the above, we, therefore, propose the following hypotheses:

*H3a1: There is a positive relationship between NEDs and the FOBM.*

*H3a2: There is a positive relationship between NEDs and BZ.*

*H3b1: The relationship between NEDs and ROE is mediated by FOBM and BZ.*

*H3b2: The relationship between NEDs and ROA is mediated by FOBM and BZ.*

*H3c: CG code moderates the relationships between NEDs and FOBM/BZ such that they are stronger after the implementation of CG code.*

### 2.2.2. CEO duality, BRs, and FP

Collective leadership structure and separated leadership structure are the two divisions of corporate leadership structure (Coles, McWilliams, & Sen, 2001). This is closely related to the board's chairman position and CEO which remain to be at the limelight around the business world, especially with the idea of as to whether the functions of the chairman and CEO should be merged or not. Nevertheless, irrespective of the significance of the role duality of CEO/chairperson, consensus on how it affects FP has not been reached in resource dependence and agency theories as discussed in the extant literature. Chang, Lee, and Shim (2019) report that CEO-Chairman duality and FP is positively related and benefits the firm when economic policy uncertainty is high. There is an interesting explanation for the double role of the Chairman, CEO become more dominant with authority and as an insider relishes strategic knowledge of the organization more than any chairman from outside (Haniffa & Cooke, 2002).

Nevertheless, the reverse effect of CEO duality on FP is also discussed in the existing literature

(Qadorah & Fadzil, 2018; Okwara, Okoro, & Jennifer, 2019; Chaghadari & Chaleshtori, 2011; Nazar, 2016). They argue that dual roles may not improve the board's capability. Therefore, extending the memberships of the board with more individuals with varied experiences from outside will be helpful by the separation of roles of CEO and Chairman. Guest (2009) and Gordon (2007) resolved to the same that board composition changed after the implementation of SOX by adding more lawyers and financial experts and fewer executives. It is evident that firms that need more guidance gain greater value from larger boards (Coles et al., 2001). Therefore, a CEO with the dual role is unfavorable to the balance between the CEO and the board which encourages a productive setting in which the CEO can involve in decision-making that is not in line with shareholders' interests by more likely to promote his/her cronies and executives to the board, leading as a result to a smaller and less independent board (Hermalin & Weisbach, 2003).

Historically in most Sub-Saharan African countries like including South Africa, so many companies have been following the family-owned structure where the family head is traditionally the chief executive, as well as the chairman and other members of the family, are appointed as directors on the board. This arrangement though seems quite expedient but has been risk-laden as public money is involved in the business of listed companies (McGee & Igoe, 2008). That is why many stakeholders consider this arrangement as one of the basic reasons for weak monitoring and enforcement. To counter this chronic issue, the CG code requires that the position of CEO and Board Chair should not be held by the same person to avoid entrenchment. Therefore, the following hypotheses were made:

*H4a1: There is a negative relationship between CEO duality and FOBM.*

*H4a2: There is a negative relationship between CEO duality and BZ.*

*H4b1: The relationship between CEO duality and ROE is mediated by the FOBM and BZ.*

*H4b2: The relationship between CEO duality and ROA is mediated by the FOBM and BZ.*

*H4c: CG code moderates the relationships between CEO duality and FOBM/BZ such that they are stronger after the implementation of CG code.*

### 2.2.3. Diligence of audit committee (DAC), BRs and FP

The existing literature suggests that the audit committee helps improve the effectiveness and efficiency of corporate boards (Jiraporn & Chintrakarn, 2009) which helps to decrease agency problems and pushes managers to promote FP (Alzeban, 2015). Accordingly, studies by Zraiq and Fadzil (2018), Zhou, Owusu-Ansah, and Maggina (2018) show that there is a significantly positive relationship between DAC and FP. According to resource dependence theory, board committees give their expert advice to the board and management on crucial business decisions (Harrison, 1987). Agency theory on the other side is of the view that the audit committee intends to protect shareholder interests by providing objective, independent review of corporate executives and the state of affairs of the companies.

In order to maintain integrity in the performance of their monitoring function, audit committees are required to perform their obligations

diligently by meeting more frequently (Bhasin, 2012). Various researchers have used audit committee meeting frequency as a proxy for diligence (Raghunandan & Rama, 2007; Braswell, Daniels, Landis, & Chang, 2012). While previous literature on audit committee meetings elaborates that higher activity on behalf of the audit committee will be helpful in improving the financial quality and reducing the misreporting of figures (DeZoort, Hermanson, Archambeault, & Reed, 2002; Sharma, Naiker, & Lee, 2009), there are still, however, conflicting theoretical propositions regarding the nexus between board committees and FP despite their increasing popularity.

One stream of the literature suggests that the establishment of these committees can impact positively on performance (Sun & Cahan, 2009) due to their small size, making them more efficient to meet more frequently and providing ample time for meaningful dialogue in reaching an agreement quickly (Karamanou & Vafeas, 2005). The composition of committee of a corporate board is done in a way that brings each director's specialist knowledge and expertise to bear on the board decision-making process in line with the resource dependence perspective (Harrison, 1987); in so doing this permits the main board to devote attention to specific areas of more strategic interests and responsibility.

On the other hand, there is also no scarcity of literature that suggests that board committees and FP are inversely related. The first and foremost argument put in place in favour of the negative association is the cost consideration, as more and more mechanisms to avoid agency problems are built they drain the resources of the firm in terms of travel expenses and other allied remunerations (Vafeas, 1999).

It could be deduced from the above account of literature that the relationship between DAC and FP is not unequivocal and cannot be determined through a simple direct relationship (Finkelstein & Mooney, 2003). Rather, it can be contended that the relationship can be determined through BRs mediation (Forbes & Milliken, 1999; Finkelstein & Mooney, 2003). In this study, we focus on the two BRs of control and resource dependence, which is in line with Hillman and Dalziel (2003); Goodstein et al. (1994). The same has also been put forward by Carpenter and Westphal (2001), Ruigrok et al. (2006), Al-Najjar (2012) argues that more authority delegation is required in the process of constituting sub-committees which will lead to more coordination among the directors and indeed, will create more need for board meetings which may improve the monitoring capability of the board.

Therefore, conceptually, it can be envisaged that more activity in the audit committee will be instrumental in strengthening the BRs as a whole. Hence, the following hypotheses would be tested:

*H5a1: There is a positive relationship between DAC and FOBM.*

*H5a2: There is a positive relationship between DAC and BZ.*

*H5b1: The relationship between DAC and ROE is mediated by FOBM and BZ.*

*H5b2: The relationship between DAC and ROA is mediated by FOBM and BZ.*

*H5c: CG code moderates the relationships between DAC and FOBM/BZ such that they are stronger after the implementation of CG code.*

#### *2.2.4. Independence of audit committee (IAC), BRs and FP*

Audit committee with characteristics such as individuals that are capable with expertise, independence, and trustworthiness will certainly play a vital correspondent role between the full board, internal auditor, external auditor, executive officers, and the fund executives which ensure true and fair financial reporting so that stakeholders could make prudent, intelligent, and informed business decisions (Beasley, Carcello, Hermanson, & Lapides, 2000).

In general, these studies have found that the greater the IAC, the higher will be transparency in the process of financial reporting (Zraiq & Fadzil, 2018; Oussii & Taktak, 2018; Salawu, 2017; Carcello, Hermanson, Neal, & Riley, 2002).

There is no unanimous literature that the IAC influencing organizational performance. The audit committee being independent can serve as active to control financial reporting. IAC has therefore been found to be significantly related to degrees of reporting quality in prior studies (Zraiq & Fadzil, 2018; Baxter & Cotter, 2009). Conversely, Nimer, Warrad, and Khuraisat (2012), Agrawal and Cooper (2017) reported that there is no significant relationship between audit committees' effectiveness factors and market measure of performance on a sample of 63 listed Jordanian firms. Similarly, studies by Herdjiono and Sari (2017), Bouaine and Hrichi (2019) did not find any significant relationship between IAC and FP.

It can be inferred on the account of literature that the relationship between characteristics of audit committee like independence and FP is ambivalent and in line with the arguments by Hermalin and Weisbach (2003) does not provide us with a clear link then it can be said that this relationship may be mediated by some BRs (McNulty et al., 2013; Finkelstein & Mooney, 2003).

Before introducing SOX, the role and responsibility of the audit committee for auditing and preparing the financial statements were not explicit. The introduction of SOX has improved the structure of the audit committee and its role relating to resources and controls has been broadened (Hoitash & Hoitash, 2008).

It is, however, important to mention that enactment of SOX as well as the introduction of CG codes by various countries including South Africa has allowed the audit committee to play various roles including appointment, compensation, and retention of outside auditors (Brodsky et al., 2003). Thus, audit committees are obliged to be headed by independent non-executive directors with sufficient financial skills; this allows the audit committee to help the board to improve monitoring task and provide also the needed technical support input to invent the board resource dependence and strategic duties (Brick & Chidambaran 2007; Brodsky et al., 2003). Moreover, following SOX, more freedom given to the audit committee has helped to meet the demands of the new law. As a result, the independence of audit committees has improved auditing processes and produce better results, i.e., reliable figures, which ensures the outside shareholders that corporations are using their capital in a proper way (DeZoort et al., 2002). Again, following SOX enactment, it is compulsory for the corporate to include more NEDs in the audit committee and to guarantee its independence which

in turn increases BZ. It can be concluded that the IAC improves the monitoring and the resource dependence role of the board. Therefore, we intend to examine the relationship between IAC and FP following the changes imposed in their composition and responsibilities through the introduction of CG codes. Following from the above discussion, we explore the link between IAC and FP mediated by board roles. Therefore, the following hypotheses will be tested:

*H6a1: There is a positive relationship between the IAC and FOBM.*

*H6a2: There is a positive relationship between the IAC and BZ.*

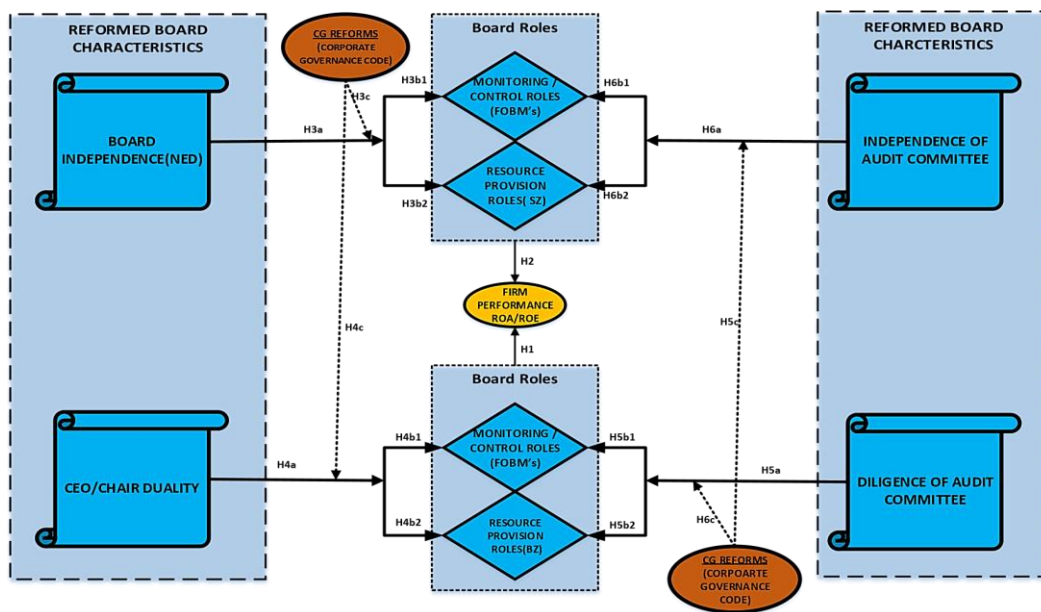
*H6b1: The relationship between IAC and ROE is mediated by the FOBM and BZ.*

*H6b2: The relationship between IAC and ROA is mediated by the FOBM and BZ.*

*H6c: CG code moderates the relationships between IAC and FOBM/BZ such that they are stronger after the implementation of CG code.*

The conceptual model in Figure 1 follows the approach of recent research on boards by examining the impact of BSC on BRs and FP in the backdrop of CG codes in South Africa. The model, in addition, contributes to the existing literature in a number of ways. Firstly it introduces a new research orientation in BSC and BRs studies using agency and resource dependency theories simultaneously. Second, the model encapsulates board structural behaviour in strengthening the BRs for better corporate performance. This is a departure from previous studies that use an input-output model of the research.

Figure 1. Research model



### 3. RESEARCH METHODS

#### 3.1. Sample selection and data

The sample firms used in this study were drawn from companies listed on the Johannesburg Stock Exchange (JSE) of South Africa is investigating the BSC, BRs, and FP relationships. The official list of all the listed firms was obtained from the link <https://www.african-markets.com/en/stock-markets>. The total number of the listed firms is 392, but to qualify for the final sample, a firm has to complete the full study period of 2006 to 2018 which enables us to capture the periods of prior and post-implementation of CG codes in the country. Additionally, the firm's corresponding certified annual reports and corporate governance-related information must be available for computation of ROA and ROE and other related variables for the study period. These helped in meeting the conditions for a balanced panel, which is feasible for only those firms having data available for several consecutive years (Brick & Chidambaran, 2007), a total of 278 firms were chosen for a period of thirteen years with a total of 3614 observations.

#### 3.2. Variable measurement

##### 3.2.1. Dependent variables

FP is the dependent variable and there is no unanimously agreed measure of FP. However, based on the fact that corporate governance has a strong correlation with accounting-based measures, this study uses two dependent variables, the accounting-based measure return on assets (ROA) which reflect a broader measure of the profitability of the firm, and return on equity (ROE) which reflects the owners' perspective.

##### 3.2.2. Predictor variables

The predictor variables in the model are made up of various BSC as an apparatus of CG. These include the proportion of non-executive directors (board independence) (NED); CEO duality (board leadership); the diligence of audit committee (DAC) and independence of the audit committee (IAC). The measurements of the board structural variables are in accordance with prior research. The proportion of non-executive directors is measured as the total number of non-executive

directors divided by the total number of directors on the board (Haniffa & Hudaib, 2006). The role of CEO duality is a dummy variable that takes the value of “1” if the positions of company chairman and CEO are combined, otherwise “0” (Brick & Chidambaram, 2007; Kiel & Nicholson, 2003). The DAC is measured as the number of total audit committee meetings held in an accounting year (Vafeas, 1999; Al-Najjar, 2012). Similarly, the IAC is also a dummy variable that takes the value of “1” if a company’s audit committee is headed by a non-executive director; otherwise zero (Weir & Laing, 2000; Henry, 2008).

### 3.2.3. Mediating variables

The mediating variable used is BRs which are subdivided into two: monitoring/control role (FOBM) which is a measure of the number of board meetings held in the period and resource provision/dependency role (BZ) which is a measure of the total number of members on the board (BZ).

### 3.2.4. Moderating variable

We have used CG code as a proxy for CGRs which serves as a moderating variable. The outcomes of these reforms are spell out in a document called corporate governance code (CGC) (codes of best practices). The codes spell out the various reforms on corporate governance. South Africa’s King Report on CG in 1994 as updated in 2002 was further reviewed in 2009. This is a unitary variable that assumes the value “0” for the time period prior to the implementation of CGC and value “1” for the period after the implementation of the CGC. Since our study period is between 2006 and 2018, the benchmark for the implementation period is after 2009 when the code was reviewed and updated. Consequently, our dummy takes the form “0” between 2006 and 2009 and “1” between 2010 and 2018. It was operationalized through interaction with all the BSC variables used in our model.

### 3.2.5. Control variables

Researches on CG and performance are not devoid of endogeneity problems. In this regard, the use of control or omitted variables is very important in any study because omitting an important variable may bring biased results in the relationship between CG and FP (Black, Love, & Rachinsky, 2006). As a result, a number of control variables, leverage, firm size, asset tangibility, and growth opportunities, are included in the regression in addition to the main variables of importance in the model.

## 3.3. Models

We established equations (1), (2), and (3) in this study and uses Baron and Kenny’s (1986) three steps technique to evaluate the models. According to Baron and Kenny (1986), the following three conditions of mediation are essential to be met in regression analysis in order to support the mediation of variable(s). First, significant relationships exist between the dependent and predictor variable is required. Second, a significant relationship exists between the independent and mediating variables is

required. Third, the dependent variable is regressed on both the predictor and the mediating variables, and the mediator must affect the dependent variable.

$$FP_{i,t} = \alpha + \alpha_1 BSC_{i,t} \sum_{i=1}^n a_n \quad (1)$$

$$BR_{i,t} = \alpha + \alpha_1 BSC_{i,t} \sum_{i=1}^n a_n \quad (2)$$

$$FP_{i,t} = \alpha + \alpha_1 BSC_{i,t} + \alpha_2 BR_{i,t} + \sum_{i=1}^n \alpha_n \quad (3)$$

$$BR_{i,t} = \alpha + \alpha_1 CGC * BSC_{i,t} \sum_{i=1}^n \alpha_n \quad (4)$$

Equation (1) illustrates the direct relationship between BSC and FP; here,  $FP$  denotes firm performance with two measurements, namely, ROE and ROA.  $BSC$  denotes BSC with four measurements, namely, NED, CEO duality, IAC, and DAC. Equation (2) illustrates the second condition of the mediating effects of BRs on this relationship; here,  $BR$  denotes board roles with two measurements, namely, monitoring/control roles (FOBM) and resource provision roles (BZ). Equation (3) was developed for the third condition of the mediating role of BRs in BSC and FP. Equation (4) shows the moderating role of the  $CGC$  on the relationship between BSC and BRs.

## 3.4. Empirical approach

A panel dataset was used to carry out the analysis on the relationship between BSC and FP. Endogeneity is a problem that usually occurs in panel data analysis, which leads to biased and spurious regression results (Song, Yoon, & Kang, 2020). Since our dataset requires the use of an econometric technique, the issue of endogeneity needs to be treated with utmost seriousness (Javeed, Latief, & Lefen, 2020). Based on the extant literature, we used GMM (generalized method of moments) to examine the relationship between BSC and FP (Singh et al., 2018). We used the GMM approach for many reasons. The main explanatory variables of this study, BSC, suggests possible endogeneity problem (Guillet, Seo, Kucukusta, & Lee, 2013). For instance, the appointment of the CEO and the CEO chair (CEO duality) which is a component of the BSC may be driven by firm characteristics that affect the decision-making processes of the firms and consequently impact FP (Yang & Zhao, 2014; Nekhili, Chakroun, & Chtioui, 2018; Kang & Zardkoohi, 2005). Some studies have also submitted that a single leadership structure of firms is mostly endogenous; CEO and CEO chairs also have a relationship with some unobserved firm characteristics (Kang & Zardkoohi, 2005) that leads to the problem of endogeneity.

When dealing with the regression model, a variable faces the problem of endogeneity when the error terms are correlated. Similarly, with autoregression with omitted variables, measurement errors can arise as a result of these problems and auto-correlated errors when BSC variables are



correlated with the error terms owing to latent factors (Adams, Hermalin, & Weisbach, 2010). Therefore, endogeneity in our analysis is necessary to be controlled. Thus, many econometrics methods such as lagged dependent variables, instrumental variables, random effects, control variables, fixed effects, and the GMM model have been applied to solve the problem of endogeneity (Li, 2016). GMM has proven to be the best among the list with the highest power to tackle endogeneity. Accordingly, the GMM model proposed by (Arellano & Bond, 1991) is our preferred estimator for this study. GMM allows for heteroscedasticity and autocorrelation within a firm, and its consistency depends on instrumental validity and the absence of higher-order serial correlation in the error terms.

We verify our dataset via various tests to validate its suitability for analysis prior to the application of the GMM model. A variance inflation factor (VIF) test is applied to check the multicollinearity among data, and no multicollinearity problems were confirmed. We used the Wald test thereafter to check for heteroscedasticity in the dataset, and no heteroscedasticity was showed in the result. The Sargan test for over-identifying restrictions was used. The results showed that the instrumental variables were valid and that we fail to reject the over-identifying limits. We tested the data for

serial autocorrelation by using the AR (1) and AR (2) tests and found that there was no serial autocorrelation. However, there was an endogeneity problem in our model. To solve the endogeneity problem, we used the GMM model, in line with (Singh et al., 2018). The results of all of the tests for the instruments showed that our specifications did not suffer from weak instruments and that our instrumental variables were adequate.

#### 4. EMPIRICAL RESULTS

This sub-section provides descriptive statistics of the variables. We reported the mean values and standard deviation for the overall sample in Table 1. In order to statistically test the presence of multicollinearity, the study used the VIF to check. The VIF result is shown in column 5 of Table 1 alongside the descriptive statistics. VIF is used to detect whether one explanatory variable has a strong linear relationship with the other. The rule of thumb is that if the VIF is greater than 10, then it means there is a severe case of multicollinearity which requires dropping such variables from the model (Li, Gong, Zhang, & Koh, 2018; Hair, Black, Babin, Anderson, & Tatham, 2006). It can therefore be seen that all of the VIF values were below 10 hence there is no multicollinearity in the regressors.

**Table 1.** Descriptive statistics and VIF

| <i>Variable</i>  | <i>OBS</i> | <i>Mean</i> | <i>Std. dev.</i> | <i>VIF</i> |
|--|------------|-------------|------------------|------------|
| <b><i>Dependent variable (Firm performance)</i></b>                    |            |             |                  |            |
| Return on equity (ROE)   | 3614       | 0.314       | 0.325            |            |
| Return on asset (ROA)  | 3614       | 0.431       | 0.171            |            |
| <b><i>Independent variables (Board structural characteristics)</i></b> |            |             |                  |            |
| Board independence (NED)   | 3614       | 0.376       | 0.269            | 1.05       |
| CEO/Chairman duality   | 3614       | 0.213       | 0.403            | 1.07       |
| Independence of audit committee (IAC)                                  | 3614       | 0.772       | 0.184            | 1.03       |
| Diligence of audit committee (DAC)                                     | 3614       | 4.927       | 1.501            | 1.28       |
| <b><i>Mediating variables (Board roles)</i></b>                        |            |             |                  |            |
| Frequency of board meeting (FOBM)/Monitoring role                      | 3614       | 10.84       | 2.150            | 1.06       |
| Board size (BZ)/Resource role  | 3614       | 10.14       | 5.217            | 1.46       |
| <b><i>Moderating variable</i></b>                                      |            |             |                  |            |
| Corporate governance code (CGC)  | 3614       | 0.013       | 0.103            | 1.00       |
| <b><i>Control variables</i></b>  |            |             |                  |            |
| Leverage   | 3614       | 0.66        | 0.24             | 1.21       |
| Asset tangibility  | 3614       | 2.249       | 5.081            | 1.13       |
| Growth   | 3614       | 17.66       | 32.24            | 1.01       |
| Firm size  | 3614       | 7.425       | 26.96            | 1.04       |

#### 4.1. Empirical analysis

In this sub-section, we first focus on the relationships between governance variables, BSC (NED, CEO duality, IAC, DAC), and ROE as performance measures as presented by employing the GMM model. We thereafter tested the mediation hypotheses which predicted that BRs (FOBM, BZ) mediate the association between BSC and FP. The three steps technique suggested by Baron and Kenny (1986) was used to evaluate the mediating role of BRs. Baron and Kenny (1986) suggested three steps for assessing mediation among independent, mediating, and dependent variables. In order to

support the mediation of variable(s), the following three conditions of mediation are essential to be met in the regression analysis.

First, it is required that a significant relationship exists between the dependent and independent variables (Model 3 in Table 2). Second, it is required that a significant relationship exists between the independent and mediating variables (Model 4 and Model 5 for FOBM and BZ respectively). Third, the dependent variable is regressed on both the independent and the mediating variables (Model 6 and Model 7), and the mediator must affect the dependent variable.

Table 2. Regression results for ROE as FP

|                | ROE<br>Model 1        | ROE<br>Model 2        | ROE<br>Model 3        | FOBM<br>Model 4       | BZ<br>Model 5         | ROE<br>Model 6        | ROE<br>Model 7        |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Const.         | 0.1854**<br>(4.519)   | 0.4836**<br>(3.809)   | 0.3471**<br>(3.910)   | 0.3827**<br>(3.267)   | 0.2837**<br>(3.802)   | 0.3672**<br>(3.452)   | 0.2813**<br>(4.688)   |
| Leverage       | -0.2843<br>(1.190)    | -0.1972<br>(1.025)    | 0.1435**<br>(3.810)   | 0.1523**<br>(2.901)   | -0.0853<br>(0.713)    | -0.0637<br>(1.284)    | 0.8451**<br>(2.732)   |
| Asset tang.    | 0.0377**<br>(3.635)   | -0.0209<br>(0.711)    | -0.0073<br>(1.310)    | -0.1315**<br>(3.512)  | 0.2622<br>(0.562)     | 0.0915*<br>(2.109)    | 0.1715*<br>(2.631)    |
| Growth         | 0.2983**<br>(4.910)   | 0.5062**<br>(3.883)   | 0.3619**<br>(3.045)   | 0.0624**<br>(2.577)   | 0.1102*<br>(2.432)    | 0.2633**<br>(3.890)   | 0.2733**<br>(3.415)   |
| Firm size      | -0.3710*<br>(2.488)   | 0.0419**<br>(3.839)   | 0.0729**<br>(3.952)   | 0.1629*<br>(2.521)    | 0.0799**<br>(3.627)   | 0.0381<br>(0.109)     | 0.2011<br>(1.536)     |
| FOBM           | 0.0307*<br>(2.251)    |                       |                       |                       |                       | 0.0516**<br>(2.834)   |                       |
| BZ             |                       | 0.0795**<br>(3.813)   |                       |                       |                       |                       | 0.0208**<br>(3.078)   |
| NED            |                       |                       | 0.1694**<br>(3.215)   | 0.0512**<br>(2.682)   | 0.1147**<br>(3.472)   | 0.0061**<br>(3.782)   | 0.0088**<br>(3.425)   |
| CEO duality    |                       |                       | -0.1942**<br>(3.810)  | -0.1630**<br>(3.623)  | -0.2643**<br>(3.152)  | -0.0336**<br>(3.834)  | -0.0276**<br>(3.729)  |
| IAC            |                       |                       | 0.2502**<br>(3.812)   | 0.3133**<br>(4.637)   | 0.2719**<br>(3.802)   | 0.1921**<br>(3.814)   | 0.0783**<br>(4.425)   |
| DAC            |                       |                       | 0.2319**<br>(3.521)   | 0.2942**<br>(3.736)   | 0.1933**<br>(3.720)   | 0.0432**<br>(4.529)   | 0.0513**<br>(3.629)   |
| Wald test      | 425.722               | 322.521               | 427.204               | 413.293               | 364.712               | 397.562               | 412.012               |
| AR (1)         | -1.3166               | -2.7433               | -2.5102               | -2.7920               | -2.074                | -2.5109               | -1.6153               |
| AR (2)         | -1.4621               | -2.8619               | -1.6901               | -1.8927               | -2.728                | -1.8334               | -2.0921               |
| Sargan test    | 2.6731                | 2.9727                | 3.8263                | 5.9031                | 3.6143                | 4.4251                | 3.8391                |
| Observation    | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  |
| R <sup>2</sup> | 0.7859                | 0.7463                | 0.7714                | 0.7512                | 0.7533                | 0.7863                | 0.7801                |
| F-test         | F = 10.63<br>(0.0000) | F = 10.83<br>(0.0000) | F = 11.36<br>(0.0000) | F = 10.63<br>(0.0000) | F = 11.42<br>(0.0000) | F = 11.53<br>(0.0000) | F = 10.73<br>(0.0000) |

Note: \*, \*\* mean 5% and 1% significance levels respectively, and *t*-values are reported in parenthesis.

The results obtained from regression analysis by testing the mediating effect of board role between BSC and ROE as FP are presented in Table 2. In testing the mediation effects, we assess the effect of the independent variables on the dependent variable as the first condition of mediation; ROE has regressed on BSC (Model 3 of Table 2). All the board structural characteristics variables were significant in influencing ROE which satisfies the first condition for mediation effect as recommended by Baron and Kenny (1986).

In testing for *H1a* and *H2a*, in Model 1 and Model 2 of Table 2, the mediating and controlled variables have been regressed against the performance measure of ROE. The regression relationships have been controlled by leverage, asset tangibility, growth, and firm size. The figures reveal that there is a significant positive relationship between these variables except for leverage (Model 1 and Model 2 of Table 2) with ROE. For instance, FOBM (Model 1) and BZ (Model 2) were positive and statistically significant ( $\beta = .0307$ ,  $p < .05$ ) and ( $\beta = .0795$ ,  $p < .01$ ) respectively in influencing FP. This gives support to the acceptance of *H1a* and *H2a*.

In Model 4 and Model 5 of Table 2, the second condition of mediation is assessed by regressing BRs (FOBM and BZ) on BSC indicators (NED, CEO duality, IAC, and DAC) respectively. More specifically, in Model 4 the board monitoring role (FOBM) is regressed on board structural characteristics indicator while accounting for the mediation effect. The results show that the relationship is significant and positive for NED, IAC and DAC ( $\beta = .0512$ ,  $p < .01$ ), ( $\beta = .3133$ ,  $p < .01$ ), ( $\beta = .2942$ ,  $p < .01$ ) and negative for CEO duality ( $\beta = -.1630$ ,  $p < .01$ ). This gives support to the following hypotheses *H3a1*, *H4a1*, *H5a1*, and *H6a1*. Similarly in Model 5, the value for the proportion of non-executive directors and resource dependence role (BZ) is also positive and statistically significant ( $\beta = .1147$ ,  $p < .01$ ) showing that more presence of NEDs on the

board increases the board meeting frequency causing improved control role of the board and leading to more resource provision role, thus supporting *H3a2*. The value for the relationship between BZ and IAC is also positive and significant ( $\beta = .2719$ ,  $p < .01$ ) showing that *H5a2* is supported by the study. Again, from Model 5, the value for the relationship between board resource provision role (BZ and DAC) is also positive and statistically significant ( $\beta = .1933$ ,  $p < .01$ ) showing that *H6a2* is supported the study. Finally, the value for the relationship between BZ and Chairman/CEO duality is negative and significant ( $\beta = -.2643$ ,  $p < .01$ ) showing that *H4a2* is supported.

To test for the final condition of mediation both BSC indicators and board control roles were added in Model 6 and Model 7 of Table 2. More specifically, in Model 6 the ROE is regressed on board control role (FOBM) while accounting for the mediating effect. The results show that most of the variables are significant except for firm size and leverage. The value of FOBM which is a mediating variable is statistically significant and positive ( $\beta = .0516$ ,  $p < .01$ ) and by introducing it into the model the marginal effect of the independent variables (NEDs, CEO duality, IAC, DAC) decreased ( $\beta = .1694 > \beta = .0061$ ), ( $\beta = -.1942 > \beta = .0336$ ), ( $\beta = .2502 > \beta = .1921$ ), ( $\beta = .2319 > \beta = .0432$ ) which supports the third and necessary condition for mediation. Thus, the mediation effect is confirmed.

Similarly, in Model 7 of Table 2, the ROE is regressed on board resource provision role (BZ) while accounting for the mediation effect. The results show that most of the variables are significant except for the firm size which is marginally insignificant and positive ( $\beta = .2011$ ,  $p > .05$ ). The value of BZ which is a mediating variable is statistically significant and positive ( $\beta = .0208$ ,  $p < .01$ ) and by introducing it into the model the marginal effect of the independent variables (NEDs, CEO duality, IAC, DAC) decreased

( $\beta = .1694 > \beta = .0088$ ), ( $\beta = -.1942 > \beta = -.0276$ ), ( $\beta = .2502 > \beta = .0783$ ), ( $\beta = .2319 > \beta = .0513$ ) which supports the third and necessary condition

for mediation. Thus, the mediation effect is confirmed. These results supported *H3b1*, *H4b1*, *H5b1*, and *H6b1*.

**Table 3.** Regression results for ROA as FP

|                | ROA<br>Model 1        | ROA<br>Model 2        | ROA<br>Model 3        | FOBM<br>Model 4       | BZ<br>Model 5         | ROA<br>Model 6        | ROA<br>Model 7        |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Const.         | 0.2809**<br>(3.615)   | 0.3154**<br>(4.681)   | 0.4151**<br>(3.809)   | 0.3827**<br>(3.267)   | 0.2837**<br>(3.802)   | 0.3694**<br>(4.352)   | 0.3742**<br>(3.845)   |
| Leverage       | 0.0104<br>(0.267)     | 0.0293<br>(0.520)     | -0.0239<br>(0.799)    | 0.1523**<br>(2.901)   | -0.0853<br>(0.713)    | -0.1094<br>(1.363)    | 0.6195**<br>(2.682)   |
| Asset tang.    | 0.1422<br>(1.191)     | 0.2762<br>(0.294)     | 0.1593<br>(1.324)     | -0.1315**<br>(3.512)  | 0.2622<br>(0.562)     | 0.3742**<br>(3.826)   | 0.3827**<br>(4.053)   |
| Growth         | 0.2671**<br>(3.902)   | 0.3952**<br>(3.983)   | 0.1911**<br>(3.936)   | 0.0624**<br>(2.577)   | 0.1102*<br>(2.432)    | 0.2682**<br>(4.436)   | 0.2836**<br>(3.194)   |
| Firm size      | 0.0644**<br>(3.719)   | -0.1927**<br>(3.613)  | 0.1642**<br>(3.836)   | 0.1629*<br>(2.521)    | 0.0799**<br>(3.627)   | 0.2902**<br>(3.683)   | 0.1324**<br>(3.436)   |
| FOBM           | 0.1701**<br>(3.622)   |                       |                       |                       |                       | 0.0426**<br>(3.530)   |                       |
| BZ             |                       | 0.1532**<br>(4.693)   |                       |                       |                       |                       | 0.0216**<br>(4.836)   |
| NED            |                       |                       | 0.2474**<br>(3.892)   | 0.0512**<br>(2.682)   | 0.1147**<br>(3.472)   | 0.0784**<br>(3.809)   | 0.0713**<br>(3.604)   |
| CEO duality    |                       |                       | -0.3017**<br>(3.839)  | -0.1630**<br>(3.623)  | -0.2643**<br>(3.152)  | -0.0528**<br>(3.728)  | -0.1283**<br>(3.262)  |
| IAC            |                       |                       | 0.3788**<br>(3.905)   | 0.3133**<br>(4.637)   | 0.2719**<br>(3.802)   | 0.0702**<br>(3.783)   | 0.0583**<br>(3.384)   |
| DAC            |                       |                       | 0.3721**<br>(3.6228)  | 0.2942**<br>(3.736)   | 0.1933**<br>(3.720)   | 0.0892**<br>(3.647)   | 0.0362**<br>(3.572)   |
| Wald test      | 248.415               | 279.571               | 217.526               | 413.293               | 364.712               | 191.803               | 211.802               |
| AR (1)         | -2.6671               | -2.1920               | -2.6091               | -2.7920               | -2.074                | -2.6151               | -2.8258               |
| AR (2)         | -2.9143               | -1.4819               | -2.5918               | -1.8927               | -2.728                | -2.9042               | -1.9221               |
| Sargan test    | 2.8771                | 2.8542                | 3.9734                | 5.9031                | 3.6143                | 3.7821                | 3.8930                |
| Observation    | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  | 3614                  |
| R <sup>2</sup> | 0.7836                | 0.8633                | 0.8634                | 0.7512                | 0.7533                | 0.8533                | 0.8671                |
| F-test         | F = 12.91<br>(0.0000) | F = 12.81<br>(0.0000) | F = 13.77<br>(0.0000) | F = 10.63<br>(0.0000) | F = 11.42<br>(0.0000) | F = 12.91<br>(0.0000) | F = 11.91<br>(0.0000) |

Note: \*, \*\* mean 5% and 1% significance levels respectively, and *t*-values are reported in parenthesis.

Turning to the ROA measure, we follow a similar procedure as before in testing the mediation effects, we assess the effect of the independent variables on the dependent variable as the first condition of mediation, ROA was regressed on BSC (Model 3 of Table 3). All the BSC variables were significant in influencing ROA which satisfies the first condition for the mediation effect.

To test for *H1b* and *H2b*, in Model 1 and Model 2 of Table 3, the mediating and controlled variables have been regressed against FP (ROA). For instance, FOBM (Model 1) and BZ (Model 2) were positive and statistically significant ( $\beta = .1701$ ,  $p < .01$ ) and ( $\beta = .1532$ ,  $p < .01$ ) respectively in influencing FP (ROA). This gives support to the acceptance of *H1b* and *H2b*.

In Model 4 and Model 5 of Table 3, the second condition of mediation is assessed by regressing BRs (FOBM and BZ) on BSC indicators (NED, CEO duality, IAC, and DAC) respectively. However, since we regressed only the BRs on the BSC with the same control variables in Model 4 and Model 5, the same explanation holds as in Table 2 because they depict the same results.

To verify for the final condition of mediation both BSC indicators and board control roles were added in Model 6 and Model 7 of Table 3. In Model 6 the ROA is regressed on board control role (FOBM) while accounting for the mediating effect. The value of FOBM which is a mediating variable is statistically significant and positive ( $\beta = .0426$ ,  $p < .01$ ) and by introducing it into the model the marginal effect of the independent variables (NEDs, CEO duality, IAC, DAC) decreased ( $\beta = .2474 > \beta = .0784$ ), ( $\beta = -.3017 > \beta = -.0528$ ), ( $\beta = .3788 > \beta = .0702$ ), ( $\beta = .3721 > \beta = .0892$ ) which supports the third and necessary condition for mediation. Thus, the mediation effect is confirmed.

Finally, in Model 7 of Table 3, the ROA is regressed on board resource provision role (BZ) while accounting for the mediation effect. The value of BZ which is a mediating variable is statistically significant and positive ( $\beta = .0216$ ,  $p < .01$ ) and by introducing it into the model the marginal effect of the independent variables (NEDs, CEO duality, IAC, DAC) decreased ( $\beta = .2474 > \beta = .0713$ ), ( $\beta = -.3017 > \beta = -.1283$ ), ( $\beta = .3788 > \beta = .0583$ ), ( $\beta = .3721 > \beta = .0362$ ) which supports the third and necessary condition for mediation. Thus, the mediation effect is confirmed and consequently supported *H3b2*, *H4b2*, *H5b2*, and *H6b2*.

#### 4.2. Moderating effect of CGC

Generally, moderation occurs when the effect of an independent variable on a dependent variable varies according to the level of a third variable, termed a moderator variable, which interacts with the independent variable (Baron & Kenny, 1986). In Models 5, 6, 7, and 8 of Table 4, the moderating effects of CGC on the independent variables have been introduced to judge the effect of moderating variables on the governance variables. The moderator CGC is a binary variable that assumes the value of "0" for the time period before the implementation of CGC and assumes the value of "1" for the period after the implementation of CGC. Its moderating effects are formed by computing its interaction terms with the independent variables of interest, which show their incremental effects after the CGC implementation compared to the period before its implementation. The results are then compared to Models 1, 3, and 4 in order to examine the effect of the implementation of the CGC. Consequently, the following hypotheses were tested: *H3c*, *H4c*, *H5c*, and *H6c*.

**Table 4.** Regression results for the moderating effect of CGC in FMOB

| Independent variables | Dependent variables - FOBM |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                       | Model 1                    | Model 2               | Model 3               | Model 4               | Model 5               | Model 6               | Model 7               | Model 8               |
| Const.                | 0.4362**<br>(3.9514)       | 0.3831**<br>(3.573)   | 0.3783**<br>(3.836)   | 0.3788**<br>(3.632)   | 0.3622**<br>(3.915)   | 0.4738**<br>(4.053)   | 0.3537**<br>(4.667)   | 0.2866**<br>(3.630)   |
| Leverage              | -0.3181**<br>(3.425)       | -0.2314**<br>(3.745)  | -0.3252**<br>(4.115)  | 0.1746**<br>(3.681)   | 0.0756**<br>(3.129)   | 0.3245**<br>(3.643)   | 0.2254**<br>(3.975)   | 0.2653**<br>(3.703)   |
| Asset tang.           | 0.0318**<br>(2.683)        | 0.1537**<br>(3.325)   | 0.3563**<br>(3.682)   | -0.489**<br>(3.732)   | 0.1532**<br>(4.366)   | 0.0472**<br>(3.298)   | 0.4723**<br>(3.433)   | 0.0489**<br>(3.829)   |
| Growth                | 0.0793**<br>(3.823)        | 0.0722**<br>(2.837)   | 0.0278**<br>(4.922)   | 0.0627**<br>(3.811)   | 0.1293**<br>(3.829)   | 0.5269**<br>(3.271)   | 0.0205**<br>(3.674)   | 0.0526**<br>(4.021)   |
| Firm size             | 0.2722*<br>(2.104)         | 0.1688*<br>(2.090)    | 0.2422*<br>(2.072)    | 0.3611**<br>(3.422)   | 0.2822**<br>(3.916)   | 0.3822**<br>(3.152)   | 0.2190**<br>(4.622)   | 0.5632**<br>(3.2921)  |
| NEDs                  | 0.0473**<br>(2.942)        |                       |                       |                       | 0.1290**<br>(3.802)   |                       |                       |                       |
| CEO duality           |                            | -0.129**<br>(3.421)   |                       |                       |                       | -0.1153**<br>(3.183)  |                       |                       |
| DAC                   |                            |                       | 0.2196**<br>(4.537)   |                       |                       |                       | 0.2275**<br>(3.822)   |                       |
| IAC                   |                            |                       |                       | 0.3371**<br>(4.893)   |                       |                       |                       | 0.3492**<br>(3.271)   |
| CGC                   | 0.0113<br>(0.182)          | 0.1632<br>(0.743)     | 0.0452*<br>(1.996)    | 0.0276*<br>(2.813)    | 0.0133<br>(1.248)     | 0.0504<br>(1.175)     | 0.1065<br>(0.425)     | 0.5162<br>(1.248)     |
| CGC * NEDs            |                            |                       |                       |                       | 0.1481**<br>(2.603)   |                       |                       |                       |
| CGC * CEO duality     |                            |                       |                       |                       |                       | -0.341**<br>(3.910)   |                       |                       |
| CGC * DAC             |                            |                       |                       |                       |                       |                       | 0.2611**<br>(3.324)   |                       |
| CGC * IAC             |                            |                       |                       |                       |                       |                       |                       | 0.2393**<br>(2.702)   |
| Wald test             | 135.714                    | 127.536               | 172.533               | 161.915               | 148.892               | 170.637               | 131.025               | 151.832               |
| AR (1)                | -2.7361                    | -2.6772               | -2.7832               | -2.1671               | -2.5831               | -2.8301               | -2.5642               | -2.9101               |
| AR (2)                | -2.5228                    | -2.1682               | -2.6411               | -2.5374               | -2.6922               | -2.5483               | -2.8101               | -2.5392               |
| Sargan test           | 4.8151                     | 4.6381                | 5.6361                | 4.9331                | 4.8292                | 4.9474                | 5.1931                | 4.7932                |
| R <sup>2</sup>        | 0.7953                     | 0.7577                | 0.8511                | 0.8942                | 0.8891                | 0.7638                | 0.8209                | 0.7837                |
| F-test                | F = 11.63<br>(0.0000)      | F = 10.63<br>(0.0000) | F = 11.71<br>(0.0000) | F = 11.02<br>(0.0000) | F = 12.83<br>(0.0000) | F = 10.64<br>(0.0000) | F = 11.74<br>(0.0000) | F = 11.21<br>(0.0000) |

Note: \*, \*\* mean 5% and 1% significance levels respectively, and t-values are reported in parenthesis.

**Table 5.** Regression results for the moderating effect of CGC in BZ

| Independent variables | Dependent variables - BZ |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                       | Model 1                  | Model 2               | Model 3               | Model 4               | Model 5               | Model 6               | Model 7               | Model 8               |
| Const.                | 0.3452**<br>(4.536)      | 0.2822**<br>(3.314)   | 0.4637**<br>(4.673)   | 0.5129**<br>(4.538)   | 0.3736**<br>(4.280)   | 0.5748**<br>(4.673)   | 0.3738**<br>(3.826)   | 0.4647**<br>(4.783)   |
| Leverage              | -0.2340**<br>(3.633)     | -0.2451**<br>(4.706)  | 0.5244**<br>(3.735)   | 0.3713**<br>(2.928)   | 0.0542**<br>(2.731)   | -0.1099<br>(1.834)    | 0.2871**<br>(3.904)   | 0.2533**<br>(3.714)   |
| Asset tang.           | 0.4095<br>(0.614)        | 0.2822<br>(0.209)     | 0.3782<br>(0.190)     | 0.2360*<br>(2.191)    | 0.5781<br>(1.421)     | 0.1638<br>(1.436)     | 0.3281<br>(0.648)     | 0.1536<br>(0.615)     |
| Growth                | 0.0628**<br>(3.812)      | 0.1172*<br>(2.077)    | 0.6782**<br>(4.892)   | 0.4573**<br>(4.439)   | 0.2751**<br>(3.732)   | 0.3673**<br>(3.784)   | 0.2742**<br>(4.062)   | 0.1536**<br>(4.836)   |
| Firm size             | 0.1591**<br>(3.628)      | 0.0682**<br>(3.829)   | 0.1528**<br>(3.625)   | 0.2819**<br>(4.053)   | 0.5182**<br>(4.537)   | 0.3643**<br>(4.983)   | 0.2627**<br>(3.647)   | 0.3673**<br>(4.835)   |
| NEDs                  | 0.1182**<br>(3.342)      |                       |                       |                       | 0.1432**<br>(4.782)   |                       |                       |                       |
| CEO duality           |                          | -0.273**<br>(3.638)   |                       |                       |                       | -0.3381**<br>(4.537)  |                       |                       |
| DAC                   |                          |                       | 0.1528**<br>(3.892)   |                       |                       |                       | 0.2344**<br>(2.426)   |                       |
| IAC                   |                          |                       |                       | 0.2533**<br>(3.783)   |                       |                       |                       | 0.3637**<br>(4.614)   |
| CGC                   | 0.0405<br>(1.73)         | 0.0246*<br>(2.010)    | 0.0211*<br>(2.022)    | 0.1531**<br>(3.132)   | 0.3241<br>(0.809)     | 0.3265<br>(1.017)     | 0.3251<br>(1.592)     | 0.3662<br>(0.773)     |
| CGC * NEDs            |                          |                       |                       |                       | 0.3215**<br>(3.462)   |                       |                       |                       |
| CGC * CEO duality     |                          |                       |                       |                       |                       | -0.3741**<br>(3.833)  |                       |                       |
| CGC * DAC             |                          |                       |                       |                       |                       |                       | 0.3425**<br>(3.164)   |                       |
| CGC * IAC             |                          |                       |                       |                       |                       |                       |                       | 0.3452**<br>(3.892)   |
| Wald test             | 140.537                  | 172.695               | 151.422               | 131.536               | 157.742               | 130.733               | 137.053               | 160.132               |
| AR (1)                | -2.7381                  | -2.6721               | -2.8362               | -2.7425               | -2.0521               | -1.9442               | -2.6473               | -2.6371               |
| AR (2)                | -2.1920                  | -2.4901               | -2.1829               | -1.8362               | -2.7342               | -2.7381               | -2.8931               | -2.8461               |
| Sargan test           | 2.6381                   | 2.7855                | 3.7292                | 4.7401                | 4.7382                | 3.6631                | 3.9471                | 2.7481                |
| R <sup>2</sup>        | 0.7741                   | 0.7573                | 0.8699                | 0.8683                | 0.7952                | 0.7782                | 0.8638                | 0.7455                |
| F-test                | F = 10.72<br>(0.0000)    | F = 11.23<br>(0.0000) | F = 11.91<br>(0.0000) | F = 11.44<br>(0.0000) | F = 12.83<br>(0.0000) | F = 12.10<br>(0.0000) | F = 11.63<br>(0.0000) | F = 10.78<br>(0.0000) |

Note: \*, \*\* mean 5% and 1% significance levels respectively, and t-values are reported in parenthesis.

The effect of NEDs on both frequencies of the board meeting and BZ is positive and statistically significant and consequently on performance prior to the implementation of the CGC. The coefficient of CGC \* NEDs shows the difference between the period before the implementation of the CGC and after the implementation of BRs and consequently performance. In this case, it is 0.1481 (Table 4) and is significant. This means that after the implementation of the CGC the addition of NEDs has a much higher impact on BRs and consequently on performance. Looking again at Table 5 it shows that there is an increase in NEDs from 0.1182 to 0.3215 which increases the effect on BRs and performance. Therefore, results in Model 5 to Model 8 reveal that the organizations having a higher proportion of non-executive directors on the boards have performed significantly better after the implementation of the CGC.

The effect of CEO/Chairman duality on both frequencies of the board meeting and BZ is statistically significant negative prior to the implementation of the CGC. The coefficient of CGC \* CEO duality shows the difference between the period before the implementation of the CGC and after the implementation of CGCs on BRs and consequently performance. In this case, it is -0.3741 and is significant. This means that after the implementation of the CGC, CEO/Chairman duality has a much higher negative impact on BRs and consequently on performance. Looking again at Table 5, it shows that CEO duality became negative after the implementation from -0.273 to -0.3741 which decreases the effect on board roles. Therefore, results in Model 5 to Model 8 reveal that the organizations having many dual roles on the boards have performed significantly lower after the implementation of the CGC which may also imply that firms that continue to employ dual role of CEO/Chairman after the implementation of CGC have significantly lower performance.

The effect of DAC on both frequency of board meeting and BZ is positive and statistically significant and consequently on performance prior to the implementation of the CGC. The coefficient of CGC \* DAC shows the difference between the period before the implementation of the CGC and after the implementation of BRs and consequently performance. In this case, it is 0.2611 (Table 4) and is significant. This means that after the implementation of the CGC, the addition of DAC has a much higher impact on BRs and consequently on performance. From Table 5, it shows that there is an increase in DAC from 0.1528 to 0.3425 which increases the effect on board roles. Therefore, results in Model 5 to Model 8 reveal that the organizations having higher diligence of audit committees have performed significantly better after the implementation of the CGC. Similarly, the effect of the IAC on both FOBM and BZ is positive and statistically significant and consequently on performance prior to the implementation of the CGC. The coefficient of CGC \* IAC shows the difference between the period before the implementation of the CGC and after the implementation of BRs and consequently performance. In this case, it is 0.2393 (Table 4) and is significant. This means that after the implementation of the CGC the addition of IAC has a much higher impact on board roles. From Table 5, the result shows an increase in IAC from

0.2533 to 0.3452 which increases the effect on board roles. Therefore, results in Model 5 to Model 8 reveal that the organizations having higher independence of the audit committee have performed significantly better after the implementation of the CGC. Generally, these results are in line with our *H3c*, *H4c*, *H5c*, and *H6c* which state that after the implementation of the CGC, the governance indicators become stronger.

## 5. CONCLUSION

So many researchers have tried to investigate the direct association between BSC and FP. Some of them have reported a positive relationship (Aktan et al., 2018; Salim et al., 2016), while others have reported a negative relationship (Naushad & Malik, 2015; O'Connell & Cramer, 2010; Guest, 2009; Kumar & Singh, 2013), as noted, the relationship between the BSC and FP has not been straightforward. Some studies have highlighted that this relationship can be mediated by some other factors that indirectly influence it and recommended that the mediators should be examined to understand the influence of BSC on FP (Forbes & Milliken, 1999; Hermalin & Weisbach, 2003; McNulty et al., 2013). Besides, comprehensive and detailed research on the relationship between CGR and FP that considers the role and structure of boards from a multi-theoretic approach is barely available, especially in the African context on a cross-sectional basis. We addressed this research gap by using two indicators-monitoring and resource dependence roles (FOBM and BZ) as corresponding mediators to explain the relationship between BSC and FP via the resource dependence and agency theories.

In this paper, we analyzed 3614 firms' observations to examine the mediating roles of the FOBM and BZ in the relationship between BSC and FP. The theoretical basis for our study was drawn from the resource dependence and agency theories. Several hypotheses were made, and the findings support all of the proposed hypotheses. This study contributed to the existing literature in diverse ways; first, the study reveals that the monitoring and resource dependence roles of board members mediate the relationship between BSC and FP. The result provides a workable framework that by equipping the governing board of firms with the requisite structural components they will be able to deliver on their mandate to ensure sustainable value creation for all stakeholders. Second, the study finds a novelty in the interactive effect of CGRs with board characteristics on board roles. The study uncovers significant incremental effects of CGRs interacting with the BSC. These interactions significantly increase the relation after the implementation of the CGC. The method used in showing the mediating role of CGRs differs from most existing research that uses structural equation modelling to show mediation.

As with any other research, this research is not without limitations. It should be noted that this study has only covered the period from 2006 to 2018, with a sample of 392 listed companies on South Africa's stock exchanges; hence, the validity of the findings interpreted in this study is limited to the scope of the data and the condition of the economy for the period of the data. Also, the data collected largely from financial statements which may be affected by the accounting standards

and the choice of accounting policies and measure past performance, the annual report may not truly represent the company's state of affairs and performance due to management manipulation. However, the data was extracted from annual reports which are considered the certified and most authentic corporate data disclosure, thus increasing the strength of the generalizability of the results.

Further and detailed research on the relationship between BSC such as duality, experience, knowledge, gender, compensation, and FP is recommended. Likewise, research on board committees' characteristics and performance needs

to be looked into further separately. Such a study will also provide explanations for the limitations of the agency theory and resource dependency theory.

Also, this study examined the impact of board composition in the form of representation of the audit committee and independent directors and FP. Moreover, the gender diversity in board is still an unfamiliar verity in African corporate governance mechanism, which needs further attention from different dimensions, as well as the extent to which board diversity can enhance the board efficiency and effectiveness through more cohesive working environments.

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