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### Citation

ERENA, Obsa Teferi, Mesfin Mala KALKO, and Sara Adugna DEBELE. Corporate governance mechanisms and firm performance: empirical evidence from medium and large-scale manufacturing firms in Ethiopia. *Corporate Governance (Bingley)* [online]. Emerald Group Holdings, 2021, [cit. 2023-02-06]. ISSN 1472-0701. Available at <https://www.emerald.com/insight/content/doi/10.1108/CG-11-2020-0527/full/html>

### DOI

<https://doi.org/10.1108/CG-11-2020-0527>

### Permanent link

<https://publikace.k.utb.cz/handle/10563/1010596>

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# Corporate governance mechanisms and firm performance: empirical evidence from medium and large-scale manufacturing firms in Ethiopia

Obsa Teferi Erena, Mesfin Mala Kalko and Sara Adujna Debele

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## Abstract

**Purpose** – This study aims to examine the impact of corporate governance mechanisms on financial and non-financial aspects of firm performance in medium and large-scale manufacturing firms in Ethiopia. **Design/methodology/approach** – The cross-sectional survey and simple random sampling methods are adopted while the data collection is through a questionnaire that covers five corporate governance indicators consisting of the board independence, board effectiveness, shareholders role, internal audit effectiveness (IAE) and disclosure and transparency. The dimensions of firm performance were indicated by six firm performance indicators of customer and market (CM), internal process (IP), differentiation, efficiency, competitive position (CP) and financial (organizational) performance (OP). The covariance-based structural equation modeling (SEM) with the maximum likelihood parameter estimation technique was used to perform the data analysis.

**Findings** – A significant positive relationship has been found between the independence of the board of directors and firm performance (especially with respect to differentiation, OP, CP and IP). However, the board of directors' effectiveness showed an unexpected result, significant negative effect on differentiation, OP, CP, CM and IP. The study also indicates a positive significant effect of disclosure and transparency on differentiation, CP and OP. However, the coefficient on the CM construct of firm performance is negative and significant. A significant negative linkage has also been revealed between IAE and two constructs of performance: differentiation and CP. One of the important findings of the study is that shareholders' role has a significant positive impact on both board characteristics (board independence and board effectiveness) and firm performance (differentiation, efficiency, CP and OP).

**Research limitations/implications** – The study has two potential limitations. First, in comparison to prior studies, this study is based on a small sample size which limits the generalizability of the findings. Different scholars have suggested (Anderson and Gerbing, 1984, 1988; Iacobucci, 2010; Hair et al., 2019) that SEM requires a large sample size to test the hypothetical model. Thus, future research can further investigate the link between corporate governance and firm performance by using a larger sample size to achieve more reliable results. Second, the current study used a quantitative approach only, but prior studies (e.g. Ahrens and Khalifa, 2013) suggest a qualitative approach to more investigate and reach a very conclusive idea on corporate governance. The approach is currently receiving growing popularity in the literature.

Practical implications – The findings of the study would have measurable implications for different stakeholders who are in the position of supporting or regulating manufacturing firms. First, the findings give a clue about how a firm can design a good corporate governance system. Second, managers of the firm can get a hint or tip from the result that might help as input for designing strategies. Finally, it might help policymakers to understand and think about the very crucial role of active participation of shareholders in curtailing/reducing agency cost and enhancing firm performance apart from (beyond) the conventional corporate governance mechanisms (board of directors, internal audit, disclosure and transparency).

Originality/value – This study seeks to extend and contribute to the current literature in several ways. First, in contrast to previous studies, this study used both financial and non-financial performance measures and thereby providing new empirical insights relating to the non-financial performance measures. Second, this study provides a new result that the role of shareholders has a direct significant positive impact on board characteristics (i.e. board independence and board effectiveness) and firm performance. Finally, this study has come with a new insight that disclosure and transparency is a major driver of firm performance.

*Keywords:* Corporate governance, Structural equation modeling, Ethiopia, Firm performance, Manufacturing firms Paper type Research paper

## **1. Introduction**

Developing countries, such as Ethiopia, are often faced with a multitude of problems such as the absence of an organized stock market, lack of shareholders' active involvement in corporate governance issues/disputes, frequent government intervention, weak institutional capacity to encourage/promote and facilitate compliance with corporate governance codes and a weak regulatory environment (Tsamenyi et al., 2007; Herath and Freeman, 2012; Ayele, 2013). Dato et al. (2018) indicated that the legal structure of Ethiopia's corporate system, and the general level of corporate governance practices, are weak. Tura (2012) also pointed out that the Ethiopian share company law lacks sufficient statutory guidelines on governance issues such as the division of oversight and management duties, as well as the composition, independence and remuneration of the board of directors' in share companies. Ayele (2013) also asserts that political parties' involvement, inadequate shareholder protection laws, a culture of accepting misgovernance and discrimination in regulatory rule enforcement between state-owned and private banks are among the challenges of corporate governance in Ethiopia. Furthermore, internal audit's role in corporate governance through its services to the board of directors has been ignored in the manufacturing firms in Ethiopia. Similarly, in the overall score, the World Economic Forum's (2019) Global Competitiveness Index report ranked Ethiopia 140th out of 141 economies in the corporate governance sub-pillar (which includes the strength of auditing and accounting standards, conflict of interest regulation, and shareholder governance). Prior studies claim that these structural characteristics, coupled with concentrated ownership and economic uncertainties (poor economic conditions), demand effective corporate governance in developing countries (Ahunwan, 2002; Rabelo and Vasconcelos, 2002). Besides, developing countries need well-established corporate governance practices to attract foreign direct investment and achieve economic development (Herath and Freeman, 2012).

Corporate governance is defined as a system that deals with the exercise of power over corporate entities, outlining the structures and processes associated with strategic decision-making and control within a company (Melis, 2004). It has a variety of role players. The principal is an internal audit, audit committee, chief executive officer and board of directors. It is believed that, in a market economy, good corporate governance is crucial for safeguarding the interests of multiple stakeholders and building investor confidence (Feng et al., 2017; Lattemann, 2014). Bekele (2012) also asserts that a good corporate governance framework fosters market integrity, increases economic efficiency and growth, and enhances investor trust. The role of corporate governance mechanisms in enhancing firm performance has extensively been studied both in developed and developing countries (Klein et al., 2005; Cheng et al., 2011; Nordberg and Booth, 2019; Arosa et al., 2013; Zhou et al., 2018; Lenz et al., 2018; Mihret et al., 2010; Mihret and Yismaw, 2007; Adedeji et al., 2019). It is very common in empirical studies that corporate governance is usually represented (measured) by the board of directors' characteristics, internal audit effectiveness (IAE), chief executive officer (CEO) duality, audit committee and internal-external auditor relationship. Given these conventional proxies, in the current study, we have posited the role of shareholders in corporate governance practices. The corporate governance practice in developed countries (where there are strong shareholder laws and other provisions) is quite different from that in developing countries. In developing countries like Ethiopia, where there is weak shareholder law, no capital market regulations and ineffective company laws, the role of shareholders in appointing, monitoring and controlling the board of directors seems crucial. This concept deems inconsistent with the conventional view of agency theory (Jensen and Meckling, 1976) that underpin company shareholders should not interfere in the corporate decision-making process because it would threaten the board of directors' independence (BDI). Besides, we have used disclosure and transparency as a key element of corporate governance that has been ignored in the extant literature.

This paper aimed to examine the impact of corporate governance mechanisms on financial and non-financial aspects of the firm performance of medium and large-scale manufacturing firms in Ethiopia. The study confirms that board independence has a positive significant effect on the four constructs of firm performance, namely, differentiation, organizational/financial performance (OP), competitive position (CP) and internal process (IP). However, board effectiveness showed a significant negative effect on the same constructs of firm performance. One of the reasons for an unexpected negative sign on the board of directors' effectiveness (BDE) would probably occur when the board of directors strictly controls every operational activity assuming managers are not performing for the benefit of shareholders. A significant negative relationship is found between IAE and two constructs of firm performance (i.e. differentiation and CP). On the other hand, the degree to which relevant and useful information is disclosed and transparent (e.g. publishing financial data at a reasonable time, clarity and informative reports, market-sensitive information, and updating information promptly on a website) is positively and significantly related to firm performance as represented by differentiation, OP and CP. Moreover, shareholders' role has a direct significant positive impact on both the BDE and firm performance. However, the indirect impact of shareholders' role on firm performance is insignificant.

This paper aims to extend and contribute to the literature in several ways. First, in contrast to previous studies, this study used both financial and non-financial performance measures and thereby providing new empirical insights relating to the non-financial performance measures. Second, distinct from prior studies, this study provides a new result that the role of shareholders has a direct and indirect impact on firm performance. A firm with a strong shareholders role is likely to have better corporate governance and firm performance. Finally, unlike many prior studies, this study incorporated disclosure and transparency as major drivers of firm performance thereby come up with a new insight on the causal relationship between disclosure and firm performance. It is not as much studied and considered as a mechanism of corporate governance in the conventional literature.

The remainder of the paper is organized as follows. Section 2 provides an overview of the relevant review of the empirical literature on the subject matter. Section 3 describes the research methodology. Section 4 presents the results of the study. Findings are discussed in Section 5. Section 6 concludes the results and discussions. Section 7 presents the implications of the study. Finally, Section 8 provides limitations and areas for further study.

## **2. Literature review**

Many researchers have devoted significant attention to corporate governance over the past several years. Based on an empirical study, corporate governance is defined for this study as the structure and processes among the company's management, a board of directors, shareholders, and other stakeholders, and involves the roles of the stewardship process and exercising strategic leadership, provides the structure through which the objectives of the company are set, and the means of attaining those objectives and the objectives of assuring accountability and improving performance (OECD, 2015; Shleifer and Vishny, 1997). Good corporate governance practices create and enhance sustainable shareholders' values (i.e. firm value), enable corporations to use their capital efficiently, curtails managerial self-interest and opportunistic behavior, protects stakeholders' interests and serves as an important source of corporate competitive advantage (Brigham and Houston, 2009; OECD, 2015). Similarly, Klapper and Love (2004) indicated that investors, especially in emerging markets, are interested to pay more for firms they perceive as well-governed. The prior literature on the relationship between corporate governance and firm performance is large, but most studies focus on the firms' financial performance (based on performance measures) and neglected non-financial measures of performance. This study is intended to fill this gap in the literature by incorporating non-financial measures of performance.

### ***2.1 Corporate governance variables/indicators***

We have reviewed the empirical evidence on the linkage between five main corporate governance mechanisms, namely, shareholders' role, board independence, board effectiveness, IAE and disclosure and transparency to firm performance as a basis of our research questions.

*2.1.1 Shareholders' role.* According to agency theory, where ownership is separated from management, there is an inherent potential conflict of interests in governance because the interests of the shareholders and the directors may not be the same. Active ownership is one of the mechanisms that agency theory relies upon to align the interests of the shareholders and the board of directors. Because of the agency problem, boards of directors must be monitored. Shareholders have incentives to monitor and discipline the board of directors, as the shareholders are the ultimate risk bearers (Jensen and Meckling, 1976). Agyemang and Castellini (2015) revealed that when majority shareholders stop meddling in their dealings, boards of directors tend to exert control over corporate organizations. Del Guercio et al. (2008) indicated shareholder activism is a powerful tool to influence corporate behavior. Similarly, Hessen (1983) indicated shareholders should play an active role in appointing and electing directors, and thus influence the selection of the officers who run the company to align the interests of shareholders and directors. Shareholders also have a key role to play in driving long-term firm performance and economic prosperity. Informed, engaged shareholders-or those

acting on their behalf are the means by which the board of directors is held to account for business strategy and performance and by which investment decisions are taken which reflect the most efficient allocation of capital. In support of this argument, Afza and Nazir (2015) claimed that active institutional investors have a bird-eye-view on every activity/operation of the firm, thereby enforce managers to take optimal decisions and actions which leads to improved firm performance. From a company's perspective, shareholder engagement can aid in developing a more effective corporate governance culture. In turn, shareholder engagement may lead to better firm performance (Denes et al., 2017) to the benefit of shareholders and other stakeholders (CFA Institute, 2019, p. 323). Besides, Gompers et al. (2003) pointed out that firms with weaker shareholder rights had lower firm value, lower profits, lower sales growth, higher capital expenditures and made more capital acquisitions than firms with stronger shareholder rights. They also indicated that investing in firms with greater shareholder rights, better-governed firms, earns an annual abnormal return of 8.5% compared to investing in firms with weaker shareholder rights. Hence, we propose:

H1a. Shareholders' active participation in corporate issues is positively associated with board effectiveness.

H1c. Shareholders' active participation in corporate issues is positively associated with firm performance.

*2.1.2 Board of directors effectiveness.* The corporate board of directors is often considered as a key internal governance mechanism in reducing the agency conflicts between agents (managers) and principals (shareholders) (Fama and Jensen, 1983; Yermack, 1996). Board effectiveness is a local phenomenon dependent upon conditions involving relationships between chiefs in the execution of their jobs (Nordberg and Booth, 2019). The theoretical support for the BDE is from the perspective of stewardship and agency theory. Stewardship theory (Davis et al., 1997) holds that directors who seek to collaborate and work as stewards will want to act in the best interest of the owners and they will behave in a way that leads to an organizational utility. Hence, their personal needs are satisfied by working toward an organizational end.

According to agency theory, an efficient and effective board can lead to the improved financial performance of the firm by reducing agency costs through effective monitoring of management and ensures minimization of information asymmetry between the firm and the market. Such an effective board will also instill a great deal of shareholder confidence. Cheng et al. (2011) claimed that an effective board of directors controls the excessive compensation by entrenched managers to themselves, thereby improving firm performance at a low level of managerial ownership. In contrast, using a sample of 699 firm-year observations from 2003 to 2009, Conheady et al. (2015) find a weak positive relationship between a firm's board effectiveness and its performance, where firm performance is measured as Tobin's Q, using non-parametric chi-square goodness-of-fit tests (Pearson's  $r$  and Spearman's  $\rho$ ). Thus, the results from prior studies are inconsistent. Hence, we propose:

H1b. There is a positive relationship between board effectiveness and firm performance.

H1d. Board effectiveness mediates the relationship between shareholders' role and firm performance.

*2.1.3 Board independence.* Independence of directors is defined as a percentage of outside directors on the board and who are not employees of the firm. The importance of a high level of board independence (i.e. many outside/independent board members) is promoted from the perspective of agency theory. Agency theory stipulates that good corporate governance is dependent upon the ability

of shareholders to exercise control over corporate insiders and management to benefit shareholders and maximize firm value (Eisenhardt, 1989; Fama and Jensen, 1983; Jensen and Meckling, 1976). Thus, the theory of agency presupposes that conflicting interest between shareholders and directors can be effectively resolved by ensuring that directors are truly independent of management in representing owners. The effect of independent directors on a firm's performance has been studied by many scholars, however, the findings regarding the linkage between board independence and firm performance are mixed. Farhan et al. (2017) find board independence for publicly listed firms of UAE financial markets is negatively related to firm performance (measured as return on asset (ROA) and Tobin's Q). Several other studies support this finding, Agrawal and Knoeber, 1996; Arosa et al., 2013; Bhagat and Bolton, 2008; Dang et al., 2017; Yermack, 1996 and Zhou et al., 2018. However, Assenga et al. (2018), Dahya et al. (2016), Khan et al. (2019) and Hermalin and Weisbach (1991) find no such relationship between board independence and firm performance while other studies indicated that an independent board improves the performance of a firm by providing independent professional consultation to managers (Lin, 2011), by establishing better external linkages (Gani and Jermias, 2006), thus reflected by increased economic and equity performance of the firm (Barka and Legendre, 2016; Krivogorsky, 2006; Ameer et al., 2010). Similarly, Kao et al. (2019) document a significant and positive relation between board independence and firm performance for both accounting and market-based measures in Taiwanese firms. Hence, we propose:

H2. Board independence is positively related to firm performance.

*2.1.4 Internal audit effectiveness.* IAE is the extent to which an internal audit office meets its *raison d'être* (Mihret and Yismaw, 2007). Similarly, Lenz et al. (2018) described IAE as a risk-based concept (grounding the work of internal audit on the evaluation and monitoring of the major areas of risks) that helps the firm to achieve its goals by positively affecting the quality of corporate governance. The need for effective internal auditing arises from the perspective of agency theory, which suggests that the more information asymmetry between executives and shareholders, the greater the need for monitoring. Thus, the internal audit function plays a crucial role in reducing information asymmetries between executives and shareholders.

The empirical literature on the association between IAE and firm performance is very limited. Gramling et al. (2004) indicated internal audit is expected to contribute positively to organizational goal accomplishment by advising the management and carrying out operational audits. In a similar vein, Mihret et al. (2010) find the existence of a positive relationship between IAE and firm performance (measured as return on capital used) is based on the degree to which management takes the necessary action as per the recommendations from internal auditors. Research also indicates that effective internal audits are more likely to detect and prevent fraud (Beasley et al., 2000). Thus, we hypothesize that:

H3. There is a positive relationship between IAE and firm performance.

*2.1.5 Disclosure and transparency.* Corporate disclosure deals with the perception of the stakeholders toward the usefulness of the company's annual reports and other sources of information. The concept of disclosure (of information) is grounded in corporate governance literature as part of agency theory that is concerned with improving market information (Albu and Flyverbom, 2016). Jensen and Meckling's (1976) agency theory of the firm indicated that information asymmetry between agents (managers) and principal (owners) are major causes for conflict between managers and owners. These conflicts of interest between agents and principals affect firm valuation and performance (Chi, 2009). An effective board of directors can sort out and put in place a mechanism through which information asymmetries can be eliminated or otherwise reduced thereby ensuring shareholders' confidence in

the board. Corporate disclosure serves as a way to demonstrate trustworthiness (Albu and Flyverbom, 2016), a tool for solving the problem of information asymmetry in capital markets (Healy et al., 1999), thereby it enables investors and shareholders to effectively monitor and control management actions (Skaife et al., 2004) and firm performance (Lang and Lundholm, 1993). In a similar vein, Drobotz et al. (2004) contend that a firm's performance relies on the effectiveness of its governance mechanisms, which ensure that investors' funds are not wasted on unprofitable projects. To function well, capital markets require resolution of the information or “lemons” problem (that arises when investors cannot distinguish bad and good ideas) from an economic point of view (Akerlof, 1970). Also, Okpara (2011) indicated that a credible disclosure of the information is vital for the allocation of resources. Investors usually consider a firm to be well-governed if it responds to their requests for information on governance issues (Okeahalam and Akinboade, 2003). Haat et al. (2008) find no association between transparency (through better disclosure and timely reporting) and company performance in the Malaysian listed companies while Ntim et al. (2011) indicated that lesser compliance and disclosure of recommended practices of corporate governance are associated with lower market value. Furthermore, more disclosure is linked with higher levels of stock returns (Lundholm and Myers, 2002) and it reduces agency costs (Welker, 1995). In developing countries, the disclosure of information, as one of the governance provisions, is valued by the companies when it is imposed by regulations (Abraham et al., 2015). Thus, we hypothesis that:

H4. Disclosure and transparency is positively associated with firm performance.

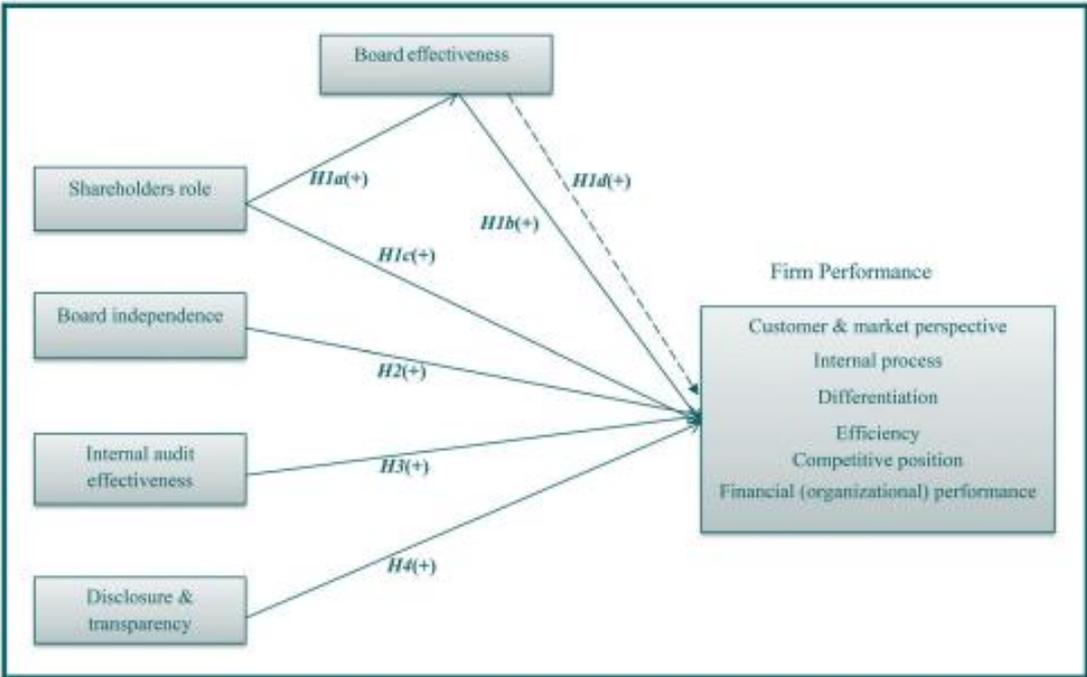


Figure 1 Conceptual model (dotted lines indicates the mediating effects)

To guide the subsequent discussion, we depict the key constructs/variables of this study in Figure 1 as follows.

### **3. Methodology**

#### ***3.1 Population and sample size***

We obtained data on a list of medium and large-scale manufacturing firms from the Ministry of Industry and the Central Statistical Agency of Ethiopia. According to the data, in the year 2018, 3,520 medium and large-scale manufacturing firms were registered in Ethiopia. For this study, 200 firms were randomly selected. Conventionally, the minimum threshold sample size for using structural equation modeling (SEM) is 200. However, in the empirical literature, there is no consensus on how many sample sizes are sufficient to yield a good model fit and appropriate parameter. Several Monte Carlo studies (Anderson and Gerbing, 1984, 1988; Iacobucci, 2010) have justified that SEM can perform well with a 100 and above sample size. Similarly, Hair et al. (2019) proposed sample size in terms of the number of factors and indicators per factor in a model. For a sample size of 100 to 150, the number of factors would be five and less with more than three indicators per factor. For a sample size of 150 to 300, the maximum number of factors would be seven with non-under-identified constructs. Furthermore, Wolf et al. (2013) find in simulation analysis that the number of factors, number of indicators, the strength of the indicator loadings, regression paths and missing data have an impact on sample size. Raykov and Widaman (1995) recommended that the sample size should be greater than the parameters to be estimated in a specified model, with 10 observations per parameter estimated. This implies that as the number of factors in a model increase, the minimum required sample size also increases.

In collecting data from the target firms, we have followed a sort of procedures: First, a pilot study has been conducted on 30 firms to examine the reliability and validity of items in terms of language clarity, coherence and appropriateness. Second, we revised the original version of the questionnaire based on the feedback received from the pilot study. Third, we recruited and trained professional data enumerators. Finally, from January to December 2018 the questionnaires were distributed to medium and large-scale manufacturing firms in Ethiopia. The questionnaire was distributed randomly to 200 firms. The questionnaire was addressed to the company's internal audit department or shareholders representative or the board members, chief accountants or company external relations affairs or CEOs or the chairpersons of the companies who were instructed to fill out the questionnaire themselves or give it to a competent person within the firm. Of the 200 questionnaires distributed, only 120 usable/completed questionnaires were returned which accounts for a 60% response rate.

#### ***3.2 Item development***

The survey questionnaire on corporate governance addressed shareholders' role/rights, the board of directors' characteristics (i.e. board effectiveness and board independence), IAE and disclosure and transparency. Measures of shareholders' role, board characteristics, disclosure and transparency were adopted from the questionnaires used by Nam and Nam (2004) to examine Asian corporate governance. Five items were adopted to measure shareholders' role, seven items were taken to measure BDE and six items were adopted to measure BDI. Seven items were adopted to measure disclosure and transparency. Items used to measure IAE were prepared based on internal audit standards and quality assurance techniques used by external auditors to evaluate the performance of the internal auditors (IIA, 2010) and adapted from Lipman and Lipman (2006). Nine items were adopted to measure IAE. All items are measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). There have been various ways to measure firm performance in the empirical literature. For example, growth in sales, profits, market share, assets, employees and operational measures. These measures of performance further decomposed into financial (ROA,

return on equity, sales growth, assets growth) (Weir et al., 2002; Kiel and Nicholson, 2003) and non-financial (competition, differentiation, efficiency, effectiveness, employment, operations, customer and market (CM) value and social and environment) (Bronzo et al., 2013; Marques and Simon, 2006; Baker and Sinkula, 1999; Fugate et al., 2009).

Prior studies have justified that subjective and objective measurement of firm performance provides consistent results (Pearce et al., 1987; Slater and Narver, 1994). In the current dynamic and uncertain business environment, objective performance measurement does not give the full picture of a firm's performance because it is very specific and narrow (Harrison and Wicks, 2013). As a result, the demand for subjective performance measurement has increased among business organizations (Gomes et al., 2011). In the present study, both financial measurement (OP) and non-financial measurement (CM perspective, IP, differentiation, efficiency, and CP) were used. Measures of differentiation, efficiency and OP were adapted from Baker and Sinkula (1999), Bobbitt (2004); Fugate et al. (2009, 2010); and Marques and Simon (2006). Differentiation, OP and efficiency consist of eight, four and six items, respectively. All items of differentiation and OP were measured using a five-point scale ranging from 1 (far below competitors) to 5 (far above competitors). The seven items used to measure CP were adopted from Marques and Simon (2006). We adopted measures of the CM perspective (four items) and IP (five items) from Bobbitt (2004) and Bronzo et al. (2013), respectively. The items of CM, IP, efficiency and CP were measured using a five-point scale ranging from 1 (poor) to 5 (excellent).

### **3.3 Structural equation modeling**

SEM is a multivariate technique that allows a set of relationships among latent variables, observed variables and error variables (McDonald and Ho, 2002; Bollen, 2002; Raykov and Marcoulides, 2006; Schumacker and Lomax, 2015). It also provides a possibility to test the specified set of relationships between observed and latent variables as a whole. SEM has the following two main parts: measurement model (MM) and structural model (SM). The MM specifies the relationships between observed and latent variables. It is sometimes called the outer model or confirmatory factor. The SM describes relations between endogenous and exogenous latent variables (McDonald and Ho, 2002; Kline, 2011; Loehlin, 2004). Thus, SEM is the combination of the MM and SM.

The basic equations of SEM are expressed as follows: MM (Outer model):

$$z_i = \lambda \gamma_i + \varepsilon_i \quad (1)$$

where  $z_i$  denotes a vector of observed variables for a respondent  $i$  ( $i = 1, 2, \dots, N$ ),  $\gamma_i$  is a vector of the latent variable for respondent  $i$ ,  $\lambda$  is a matrix of loadings relating latent variables to observed variables, and  $\varepsilon_i$  is a vector of residuals for  $z_i$ .

SM (Inner model):

$$\gamma_i = \beta \gamma_i + \varepsilon_i \quad (2)$$

where  $\beta$  is a matrix of path coefficients connecting latent variables among themselves and  $\varepsilon_i$  is a vector of residuals for  $\gamma_i$ . In the case of mediation variable analysis, a SM can be expressed as follow:

A SM with mediation variable:

$$Y = \beta_{x1}X + \varepsilon_{y1} \quad (3)$$

$$M = \beta_{x2}X + \varepsilon_{m2} \quad (4)$$

$$Y = \beta_{x3}X + \beta_{m3}M + \varepsilon_{y3} \quad (5)$$

$$Y = \beta_{x3}X + \beta_{m3}(\beta_{x2}X + \varepsilon_{m2}) + \varepsilon_{y4} \quad (6)$$

$$= \beta_{x3}X + \beta_{x2}X\beta_{m3} + \beta_{m3}\varepsilon_{m2} + \varepsilon_{y4} \quad (7)$$

$$= X(\beta_{x3} + \beta_{x2}X\beta_{m3}) + \varepsilon_{y4} + \beta_{m3}\varepsilon_{m2} \quad (8)$$

where Y-dependent variable, X-independent variable, M-mediate variable,  $\beta$ -path coefficient; e-error variable. Equation (8) is the reduced form of the structural equation. The total effect of the independent variable on the dependent variable is the sum of direct effect ( $\beta_{x3}$ ) and indirect effect ( $\beta_{x3}X\beta_{m3}$ ). Equation (3) refers to the regress of the dependent variable on the independent variable. Equation (4) specifies the regress of the mediate variable (M) on the independent variable. In equation (5), the dependent variable is regressed on both the independent variable and mediating variable. The above equation can be further illustrated in a path diagram as follow (Figure 2):

The mediation effect is sometimes referred to as the indirect effect because it carries the effect of the independent variable on the dependent variable (Edwards and Lambert, 2007; MacKinnon et al., 2012; Hayes and Rockwood, 2019). For mediation analysis, Baron and Kenny (1986) have developed four conditions. First, there should be a significant relationship between X and Y,  $\beta_{x1}$  must be significant. Second, the mediate variable should have a relation with the dependent variable, must be significant. Third, the independent variable should have an effect on the mediation variable,  $\beta_{x2}$  must be significant. Finally,  $\beta_{x3}$  in equation (5) may show a significant/insignificant sign, but it should be smaller than  $\beta_{x1}$  in equation (3). If  $\beta_{x3}$  is insignificant, complete mediation can be inferred; otherwise, partial mediation is assumed.

As compared to conventional multivariate techniques (like multiple regression modes), SEM has several strengths: For instance, SEM can test models that represent a complex set of theoretical hypotheses or construct-level hypotheses (Bollen, 2011). SEM accounts for measurement error in the observed variables (Raykov and Marcoulides, 2006; Schumacker and Lomax, 2015). SEM provides many statistical tests for construct validity and model goodness of fit (Schumacker and Lomax, 2015; Kline, 2011). Furthermore, SEM provides straightforward methods to test mediation or moderation effects in a given model.

In this study, our dependent variable is firm performance. Firm performance is indicated/measured by using the following two different variables: non-financial performance and financial (organizational) performance. To obtain a comprehensive view of non-financial performance, we have measured it by addressing the following five different perceptual measures: CM (Bronzo et al., 2013; Tracey, 1998), IP (Bronzo et al., 2013), differentiation (Bobbitt, 2004), efficiency (Bobbitt, 2004) and CP (Marques and Simon, 2006). Equally, financial performance is described through the following four perceptual measures of OP: market share (Bobbitt, 2004), sales growth (Bronzo et al., 2013; Fugate et al., 2009,

2010), return on sales (Fugate et al., 2009, 2010), ROA (Bobbitt, 2004; Lynch et al., 2000; Fugate et al., 2009, 2010). Our independent variables are as follows:

- board independence;
- board effectiveness;
- shareholders' role;
- IAE; and
- disclosure and transparency.

### ***3.4 Reliability, validity and model fitness***

SEM is subject to various validity, reliability and goodness of fit tests. Accordingly, in this survey study, before turning to test the underlying theoretical hypotheses, we assessed the validity and reliability of the MM using conventional confirmatory factor analysis (CFA). Reliability refers to the degree to which the multiple items are converged (Hair et al., 2019). Traditionally, reliability is described as the correlation between the indicators of a latent variable (Bollen and Lennox, 1991). According to this definition, each indicator should have a positive correlation with other indicators and its corresponding latent variable. There are the following two tests of reliability concerning a given model: composite reliability (CR) and individual indicator's reliability. The CR assesses internal consistency, which determines whether the items measuring a latent are similar in their scores. The rule of thumb threshold is above 0.70 to establish reliability (Bagozzi et al., 1991). The individual indicators' reliability is standardized loading or outer loading; it indicates how much of the variation of the item is defined by its latent construct. The threshold for the test is also above 0.70. However, high reliability does not guarantee the appropriateness of the model, so we need to assess validity.

Similarly, we assessed the following two tests of validity: convergent validity and discriminant validity. Convergent validity is assessed using average variance extracted (AVE). It indicates the average variance of indicators explained by a latent variable. It is manually computed as the sum of the variances of indicators explained by a latent construct divide by the number of indicators or the sum of explained variance divided by the sum of the total variance (explained + unexplained). The rule of thumb for the test is greater than 0.50. Discriminant validity refers to the extent to which a latent construct is different or unique from other latent variables. The correlation coefficients between latent variables are useful to assess this validity. Fornell and Larcker (1981) proposed a rule of thumb that indicates if the square root of the AVE of each latent exceeds the correlation coefficient between the latent variables, discriminant validity is satisfied.

The other major concern in SEM is the goodness of fit test. The conventional statistical tool to test absolute fitness is chi-square with the null hypothesis that there is no statistically significant difference between the sample covariance matrix and the covariance matrix derived from a theoretically specified model or population covariance. A non-significant chi-square indicates that the two covariances are similar and the model fits the data. As a complementary to chi-square, Steiger and Lind (1980) developed root mean square error of appropriation (RMSEA). RMSEA is a measure of the average standardized residual per degree of freedom. Steiger and Lind (1980) proposed that values below 0.05 indicate a very good model fit and a value less or equal to 0.10 suggests a reasonable fit but values greater than 0.10 shows some misfit between the model and the data. Similarly, Loehlin (2004) suggests practically a value of RMSEA less or equal to 0.05 would indicate a close fit, whereas a

value of 0.08 indicates a reasonable fit but a value greater than 0.10 should not be used. Based on the threshold set, there are several studies (Keskin, 2006) that used RMSEA values greater than 0.08 but less or equal to 0.10 as a reasonable fit. However, empirical literature (Fornell and Larcker, 1981; Bollen, 1987; Browne and Cudeck, 1989; Fan et al., 1999; Cheung and Rensvold, 2002; Loehlin, 2004; Schumacker and Lomax, 2016) provides evidence that the chi-square test has several drawbacks as it is sensitive to sample size and lacks a defined power function. For large sample sizes, the chi-square provides a very good model fit. In response to the limitations of the chi-square test, researchers had developed various goodness of fit indices: For example, Joreskog and Sorbom (1989) developed the following two covariance matrix reproduction indexes: goodness of fit index (GFI) and adjusted goodness of fit index (AGFI). Bentler (1990) developed a comparative fit index (CFI). Bentler and Bonett (1980) proposed the normed fit index (NFI) and the non-normed fit index (NNFI). The minimum threshold recommended for all indices is 0.90.

#### **4. Results**

A total of 120 usable responses were received with a 60% response rate.

##### ***4.1 Measurement model***

The MM specifies the relationship between unobserved (latent) and observed (indicator) variables. It is usually referred to as the outer model which demonstrates a correlation (factor loading) between a latent construct and its indicators. The extent to which a latent variable is accurately defined depends on how strongly related the observed indicators are. The usual step in SEM analysis is assessing the MMs for validity and reliability using CFA. Taken separately from the SM, CFA was applied to test the measurements using LISREL 8.8, SIMPLIS program with maximum likelihood parameter estimation method. To increase the fitness of CFA, items which show loading less than 0.60 on their respective constructs were deleted. Accordingly, two items were dropped from shareholders' role items, one item was deleted from the BDI, one item was excluded from BDE, whereas two items and three items were deleted from IAE items and disclosure and transparency items, respectively. Concerning firm performance dimensions, one item, two items and one item was dropped from items to measure CP, differentiation, and CM perspective, respectively. The result of measurement analysis is presented in Table 1 containing standardized factor loading, CR, AVE and fit indices. All manifest variables were highly loaded on their respective constructs and significant at 0.01.

We also tested MMs for internal consistency and convergent validity using CR and AVE. The result in Table 1 shows the CR for the constructs ranges from 0.816 for OP to 0.897 for efficiency, which indicates the scales are adequately reliable. The AVE of each construct exceeds the benchmark of 0.5 recommended by Bagozzi et al. (1991), should load only on one common factor was assessed by checking the cross-loading among measured variables or error terms.

**Table 1** Summary of standardized loading, construct validity and reliability

Code	Constructs and measurement items	Standardized loading
Shareholders role (SHROLE) (CR = 0.874 AVE = 0.696)		
SHR1	Can minority shareholders (holding more than a certain level of shares) nominate candidates at the shareholders' meeting or prior to the meeting (to have the company disseminate relevant information)	0.78
SHR2	Cumulative voting practiced	0.87
SHR3	Would it be possible for the director candidates proposed by the management of your firm to fail to be elected at the shareholders' meeting?	0.86
BDI (CR = 0.845 AVE = 0.526)		
BDIND1	Because the CEO has effectively selected the board members	0.69
BDIND2	Because openly objecting to the management-proposed agenda is viewed as an act contrary to behavioral norm	0.71
BDIND3	Because the CEO will decide the extension or termination of the directorship	0.90
BDIND4	Because of the concern of possible responsibility/blame when their views turn out to be wrong in the future	0.69
BDIND5	Because the CEO and management team are supposed to be better informed on most issues and have better judgment	0.61
RMSEA = 0.000 NFI = 1.00 NNFI = 1.00 CFI = 1.00 IFI = 1.00 GFI = 1.00		
BDE (CR = 0.878 AVE = 0.546)		
BDEFF1	Actively involved in formulating long-term strategies	0.68
BDEFF2	Plays an important role in selecting, monitoring and replacing the CEO	0.75
BDEFF3	Seriously reviews key executive and director remuneration	0.79
BDEFF4	Effectively oversees potential conflicts of interest including related-party transactions	0.71
BDEFF5	Ensures the integrity of the firm's financial reporting	0.77
BDEFF6	Ensures proper disclosure and actively communicate with shareholders and stakeholders	0.72
RMSEA = 0.081 NFI = 0.98 NNFI = 0.97 CFI = 0.99 IFI = 0.99 GFI = 0.97		
IAE (CR = 0.896 AVE = 0.552)		
IAEFFE1	Establishing an effective internal audit function, reporting to the audit committee, is probably the most important thing that can be done by an audit committee	0.67
IAEFFE2	The most important source of independent information for the audit committee is the internal auditor	0.81
IAEFFE3	Play a major role in the selection, retention and evaluation of the internal auditor or the internal audit group (whether in-house or outsourced)	0.80
IAEFFE4	Meet separately with the head of internal audit, without management present, to determine the adequacy of the staffing and funding of the internal audit function	0.69
IAEFFE5	Play an active role in reviewing and approving the annual internal audit budget and services	0.79
IAEFFE6	Require the internal auditor to provide more intensive services with regard to financial reporting if certain warning events occur	0.75
IAEFFE7	The internal auditor and the independent outside auditor are fully exchanging information and are otherwise coordinating with each other	0.68
RMSEA = 0.077 NFI = 0.98 NNFI = 0.98 CFI = 0.99 IFI = 0.99 GFI = 0.95		
Disclosure and transparency (CR = 0.905 AVE = 0.774)		
DISCL1	Does the company publish its annual report within four months of the end of the financial year?	0.69
DISCL2	Does the company consistently disclose major and market-sensitive information punctually?	0.78
DISCL3	Has the public announcement of results been no longer than two working days, before board meeting?	0.84
DISCL4	Does the company have an English-language website where results and other announcements are updated promptly (no later than one business day)?	0.80
DISCL5	How do you compare the accounting and audit standards of your firm with the relevant international standards (such as IFRS and ISA)?	0.76

*(continued)*

**Table 1**

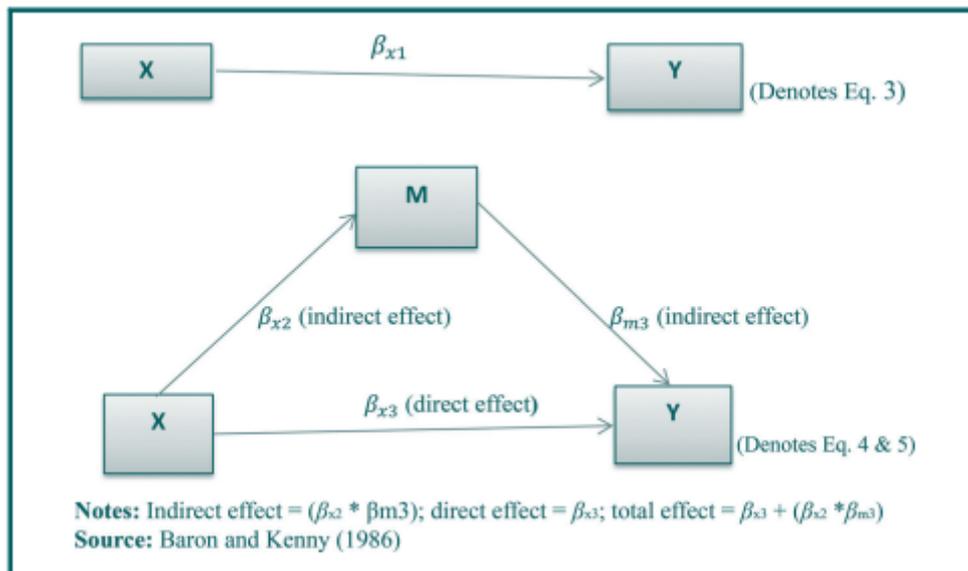
<i>Code</i>	<i>Constructs and measurement items</i>	<i>Standardized loading</i>
CM perspective (CR = 0.838 AVE = 0.636)		
CM1	Increase in market share	0.68
CM2	Reduction in customer complaint	0.86
CM3	Increase customer retention/acquisition	0.84
Internal Process/Operation (IP) (CR = 0.867 AVE = 0.628)		
IP1	Improvement in product and service quality	0.66
IP2	Reduction in manufacturing lead time	0.70
IP3	Reduction in operating cost	0.82
IP4	Improvement in operation efficiency	0.95
IP5	Downtime and machinery availability	0.80
RMSEA = 0.000 NFI = 0.99 NNFI = 1.00 CFI = 1.00 IFI = 1.00 GFI = 0.99		
Differentiation (DFF) (CR = 0.891 AVE = 0.578)		
DF1	Forecasting accuracy	0.81
DF2	Line-item fill rate	0.77
DF3	The time between order receipt/delivery	0.74
DF4	Time on backorder	0.82
DF5	Total inventory turns	0.76
DF6	On-time delivery	0.66
RMSEA = 0.000 NFI = 0.99 NNFI = 1.00 CFI = 1.00 IFI = 1.00 GFI = 0.99		
Efficiency (EFF) (CR = 0.897 AVE = 0.585)		
EFF1	Percent of orders shipped to customers from the primary location designated to serve those customers	0.61
EFF2	Line-item fill rate (percentage of order items the picking operation actually found)	0.70
EFF3	Percent of orders shipped on time	0.83
EFF4	Percent of shipments requiring expediting	0.80
EFF5	Inventory turns per year	0.84
EFF6	Average order cycle time (time in days between order receipt and order delivery)	0.78
RMSEA = 0.000 NFI = 0.99 NNFI = 1.00 CFI = 1.00 IFI = 1.00 GFI = 0.99		
CP (CR = 0.892 AVE = 0.580)		
CP1	Domestic CP	0.77
CP2	Overall CP	0.79
CP3	Prices/internal CP	0.74
CP4	Prices/external CP	0.75
CP5	Quality/internal CP	0.82
CP6	Quality/external CP	0.69
RMSEA = 0.000 NFI = 0.99 NNFI = 1.00 CFI = 1.00 IFI = 1.00 GFI = 0.99		
Financial (Organizational) Performance (OP) (CR = 0.816 AVE = 0.532)		
OP1	Market share growth in our primary market	0.57
OP2	Sales growth	0.63
OP3	Return on sales	0.87
OP4	ROA	0.81
RMSEA = 0.000 NFI = 0.94 NNFI = 0.91 CFI = 0.95 IFI = 0.95 GFI = 0.95		

**Table 2** Discriminant validity

Variable	CM	CP	DFF	EFF	IP	OP
CM	<i>0.797</i>					
CP	0.237	<i>0.761</i>				
DFF	0.023	0.367	<i>0.760</i>			
EFF	0.223	0.572	0.696	<i>0.764</i>		
IP	0.710	0.320	0.163	0.344	<i>0.792</i>	
OP	0.320	0.652	0.354	0.492	0.425	<i>0.792</i>
	BDE	BDI	IAE		SHROLE	
BDE	<i>0.738</i>					
BDI	0.673	<i>0.725</i>				
IAE	0.337	0.226	<i>0.742</i>			
SHROLE	0.270	0.420	0.008			

**Notes:** where CM-customer and market, CP-competitive position, DFF-differentiation, EFF-efficiency, IP-internal process and OP-organizational performance. The square root of average variance extracted (AVE) values is shown on the diagonal and printed in italics; non-diagonal elements are the latent variable correlations (LVC)

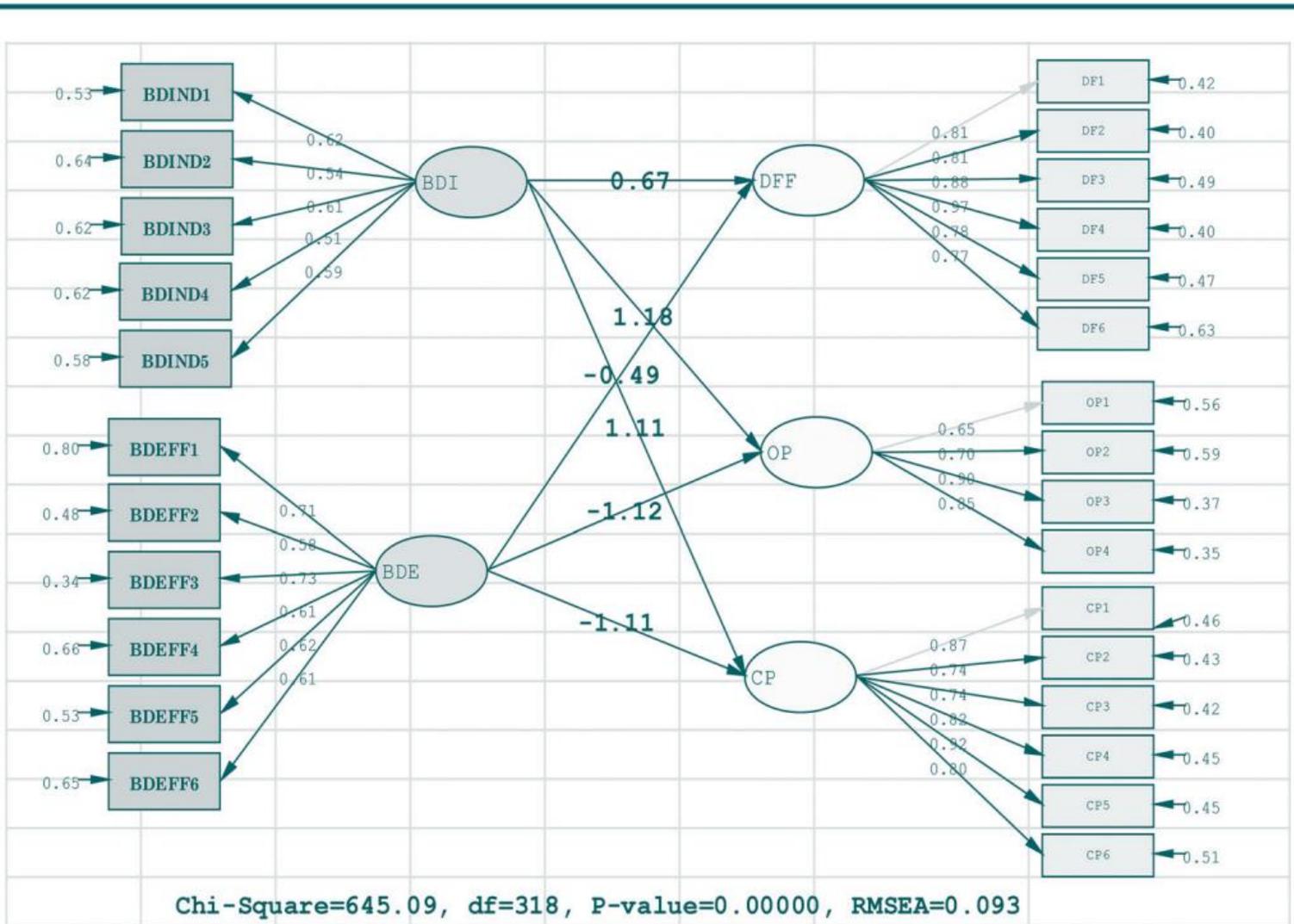
The result shows there is no cross-loading among manifest variables and error terms. It also supports convergent validity and discriminant validity of all constructs in the model. Moreover, the indicator variables univariate and bivariate underline normality assumption were evaluated using skewness or kurtosis and RMSEA, respectively. The score of skewness or kurtosis is less than the usual threshold of 3 and the RMSEA value for each pair of indicator variables is below 0.1 (Joreskog, 2005), suggesting the assumption is satisfied. The combination of all the tests indicates that the conceptual MMs adequately fit the data (Figure 2).



**Figure 2** Path diagram

#### 4.2 Structural model

SEM was run to test theoretical hypotheses using LISREL 8.8, SIMPLIS program, maximum likelihood estimation approach. In the model specified, corporate governance mechanisms were assumed as exogenous latent constructs while firm performance constructs were introduced as endogenous latent variables. The constructs of corporate governance used in this study include shareholders' role (SHROLE), the BDI, the BDE, IAE and disclosure and transparency (DISC). The dimensions of firm performance contain six factors of CM, IP, differentiation (DFF), efficiency (EFF), CP and OP. Figure 3 presents the effect of the board of directors' characteristics (BDI and BDE) on firm performance (DFF, OP and CP), as shown in the path lines pointing to the dependent variables. The coefficients on the path lines are unstandardized estimates.



**Note:** Board of directors characteristics and firm performance relationship

**Figure 3** Effect of board of directors characteristics(BDI and BDE) on firm performance

**Table 3** Summary of SM results

Variable	UC	Std. error	t-value	Hypotheses
BDI -> DFF	0.67	0.12	5.42**	Supported (H2)
BDE -> DFF	-0.49	0.11	-4.17**	Supported (H1b)
BDI -> OP	1.18	0.15	7.97**	Supported (H2)
BDE -> OP	-1.12	0.15	-7.70**	Supported (H1b)
BDI -> CP	1.11	0.12	8.98**	Supported (H2)
BDE -> CP	-1.11	0.12	-8.87**	Supported (H1b)
BDI -> CM	0.36	0.24	1.51	Not supported (H2)
BDE -> CM	-0.29	0.23	-1.22	Not supported (H2)
BDI -> IP	0.49	0.24	2.02*	Supported (H2)
BDE -> IP	-0.49	0.24	-2.02*	Supported (H1b)
$\chi^2/df = 2.028$ RMSEA = 0.093 NNFI = 0.93 CFI = 0.94 IFI = 0.92 GFI = 0.90				
Note: **, * denote a significant level at 1% and 5%, respectively				

The detailed results (unstandardized coefficient [UC], standard error and t-value) were summarized in Table 3. Nevertheless, by default, LISREL 8.8, the SIMPLIS program does not print out corresponding p-values. The t-value here in LISREL is equally interpreted as in the conventional regression model. It implies that the t-value greater than  $\pm 1.96$ , but lesser than  $\pm 2.58$ , for a two-tail test, is significant at the 0.05 level. Moreover, the t-value that exceeds  $\pm 2.58$ , for a two-tail test, is assumed significant at 0.01 level.

Like in the MM, we tested SM fit using the usual fit indices: the observed normed  $\chi^2$  ( $\chi^2/df$ ) = 2.028, was below the recommended value of 3 (Wheaton et al., 1977). As recommended by Steiger and Lind (1980), a value of RMSEA less or equal to 0.10 would be assumed as a reasonable fit, so that RMSEA = 0.093 indicates a reasonable fit of the data. Other indices NNFI = 0.93, CFI = 0.94, IFI = 0.92 and GFI = 0.90 have showed adequate results suggesting the hypothetical model best fit the data. Following Hair et al. (2019) benchmark toward the maximum number of factors to be introduced to a model for a given observation or sample size, we run the model twice with different constructs of firm performance. Specifically, in Model 1 (Figure 4), three endogenous latent constructs were used (i.e. DFF, OP and CP) and in Model 2 (Figure 4), two endogenous latent constructs (i.e. CM and IP) were assumed. Therefore, as the number of observations used in the present study was 120, we could not run a model with more than five latent constructs because of a model fit concern (Hair et al., 2019).

When looking at path coefficients (Figures 3 and 4), BDI has a positive significant effect on the four constructs of firm performance, namely, differentiation (UC = 0.67, p-value < 0.01, f-value = 5.42), OP (UC = 1.18, p-value < 0.01, f-value = 7.97), CP (UC = 1.11, p-value < 0.01, f-value = 8.98) and IP (UC = 0.49, p-value < 0.05, f-value = 2.02). However, board effectiveness showed a significant negative effect on the same constructs of firm performance, namely, differentiation (UC = -0.49, p-value < 0.01, f-value = -4.17), OP (UC = -1.12, p-value < 0.01, f-value = -7.70), CP (UC = -1.11, p-value < 0.01, f-value = -8.87) and IP (UC = -0.49, p-value < 0.05, f-value = -2.02). We found an insignificant coefficient on CM construct.

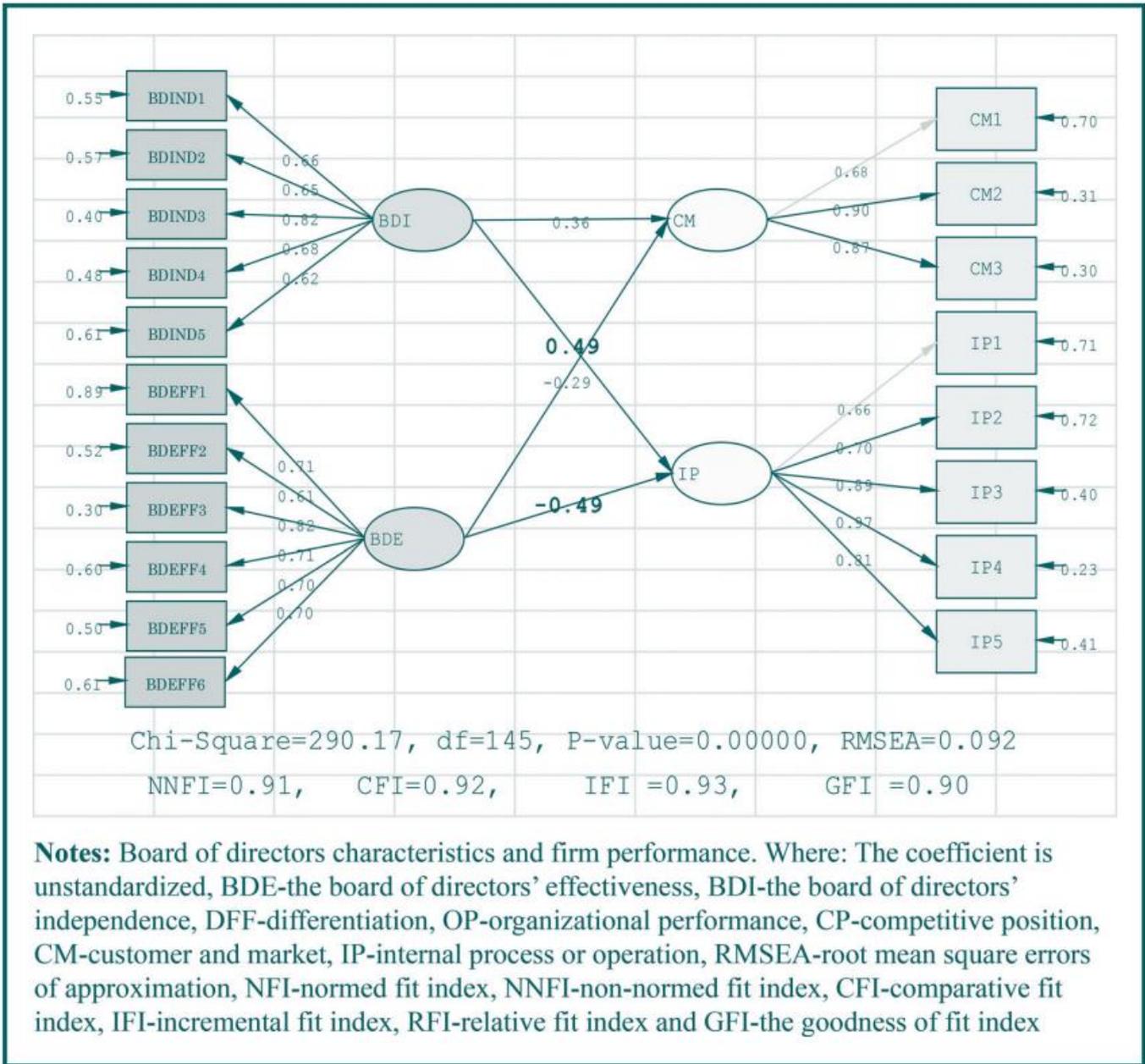


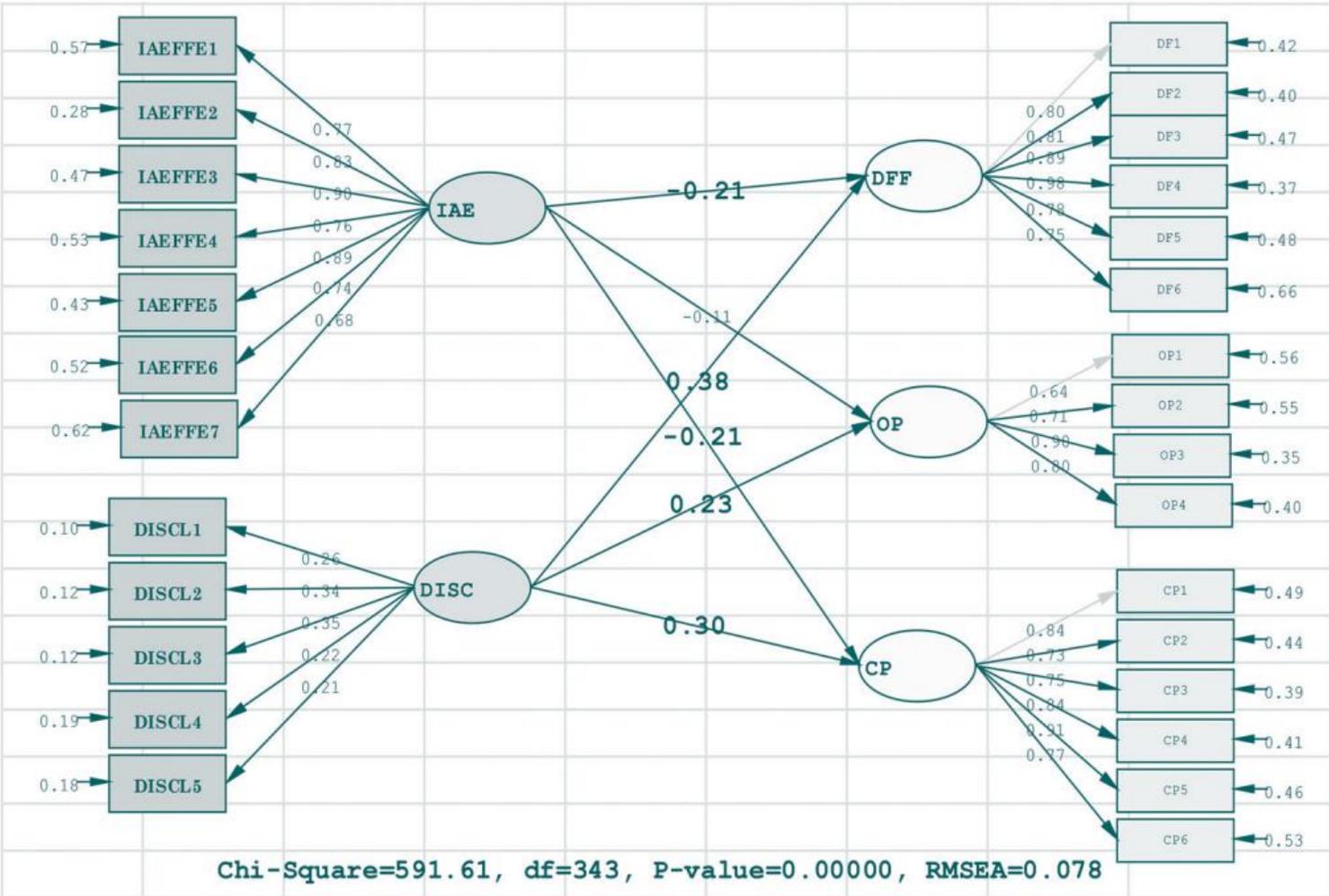
Figure 4 Effect of board of directors characteristics on firm performance

One of the reasons for an unexpected negative sign on the BDE would probably occur when the board of directors strictly controls every operational activity, assuming managers are not performing for the benefit of shareholders. This would make management and employees feel uncomfortable and uninterested in carrying out their jobs effectively. Effective leadership from the board of directors can reduce such misunderstandings between management and the board of directors or between managers and employees.

The SM results for the effect of IAE and disclosure and transparency on firm performance are presented in Figures 5 and 6. The detailed results are summarized in Table 4. The result shows a significant negative linkage between IAE (exogenous latent construct) and two dimensions of performance, namely, differentiation (UC = -0.21, p-value < 0.05, f-value = -2.14) and CP (UC = -0.21, p-value < 0.05, f-value = -2.05). On the other hand, the degree to which relevant and useful information

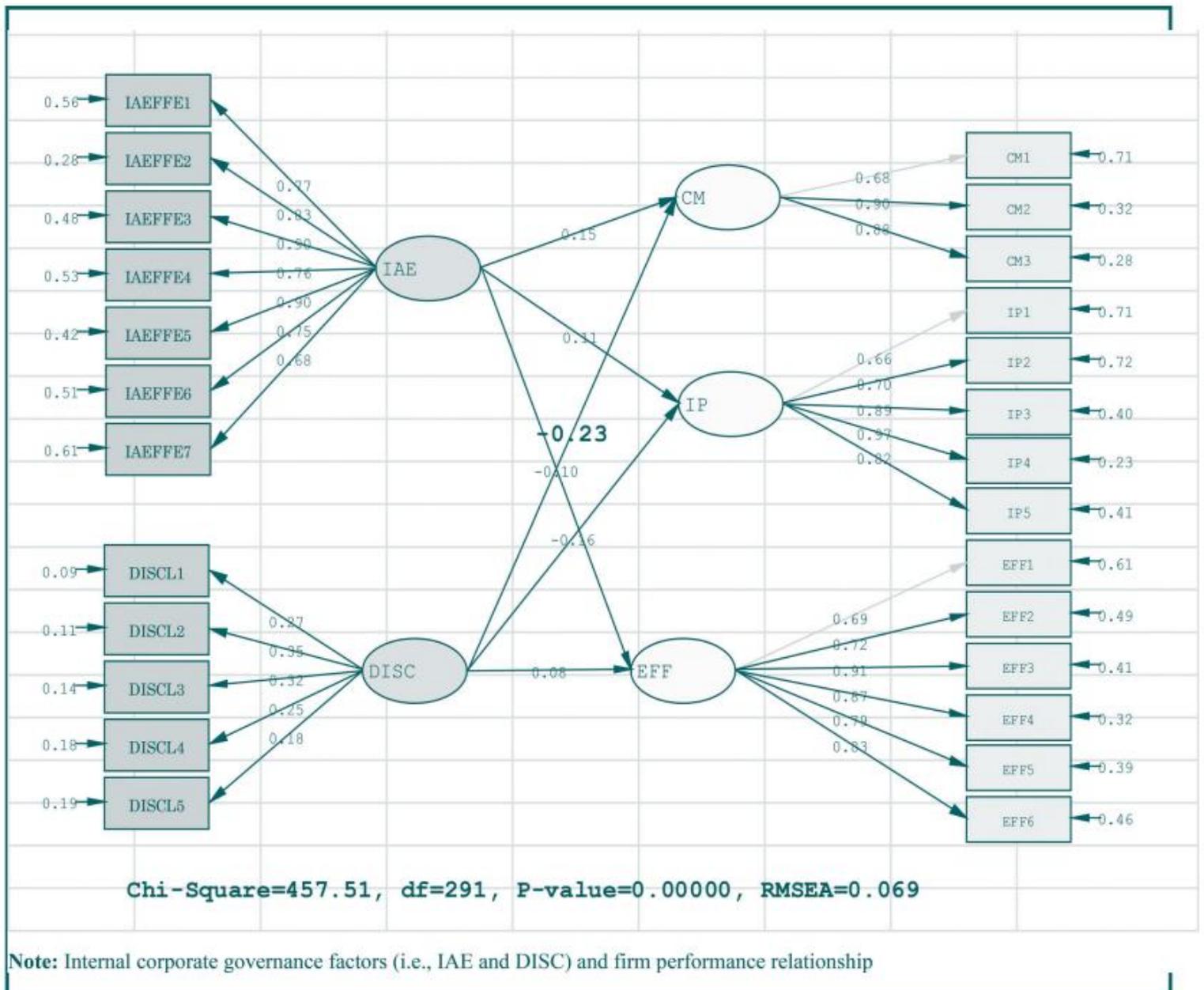
is disclosed and transparent (e.g. publishing financial data at a reasonable time, clarity and informative reports, market sensitive information, and updating information promptly on a website) is positively and significantly related to firm performance as represented by differentiation (UC = 0.38, p-value < 0.01, f-value = 3.44), OP (UC = 0.23, p-value < 0.05, f-value = 1.99) and CP (UC = 0.30, p-value < 0.01, f-value = 2.66).

However, there is a significant negative relationship between disclosure and transparency and CM (UC = -0.23, p-value < 0.05, f-value = -2.05). Indeed, disclosure and transparency of relevant and reliable information timely would potentially influence the decision-making process at a different level of activities in an organization.



**Note:** Internal corporate governance factors (i.e., IAE and DISC) firm performance relationship

Figure 5 Effect of IAE and DISC on firm performance



**Figure 6** Effect of IAE and DISC on firm performance

The influence would be negative if managers leniently disclosed very sensitive and confidential data. Accordingly, the unexpected sign (negative) observed here slightly confirmed that a concerned body who prepares and discloses a company's information should be careful as to which information to disclose or not.

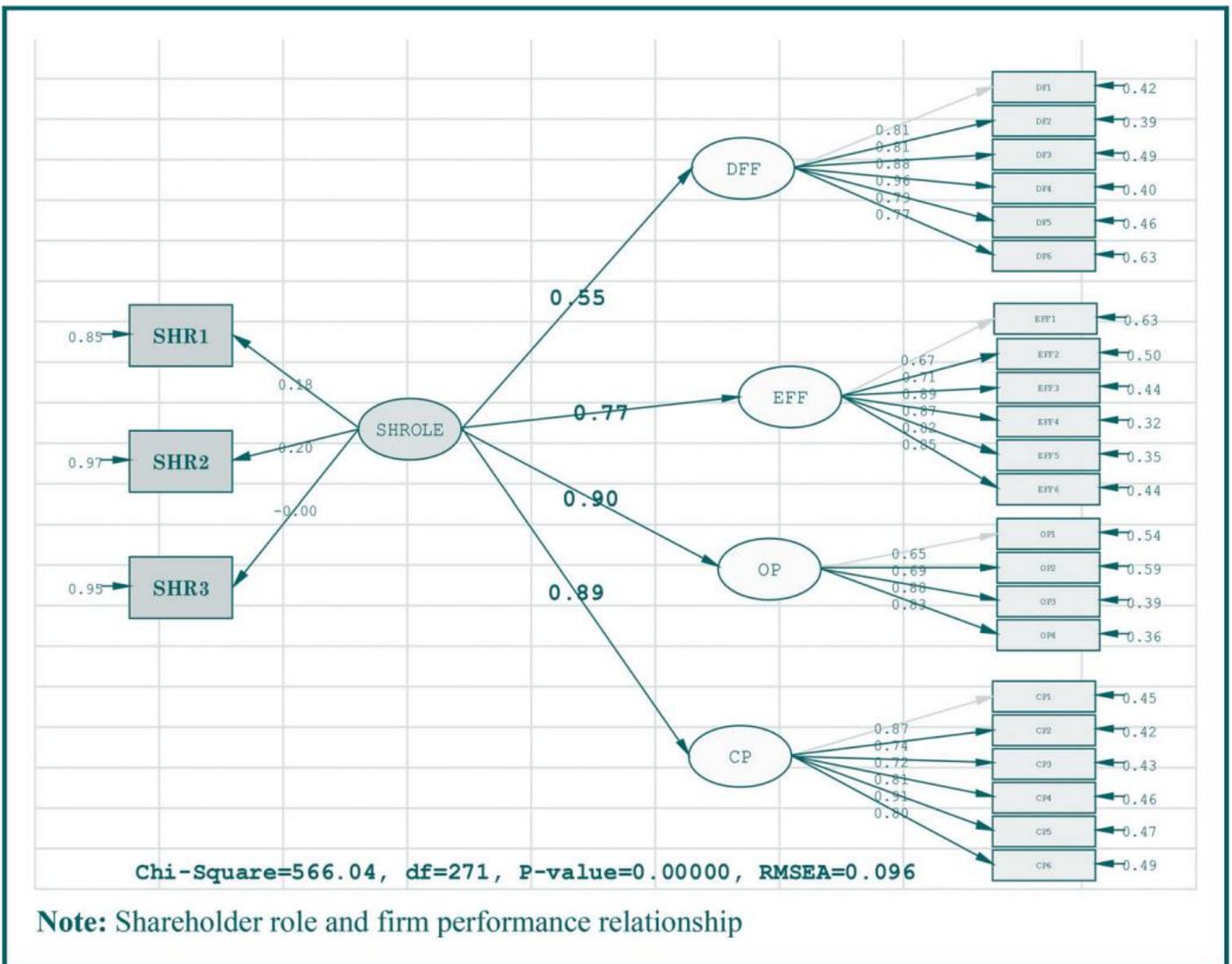
In extending the previous models where corporate governance and performance relationships were tested, we performed a mediation analysis to evaluate how shareholders' role influences firm performance through corporate governance mechanisms. To do so, the theoretical relationship between shareholders' role and firm performance has been assessed initially. The results in Figure 7 and Table 5 show positive significant coefficients for all constructs assumed in the model (DFF, EFF, OP and CP), demonstrating that the conceptual model was confirmed. The indices' fit statistics have also obtained adequate

**Table 4** Summary of SM results

Variable	UC	Std. error	t-value	Hypotheses
IAE -> CM	0.15	0.11	1.41	Not supported (H3)
DISC -> CM	-0.23	0.12	-1.99*	Supported (H4)
IAE -> IP	0.11	0.10	1.41	Not supported (H3)
DISC -> IP	-0.16	0.11	-1.45	Not supported (H4)
IAE -> EFF	-0.10	0.10	-0.94	Not supported (H3)
DISC -> EFF	0.08	0.11	0.75	Not supported (H4)
IAE -> DFF	-0.21	0.10	-2.14*	Supported (H3)
DISC -> DFF	0.38	0.11	3.44**	Supported (H4)
IAE -> OP	-0.11	0.11	-1.01	Not supported (H3)
DISC -> OP	0.23	0.12	1.99*	Supported (H4)
IAE -> CP	-0.21	0.10	-2.05*	Supported (H3)
DISC -> CP	0.30	0.11	2.66**	Supported (H4)

$\chi^2/df = 1.724$  RMSEA = 0.078 NNFI = 0.90 CPI = 0.91 IFI = 0.91 GFI = 0.90

Note: \*\*, \* denote a significant level at 1% and 5%, respectively



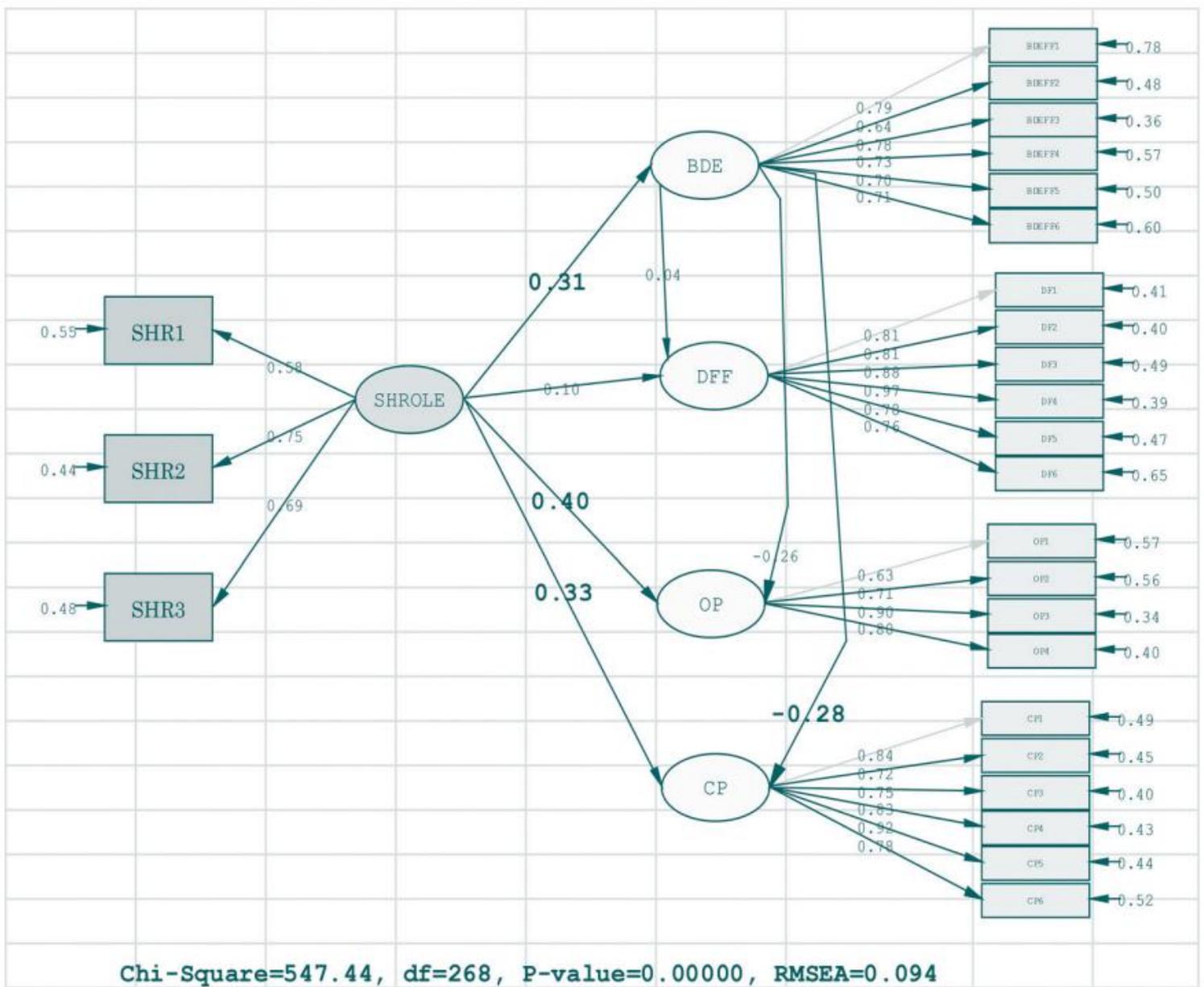
**Figure 7** Effect of SHROLE on firm performance

The indices' fit statistics have also obtained adequate results, which implies the model fits the data well. At the second stage, we introduced the BDE as a mediate variable into the first model in Figure 7.

In a mediation analysis, there are direct effects and indirect effects coefficients between the exogenous latent variable and endogenous latent variables. The results are presented in Figure 8 and Table 6 in detail. In Figure 8, it is observed that shareholders role has a significant positive effect on the BDE (UC = 0.31, p-value < 0.01, t-value = 2.64), it satisfies one of the mediation conditions that there should be a significant relationship between the endogenous and mediate variables (Baron and Kenny, 1986). BDE has shown a significant negative effect on organizational (financial) performance (UC = -0.26, p-value < 0.05, t-value = -2.17) and CP (UC = -0.28, p-value < 0.05, t-value = -2.48).

**Table 5** Summary of SM results

<i>Variable</i>	<i>UC</i>	<i>Std. error</i>	<i>t-value</i>	<i>Hypotheses</i>
<i>SHROLE -&gt; DFF</i>	0.55	0.10	5.31**	Supported ( <i>H1c</i> )
<i>SHROLE -&gt; EFF</i>	0.77	0.12	6.26**	Supported ( <i>H1c</i> )
<i>SHROLE -&gt; OP</i>	0.90	0.13	6.96**	Supported ( <i>H1c</i> )
<i>SHROLE -&gt; CP</i>	0.89	0.10	8.56**	Supported ( <i>H1c</i> )
$\chi^2/df = 2.088$ RMSEA = 0.096 NNFI = 0.92 CPI = 0.93 IFI = 0.93 GFI = 0.90				
<b>Note:</b> ** denote a significant level at 1%				



**Note:** Shareholder role and firm performance relationship: The mediation of board effectiveness

**Figure 8** Effect of SHROLE on firm performance: BDE mediation

These results indicate that active shareholders who would exercise their roles and right sufficiently can play an important role in enhancing firm performance through the board of directors. The indirect effects of shareholders' role on the three constructs of performance (DFF, OP and CP) are negative but statistically insignificant. Moreover, in Figure 8 (Model 2) shareholders' role has a direct positive and

significant influence both on organization performance and CP. Though, the coefficients in Figure 8 (Model 2) are significantly lower than the coefficients in Figure 7 (Model 1) on the same constructs, suggesting that partial mediation would be inferred (Baron and Kenny, 1986; Edwards and Lambert, 2007; Hayes and Rockwood, 2019).

**Table 6** Summary results of mediation model

<i>Variable</i>	<i>Total effect</i>	<i>Direct effect</i>	<i>Indirect effect</i>	<i>Hypothesis</i>
<i>SHROLE -&gt; BDE</i>	0.31 (2.64**)	0.31 (2.64**)	0.00	Supported ( <i>H1a</i> )
<i>SHROLE -&gt; DFF</i>	0.11 (0.99)	0.10 (0.82)	0.01 (0.39)	Not supported
<i>SHROLE -&gt; OP</i>	0.32 (2.69**)	0.40 (3.11*)	-0.08 (-1.64)	Not supported
<i>SHROLE -&gt; CP</i>	0.25 (2.20*)	0.33 (2.81**)	-0.09 (-1.79)	Not supported
<i>BDE -&gt; DFF</i>	0.04 (0.39)	0.04 (0.39)	-	Not supported
<i>BDE -&gt; OP</i>	-0.26 (-2.17*)	-0.26 (-2.17*)	-	Supported ( <i>H1b</i> )
<i>BDE -&gt; CP</i>	-0.28 (-2.48*)	-0.28 (-2.48*)	-	Supported ( <i>H1b</i> )
$\chi^2/df = 2.042$ RMSEA = 0.094 NNFI = 0.92 CFI = 0.90 IFI = 0.90 GFI = 0.90				
<p><b>Notes:</b> Where: The coefficient is unstandardized, the value in parenthesis is <i>t</i>-value, SHROLE-shareholders' role, BDE-the board of directors' effectiveness, DFF-differentiation, OP-organizational performance, CP-competitive position, RMSEA-root mean square error of approximation, NFI-normed fit index, NNFI-non-normed fit index, CFI-comparative fit index, IFI-incremental fit index, RFI-relative fit index and GFI-the goodness of fit index; **, * denote a significant level at 1% and 5%, respectively</p>				

## 5. Discussion

In this study, a significant positive relation has been found between the independence of the board of directors and firm performance (especially in respect to differentiation, OP, CP and IP). In essence, this implies the extent of independence of the board of directors from shareholders' influence on the decision-making process, which has a positive impact on overall performance. This result, therefore, supports the agency theory (Jensen and Meckling, 1976), which proposes that independent directors (outside directors) who are not part of company management would better manage and control the managers. In contrast to the stewardship theory (Donaldson and Davis, 1991), which blames outside directors (i.e. independent directors) for not performing well in their duties because they may not have detailed information about the firms they direct. Thus, internal directors (i.e. dependent directors) who are part of company management have access to daily information and understand the company's IP better, and as such, would make better decisions.

Furthermore, outside or internal directors may not be a guarantee of independence from the influence of management or shareholders because it is a mindset. Directors who believe in the rule of law or company code would not engage in professional skepticism in the decisionmaking process, and as such, make an independent judgment that enhances performance and value creation. This finding is consistent with a prior study by Adedeji et al. (2019), which reported a positive relationship between corporate governance and non-financial performance measures as represented by company reputability and employee satisfaction. The result also supports the view that the higher the number of independent directors on the board, the lower the agency cost, the better the decision-making and the higher the firm's performance (Filatotchev et al., 2005; Mashayekhi and Bazazb, 2008; Shu and Chiang, 2020).

The second variable, the BDE showed an unexpected result, significant negative effect on differentiation, CP, CM, IP and financial (organizational) performance. The variable measures the degree to which the board of directors effectively performs a specific issue, like formulating long-term strategies, appointing a chief executive officer, overseeing interest conflicts and ensuring financial integrity. It would be misleading to conclude that the stated activities negatively harm firm performance. However, it would happen in a rare situation where there is an idea misunderstanding between the board of directors and the company's executives. The result further implies that any decision-making process performed by the board of directors should be stakeholders-oriented including employees, customers, suppliers and the community in which the company does business. So that, neglecting the interest of stakeholders would have a negative impact on performance. These views are not strong enough to justify the unexpected sign; it needs further investigations with a large sample size.

The third element of corporate governance used in this study is IAE which was measured by seven items that address, for example, independence, competence and relation with external auditors, budget and reporting line. Its coefficient was negatively significant on the following two constructs of performance: differentiation and CP. In principle, an internal audit department is concerned with compliance and operational audits. It also does assist the management in designing business strategies, reviews and evaluates economic activities, which would increase the quality of financial information. The reason for this unexpected result might be related to poor competence (education and experience) of auditors and lack of independence. In support of this finding, empirical studies (Chang et al., 2018) have suggested that IAE highly depends on internal audit staff competence, size, audit experience, with more certificates and a high level of education. Internal audit is a key component of corporate governance along with management, external auditor and audit committee (Gramling et al., 2004; Blue Ribbon Committee, 1999).

The fourth element of corporate governance, disclosure and transparency, was positively significant on differentiation, CP and OP. However, the coefficient on a CM construct of firm performance is negative and significant. A positive sign implies the complete, timely and detailed disclosure of relevant information useful to decision-makers significantly contributes to firm performance. Disclosure and transparency would involve qualitative and quantitative data about operations, employees, the board of directors, policies and ownership structure (OECD, 1998). Thus, the positive result indicates a firm with a higher practice of disclosure and transparency is more likely to have a competitive advantage, better differentiation (time between order and delivery, inventory turnover, on-time delivery) and OP (high market share, sales growth, return on sales and ROA). This is in line with the findings of Oino (2019), who noted that greater disclosure and transparency have a positive effect on financial performance. This finding is also in line with the agency theory, which stipulates that transparency and full disclosure of information have been considered core attributes of corporate governance mechanisms, both to mitigate agency costs by increasing monitoring of management's actions and restricting managers' opportunistic behavior.

One of the most important findings of this study is the shareholders' role, and its impact is positively significant on both board characteristics (board independence and board effectiveness) and firm performance (differentiation, efficiency, CP and OP). Indeed, shareholders do not directly control their firm's performance; rather, they indirectly control it through the board of directors, so that board mediates between the company's management and shareholders. The shareholders active participation in annual meetings, selecting and appointing directors and other major issues about their firm contribute to board effectiveness, which, in turn, enhances performance. Also, shareholders should have access to relevant information about credit burden and merger and acquisition issues, if

any. Thus, a firm where shareholders effectively exercise their rights has a more effective board of directors and less agency cost. The result is consistent with the findings of Core et al. (2006) and Gompers et al. (2003) that weak shareholder rights portray substandard operational performance. Page (2005) recommended that the ultimate power in a company should rest with the shareholders. Nevertheless, the role of shareholders has not been much explored and considered as a key element of corporate governance in literature.

## **6. Conclusion**

On average, the corporate governance mechanisms have shown a positive significant association with most financial and non-financial performance constructs. Specifically, shareholders' role, the BDI, disclosure and transparency have a strong significant positive influence on all measures of performance (CM, IP, differentiation, efficiency, OP and CP). This result would be different from prior studies in two ways: most of the previous studies (Ehikioya, 2009; Shan and McIver, 2011; Jermias and Gani, 2014; Mashayekhi and Bazazb, 2008; Sheikh et al., 2013; Arora and Sharma, 2016; Wang et al., 2019) have posited the effect of corporate governance on financial performance proxies (such as ROA, return on equity or Tobin Q's), but we used both financial and non-financial performance measures, we also examined the role of shareholders in the corporate governance system and its impact on firm performance, this has not received attention in the literature.

As corporate governance is a system that directs and controls a firm, each actor in the system should effectively discharge its responsibilities toward enhancing performance and business value. In this respect, the important concept we found is that if shareholders actively participate in annual corporate meetings, selecting and appointing board members, critically reviewing corporate strategy, getting access to relevant corporate data regularly and remotely overseeing and controlling the board of directors, the corporate governance system would be effective. However, this idea would slightly seem inconsistent with the agency theory that underlines a board of directors as an agent of shareholders, so that the board does its work in favor of shareholders by curbing interest conflict and agency costs. We admitted the idea that a board of directors should do its job independent of any influence from shareholders and management, but shareholders are able to verify how committed the board is in directing and controlling the management. Thus, we conclude the shareholders' role is the key element of corporate governance that directly or indirectly impacts firm performance.

Moreover, disclosure and transparency are appeared as major drivers of firm performance (as measured by CM, IP, differentiation, efficiency, OP and CP). It is not as much studied and considered as a mechanism of corporate governance in the conventional literature. Disclosure and transparency, in essence, pertained to disclosing and disseminating relevant information to decision-makers on time. For example, information related to production, finance, cost, price, employees, customers, market, competitors, technology, suppliers and social and environmental issues significantly influences the decision-making process and leads to good action. In the current dynamic and uncertain business environment, relevant and timely information is termed as a powerful device that creates competitive advantage and better performance. Thus, this finding adds to the body of knowledge about how a higher practice of disclosure and transparency culture contributes to overall firm performance.

The positive significant result on board independence confirmed the general view of agency theory that a higher ratio of outside directors on the board performs better in decision-making and enhances performance than those with a lower proportion of outside directors. Traditionally, outside directors (who are not part of the company's management) are assumed to be independent directors, thus making better decisions. In contrast, (stewardship theory), outside directors may not have detailed

information and knowledge about the IP, employees' feelings or corporate culture; as a result, insider directors could make a better decision. The basis of the two ideas is framed in terms of independence from management influence or shareholders, which is very subjective to measure and difficult to label its degree. Even though our result supports the first idea (agency theory), we stress that being an inside or outside director alone may not guarantee independence rather, the directors believe in making a professional judgment which is highly dependent on independence in mindset. In line with this view, Bhagat and Black (2002) have concluded that a firm with more board independence does not perform better than other firms. This roughly implies that higher or lower proportion of outside directors on the board has no impact on firm performance. It would be so because the conventional proxy for board independence (proportion of outside directors on the board) refers to independence in physical rather than professional independence in mind.

### **7. Practical implications of the study**

The findings of the study would have measurable implications for different stakeholders who are in the position of supporting or regulating manufacturing firms. First, the findings give a clue about how a firm can design a good corporate governance system. Second, managers of the firm can get a hint or tip from the result that might help as input for designing strategies. Finally, it might help policymakers to understand and think about the very crucial role of active participation of shareholders in curtailing/reducing agency costs and enhancing firm performance apart from (beyond) the conventional corporate governance mechanisms (board of directors, internal audit, disclosure and transparency).

### **8. Limitations and areas for further studies**

Our study has two potential limitations. First, in comparison to prior studies, this study is based on a small sample size, which limits the generalizability of the findings. Different scholars have suggested (Anderson and Gerbing, 1984, 1988; Iacobucci, 2010; Hair et al., 2019) that SEM requires a large sample size to test the hypothetical model. Thus, future research can further investigate the link between corporate governance and firm performance by using a larger sample size to achieve more reliable results. Second, the current study employed a quantitative approach only, but prior studies (Ahrens and Khalifa, 2013) suggest a qualitative approach to more investigate and reach a very conclusive idea on corporate governance. The approach is currently receiving growing popularity in the literature.

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