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Absorptive Capacity, Business Venturing and Performance: Corporate Governance Mediating Roles

Cosmas Ikechukwu Asogwa¹, Osmund Chinweoda Ugwu², Anthonia Uju Uzuagu^{3*}, Samson Ige Abolarinwa⁴, Godwin Keres Okoro Okereke⁵, Honesta Chidiebere Anorue⁶ and Favour Amarachi Moghalu⁴

Abstract: This study offers insight through Structural Equation Modeling (SEM) into the joint impact of corporate absorptive capacity and corporate new business venturing on the performance of manufacturing firms in Nigeria as moderated by the quality governance mechanisms. Using the structured survey design, and respondents' data from 330 employees of manufacturing firms, we provide evidence that both absorptive capacity and corporate new venturing entrepreneurship dimensions do not directly yield significant positive impact on firms' performance. Rather, the significant effect depends on the quality of the corporate governance mechanisms. Firms' absorptive capacity as measured by acquisition, assimilation (potential absorptive capacity), transformation, and knowledge exploitation (realized absorptive capacity) only resulted in value creation when mediated by key governance mechanisms including frequency of board meeting, and the presence of

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PUBLIC INTEREST STATEMENT

Organizations need to achieve higher performance to enhance shareholders' value. Such goal realization depends on the managers' proactiveness, innovation, business self-renewal, and knowledge management capacity. Business innovation requires that firms should increase their ability to acquire, assimilate, transform and exploit new knowledge from diverse sources. As firms grow in knowledge acquisition, managing this knowledge becomes critical as agency problem could occur. Managers may pursue new businesses and increase knowledge to achieve self-interested causes. This raises corporate governance question. To constrain such unethical behaviour that can limit the potential of both absorptive capacity and new business venturing to increase shareholders' value, quality corporate governance must be put in place. This study recommends in the interest of the public that absorptive capacity and new business venturing should be carried out only when firms' corporate governance mechanisms are effective. Weak governance should be made effective prior to venturing into new businesses.

independent directors. Similar effect was detected on the effect of corporate new business entrepreneurship dimensions including innovation, proactivity, new business venturing and strategic renewal on firms' performance in manufacturing sector. The path analysis showed that optimal board size, frequency of board meeting and the presence of independent directors jointly shape the way corporate new business entrepreneurship dimensions affect firms' performance. By implication, weak governance occasioned agency problems that reduce the potential of corporate entrepreneurship to influence corporate financial performance positively. Overall, firms that wish to reap the benefit of knowledge management and new business venturing should develop their governance structures. Thus, board size and independent directors are expected to be optimal to enhance and achieve sufficient monitoring while frequency of board meeting should be given a priority to encourage knowledge sharing that will translate into higher financial performance.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: absorptive capacity; corporate entrepreneurship; new business venturing; assimilation; acquisition; corporate governance; mediation; innovation; independent directors; board size; proactivity; strategic renewal

1. Introduction

The capacity to create sustainable businesses within existing corporate organizations depends on the firms' ability to recognize and exploit new information from diverse sources (Cohen & Levinthal, 1990; Lis & Sudolska, 2020; Lumpkin & Dess, 1996; Miller, 1983). Most innovations in organizations are products of borrowed ideas rather than inventions (Mueller, 1962). Borrowing ideas for innovations is stressed in knowledge and strategic management (Lane & Lubatkin, 1998) both of which are very vital for growing businesses in fierce competitive and turbulent business environment (Kuratko & Morris, 2018). Creating new business requires strong investment in R & D activities, which are made possible through an enhanced knowledge base (Cohen & Levinthal, 1990). Thus, to take an existing business to a higher performance level through business venturing, the organization needs to develop the capacity to recognize and exploit new knowledge from diverse sources (Cohen & Levinthal, 1990). Such recognized and borrowed knowledge would help in building and advancing innovative ideas that could be commercialized (Cohen & Levinthal, 1990). Expanding the organizations' new customers' base; creating new business lines, and building market niches could largely depend on firms' ability to recognize newly available information in the market and exploit it strategically (Cohen & Levinthal, 1990; Jimenez-Barrionuevo et al., 2011; Zahra & George, 2002). This only suggests that new business venturing requires active knowledge management and transfer including acquiring and exploiting new knowledge for commercial ends (Cohen & Levinthal, 1990; Zahra & George, 2002). Thus, jointly, knowledge recognition, acquisitions and management—often called absorptive capacity (Cohen & Levinthal, 1990; Zahra & George, 2002) and new business venturing could impact firms' financial performance (Jimenez-Barrionuevo et al., 2019).

But business managers behave opportunistically and could embark on knowledge hunt and business empire building to meet self-interested although hidden agenda (Jensen & Meckling, 1976). Such behaviour could reduce the effect of knowledge absorption power and corporate business venturing on firms' financial performance, which suggests that corporate governance could play a significant mediating role in shaping the joint performance effect. Agency problem which often occurs where corporate control is separated from ownership has always underpinned the corporate knowledge transfer and corporate business-venturing activities (Lis & Sudolska, 2020). Thus, the agency problem could largely determine the extent of the phenomena's joint effect on firm's performance in volatile corporate environment. Moreover, because

corporate entrepreneurship dimensions including the formation of new business, innovation and strategic renewal are complex activities (Day, 1994), they usually occasion agency problem through opportunistic creation of businesses and knowledge exploitation activities. For corporate organizations to achieve higher performance through new business venturing, boards ought to play key roles including monitoring innovation activities, allocating authorities, reducing conflicts of interest and creating opportunities for knowledge identification and exploitations (Lis & Sudolska, 2020). It thus suggests that effective corporate boards should be set up to efficiently create space and allocate new business-venturing authority to entrepreneurial employees in order to mitigate potential goal deviations (Lis & Sudolska, 2020). An important governance mechanism such as frequency of board meeting could encourage consistent deliberation on innovation projects that could leverage new business venturing ideas with the capacity to change performance level. In addition, boards that meet frequently could promote an enhanced monitoring that would mitigate transaction opportunisms (Asogwa et al., 2019) often occasioned by business acquisitions. Evidence also shows that effective corporate governance motivates synergy around business acquisition, which is more value-adding relative to agency-motivated business acquisitions (Rani et al., 2020). This relation underpins the importance of quality governance on new business venturing and knowledge acquisition adventure performance effect. Therefore, enhancing firms' absorptive capacity and charting the course of corporate new business venturing including proactivity, innovation and strategic self-renewal remain the key role of strategic decision board (Lis & Sudolska, 2020).

However, the role boards play in shaping entrepreneurial activities and corporate absorptive capacity has been less examined by researchers (Randi, 2013). Though Hagen et al. (2005) called for such investigation, so far, the response by researchers has not been encouraging particularly from Nigerian context. There is literature that examined the effect of the phenomena to a certain extent. However, most of the available studies apart from focusing on developed economies (e.g. Jiraporn et al., 2018; Koo, 2019; Koo & Kim, 2019; Shapiro et al., 2015) concentrated on the direct effect of corporate entrepreneurship on firm performance (Aktan & Bulut, 2008; Altuntas & Donmez, 2010; Karacaogulu et al., 2013). Moreover, several of the papers did not investigate the effect of entrepreneurial managerial employees' absorptive capacity on firm performance and their impact on corporate new business venturing as moderated by corporate governance. For instance, Jimenez-Barrionuevo et al. (2019) showed that corporate entrepreneurship and absorptive capacity affect firms' performance. However, the study did not examine whether the effect depends on firms' frequency of meeting, educational diversity of the board members, the independence of the members of the boards and the composition of their boards. Another recent study (Maqtari et al., 2020) examined the impact of country-level corporate governance on entrepreneurial conditions. Though the study showed that corporate governance is relevant to entrepreneurial performance, absorptive capacity was not connected and the effect on corporate financial performance was not examined. Thus, specifically, whether ownership structure, frequencies of audit committee meeting and board meeting and compositions shape absorptive capacity of employees and corporate entrepreneurship ideas to mitigate realized absorptive capacity exploitation and innovation deviations that influence firms' performance are yet to be clearly explained in an empirical research particularly as it affects Nigerian manufacturing firms. There is thus little understanding of the mediating role of corporate board composition, board leadership, ownership structures and firms' absorptive capacity behavioural impact on new business creation among the manufacturing firms in Nigeria.

Therefore, to bridge the literature gap, this study examines the meditative impact of corporate governance mechanisms on corporate absorptive capacity and new business-venturing effect on the performance of manufacturing firms in Nigeria. It proposes that the joint impact of corporate absorptive capacity and corporate new business activities on firms' financial performance depends on the quality of firms' corporate governance. In other words, it raises questions whether higher frequency of board meeting, optimal board size and the level of the boards' independence

characterized firms that significantly benefit from corporate entrepreneurship and firms' knowledge transfer.

Using evidence from 330 respondents from 100 listed firms, this study found evidence that corporate absorptive capacity and firms' new business-venturing effects on firms' performance depend on the quality of firms' governance structures. High level of board independence and frequency of board meeting characterized firms that performed higher in terms of innovation, new business-venturing, corporate proactivity and strategic business renewal. Moreover, as board size becomes optimal, firms' knowledge acquisition, assimilation, transformation and exploitation increase firms' performance.

This study makes and documents the following contributions. Firstly, this study provides evidence that frequency of board meeting characterized firms that advance their commercial and financial performance through new business venturing, innovation and proactivity among the manufacturing firms in Nigeria, thus advancing the role of knowledge management on firms' performance. Secondly, the study contributes by demonstrating that, firm's acquisition of knowledge, assimilation, transformation and exploitation of new knowledge from external and internal sources advance firms' performance only when boards' level of independence is high. Two contributions are made from this perspective namely firms that maintain independence mitigate opportunistic behaviour that helps in realization of firms' absorptive capacity pursuit and that commercialization of innovations product can only yield profit when the level of boards' independence increases. Thirdly, this study contributes to the body of knowledge by providing strong empirical and theoretical review on firms' corporate entrepreneurship, absorptive capacity and governance performance effect. Thus, the review provides the stream of literature on the phenomena while also showing the potential new directions to new authors.

Finally, unlike most prior research, the present study contributes by addressing the important issue of how governance structures interact with the potential and realized knowledge absorptive capacity to impact corporate innovation, self-renewals, proactivity, and new business creation from the key four dimensions of corporate entrepreneurship. From this perspective, we further advanced the frontier of literature on absorptive capacity-corporate entrepreneurship performance effect by comparing prior results such as Jimenez-Barrionuevo et al. (2019) that omitted governance structures. In this way, the study also contributes by reconciling our evidence with papers that focused on corporate governance and entrepreneurship performance without connecting absorptive capacity interactions. Asnsio-Lopez, et al. (2019) found evidence that there was no consensus regarding the relationship between governance and innovation as empirical results point to both positive and negative effects. In conclusion, they recommend that a new study trying to clarify the relationship is very essential. By analyzing entrepreneurial activities, absorptive capacity and governance structures mediating role on their joint impact on firm's performance this study reconciles the past conflicting results. These contributions are important because they would help to redefine the present corporate board structure for efficiency gain that would encourage corporate entrepreneurship new business venturing and absorptive capacity building and at the same time help to increase firms' profitability.

2. Background of the study

Absorptive capacity is one of the concepts that explains how companies build up their strength to acquire skills from external partners and exploit the acquired new knowledge to innovate and grow competitively. Zahra and George (2002) expounded on absorptive capacity and defined the phenomenon as "a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability". From the above, absorptive capacity embraces the organizational ability to identify external knowledge and at the same time realize the value of the skills, combine new knowledge factors within the organizational knowledge stock (Cohen & Levinthal, 1990; Zahra & George, 2002). It also encompasses applying the knowledge to create innovations to contribute to business progress (Cohen & Levinthal, 1990).

Developing proper absorptive capacity is very important for firms because it measures firms' ability to assimilate, transform and exploit both internal and external knowledge resources in shaping their dynamic responses to business competitive environment and open innovation (Cohen & Levinthal, 1990; Zahra & George, 2002).

On the other hand, corporate new business venturing is recognized as an effective tool for improving corporate competitive advantage (Covin & Miles, 1999). Corporate entrepreneurship was used by Miller (1983) to describe the development of entrepreneurial activities in existing corporate organizations. Peterson and Berger (1971) used the term to describe a strategic plan and leadership model by large firms to mitigate the threat of market turbulence (Sakhdari, 2016). Interest in corporate entrepreneurship has continued to grow. Zahra (1995) sees corporate entrepreneurship as the sum of a firm's innovation, renewal and venturing efforts. Evidence from Morris and Kuratko (2002) showed that corporate entrepreneurship represents a framework for the enhancement of prevailing change and innovation in an organization. Thus, it provides plans for handling effectively new competitive pressures that face companies. The key essence of organizational new business venturing is that it constitutes a strategy to promote ongoing process of entrepreneurial activities to realize a competitive advantage through innovations (Kuratko & Morris, 2018). Corporate entrepreneurship is value adding (Khandwalla, 1987) and generally helps organizations to achieve efficiency and effectiveness (Barringer & Bluedorn, 1999; Li et al., 2009). Therefore, both corporate absorptive capacity and new business venturing are complementary (Zahra et al., 2009). As such, they can jointly impact corporate performance. Both phenomena operate in the realm and framework of dynamic capabilities theories (Eisenhardt & Martin, 2000), which also has agency theory implications (Asensio-López et al., 2019; Lis & Sudolska, 2020). Dynamic capabilities theory in sum explains technical knowledge and competences adjustment for corporate innovation in a rapidly changing and competitive environment (Teece et al., 1997).

In applying dynamic capabilities theory to achieve absorptive capacity and innovation, conflicts of interest occur in which case, the realized absorptive capacity could be exploited at the expense of the principals. Advancing corporate absorptive capacity to build new ventures could thus be very damaging when carried out with little understanding of the corporate control mechanisms mediating impact. Strategic boards play essential roles in this regard. Generally, the boards ensure corporate operational control to mitigate deviations from corporate goals due to new venturing pursuit that might be driven by transaction opportunism. Beyond that, the board provides the enabling support, and knowledge management tools such as boundary markings and resource allocation that could leverage new business creation (Birkinshaw, 2003). Thus, the boards give the organizational activities including the entrepreneurship venturing employees the sense of direction and focus. Without clear sense of direction regarding where the company is heading for or the missions the company stands for as regards new business venturing and new knowledge hunt, corporate venturing activities could become a random series of corporate useless initiatives (Birkinshaw, 2003). In other words, their joint impact on firms' performance could be drastic when not moderated by the quality governance. Thus, when governance structures moderate the effect, higher degree joint effect could be realized (Asensio-López et al., 2019; Lis & Sudolska, 2020). Birkinshaw (2003) warns in this regard that although each business venturing initiative on its own may be perfectly rational, investors are likely to denounce the effect as incoherent or troublesome strategic activities if not well underlined by agency theory. This only emphasizes the need for decision board in harnessing absorptive capacity and corporate entrepreneurship for maximum performance effect. Tylecote and Visintin (2007) found that corporate governance is one of the main determinants for innovation and technological change though study was not specific on how the mechanisms interact with firms' new business venturing to influence corporate performance. Tribo et al. (2007), Latham and Braun (2009), Tsao et al. (2015), Balsmeir et al. (2014), and Zhang et al. (2014) argue that new business venturing innovation efforts and performance results largely depend on factors that are influenced by corporate governance mechanisms such as ownership structures, shareholder identity or the functioning of the board of directors (Asensio-López et al., 2019).

It is on this background that this study examined the joint impact of absorptive capacity and new business venturing on firms' performance as moderated by the governance quality mechanisms. The rest of the paper is organized in five sections namely 3, 4, 5, 6 and 7. Section 2 dealt with theoretical literature review. Section 4 handles empirical literature and hypothesis development. In section 5, research design was presented. Section 6 presents the empirical results and discussions. Finally, in Section 7, the study presents the summary and conclusion.

3. Theoretical literature review

The ability of firms to achieve their objectives largely depends on their potential capacity. Thus, corporate organizations possess the capacity to perform certain activities including corporate entrepreneurship and increasing its absorptive capacity. This reality underpins the well-known theory of dynamic capabilities, which define the capacity or ability of firms to carry out certain activities successfully. Teece et al. (1997) identified dynamic capabilities as "the ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environment". In a fast changing environment, scholars have used the dynamic capabilities theory to explain the effect of firms' absorptive capacities on firms' entrepreneurial performance. Based on the Teece et al. (1997) view, dynamic capabilities theory involves a framework of three components in relation to entrepreneurial goals, which include sensing, identifying and assessing new emerging opportunities. This applies to absorptive capabilities and corporate entrepreneurship innovation. Corporate innovation, for instance, involves engaging creativity by sensing, identifying and assessing new emerging opportunities. To be able to identify, opportunity and exploit it for commercial ends, corporate absorptive capacity would have to increase. Thus, realized potential and absorptive capacity would thrive when approached from the view of the capabilities theory. Thus combined, dynamic capabilities encompass seizing necessary resources to address, grasp and capitalize on its opportunities, and changing the organization's tangible and intangible assets, renewing core competences, building innovation, and developing new customer value proposition through new business venturing and proactivity (Cirjevskis, 2019). Corporation can thus configure the internal resources to match an ever-changing business environment and to use its stock of knowledge to exploit. In this case, it can be inferred that dynamic capabilities enable firms to seize innovation, new business and self-renewal opportunities to engage the immediate business demand. Thus, the theory provides a good framework to analyze the joint impact of firms' absorptive capacity and entrepreneurial ideas by encouraging the expansion of firm's stock of knowledge, which can lead to higher corporate performance and the achievement of competitive advantage. In sum, dynamic capabilities emphasize resources development and renewal that could encourage new business venturing and self renewals. Wade and Hulland (2004) showed that the theory could be useful for firms that are operating in rapidly changing environment. In addition, its application according to them can help firms to gain a position of a superior sustained competitive advantage. Cirjevskis (2019) and Teece and Leih (2016) maintained that generally, dynamic capability theory directs organizations towards producing new goods and services, which consumers would more likely high demand. In addressing the joint impact of corporate absorptive capacity and corporate entrepreneurship, we anchor our research on dynamic capabilities theory.

The fundamental theory dealing with absorptive capacity in relation to management studies was laid by Cohen and Levinthal (1990). The authors show that the ability to exploit external knowledge is an essential part of innovation capabilities. Based on Cohen and Levinthal (1990), the capability to evaluate and utilize knowledge from outside source depends on the degree of knowledge previously acquired. This prior knowledge could include basic skills and shared language that enhance understanding. It may also include knowledge of the newly emerging scientific or technological developments and changes in a given field of endeavor (Cohen & Levinthal, 1990). Based on this perspective, the previously acquired related knowledge offers managers the opportunity to understand that new information has value in the environment and to commercialize the knowledge. Thus, when well recognized, they need to assimilate it, and exploit it for a

commercial purpose and organizational effectiveness. Cohen and Levinthal (1990) state that those abilities together comprise firm's absorptive capacity.

Absorptive capacity is generated in many ways including through research and firms' manufacturing operations (Cohen & Levinthal, 1990). Organizations that carry out their own R & D have been found to be better able to use available information from outside the firms (Allen, 1977; Mowery, 1983). Thus, absorptive capacity may be sourced through firm's R & D activities. Research also demonstrates that corporate absorptive capacity could be developed as a "byproduct of a firm's manufacturing operations" (Cohen & Levinthal, 1990). Through direct involvement in manufacturing activities, an organization may better be able to recognize and exploit new information relevant to a particular product market (Abernathy, 1978; Rosenberge, 1982). By implication, the production experience could offer the organization the background methods and models to recognize, assimilate and transform the value of new acquired knowledge. It could also offer them the opportunity to understand methods to recognize or automate specific production processes. Cohen and Levinthal (1990) suggest that organizations can source absorptive capacity by engaging in human capital development. This is always achieved when firms send their employees for advanced technical trainings and education.

Based on the above review of the theory of absorptive capacity, the concept of absorptive capacity will better be developed through an examination of the cognitive structures that underlie learning and education (Cohen and Levinthal (1990). The authors argue that basis of the idea of absorptive capacity is that the organization requires prior related knowledge to assimilate and use new external knowledge. This observation has been authenticated by studies on the field of cognitive and behavioural sciences at the individual level (Cohen & Levinthal, 1990). Absorptive capacity relates to memory development. Accumulated prior knowledge enhances both the ability to put the knowledge into memory what was referred to as the acquisition of knowledge and the ability to recall and use it according to research on memory development. With respect to the acquisition of knowledge, memory development is self-reinforcing in that the more objects, patterns and concepts that are stored in memory, the more facile is the individual in using them in new settings (Bower & Hilgard, 1981). In this regard, some psychologists suggest that acquired knowledge increases learning because memory is developed by associative learning in which events are recorded into memory by establishing coverage with pre-existing concepts (Bower & Hilgard, 1981; Cohen & Levinthal, 1990). Thus, Bower and Hilgard (1981) suggested that the breadth of categories into which prior knowledge is organized; the differentiations of those categories and the linkages across them permit individuals to make sense of and in turn acquire new knowledge.

Absorptive capacity theory has since been further developed by Zahra and George (2002). Zahra and George (2002) noted that the role of absorptive capacity is emphasized in strategic management issues (Lane & Lubatkin, 1998). It is also emphasized and stressed in technological management (Schilling, 1998), and international business (Kedia & Bhagat, 1988). Absorptive capacity also involves understanding organizational business economics (Glass & Sagi, 1988). Absorptive capacity was also placed among the areas of organization learning (Duchek, 2013; Huber, 1991), knowledge management (Chiva & Alegre, 2005), and dynamic capabilities (Mowery et al., 1996). The relationship among absorptive capacity strategic management, organizational learning and dynamic capabilities is often emphasized as the key knowledge management relationship that advances the organizational innovations. Based on strategic management perspective, the concept of absorptive capacity is usually associated with the assumptions of the resource-based view. Following this way of thinking, Nahapiet and Ghosal (1998) find social and intellectual capital to be key sources of the company's competitive advantage. They claimed that social capital facilitates the development of intellectual and human capital by influencing the conditions that are vital to enhancing knowledge sharing and transfer (Nahapiet & Ghosal, 1998). The relationship between absorptive capacity and organizational learning is thoroughly studied by Anderson and Sun (2010), where they suggest that absorptive capacity or firms' dynamic capability is a good example of

organizational learning design that involves firms' relationship with new external knowledge sources. In respect of dynamic capabilities, Mowery et al. (1996) focused on absorptive capacity of inter-firm knowledge transfer within strategic alliance. From this view, they explained the effectiveness of technology-based capability transfer using dynamic capabilities theories (Mowery et al., 1996). In other words, knowledge transfer is highly promoted between firms in related industry.

To further broaden absorptive capacity Zahra and George (2002) identified four components of absorptive capacity and grouped them into two categories. They include potential absorptive capacity and realized absorptive capacity. Potential absorptive capacity was divided into two namely knowledge acquisition and assimilation while realized absorptive capacity was also grouped into knowledge transformation and knowledge exploitation. Knowledge acquisition is the firm's capability to identify and acquire knowledge that is generated from outside the organizations, which is vital to the firms' successful operation. They explained that knowledge transformation is firms' ability to develop and refine the corporate activities such as routines that enhance the combination of internal existing knowledge and the knowledge that is freshly acquired and assimilated. Knowledge exploitation encompasses the organizational programs that permit firms to refine, extend and enhance existing capabilities or to create new knowledge by engaging the knowledge acquired and transformed into organizational operations.

Evidence also shows that Lis and Sudolska (2020) clarified issues with the scope of absorptive capacity components by referring to five dimensions. They include firstly, identifying and recognizing external knowledge, secondly, processing and understanding the external knowledge, and thirdly, combining the acquired external knowledge with the existing internal knowledge to commercial ends. Practically, the mechanisms and practices contained in a firm's absorptive capacity are very important for innovations and business growth. For instance, Zahra and George (2002) identified the social integration structures which help firms to profit economically from the potential of their absorptive capabilities. This suggests that businesses should shift from potential absorptive capacity to realized absorptive capacity if they are to profit from absorptive capacity. Zahra and George (2002) noted that such designs may be of formal character such as social network, which shares ideas. Duchek (2013) focuses on knowledge absorptive practices of family-owned, high-tech German company operating in an engineering industry and identified knowledge absorptive practices including technology scouting as an acquisition dimension, face-to-face communication as a knowledge assimilation and informal promotion of new ideas by key organization members as knowledge exploitation dimension. Duchek (2013) highlights that technology scouting refers to "a structured observation and early recognition of opportunities, relevant changes and technological developments".

The researcher shows that scouting for new technology reflects through an active search for knowledge sources from both internal and external sources. The knowledge can be sourced from the internet, branch and scientific publications. When obtained such external knowledge would be employed into company projects. Knowledge search also has to do with conference participations, forums' meetings, and participation in training sessions in order to understand the acquired new knowledge in the field. The identified knowledge would be imported into an organization for commercialization of innovation. Apart from conferences, face-to-face communication provides an enabling environment for effective knowledge sharing, discussion of complex issues, provision and reception of feedback and helps in setting up networks within corporate firms. From this practice, it remains the key role of leaders' engagement to introduce new ideas into an organization. The key leaders also help to convince approvals of absorptive capacity building projects while also playing change agents' role. Such practices show an enhanced absorptive capacity knowledge building that could leverage organizational performance.

Drawing from the classical theory of firm, organizational projects always occasion agency cost and conflicts. Agency theory explains the principal agent relationship in firms (Jensen & Meckling,

1976) and argues that left uncontrolled managers would not run a business in the best interest of the owners as there would always be a conflict of interest. To minimize the conflict, there would be need for independent boards that would play key roles in strategic management. The board would monitor the activities of the managers, who implement decisions to ensure that they do not deviate. Strong fulfillment of organizational routine could be built on strong corporate governance. In a fast-changing environment, the dynamic capabilities theory enables corporate organizations to adjust their intellectual capacity base in order to address challenging turbulent cases. Moral lapses in managers could push firms to pursue ideas most likely to benefit them. Research by Roychowdhury (2006) showed that managers engage in activity manipulation in order to benefit self at the expense of shareholders. On the other hand, the entrepreneurial managers need to be appropriately supported in their efforts to achieve entrepreneurial goals, increase their knowledge base, which could benefit the shareholders. Dynamic response to competition is expected to enhance stakeholders' value rather than just focusing on specific group of stakeholders' at the expense of others. This potential behaviour of managers connects capabilities theory and agency theory as a framework for corporate entrepreneurship and absorptive capacity of firms to interact to define firms' financial performance. Thus, based on the above view, it is clear that the dynamic capabilities theory has implications for both agency and stakeholder theories. Freeman (1984) view is that business objective should be broad-based in effect and as such must be stakeholder focused. Stakeholder theory highlights that corporate organization has a duty to all their stakeholders. Thus, firms should pattern their behaviour including their corporate entrepreneurial activities and governance rules to satisfy all parties that have stakes in them. If such view is accepted by the entrepreneurial managers, corporate entrepreneurship would be built on value creation potential. This implies that managers focusing on activities including absorptive capacity and business venturing could advance the financial welfare of the firms (Borlea & Achim, 2013).

4. Empirical literature and hypotheses development

4.1. Empirical literature

In this section, we focused on the review of related literature on the joint impact of absorptive capacity and corporate entrepreneurship on firms' performance. Because corporate innovation is a dimension of the new business venturing, we focused also on the impact of absorptive capacity on innovation performance, which indirectly indicates how absorptive capacity affects firms' performance. The review also examined the impact of governance on firms' performance to establish that there is a link between corporate governance and firms' innovation performance.

Liu et al. (2017) examined the path relationship between tie strength, absorptive capacity and firm innovation performance in Chinese manufacturing industries. Using a survey conducted among Chinese manufacturers in four industries, they found that in Chinese manufacturing industry, tie strength is positively related to innovation performance and that absorptive capacity has a positive impact on innovation performance. Firms' absorptive capacity mediates the relationship between tie strength and innovation performance. This means that absorptive capacity affects performance by mediating with firms' innovation strategies. By implication, firms that identify knowledge, assimilate it and exploit it can enhance their financial performance. In a related study, Tseng et al. (2011) examined whether the three knowledge sources, knowledge input, knowledge spillover and knowledge absorptive capacity, really increase the innovation performance of firms in the Taiwan IC design industry. The study found evidence that knowledge input is positively related to innovation performance while knowledge spillover effect is partially positively related to innovation performance. In addition, they found that knowledge absorptive capacity is positively related to innovation performance, which suggests that absorptive capacity is directly related to innovation while indirectly, related to firms' financial performance. In other words, firms that build their knowledge base possess the capacity to identify future knowledge, and exploit it for the enhancement of both innovation and financial performance. Petti and Zhang (2013) investigated the relationships between absorptive capacity, technological entrepreneurship and their impact on Guangdong technology firms' performance.

The study found evidence that greater absorptive capacity results in greater technological entrepreneurship, which in turn leads to greater financial performance. They conclude that absorptive capacity and technological entrepreneurship mediate the innovation impact on firms' performance, which means that as firms' absorptive capacity increases, entrepreneurial and financial performance increase. Chandrashekar and Mungila Hillemane (2018) focused on the key determinants of innovation performance of a firm in a cluster and the role of absorptive capacity in furthering the cluster linkages and the potential to enhance the innovation performance of a firm. The survey research showed that internal factors of absorptive capacity of a firm have a significant positive influence on the degrees of both intra-cluster linkages and extra-cluster linkages. The study also found that external factors of absorptive capacity of a firm significantly impact the degree of intra-cluster linkages, which enhance firms' innovation performance. Overall, the study identified that absorptive capacity factors could be exploited to enhance innovation while also advancing firms' performance. Furthermore, positive relationship was identified by Medase and Barasa (2019) who investigated how specialized capabilities including absorptive capacity and marketing capabilities influence innovation commercialization in manufacturing and service firms in Nigeria. Using 2012 data from Nigeria Innovation Survey, they found that absorptive capacity measures comprising openness and formal training positively affected innovation performance while marketing capabilities as indicated by new product marketing and marketing innovation positively associated with innovation performance. However, the authors warned that their study findings could be limited by the presence of unobserved variables. Despite the limitation, absorptive capacity and marketing knowledge capability directly impact innovation and indirectly enhance firms' financial performance. Hurmelinna Laukkanen (2012) examined the role of absorptive capacity and appropriability regimes and the interplay between them. The study argues that an appropriability regime can play a dual role when external knowledge and the knowledge-base of the firm form the basis for absorptive capacity, which then contributes to innovation performance. An empirical analysis shows first that the strength of the appropriability regime has a positive effect on absorptive capacity especially the acquisition of knowledge together with good connectedness to external knowledge sources and high levels of internal R&D. By inference, the idea of absorptive capacity and the appropriability regime positively related to innovation performance. Thus, both direct and moderating effects can be found, though the degree of the effect somewhat differs from knowledge acquisition and application. Martínez-Caro et al. (2020) investigated how IT assimilation can encourage potential and realized absorptive capacity and how these can, in turn, facilitate organizational agility and performance. A survey of 110 respondents of Spanish companies using Advanced analytical methods of PLS-SEM showed that there is a positive relationship between three preceding constructs in the study namely IT assimilation, potential and realized absorptive capacity and organizational agility. This implies that a direct relationship between organizational agility and firm performance exists. Wang et al. (2010) examined the relationship between knowledge acquisition, knowledge absorptive capacity, and innovation performance in SMEs. Questionnaire data were collected from R & D managers or owners of 49 SMEs of the bicycle industry in Taiwan. The results showed that the depth and the breadth of its owner's technical and industrial experiences best explained absorptive capacity of an SME. In turn, the absorptive capacity and the knowledge acquisition activities of an SME affect its innovation performance. By implication, SME owners' technical and industrial experiences are contributing factors to their companies' knowledge absorptive capacity and diversity of knowledge sources contribute to innovation performance of companies, which indirectly enhances firms' performance. Deshpande (2018) investigated the relationships between advanced manufacturing technology (AMT), absorptive capacity, mass customization (MC) capability, competitive advantage, and organizational performance measures. Using data from 232 Indian manufacturing managers, they found that absorptive capacity has a positive impact on MC capability and that MC capability mediated the relationship between AMT and the financial and market performance. Further analysis showed that AMT positively impacted MC capability and MC capability positively impacted both time to market and financial and market performance. Thus, as absorptive capacity increases, firms' performance increases.

Empirical studies have also been carried out for corporate governance, innovation Performance and absorptive capacity. Randi (2013) examined the board processes by examining the impact of absorptive capacity on the board task performance. The study explored three dimensions of corporate absorptive capacity namely exploratory learning, transformative learning and exploitative learning. The author found that the three dimensions of absorptive capacity positively and significantly mediate the relation between presence of knowledge and skills and board task performance. The qualitative finding shows that the information flows have an impact on absorptive capacity. The study also found that in Norway, the role and power of the CEO and division of labour between the CEOs and the chairs might have an impact on board task performance. The study also reported that the comprehensive utilization of consensus has an impact on transformative and exploitative learning. Thus, firms' absorptive capacity relates to corporate governance. Consistently, Jiraporn et al. (2018) found that board independence leads to significant high investment innovation and innovation productivity. They thus conclude that corporate governance drives the organizations' product innovation vision including knowledge absorption capacity. However, they were not clear on whether such innovation was driven by the technical and engineering experience of the independent board leader and how such governance mechanisms moderate the joint impact of absorptive capacity and innovation on firms' performance. Koo and Kim (2019) examined whether lucky grants to CEOs impact firm innovations and by extension long-term growth. They found that innovation decreased if CEOs received lucky grant in previous years. Thus, their evidence shows that lucky grants to CEOs reduced their incentive to invest in risky long-term projects and as such negatively affects product innovation. Thus, compensation practices of firms could shape the extent of their involvement in innovation and business creation. Koo (2019) examined the extent to which specialists CEOs with strong firm-specific human capital enhances innovation. The study found evidence that specialist CEOs promote both a higher magnitude of innovation and higher quality innovation for their current firms. Thus they conclude that the specificity of CEO human capital matters as regards innovation. Shapiro et al. (2015) investigated the effects of corporate governance and ownership on the innovation performance of Chinese SMEs. Using a unique sample of 370 private and small Chinese firms, they found limited evidence that corporate governance affects innovation performance among Chinese firms. However, they found the effect is context specific as it depends on the measure of innovation. When innovation is measured by patenting activity, corporate governance yields significant effect on innovation. The reverse was the effect when innovation was based on sales of new product. Ramirez and Tylecote (2004) examined the effect of hybrid corporate governance and its effects on innovation. They found that corporate governance with strong industry-specific expertise encourages long-term innovation. Ndemezo and Kayitana (2018) investigated the impact of corporate governance, and corporate entrepreneurship on firm performance with evidence from the Rwandese Manufacturing industry. They found that the background-education and experience-and motivation of top managers contribute significantly to both corporate entrepreneurship and corporate performance. Albu and Mateescu (2015) examined the relationship between entrepreneurship and corporate governance among the Romanian listed companies. They found that some corporate governance mechanisms such as board independence and institutional ownership are associated with corporate entrepreneurship. Thus they conclude corporate controls and compel corporate entrepreneurs among Romanian companies.

Based on the review, there is no clear evidence of the meditative role of corporate governance board on the joint impact of corporate absorptive capacity and new business venturing on firms' performance. Thus, there is a research gap on the meditative impact of corporate governance mechanisms on the absorptive capacity and corporate entrepreneurship effect on firms' performance.

4.2. Hypotheses development

4.2.1. Absorptive capability and corporate entrepreneurship relation

Firms' absorptive capacity relates to corporate entrepreneurship dimensions because it involves applying the acquired knowledge and assimilated knowledge to create innovations for business

progress (Cohen & Levinthal, 1990). Thus, the level of firm's absorptive capacity could strongly drive organizational innovation and business venturing (Cohen & Levinthal, 1990). Firms with high absorptive capacity expand their innovation and proactivity goals. In addition, developing proper absorptive capacity is very important for firms because it measures firms' ability to assimilate, transform and exploit both internal and external knowledge resources in shaping their dynamic responses to business competitive environment and open innovation (Cohen & Levinthal, 1990; Zahra & George, 2002). Absorptive capacity of firms influences their competitive advantage positively. This is often achieved because the development of new products, product processes, systems and organizational forms' activities were linked to corporate entrepreneurship. To be able to pursue new entrepreneurial ideas, new knowledge should be infused in the organization (Ade & Habib, 2016). To take proactive step into the unknown future is highly risky. However, the probability of success would increase as the managers' absorptive capacity rises as better information would be obtained. Thus, firms that want to engage their corporate entrepreneurship models should focus on increasing their absorptive capacity from diverse sources.

Zahra and George (2002) identified four components of absorptive capacity namely knowledge acquisition, knowledge assimilation, knowledge transformation, and knowledge exploitation. Knowledge acquisition was used to describe firm's capability to identify and acquire externally generated knowledge that is critical to its innovation and new business operations. They describe knowledge assimilation as the firm's routines and processes that allow it to analyze, to process, to interpret, and to understand the information obtained from external sources. By implication, only information acquired and well interpreted would be useful for corporate venturing success. In absorptive capacity model, they explained knowledge transformation as a firm's capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge. They see knowledge exploitation as that which has to do with the routines that permit firms to refine, extend and leverage existing competences or to create new ones by incorporating acquired and transformed knowledge into operation. Consistent with corporate entrepreneurship goals, knowledge exploitation is geared towards commercial ends (Zahra & George, 2002).

Based on the above absorptive capacity of firms, it could be used to predict corporate entrepreneurship behaviour including innovation and proactivity. The relationship between innovation for instance, and absorptive capacity can also be seen from the comprehensive definition of entrepreneurship innovations. Drawing from (Miller, 1983), it connects absorptive capacity as it defines a company's capability to create new products or modify existing ones in order to find demands for its current and future markets. Thus, such elements could be achieved through firms' ability to acquire new knowledge, assimilate it, transform it and exploit it creatively to address a pressing need. Potential absorptive capacity is the firm's ability to acquire and assimilate new knowledge also proceeding from outside the organization (Zahra & George, 2002). Thus, apart from the development, renewal and improvement of processes and products, innovation describes perfecting production procedures and methods and the corporate entrepreneurship dimension relates to the breadth and frequency with which innovations occur in products and to the tendency to technological leadership (Antoncic & Hisrich, 2001). This is important for absorptive capacity because it shows the propensity to support new ideas, novelty, experimentation, and creative processes, leaving aside previously established practices and technologies (Lumpkin & Dess, 1996).

Finally, R & D activities could result in two important issues relating to absorptive capacity-innovation relationship. Firstly, R & D activities will help in generating innovations (Cohen & Levinthal, 1990). Secondly, the activities would boost firm's ability to identify, assimilate, and exploit the knowledge created outside the organization (Cohen & Levinthal, 1990), thus permitting R & D activities to promote higher degree of corporate entrepreneurship (Jimenez-Barrionuevo et al., 2019). Overall, the exploitation of firms' absorptive capacity would result in financial progress of the firms. Jimenez-Barrionuevo et al. (2019) noted that innovation is easier

to improve if the firm already has a high level of absorptive capacity. Martila et al. (2017) found a positive relationship between absorptive capacity and firm performance. However, the relationship is stronger when absorptive capacity is measured from multi-dimension. Zou et al. (2017) found that absorptive capacity components positively affect innovation performance though the effect is limited to firm performance when accounting measures are used. In addition, they found that absorptive capacity is independent of size and age of firms. Jimenez-Barrionuevo et al. (2019) study showed that realized absorptive capacity yielded a positive influence on both new business venturing and self-renewal. They found that entrepreneurs could enhance potential and realize absorptive capacities at the same time in order to improve the end performance of their corporate entrepreneurial projects. Thus, absorptive capacities strongly influence corporate entrepreneurial activities.

Based on this crucial relationship between absorptive capacity and dimensions of corporate entrepreneurship, we state the following hypothesis.

Hypothesis 1: Absorptive capacity significantly affects firms' corporate entrepreneurship dimensions

4.2.2. Corporate entrepreneurship dimensions, absorptive capacity, governance mechanisms, and firms' performance

4.2.2.1. Corporate new business venturing and performance direct effect. The concept of corporate new business venturing/entrepreneurship has been well defined in this study. Researchers have considered it from the dimensions of innovation, proactiveness, new business venturing, risk taking and strategic renewal. Because of the complementarities of the dimensions, research has mostly considered them as one construct given that they all compliment and support each other. Innovation connotes self-renewal while strategic renewal will benefit new business-venturing activities in influencing performance. We develop this hypothesis from the complementarities perspective. Corporate new business venturing has been regarded as the path business leaders must follow in order to achieve the revolutionary era (Harmel, 2000). Jimenez-Barrionuevo et al. (2019) showed that it is carried in organizations to produce some improvement in organizational performance. Generally research positively links corporate entrepreneurship dimensions including innovation and new business venturing to performance (Holt & Rutherford, 2007). Zahra et al. (2000) found evidence that corporate entrepreneurship impacts firms' performance including return on assets, return on sales and growth in sales positively. However, they drew attention that the effect is a long-run issue (Holt & Rutherford, 2007) because some factors of innovation will be positively related to performance while others could provide negative link (Hall & Bagchi-Sen, 2002). Lumpkin and Dess (1996), Hughes and Morgan (2007) conclude that corporate entrepreneurship activities including innovation and proactiveness yield a positive impact on corporate performance. Innovation particularly is identified by Bruderl and Peisendorfer (2000) as the key factor that determines firm's growth. Thus, there is a wide agreement that entrepreneurial innovators are expected to initiate economic development and change (Clydesdale, 2007), which can create value for shareholders through R & D (Kelm et al., 1995). There is agreement that corporate entrepreneurship has remained a source of value creation and it consists of technological change activities which lead to economic growth. Nelson and Winter (1982) found evidence that corporate entrepreneurship is the main factor triggering economic change. Together, Jimenez-Barrionuevo et al. (2019) found that corporate entrepreneurship dimensions are critical to corporate performance though from innovation dimensions, they reported insignificant effect on performance. Kostopoulos et al. (2010) found that absorptive capacity contributes directly and indirectly to corporate innovation. Based on the above relation, we postulate that:

Hypothesis 2: Corporate entrepreneurship significantly affects firms' performance.

4.2.2.2. Absorptive capacity and firm performance. Knowledge management is critical to firms' sustainability and performance. Thus, expanding firms' knowledge base is expected to enhance firms' performance. Viewed from the lens of dynamic capabilities theory, firms need to expand their knowledge base to meet the challenging and turbulent business environment. In a changing business environment firms need to exploit information advantage to remain competitive. This behaviour also draws from resourced-based view where a firm sustains higher competitive advantage due to larger share of tangible and intangible assets in the industry (Penrose, 1959). One approach firms can use is to engage corporate absorptive capacity. The concept of absorptive capacity was popularized in management by Cohen and Levinthal (1990), who viewed it as a firm's ability to acquire, assimilate, transform and exploit the knowledge for commercial purposes. Thus, absorptive capacity involves continuous learning to achieve a business objective or to gain a competitive stand. As a measurement construct, Zahra and George (2002) view absorptive capacity from four dimensions. They include knowledge acquisition, knowledge assimilation, knowledge transformation and knowledge exploitations grouped into potential and realized absorptive capacity respectively. Recent study shows that absorptive capacity of firms enhances new business venturing (Howell, 2019), corporate financial and economic performance (Jimenez-Barrionuevo et al., 2019) and competitive and growth advantage (Lis & Sudolska, 2020). Corporate absorptive capacity has been found to enhance the existing knowledge base of the company, which promotes new knowledge creation business models, which in turn influence firms' performance (Bojica & Fuentes, 2011; Cohen & Levinthal, 1990; Eisenhardt & Martin, 2000; Zahra & George, 2002). Kostopoulos et al. (2010) found that absorptive capacity contributes directly and indirectly to financial performance. However, the effect is in different span of time. Liu et al. (2018) showed evidence that absorptive capacity can directly enhance performance within the manufacturing firms in China and can indirectly impact performance through innovation. Wales et al. (2013) found that inverted U-shaped relationship exists between absorptive capacity and firm performance, which suggests that the effect can both positive and negative. Even if we agree that firms' absorptive capacity could yield negative effect, conventional understanding aligns more with the positive effect. A firm with high absorptive capacity is going to exploit the industry, which would translate into higher performance. Creativity, innovation and proactivity are most likely to increase with higher knowledge acquisition and management. Thus, all things being equal we propose the following hypothesis.

Hypothesis 3: Corporate absorptive capacity (knowledge exploitation) significantly enhances firms' performance in terms of ROA.

4.2.2.3. Corporate entrepreneurship and corporate governance quality mediating impact on firm performance. While research has explored the relationship between corporate governance and corporate innovation, little is written about how the governance mechanisms interact to mediate their effect on firms' performance. In this section of the hypothesis, we postulate the meditative role of corporate governance mechanisms on joint impact of absorptive capacity and new business venturing on firms' performance.

4.2.2.4. Board size, corporate entrepreneurship and firm performance. Agency problems reduce with optimal board size. Thus, board size mechanisms possess the potential to enhance the impact of innovation on firms' performance. Governance boards provide support to corporate entrepreneurship vision (Lis & Sudolska, 2020). To contain corporate potential failure that is due to corporate innovation, effective board must be constituted. Thus, the potential disruption has created an expanse need for good corporate governance structures to monitor the innovations and enhance knowledge management. Efficient board that would carry out effective monitoring must be open to ideas, but must also be prepared to put the structures and governance mechanisms that would manage both the internal and external agents of innovations. This role brings to

fore the emerging need for corporate absorptive capacity management. Realization of corporate entrepreneurship goals depends on the firms' knowledge management and goal harmonization. This only suggests that firms' corporate entrepreneurship activities should be properly harnessed by the strategic boards (Howell, 2019). Decision boards provide complementary role for fueling absorptive capacity of firms (Zahra et al., 2009). Moreover, well-organized boards would mitigate agency problems, which could interrupt the good innovation ideas among firms.

Good governance quality can be reflected on the boards' characteristics (Hajawiyah et al., 2020). Board characteristics involve such features such as the board size and composition in terms of professional diversity. Like ownership structures, it has implication for agency problems (Jensen & Meckling, 1976) and dynamic capabilities (Jimenez-Barrionuevo et al., 2019; Lis & Sudolska, 2020). The increasing debate on the effect of board on corporate entrepreneurship has both negative and positive side. From the positive perspective, larger number of directors enhance the overall experience, information and advice that the company can use in advancing their innovation agenda (Goodstein et al., 1994; Haynes & Hillman, 2010). Larger boards help firms to get connected to their external environment and probably encourage connection that would enable sources of resources for innovation (Jackling & Johl, 2009). Larger number of directors in a firm could increase the company's accessibility to greater number of external resources, including the technological and financial resources, which leverage innovation speed (Shapiro et al., 2015). Uncertainty characterizes corporate innovation activities. To reduce this uncertainty, corporate organizations have to enlarge their boards as larger boards could easily possess the capacity to handle such business uncertainty by connecting other less-risk-averse board members (Pfeffer & Salancik, 2003). Thus, a well-diversified board will enhance innovation ideas that could significantly affect firms' financial performance. Where uncertainty in corporate entrepreneurship activities is reducing the performance potential of corporate innovation and proactivities, increasing board members could change such negative impact. The negative perspective to board size effect on firms' innovation points to the fact that as board size increases, greater diversity of opinions which may lead to conflict and mistrust among directors does occur (Amason & Sapienza, 1997). This could lead in turn to difficulties in frequent meeting. In addition, coordinating different opinions could lead to strategic inefficiency (Goodstein et al., 1994; Ruigrok et al., 2006; Yermack, 1996).

However, higher number of board members have been found to reduce managers' fraudulent behaviour (Imoniana et al., 2016). This suggests that larger boards would be able to contain managerial cost relating to activity manipulation in the name of corporate entrepreneurship. Thus, higher board size will help in mitigating transaction opportunisms (Jensen & Meckling, 1976; Ramzi, 2009). Empirical evidence has also supported the idea that the ability of the board to monitor effectively to limit the accounting information bias that could affect the disclosure of R & D expenditures depends on the size or composition of the board (Man & Wong, 2013; Ramzi, 2009). Having a larger board is associated with less reporting manipulation (Xie et al., 2003) because diversifying in term of board membership brings useful skills and monitoring ideas that could help run the business in a more effective way than when the business is directed by few individuals in the board (Yusoff & Idris, 2012). This means that corporate entrepreneurship ideas would increase as corporate governance mechanisms including board size increases because more ideas and direction would be provided (Al Maqtari et al., 2020). In turn, such increased entrepreneurship idea would translate into higher performance. As commercialization of innovation ideas increases, the higher performance would be achieved. In this regard, Mashayekhi and Bazaz (2008) found that a significant positive correlation occurred between board size and financial performance thus confirming the argument that a larger corporate board representation yields more valuable resources to organizations. Consistent with this, Xie et al. (2003) make case that big boards in terms of representation are well equipped in terms of knowledge mix, which enhances better monitoring of managerial activities including implementation of R & D policies.

Based on the above moderating relationship, we postulate the following hypothesis.

Hypothesis 4: Board size moderates positively the effect of corporate entrepreneurship dimensions (innovation, proactivity, strategic renewal and new business venturing) on firm performance

4.2.2.5. The presence of independence directors, corporate entrepreneurship and firm performance. Independent directors are important for corporate governance and performance (Guo & Lu, 2012) because of their presence in the boards cushions agency conflicts of interest (Fuzi et al., 2016). Independent directors are non-executive board of directors who hold no substantial number of shares and they do not represent any stakeholders. The presence of independent directors brings neutrality to bear on the board. Moreover, they are more likely to be experienced than non-independent directors because they are often exposed to different firms. They are professionals with several years of proven experience. The role of independent directors embraces improvement of corporate credibility and the standard of governance. They function as watchdog and play key role in the management of corporate risk. Effective board should have at least 50% of them. Therefore, a quality corporate governance board is expected to have independent directors. Research has shown that the presence of external directors can fix certain knowledge gaps on the board that can impact corporate innovation significantly, which can translate into higher firms' performance. Yoo and Sung (2015) provided evidence that external independent directors have the capacity to properly evaluate whether independent corporate entrepreneurship dimension agendas fit in corporate routines and reduce potential agency conflicts. Given their position, they can direct innovation activities in a way that would enhance its performance effect. Consistently, Rosenstein and Wyatt (1990), Peng (2004), and Brunninge et al. (2007) agree that their independence places them in better position to supervise and direct management towards corporate entrepreneurship goals. Independent directors can play an important role in the business of acquisition that requires specialist knowledge. Such acquisitions can be value adding to the extent of significantly impacting performance. Independent directors thus help in speeding up knowledge transfer for innovations through network capability (Westphal, 1999). Evidence shows that firm expansion through external directors can help to attract capital. Such expansion also enriches the firms' learning experience for innovation activities (Fried et al., 1998). Moreover, they can play a meditative role because they can be expected to help promote innovation models that will boost shareholder wealth, including R&D investments (Kosnik, 1987). These roles could translate into higher quality innovation that would highly influence firms' financial performance. Most importantly, their presence is most likely to interrupt any corporate activities that are opportunistic (Ramzi, 2009). Guo and Lu (2012) found that independent directors from academic institutions and law firms have positive effect on corporate performance, while independent directors from overseas yielded negative effect on performance. Thus, independent directors could mediate the effect of corporate entrepreneurship on firms' performance. Based on this, we postulate that:

Hypothesis 5: The presence of independent directors mediates the effect of corporate entrepreneurship dimensions (innovation, proactivity, strategic renewal and new business venturing) on firms' performance.

4.2.2.6. Frequency of board meeting, and new business performance. One important corporate governance mechanism is frequency of meetings. Boards that meet frequently reduce agency problem by limiting opportunistic behaviour. Thus, the extent of the effect of corporate entrepreneurship could change positively or negatively depending on the frequency of board meeting. Frequency of board meeting can keep corporate entrepreneurship ideas alive, which could mediate the impact of the activities on the firms' performance. Frequent board meeting allows directors to devote more time and effort to the company strategy and to business operations. When they meet frequently, there are higher chances of sharing their experience, knowledge and judgment regarding business innovations. Such frequent meetings would provide more critical information and

valuable resources (Forbes & Milliken, 1999) for advising the management team on important matters for the company while reviewing the main strategic actions (Haynes & Hillman, 2010). More frequent meetings are likely to result in a more efficient board and better governance (Chiang and He, 2010). Such frequently meeting boards are likely to be valuable for building and developing a network of relations among members (Gabrielsson & Winlund, 2000). As relationship improves, ideas that would influence performance through corporate entrepreneurship could increase. Research also demonstrates that good relations among directors may improve access to necessary resources (capital, information, talent, etc.), thus reducing the risk of a shortage of resources for R&D (Chen and Hsu, 2009). Also, frequent board meetings may give members a better understanding of R&D activities. When entrepreneurial executives meet regularly, they can develop alternative strategies, and reduce uncertainty, which can lead to a greater probability of success in innovative activities (Wincent et al., 2010). Corporate entrepreneurship ideas may emerge. However, if boards do not meet regularly to incubate and provide support to the ideas, they may not be developed effectively. Thus, where board meeting is not frequent, the impact on corporate entrepreneurship could change how the activity affects firms' performance.

Based on the above we postulate the above hypothesis.

Hypothesis 6: Frequency of board meeting significantly mediates the effect of corporate entrepreneurship from the dimensions of innovation, proactivity, strategic renewal and new business venturing on firms' performance.

4.2.2.7. absorptive capacity, corporate governance and firms' performance. Corporate absorptive capacity addresses firms' ability to acquire, assimilate, transform and exploit internal and external emerging knowledge for commercial purposes (Zahra & George, 2002). Studies show that absorptive capacity of firms enhances new business venturing (Howell, 2019), corporate financial and economic performance (Jimenez-Barrionuevo et al., 2019) and competitive and growth advantage (Lis & Sudolska, 2020), corporate absorptive capacity has been found to enhance the existing knowledge base of the company, which promotes new knowledge creation business models. In turn, such enhanced knowledge model can influence firms' performance (Bojica & Fuentes, 2011; Cohen & Levinthal, 1990; Eisenhardt & Martin, 2000; Zahra & George, 2002). Kostopoulos et al. (2010) found that absorptive capacity contributes directly and indirectly to financial performance though the effect is in different span of time. Liu et al. (2018) showed evidence that absorptive capacity can directly enhance performance within the manufacturing firms in China and can indirectly impact performance through innovation. Wales et al. (2013) found that inverted U-shaped relationship exists between absorptive capacity and firm performance, which suggests that the effect can be both positive and negative. Even if we agree that firms' absorptive capacity could yield negative effect, conventional understanding aligns more with the positive effect. A firm with high absorptive capacity is going to exploit the industry, which would translate into higher performance. Creativity, innovation and proactivity are most likely to increase with higher knowledge acquisition and management.

While the direct impact of the absorptive capacity on firm performance has been noted, the direction of the effect could change because of the application of governance mechanisms. Corporate governance is a very vital control mechanism in any corporate firms. Where the governance structure is not effective, agency problem could occur (Jensen & Meckling, 1976). Agency problem and conflicts of interest could thus limit the effectiveness of absorptive capacity to influence corporate performance. One way to limit agency problem is through regular board meeting. But the level of its mediating role on absorptive capacity impact on firms' performance is well understood. The frequency of board meeting could shape the effect of absorptive capacity of firms on the firms' performance for various reasons. From resource-based view perspective, firms' intangible and tangible assets provide firms an added advantage over its competitors. Similarly, dynamic capabilities theory of Teece et al. (1997), which is "the ability to integrate, build and

reconfigure internal and external competencies to address rapidly changing environment” underpins firms’ absorptive capacity from the context of board frequency of meeting. Firms that do not meet regularly would not be able to identify and discuss the implications of the rapidly changing environment on firms’ corporate entrepreneurship activities and performance. Thus, there is need for frequency of meeting for firms to be able to acquire and assimilate new and existing internal and external knowledge. Even when the knowledge is assimilated, transforming and exploiting it for commercial purposes require regular exchange of ideas and board deliberation. Some realized knowledge could be very sensitive, which means such information should be well managed. In other words, the performance effect of such knowledge could be destructive if not well harmonized through regular board deliberation. In a fast-changing environment, scholars have used the dynamic capabilities theory to explain the effect of firms’ absorptive capacities on firms’ entrepreneurial performance.

We thus hypothesize the following.

Hypothesis 7: Frequency of meeting moderates the impact of absorptive capacity dimensions (acquisition, assimilation, transformation and exploitation) on firms’ performance

4.2.2.8. The presence of independent directors, corporate absorptive capacity and firms’ performance. The effectiveness of firms’ absorptive capacity to impact firms’ performance could depend on the neutrality of the board. To make board neutral, the presence of independent directors must be felt in the board. In this case, the advancement of firms’ absorptive capacity would be purposely to enhance firms’ performance and not to promote opportunistic reason. Moreover, independent directors are more likely to be experienced than non-independent directors. As such, their absorptive capacity pursuit ideas would be more effective relative to less experienced non-independent directors. Therefore, a quality corporate governance board is expected to have the presence of independent directors that would enhance the firms’ ability to acquire, assimilate, transform and exploit new knowledge for commercial purposes, which would translate into higher performance. Research has shown that the presence of external directors can fix certain knowledge gaps on the board that can impact corporate innovation significantly, through enhanced absorptive capacity management, which can also translate into higher firms’ performance. Yoo and Sung (2015) provided evidence that external independent directors have the capacity to properly evaluate whether independent corporate entrepreneurship dimension agendas fit in corporate routines and reduce potential agency conflicts. Such, evaluation could be effective as absorptive capacity is objectively evaluated. Given the position of independent directors, they can direct innovation activities in a way that would enhance their performance effect by promoting the firms’ knowledge base through their connectivity. Consistently, Rosenstein and Wyatt (1990), Peng (2004), and Brunninge et al. (2007) found that their independence places the directors in a better position to supervise and direct management towards corporate entrepreneurship goals, which includes accessing new knowledge for higher performance. Independent directors can play an important role in promoting absorptive capacity for successful business acquisition since they have specialist knowledge. Such knowledgeable acquisitions can be value adding to the extent of significantly impacting performance. By increasing firms’ absorptive capacity, independent directors thus can help in speeding up knowledge transfer for innovations through network capability (Westphal, 1999). Evidence shows that firm expansion of its absorptive capacity through external directors can help to attract capital while also such expansion enriches the firms’ learning experience for innovation activities (Fried et al., 1998) that enhance performance. Moreover, they can play a meditative role because they can be expected to help promote innovation models by helping firms to build higher knowledge base that will boost shareholder wealth, including R&D investments (Kosnik, 1987, p. 1990). These roles could translate into higher quality innovation and new business venturing that would highly influence firms’ financial performance. Most importantly, their

presence is most likely to interrupt any corporate activities that are opportunistic (Ramzi, 2009) by providing higher learning empowerment. Based on this, we postulate that:

Hypothesis 8: The presence of independent directors mediates the effect of corporate absorptive capacity dimensions (acquisition, assimilation, transformation and exploitation) on firms' performance.

5. Research design

This study used a survey research design (Figure 1). Thus, primary qualitative data were used in the analysis. Questionnaires were used to get the qualitative data based on the questions raised on the variables of corporate entrepreneurship and absorptive capacity dimensions. To be able to examine and test the postulated hypotheses, the study focused on respondents from the manufacturing companies in Nigeria. Manufacturing companies in Nigeria are very strategic for Nigerian economic development (Afolabi & Laiseinde, 2019) and they also involve heavily in growth and competition strategies (Abolarinwa et al., 2020). The sector is also characterized by heavy R & D activities that result in heavy innovations (Jimenez-Barrionuevo et al., 2019). Previous research has shown that creating new businesses and constant knowledge adjustment are very important for manufacturing firms (Lane & Lubatkin, 1998). Absorptive capacity study is very important in manufacturing organizations because the firms are highly proactive, and need new knowledge to widen their market share and competitive advantage (Jimenez-Barrionuevo et al., 2019). Because the sector is not under strict monitoring, corporate governance structures would vary and would highly drive managers' behaviour and the organization's performance.

This study targets respondents from the quoted firms in Nigeria. We recognized the need for regional-based study to minimize the adverse effect of certain variables following the example of Jimenez-Barrionuevo et al. (2019). As such, this allowed us to reduce the impact of political, economic, socio-cultural, legal and technological differences that affect empirical results when cross-country samples were used. However, we achieved generalization as corporate entrepreneurship and absorptive capacity variables performance impact mediated by corporate governance quality is studied across different sectors (Jimenez-Barrionuevo et al., 2019).

Nigerian Stock Exchange (NSE) has a comprehensive list of all the quoted firms in Nigeria and the samples for this study were picked from the NSE database. There are 164 listed firms in the NSE as of 18 May 2020. However, this study purposively selected only 100 firms that are directly or indirectly involved in the manufacturing. The firms eliminated are firms in the financial and other services industry. Following the prior researchers' example (Antonicic & Hisrich, 2001; Jimenez-Barrionuevo et al., 2019; Murray & Kotebe, 1999; Zahra, 1993), the study focused on the CEOs, chief operating officers, and chief financial officers of the key departments as the main respondents. Thus, maximum of three executive officers were randomly selected among 11 different organizational departments leading to 3300 respondents. The survey was done during the COVID-19 Lockdown in Nigeria. As such, the questionnaires were emailed to the respondents using the email addresses obtained from their company's financial reports, their personal facebook accounts, LinkedIn accounts, and through their listed directories at <https://www.finelib.com> companies' directory search engine.

To apply a research ethic technique and to mitigate forced response, the researchers approached the target executive officers through mass SMS to ascertain first their willingness to participate in the survey and whether they are personally involved in corporate entrepreneurship strategies in their firms (Jimenez-Barrionuevo et al., 2011). We also promised them anonymity in order to protect their identities. Out of the 3300 target respondents from the 100 companies, only 800 target company executives agreed to cooperate. Their reply to the questions proved that they

well-understood corporate entrepreneurship and absorptive capacity dimensions and were involved in the innovation strategies. As such, they appropriately possess corporate entrepreneurship knowledge and absorptive capacity experience that qualified them to be involved (Cambell 1955; Jimenez-Barrionuevo et al., 2011). Therefore, we did not pre-test on the target sample as they were all knowledgeable informants. After the main questionnaires were emailed, 330 questionnaires were returned, which constituted the final sample of this study.

Following the example of Jimenez-Barrionuevo et al. (2019), the study used several methods to analyze the possibility of the presence of non-response bias from the sample. The study achieved this by examining and comparing the attributes of the respondents' firms who returned the questionnaire vis-à-vis the general population with the following features including as return on assets, return on equity, return on sales, and sales volume. Based on the analysis, we did not discover any significant differences based on the sectors the respondents' firms belong. This implies that the sample was representative. A sample error of only 5% occurred. To mitigate the desirable response bias, we encouraged anonymity by creating an email for respondents and giving them access for them to email the questionnaire using the created emails. Following prior research, we promoted response by ensuring the respondents that the copy of the result would be emailed to them though at aggregate data level.

To ensure that the questionnaires are well scaled and that items of the questionnaires measured what they purported to measure, we carried out a validity and a reliability test. Academics and experts in the industry were consulted for the instruments' validity. After thorough examination, some items were removed from the corporate governance-corporate entrepreneurship mediation construct. Question items relating to absorptive capacity, and corporate entrepreneurship dimensions were validated accordingly, which implies that the validation given by the original designers was maintained (Jimenez-Barrionuevo et al., 2011).

To be able to determine the reliability of the primary data, the questionnaires were pre-tested on 10 informants. An item from each of the dimensions of corporate entrepreneurship, and corporate entrepreneurship-governance mediating performance effect was randomly selected from the pool of the items. The Cronchbach Alphas pretest-retest revealed that the data collected were reliable enough to inform our decision in this study. The reliability test yielded a high-level coefficient Cronchbach Alphas greater than 0.9 (Innovation, Alpha = 0.973; Cochran's Q = 156.878; Sig. value = 0.001); (Proactivity; Alpha = 0.951; Cochran's Q = 217.813; Sig. Value = 0.001); (New business venture; Alpha = 0.984; Cochran's Q = 43.806; Sig. value = 0.000), (Self Renewals; Alpha = 0.984; Cochran's Q = 43.806; Sig. value = 0.000), which is a good fit for data reliability of corporate entrepreneurship dimensions. The corporate entrepreneurship-corporate governance meditative also yielded a high Cronchbach Alphas coefficient greater than 0.9 (Innovation*Board size; Alpha = 0.913, Cochran's Q = 126.811, Sig. value = 0.001; Proactivity *Board size; Alpha = 0.913, Cochran's Q = 207.833, Sig. Value = 0.001; New business venture*Board size, Alpha = 0.955, Cochran's Q = 40.206, Sig. value = 0.000; Self-Renewal*Board size, Alpha = 0.920, Cochran's Q = 213.616, Sig. Value = 0.001) which is a good fit for data reliability of corporate entrepreneurship dimensions and governance mediation effect. Therefore, Cronchbach Alpha of 0.98 indicates greater internal consistency of the scales, which signals par excellence in terms of primary data reliability.

5.1. Variable measurements

5.1.1. Corporate entrepreneurship dimension measurement

For corporate entrepreneurship, since we analyzed the four main dimensions of intrapreneurship-innovativeness, proactiveness, new business venturing, and self-renewal-we used and adapted the scale proposed by Antoncic and Hisrich (2001), which was constructed taking into account the scale for corporate entrepreneurship (Zahra, 1993). Thus, the scales used are as follows: Very

Higher extent = 7, High Extent = 6; Moderate Extent = 5; Low Extent = 4, Very Low Extent = 3; No Extent = 2; Undecided = 1.

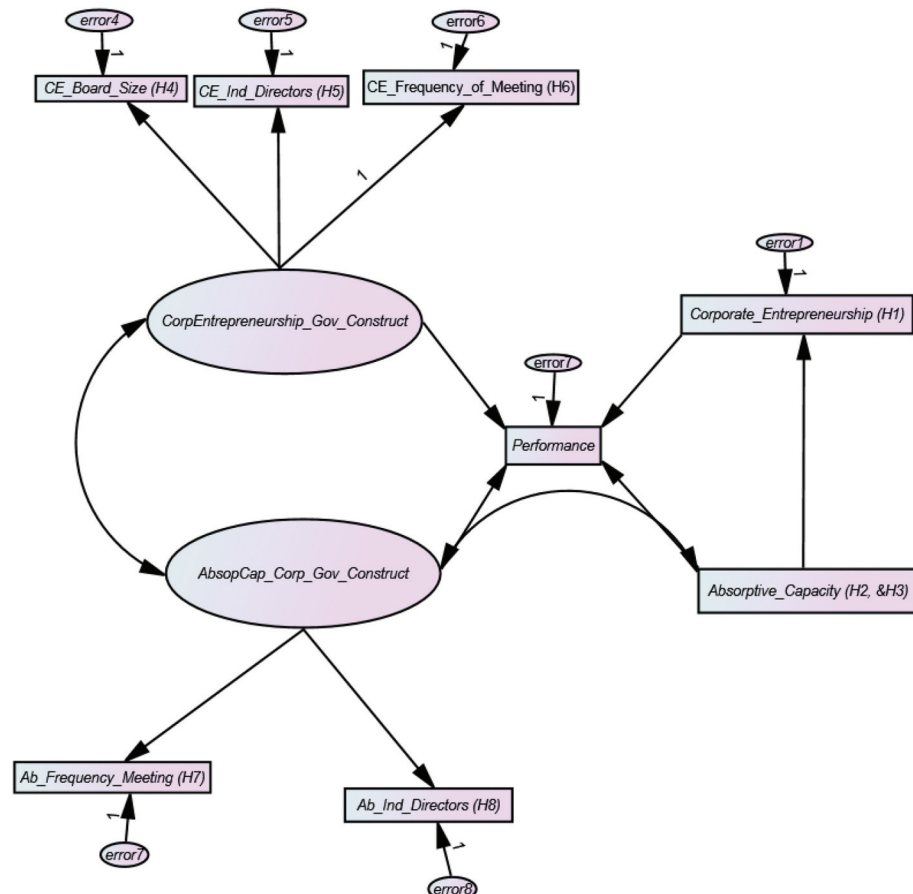
5.1.2. Corporate Absorptive Capacity Measurement

We measured knowledge absorptive capacity by differentiating among the dimensions of acquisitions, assimilation, transformation, and exploitation of knowledge to classify the first two and the last two terms and obtain organization's potential and realized absorptive capacity. To do so, we used the scale proposed by Jimenez-Barrionuevo et al. (2011).

5.1.3. Governance mechanisms measurement

To measure quality of governance, this study drew the dimensions from the index of Javed et al. (2006) where the quality of corporate governance is determined using 22 factors (Mousavi & Moridipour, 2013) grouped under the board-independent group, the company's property and shareholders group, and clearness, disclosure and accountability group. We however focused on the first group of seven factors dealing with board composition and characteristics such as (1) board of directors' independence, (2) the board size, (3) composition of the board in terms of educational qualifications, (4) separation of CEO from the chairman, (5) percentage of non-executive directors, (6) the board meeting including audit committee meeting and the frequency of their meeting, and (7) attendance of non-executive directors in the board. We raised questions with regards to some of these mechanisms to determine how they interact with corporate entrepreneurship dimensions to influence performance of firms using a likert scale of 7 point from very high extent through undecided 1 (7to 1).

Figure 1. Hypotheses summary through path diagram.



5.1.4. Performance measures

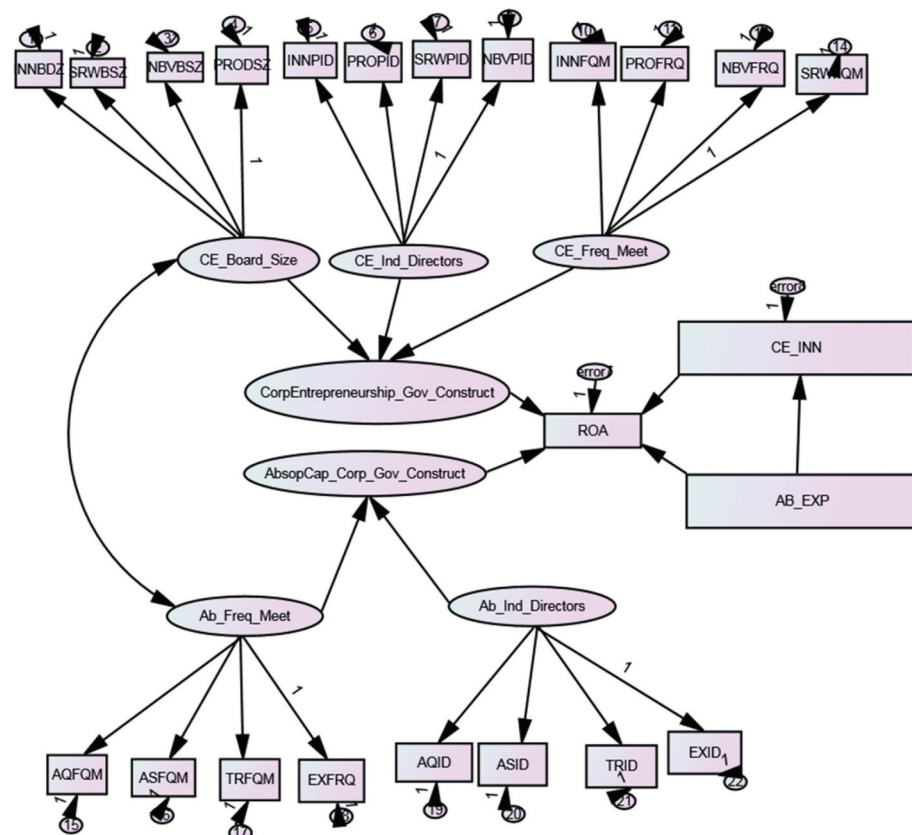
We evaluated the organization's performance following the example of Murray and Kotebe (1999), and Jimenez-Barrionuevo et al. (2019). The researchers measured performance by distinguishing between financial and commercial performance. Financial performance comprises economic profitability-return on assets (ROA) while the commercial performance factors include market share and sales growth. Based on the study of Jimenez-Barrionuevo et al. (2019), the items ask about the financial and commercial performance of most direct competitors. It thus takes the last three years of activity as a reference (Jimenez-Barrionuevo et al., 2019). Research shows that comparing the firm's performance indices with those of its direct competitors as a performance measurement is effective and widely used in related works (Choi et al., 2008; Jimenez-Barrionuevo et al., 2019). In this present study, the scale asks about the meditative effect of governance structures on the effect of corporate entrepreneurship dimensions on firm performance. Thus, the scales used varied from very higher extent = 7, to undecided = 1.

5.2. Structural equation model

To show the relationship between the variables in the postulated hypotheses, we used structural equation model (SEM). The use of SEM helped us to establish the scale reliability and the model goodness of fit for the study. Thus, we used a model where indirect effect of corporate entrepreneurship dimension-governance quality construct is expected to influence firm performance. In this case, the study modeled the meditative role with different governance mechanisms.

In the above Figure 2, **performance** is the dependent variable measured by return on assets (ROA) and market shares (MKTS). **INNBDZ** is a variable that defined the board size and business venturing innovativeness interaction. It takes the likert form scale between 7 and 1 in its dummy measurement. **SRWBSZ** is a latent variable that defines the board size and strategic renewal

Figure 2. Structural model equation for path analysis.



interaction that takes the likert form scale between 7 and 1 in its dummy measurement. **NBBSZ** defines the board size and new business-venturing interaction, which takes the likert form scale between 7 and 1 in its dummy measurement depending on the interaction intensity. *CE_Board_Size* is a variable featured to capture the new business and board size factors' combined effect on business performance. It is used as a test statistic for the hypothesis purpose.

PROBSZ represents board size and proactivity dimension of corporate entrepreneurship interaction question term that takes likert value depending on the degree of board size in relation to the dimensions. The value increases if the corporate entrepreneurship dimensions increase as firms' board size increases and vice versa. **INNPID** is an independent variable that measures the effect of interactive term of corporate entrepreneurship innovation dimension and the presence of independent directors, which takes value between 1 and 7. It takes a higher likert value if firms increase the rate of performance as directors' become less attached., **PROPID** is an independent variable that measures the effect of interactive term of corporate entrepreneurship proactivity dimension and the presence of independent directors. It takes values between 1 and 7, with a higher likert value if firms increase the scale of the dimensions as directors' become less attached. **SRWPID** is a variable that captures the impact of interaction between strategic renewal dimension and the presence of independent directors. It takes value between 1 and 7 depending on the intensity of the interaction effect. **NBVPID** is the measure of the effect of interactive term of corporate entrepreneurship new business-venturing dimension and the presence of independent directors. It takes values between 7 and 1. A higher likert value is taken if firms increase the performance as the directors' become less attached. **CE_Ind_Directors** is a variable featured to capture the new business venturing and presence of independent directors' factors' combined effect on business performance. It is used as a test statistic for the hypothesis purpose. **INNFQM** is a measure of the meditative terms of the boards' frequency of meeting and the firms' corporate entrepreneurship innovation dimensions. It takes values between 1 and 7 inclusive. **PROFQM** is a measure of the interaction between proactivity dimension and the boards' frequency of meeting, which takes values between 1 and 7 inclusive. **NBVFQM** is an independent variable that measures the effect of the interaction between new business-venturing dimension and the boards' frequency of meeting on performance. It takes values between 1 and 7 inclusive. **SRWFQM** defines the interaction between strategic renewal dimension and the boards' frequency of meeting, which takes values between 1 and 7 inclusive. *CE_Freq_Meet* is a variable featured to capture the strategic business renewal's factors' combined effect on business performance. It is used as a test statistic for the hypothesis purpose. For each of the meditative factors, questions are raised on each dimension thus, innovation-new business development; proactivity-risk acceptance; new business venturing-new business lines and strategic renewal- business concept.

AQFQM is an independent variable that measures the acquisition (potential) absorptive capacity dimension and board frequency of meeting mediation effect. It takes values between 1 and 7. This variable captured potential absorptive capacity-frequency board meeting effect on performance. **ASFQM** is a measure of the assimilation absorptive capacity dimensions and board frequency of meeting effect, which takes value between 1 and 7 depending on the intensity of the interaction effect. *Ab_Freq_Meet* is a variable featured to capture the potential absorptive capacity and frequency of the meeting effect on business performance. **TRFQM** measures the effect of transformation (realized) absorptive capacity dimension and board frequency of meeting mediation on performance. It takes value between 1 and 7. **EXFQM** defines the effect of exploitation (realized) absorptive capacity dimension and board frequency of meeting mediation on performance. The variable takes value between 1 and 7.

AQID is a measure of potential absorptive capacity acquisition dimension and independent directors' interaction effect on performance which takes values between 1 and 7. **ASID** is a measure of potential absorptive capacity assimilation dimension and independent directors' interaction effect on performance which takes values between 1 and 7. **TRID** measures realized

absorptive capacity transformation dimension and independent directors' interaction effect on performance. It takes values between 1 and 7. EXID defines a realized absorptive capacity exploitation dimension and independent directors' interaction effect on performance which takes values from 1 to 7. Therefore, **AQFQM**, **ASFQM**, **AQID**, and **ASID** define potential absorptive capacity and corporate governance interaction effects while **TRFQM**, **EXFQM**, **AQID**, and **EXID** measure the effect of realized absorptive capacity based on interaction of corporate governance mechanisms and the absorptive capacity dimensions. *Ab_Ind_Directors* is a variable featured to capture the combined absorptive capacity and the presence of independent directors' effect on business performance. **CE_INN** is a measure of corporate new business venturing direct effect on performance. In this variable, the effect of innovation is explored without reference to corporate governance. **AB_EXP** is measures of the direct effect of exploitation (realized) absorptive capacity on firms' performance. It was determined without recourse to corporate governance and takes values between 1 and 7 to compare with the meditative effects.

5.3. Scale reliability test

Following the examples of prior studies for example, Jimenez-Barrionuevo et al. (2019), we used SPSS AMOS students' version to carry out a one-dimensionality test of the scales through a confirmatory factor analysis (CFA) to be able to get a reliable result. The study thus established the normalities of the scales as the asymptotic covariance matrix did not converge (Ylinen & Gullkvist, 2014). The study used composite reliability indicators as well in the scale confirmatory analysis, thus helping the researchers to determine the convergence between a set of corporate entrepreneurship dimension-corporate governance mechanisms construct items that stand for latent variables (Ambad & Wahab, 2016). Through the confirmatory analysis, we estimated the factor loading of each item using ordinary least squares (OLS). All the estimates were statistically significant while we achieved higher loading factor of all the constructs greater than 0.7. Composite reliability value of 0.7 exceeded the benchmark of 0.4 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981), indicating that the CFA yielded admissible results. Composite reliability loading for all the constructs varied between 0.97 and 0.86.

5.4. Scale reliability test

This study used SPSS AMOS to carry out a one-dimensionality reliability test of all scales through a confirmatory factor analysis (CFA) process (Jimenez-Barrionuevo et al., 2019). The study established that the normalities of the model were negative while the asymptotic covariance matrix did not converge as shown in Table 1. The estimated factor loading of each item was found statistically significant. Thus, we achieved higher loading factor of all the constructs greater than 0.7. The composite reliability of the construct including corporate entrepreneurship dimension board size, corporate entrepreneurship dimension frequency of meeting and independents and absorptive capacity governance quality mechanisms construct indicated higher scale reliability with values exceeding 0.7, which exceeded the benchmark of 0.4 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981) while indicating that the CFA yielded admissible results. Composite reliability loading based on the CFA of the constructs ranged between 0.97 and 0.86.

6. Empirical results and discussion

Figure 3 showed that the path analysis coefficients and factor loadings are good for the model. Detailed discussion is done below.

6.1. Model fit analysis

6.1.1. Absolute, incremental and parsimony fit measures

The statistics presented in Table 2 showed that very good fit in the final model. First, absolute fit indices, which determine how well the initial model fits the sample data, revealed that the proposed model has good fit with the data. The chi-square value, which is a normal measure for

Table 1. Summary of scales reliability tests

Factor Variables	Factor Loading Coefficients	Individual Scale Reliabilities	Composite Reliability
Corporate Entrepreneurship Board Size Construct			0.96
INNBDZ	1.21**	0.75	
(t-stat)	(5.6)		
SRWBDZ	1.13***	0.67	
(t-stat)	(18)		
NBVBZ	1.11**	0.66	
(t-stat)	(4.88)		
PROBDZ	1.00*	0.77	
(t-stat)	(1.92)		
Corporate Entrepreneurship Independent Directors' Construct			0.87
INNPID	1.15**	0.68	
(t-stat)	(8)		
PROPID	1.07**	0.79	
(t-stat)	(4.17)		
SRWPID	1.00**	0.88	
(t-stat)	(4.61)		
NBVPID	1.07***	0.77	
(t-stat)	(12.4)		
Corporate Entrepreneurship Frequency of Meeting Construct			0.86
INNFQM	1.04*	0.78	
(t-stat)	(2.93)		
PROFQM	0.96*	0.86	
(t-stat)	(2.85)		
NBVFQM	0.93**	0.59	
(t-stat)	(8.16)		
SRWFQM	1.00**	0.78	
(t-stat)	(3.73)		
Absorptive Capacity Frequency of Board Meeting Construct			0.87
AQFQM	1.26*	0.64	
(t-stat)	(2.28)		
ASFQM	1.07**	0.79	
(t-stat)	(3.84)		
TRFQM	1.15**	0.65	
(t-stat)	(4.85)		
EXFQM	1.00*	0.53	
(t-stat)	(2.25)		
Absorptive Capacity Independent Directors Construct			0.86
AQID	1.11*	0.69	
(t-stat)	(2.15)		
ASID	1.08	0.75	

(Continued)

Factor Variables	Factor Loading Coefficients	Individual Scale Reliabilities	Composite Reliability
(t-stat)	(2.25)		
TRID	1.11**	0.76	
(t-stat)	(2.12)		
EXID	1.00**	0.56	
(t-stat)	(4.75)		

Assessing the overall model fit yielded p-values greater than 0.05. However, because Chi-Square is sample sensitive, we used some other criteria in assessing the overall fitness of the model. Starting with the badness of fit, RMSEA, which is very useful for detecting model misspecification, showed that the model is not misspecified as the indexes for the performance dimension exceeded the fit benchmark of 0.6. The acceptable RMSEA value should be less than 0.06 (Brown & Cudeck, 1999; Hu & Bentler, 1999). We also assessed the fitness of the model using other absolute model fits namely expected cross-validation index (ECVI) and- normed fit index (NFI). Both measures yielded results that revealed that the model predicting the performance indicator is well specified. ECVI yielded values equal to 9, 12, 9, & 8 for the performance index while NFI statistics yielded 0.88; 0.78, 0.86, 0.89 and 0.92 for performance index for the constructs. The model also yielded a good parsimony goodness of fit index (PGFI) of 0.87, 0.75, 0.79 & 0.87 for the constructs. We also compared the chi-square value to a baseline model following the example of prior researchers; in

Figure 1 is a path diagram of a structural equation model. It shows the following relationships and standardized path coefficients:

- Latent Variables (Ovals):**
 - CE_Board_Size** (R² = 0.31)
 - NNBDZ (0.31)
 - SRWBDZ (0.41)
 - NBBVDZ (0.46)
 - PROBBDZ (0.44)
 - CE_Ind_Directors** (R² = 0.31)
 - INNPID (0.31)
 - PROPID (0.31)
 - SRWPID (0.43)
 - NBVPID (0.43)
 - CE_Freq_Meet** (R² = 0.34)
 - INNMQM (0.34)
 - PROFQM (0.41)
 - NBVFQM (0.45)
 - SRWQM (0.44)
 - CorpEntrepreneurship_Gov_Construct** (R² = 0.76)
 - CE_Board_Size (1.00)
 - CE_Ind_Directors (1.10)
 - CE_Freq_Meet (1.13)
 - ROA (0.85)
 - AbsopCap_Corp_Gov_Construct** (R² = 0.92)
 - ROA (1.00)
 - Ab_Freq_Meet (1.00)
 - Ab_Ind_Directors (0.93)
 - Ab_Freq_Meet** (R² = 0.21)
 - AQFQM (1.26)
 - ASFQM (1.07)
 - TRFQM (1.15)
 - EXFQM (1.00)
 - Ab_Ind_Directors** (R² = 0.12)
 - AQID (1.12)
 - ASID (1.08)
 - TRID (1.11)
 - EXID (1.00)
- Observed Variables (Rectangles):**
 - NNBDZ, SRWBDZ, NBBVDZ, PROBBDZ, INNPID, PROPID, SRWPID, NBVPID, INNMQM, PROFQM, NBVFQM, SRWQM, CE_INN, AB_EXP, AQFQM, ASFQM, TRFQM, EXFQM, AQID, ASID, TRID, EXID.
- Error Terms (Small Circles):**
 - Each observed variable has an associated error term.
 - CE_INN has an error term with a coefficient of 0.70.
 - AB_EXP has an error term with a coefficient of 0.78.
 - Other error terms have coefficients ranging from 0.15 to 0.56.

Table 2. Overall absolute, incremental and parsimony model fit tests for the constructs

Independent/Dependent Variables	Return on Assets (ROA) Model Fit Statistics
Corporate Entrepreneurship Dimensions Board Size Construct	
Chi-Square (χ^2) (20)	$p > 0.05$
Normed fit index (NFI)	0.88
Comparative fit index (CFI)	0.95
Root mean square error of approximation (RMSEA)	0.04
Expected cross-validation index (ECVI)	9
Parsimony goodness of fit index (PGFI)	0.77
Corporate Entrepreneurship Dimensions Independent Directors Construct	
Chi-Square (χ^2) (20)	$p > 0.05$
Normed fit index (NFI)	0.78
Comparative fit index (CFI)	0.85
Root mean square error of approximation (RMSEA)	0.04
Expected cross-validation index (ECVI)	12
Parsimony goodness of fit index (PGFI)	0.87
Corporate Entrepreneurship Dimensions Frequency of Meeting Construct	
Chi-Square (χ^2) (20)	$p > 0.05$
Normed fit index (NFI)	0.86
Comparative fit index (CFI)	0.97
Root mean square error of approximation (RMSEA)	0.047
Expected cross-validation index (ECVI)	9
Parsimony goodness of fit index (PGFI)	0.87
Absorptive Capacity Dimension Frequency of Board Meeting Construct	
Chi-Square (χ^2) (20)	$p > 0.05$
Normed fit index (NFI)	0.89
Comparative fit index (CFI)	0.87
Root mean square error of approximation (RMSEA)	0.05
Expected cross-validation index (ECVI)	9
Parsimony goodness of fit index (PGFI)	0.75
Absorptive Capacity Dimension Independent Directors Construct	
Chi-Square (χ^2) (20)	$p > 0.05$
Normed fit index (NFI)	0.92
Comparative fit index (CFI)	0.85
Root mean square error of approximation (RMSEA)	0.05
Expected cross-validation index (ECVI)	8
Parsimony goodness of fit index (PGFI)	0.79

Source: SPSS AMOS

this case, the null hypothesis is that all variables are uncorrelated. This study achieved this comparison by engaging the comparative fit index (CFI), which yielded 0.95, 0.97 and 0.85 for the performance predicting model. The parsimonious statistics implied that significant amount of variance has been accounted for in the covariance matrix. In practice, the CFI should be close to 0.95 or higher (Hu & Bentler, 1999). Our analysis achieved such a fit and as such, the model is fit as a good decision-making tool. Taking all the goodness and badness of fit tests into consideration, we can confidently say that the corporate entrepreneurship dimension and absorptive capacity-corporate governance quality model correctly fits the observed data.

6.2. Descriptive statistics

The descriptive statistics in Table 3 showed that the standard deviations for all the variables are normal and as such would not present a problem in the regression analysis. The mean values for all the variables point to significance of the construct as above 5 point scale is achieved.

6.3. Correlation matrix

Table 4 presents correlation coefficients of the variables. The coefficients show that the multicollinearity of the variables would not constitute an issue as the coefficients are not very high.

6.4. Regression analysis

6.5. Findings and discussions

The analysis of the effect of absorptive capacity on new business venturing was found to be very significant and positive (coefficient = 6.115; P-value <0.0001). This implies that firms' acquisition and assimilation (potential absorptive capacity) of new knowledge enhance firms' corporate entrepreneurship (Table 5). This finding is consistent with the theory that acquisition and assimilation of knowledge enhance firms' innovation while also advancing strategic self renewals that would in turn lead to commercialization of creative ideas (Zahra and George (2002). Similarly, the realized absorptive capacity (transformation and exploitation dimensions) was found to be positively influencing corporate entrepreneurship. Therefore, we accept the hypothesis that corporate absorptive capability significantly affects firms' new business venturing and innovation. Thus, both potential and realized absorptive capabilities yield significant positive impact on corporate entrepreneurship. This finding is consistent with several dynamic capabilities based on empirical results such as Zou et al. (2017) who found that absorptive

Table 3. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROA	330	1.00	7.00	5.4682	0.43151
INNBDZ	330	2.00	7.00	6.1136	0.19771
PROBDZ	330	2.00	7.00	6.0591	0.16304
NBVBZ	330	2.00	7.00	6.0864	0.18853
SRWBDZ	330	2.00	7.00	6.0500	0.17906
INNPID	330	2.00	7.00	6.0773	0.24175
PROPID	330	2.00	7.00	6.0682	0.11030
NBVPID	330	2.00	7.00	6.0591	0.16696
SRWPID	330	1.00	7.00	6.0591	0.23168
AQID	330	2.00	7.00	6.0818	0.21732
ASID	330	2.00	7.00	6.0364	0.15016
TRID	330	2.00	7.00	6.0773	0.20062
EXID	330	2.00	7.00	6.0636	0.16867
INNFQM	330	2.00	7.00	6.1182	0.17998
PROFQM	330	2.00	7.00	6.0500	0.14367
NBVFQM	330	2.00	7.00	6.0818	0.13582
SRWFQM	330	2.00	7.00	6.0273	0.18944
AQFQM	330	1.00	7.00	5.8636	0.33089
ASFQM	330	2.00	7.00	5.9909	0.22004
TRFQM	330	1.00	7.00	5.9591	0.28680
EXFQM	330	1.00	7.00	6.0318	0.22153
CE_INN	330	1.00	7.00	6.0727	0.25483
AB_EXP	330	2.00	7.00	6.1182	0.18770

Source: Author

Table 4. Correlation matrix

Variables	ROA	INNBDZ	PROBDZ	NBVBZ	SRWBDZ	INNPD	PROPID	NBVPID	SRWPID	AQID	ASID	TRID	EXID	INNFM	PROFQM	NBVFQM	SRWFQM	AQFQM	ASFQM	TRFQM	EXFQM	CE_INN	AB_EXP
ROA	1																						
INNBDZ	.688	1																					
PROBDZ	.661	.690	1																				
NBVBZ	.674	.635	.664	1																			
SRWBDZ	.611	.398	.611	.711	1																		
INNPD	.69	.561	.699	.648	.705	1																	
PROPID	.666	.657	.941	.646	.601	.675	1																
NBVPID	.705	.636	.667	.638	.698	.643	.677	1															
SRWPID	.627	.692	.629	.686	.522	.687	.608	.603	1														
AQID	.675	.649	.693	.636	.681	.544	.655	.623	.685	1													
ASID	.666	.686	.947	.679	.638	.708	.935	.675	.659	.702	1												
TRID	.696	.632	.697	.952	.700	.654	.671	.552	.719	.639	.716	1											
EXID	.585	.664	.605	.670	.922	.664	.595	.674	.917	.645	.606	.673	1										
INNFM	.692	.553	.680	.602	.678	.544	.653	.605	.661	.937	.683	.606	.640	1									
PROFQM	.675	.666	.932	.672	.601	.705	.925	.685	.624	.689	.543	.699	.572	.686	1								
NBVFQM	.653	.638	.601	.830	.706	.679	.607	.430	.698	.656	.651	.842	.691	.626	.640	1							
SRWFQM	.652	.681	.626	.693	.862	.679	.611	.709	.881	.673	.660	.712	.873	.652	.627	.684	1						
AQFQM	.729	.737	.669	.666	.682	.739	.627	.670	.660	.703	.662	.684	.622	.737	.637	.627	.657	1					
ASFQM	.677	.788	.644	.640	.708	.784	.627	.655	.687	.751	.651	.658	.683	.771	.612	.633	.696	.733	1				
TRFQM	.670	.690	.807	.650	.663	.705	.791	.665	.676	.702	.609	.688	.639	.692	.780	.658	.681	.645	.727	1			
EXFQM	.670	.603	.664	.762	.703	.715	.645	.758	.694	.701	.704	.770	.673	.688	.682	.801	.710	.680	.723	.718	1		
CE_INN	.695	.421	.667	.709	.791	.729	.649	.717	.789	.711	.704	.715	.760	.700	.694	.720	.819	.692	.696	.686	.732	1	
AB_EXP	.709	.771	.696	.636	.677	.777	.683	.644	.685	.751	.722	.650	.652	.762	.688	.673	.686	.724	.782	.750	.742	.632	1

Source: Author using SPSS AMOS

Table 5. Regression output

Variables	Estimate	S.E	C.R
<i>INNPID</i>	1.150***	.067	17.083
<i>PROPID</i>	.931***	.064	14.547
<i>SRWPID</i>	1.070***	.070	15.371
<i>NBVPID</i>	0.080*	0.04	2.000
<i>CE_Ind_Directors</i>	1.078***	.065	16.572
<i>NBVFQM</i>	.928***	.064	14.578
<i>INNFM</i>	1.038***	.063	16.422
<i>PROFM</i>	.957***	.063	15.147
<i>SRWFM</i>	0.900*	0.42	2.1420
<i>CE_Freq_Meet</i>	1.202**	0.120	10.0166
<i>SRWBDZ</i>	1.131***	.070	16.105
<i>NBVBDZ</i>	1.113***	.072	15.451
<i>PROBDZ</i>	0.300*	0.15	0.1500
<i>INNBDZ</i>	1.209***	.068	17.665
<i>CE_Board_Size</i>	0.543*	0.25	2.172
<i>AQFM</i>	1.258***	.304	4.136
<i>ASFQM</i>	1.065***	.063	16.839
<i>TRFM</i>	1.154***	.065	17.742
<i>EXFM</i>	0.750**	0.200	3.750
<i>Ab_Freq_Meet</i>	0.870*	0.35	2.485
<i>AQID</i>	1.121***	.084	13.269
<i>ASID</i>	1.079***	.079	13.577
<i>TRID</i>	1.108***	.083	13.309
<i>EXID</i>	1.200***	0.07	14.509
<i>Ab_Ind_Directors</i>	1.123***	.073	15.394
<i>CE_INN</i>	0.784	0.620	1.2645
<i>AB_EXP (ROA)</i>	0.0210	0.0156	1.3461
<i>AB_EXP (CE_INN)</i>	6.118***	.080	76.406

Source: SPSS AMOS

capacity components positively affect innovation performance. We also found consistent result with Jimenez-Barrionuevo et al. (2019) who found that realized absorptive capacity yielded a positive influence on both new business venturing and self-renewal. Thus, entrepreneurs could enhance potential and realize absorptive capacities at the same time in order to improve the end performance of their corporate entrepreneurial projects. This relationship translates into positive firms' performance. However, the effect of corporate entrepreneurship on firms' performance is not statistically significant. Therefore, corporate entrepreneurship driven by higher absorptive capacity insignificantly but positively impacts firms' performance (coefficient (*CE_INN*) = 0.784; $p\text{-value} > 0.05$). Thus, our finding does not support the hypothesis that corporate entrepreneurship significantly affects firms' performance. This implies that all things being equal, firms' innovation ideas may not necessarily enhance firms' performance. This finding challenges the ideas from several empirical researches that mere corporate new business venturing enhances firms' performance. The finding is not consistent with the study of Hall and Bagchi-Sen (2002), Lumpkin and Dess (1996), and Hughes and Morgan (2007) who concluded that corporate entrepreneurship activities including innovation and proactiveness yield positive impacts on corporate performance. Specifically, innovation is identified by Bruderl and Peisendorfer (2000) as the key factor that determines firm's growth. This conclusion is also inconsistent with the finding of Clydesdale (2007) that entrepreneurial innovators are expected to initiate economic development and change, which can create value for

shareholders through R & D (Kelm et al., 1995). We found that though corporate entrepreneurship does not devalue shareholders' value, at the same time, it does not enhance it without mediating variables. Our analysis also shows that the impact of corporate absorptive capacity on firms' performance was positive but insignificant (coefficient (AB_EXP) = 0.0210; p -value>0.05). This implies that higher exploitation of corporate internal and external new knowledge could advance firms' value. However, the potential effect is not going to yield a reasonable positive effect. Based on this finding, we reject the hypothesis that corporate knowledge exploitation significantly impacts firms' financial performance. This conclusion is inconsistent with several empirical studies namely Kostopoulos et al. (2010) and Liu et al. (2018) who found that absorptive capacity contributes directly and indirectly to financial performance though they found that the effect is in different spans of time. We partially support the study of Wales et al. (2013) who found that inverted U-shaped relationship exists between absorptive capacity and firm performance, which suggests that the effect can be positive, negative and insignificant.

The three hypotheses tested above are in respect of the direct effect. At this juncture, we examined the effect when moderated by quality governance mechanisms. We found evidence that when new business-venturing activities are moderated by firms' board composition, the effect of corporate entrepreneurship on firms' performance is positively significant (coefficient (CE_Board_Size) = 0.543; p -value<0.05). On individual bases, we found that as board size increases, the impact of innovation on firms' financial performance increases significantly. This similar effect was achieved on the effect of strategic renewal, new business venturing and proactivity as board size increases. This implies that firms' that wish to exploit the effect of corporate entrepreneurship on firms' financial performance should lay greater emphasis on the quality and composition of their boards. Consistently, we found evidence with the theory that higher number of board members reduces managers' fraudulent behaviour (Imoniana et al., 2016). Thus, our finding showed that larger boards would be able to contain managerial cost relating to activity manipulation in the name of corporate entrepreneurship. Such a reduction of activity manipulations translates into higher profitability. Thus, higher board size will help in mitigating transaction opportunisms (Jensen & Meckling, 1976; Ramzi, 2009). Consistent with empirical evidence, we found support for the idea that the ability of the board to monitor effectively to limit the accounting information bias that could affect the disclosure of R & D expenditures depends on the size or composition of the board (Man & Wong, 2013; Ramzi, 2009). Thus, having a larger board is associated with less reporting manipulation (Xie et al., 2003) because diversifying in term of board membership brings useful skills and monitoring ideas that could help run the business in a more effective way than when the business is directed by few individuals in the board (Yusoff & Idris, 2012). This means that corporate entrepreneurship ideas would increase as board size increases because more ideas and direction would be provided, which impact the ability of new business-venturing activities to influence firms' financial performance.

The mediating role of the presence of independent directors was found to be very significant and positive (coefficient (CE_Ind_Directors) = 1.078; p -value<0.001), This finding thus supports the hypothesis that the presence of independent directors in the boards mediates significantly and positively the effect of corporate entrepreneurship on firms' financial performance. On individual dimensions of corporate entrepreneurship, we found that each dimension of corporate entrepreneurship including innovation, proactivity, new business venturing and strategic renewals is being moderated significantly and positively by the presence of independent directors on the boards on the way they impact firms' financial performance. Our finding supports the theory and the findings of Rosenstein and Wyatt (1990), Peng (2004), and Brunninge et al. (2007) that the independent directors' role and nature place them in better position to supervise and direct management towards corporate entrepreneurship goals. Thus, we support the view that independent directors can play an important role in the business of acquisition that requires specialist knowledge. Consistent with our finding, such acquisitions can be value adding to the extent that they significantly impact performance. Based on our finding, we confirm the fact that independent directors help in speeding up knowledge transfer for innovations through network capability (Westphal, 1999). The finding also implies that firm expansion through external directors can help to attract capital while also such expansion enriches the firms' learning experience for innovation activities (Fried et al., 1998), which translate into higher financial performance.

Moreover, we found that boards that meet frequently influence significantly and positively the impact of corporate entrepreneurship on firms' financial performance. As boards meet frequently, the impact of corporate entrepreneurship on firms' financial performance increases (Coefficient (CE_Freq_Meet) = 1.202; p -value < 0.1). This means that performance effect of corporate entrepreneurship on firms' performance increases with frequency of board meeting. In other words, boards that do not meet regularly would not promote the potential effect of corporate innovation on firms' performance. Analysis based on dimensions of corporate entrepreneurship as well showed that the frequency of board meeting interacts with innovation, proactivity, strategic renewals and new business venturing to influence firms' performance. Therefore, we accept the hypothesis that frequency of board meeting significantly mediates the effect of corporate entrepreneurship on firms' financial performance. Our finding is consistent with the theory that when board members meet frequently, there are higher chances of sharing their experience, knowledge and judgment regarding business innovations. Such frequent meeting and idea sharing would provide more critical information and valuable resources (Forbes & Milliken, 1999) for advising the management team on important matters for the company while reviewing the main strategic actions (Haynes & Hillman, 2010). We found that such new ideas and strategic reviews translate into higher financial performance. The finding also agrees with the fact that more frequent meetings are likely to result in a more efficient board (Vafeas, 1999) and better governance (Chiang and He, 2010), which are valuable for building and developing a network of relations among members (Gabrielsson & Winlund, 2000). As relationship improves, ideas that would influence performance through corporate entrepreneurship could increase, which did translate into higher performance. Consistently, we accept the idea that good relations through board meeting among directors may improve access to necessary resources (capital, information, talent, etc.), thus reducing the risk of a shortage of resources for R&D (Chen and Hsu, 2009). The meditative role of frequency of board meeting on the effect of corporate entrepreneurship yields significant performance effect because frequent of board meetings gives members a better understanding of commercializable R&D activities.

Absorptive capacity effect on firms' financial performance was found to be significant and positive when the effect is moderated by the boards' frequency of meeting (coefficient (Ab_Freq_Meet) = 1.258; p -value < 0.05). Thus, as firms' power of acquisition, assimilation, transformation and exploitation (realized and potential absorptive capacity) of internal and external knowledge increases, such a change can only advance firms' performance only when the boards meet frequently. Such a meeting has the capacity to channel the new acquired knowledge to efficient utilization that would impact firms' financial performance. Therefore, this finding warrants that the hypothesis that frequency of board meeting mediates significantly the impact of absorptive capacity on firms' financial performance would be accepted. Our finding is consistent with the theory that when board members meet frequently, there are higher chances of sharing their experience, knowledge and judgment regarding business innovations. This means that such frequent meeting and idea sharing would provide more critical information and valuable resources (Forbes & Milliken, 1999) for advising the management team on important matters for the company while for reviewing the main strategic actions (Haynes & Hillman, 2010), acquiring new knowledge, and exploiting it for commercial end. In this case, such new ideas and strategic reviews translate into higher financial performance consistent with the finding. The finding regarding absorptive capacity impact as moderated by frequency of meeting also agrees with the fact that more frequent meetings are likely to result in a more efficient board (Vafeas, 1999) and better governance (Chiang and He, 2010), which are valuable for building and developing a network of relations among members (Gabrielsson & Winlund, 2000). As network is built, firms' absorptive capacity widens, which organizations harness and exploit for commercial purposes.

The impact of corporate absorptive capacity on firms' financial performance increases as board maintains optimal level of the presence of independent directors (coefficient ($Ab_Ind_Directors$) = 1.123; p -value < 0.01). This implies that the presence of independent directors shapes the effect of absorptive capacity dimensions' impact on firms' performance. We found that acquisition, assimilation, transformation and exploitation of both internal and external sources of knowledge yield positive significant effect on firms' performance only when the board has neural

members. Based on this finding, we conclude that both potential and realized absorptive capacity dimensions affect firms' performance when they are moderated by independent directors. This means that board should maintain a reasonable level of independent directors for absorptive capacity to yield significant effect on their financial status. Independent directors bring neutrality to the boards. As such, they would not encourage transformation and exploitation of knowledge for self-interested purpose, which could defeat the performance goal of absorptive capacity. Commercialization of ideas for the organizational progress would be impossible if the essence of the acquisition of knowledge is to engage in creative accounting. Thus, we support the theory that the independent directors' role and nature place them in better position to supervise and direct management towards corporate entrepreneurship goals (Brunninge et al., 2007; Peng, 2004; Rosenstein & Wyatt, 1990). We also support the view that independent directors can play an important role in the business of acquisition that requires specialist knowledge, which can be exploited to enhance performance. Consistent with the above, an acquisition can be value adding when harmonized with detached interest. Overall, independent directors help in speeding up knowledge transfer for innovations through network capability (Westphal, 1999). Such behaviour translates into higher performance.

7. Summary and conclusion

Absorptive capacity (potential and realized) and corporate entrepreneurship yielded positive joint effect on firms' performance. However, the effect of the phenomena depends on the corporate governance mechanisms' quality. Firms' acquisition, assimilation (potential absorptive capacity), transformation and exploitation (realized absorptive capacity) of the knowledge resources though do not directly reduce firms' financial performance cannot also directly advance firms' performance. All the dimensions of corporate entrepreneurship were found to yield insignificant positive effect on firms' financial performance when directly examined. We, however, found that the effect depends on the quality of the governance structures. Absorptive capacity and corporate entrepreneurship jointly impact firms' performance positively when the governance structures are efficient. Firms' absorptive capacity and corporate entrepreneurship dimensions' effect changed as frequency of board meeting increased. This is because independent directors' role and nature place them in better position to supervise and direct management towards corporate entrepreneurship goals (Brunninge et al., 2007; Peng, 2004; Rosenstein & Wyatt, 1990). This implies that the management should not flock employees around corporate entrepreneurship ideas in a weak corporate governance environment. This is because ideas which may enhance the effect could be lacking. Neutrality of board and the optimality of board size are very vital for both absorptive capacity and corporate entrepreneurship dimensions effect on firms' performance. Board size should be optimal for higher monitoring, which can mitigate transactions opportunisms to occur. Business performance thrives in less fraudulent environment.

The ideas of corporate governance mediating the joint impact of absorptive capacity and corporate business venturing are found to be critical to firms' performance. For absorptive capacity to be developed and exploited to the extent of influencing intrapreneurship, and firms' financial performance, effective corporate governance structure ought to be on the ground. Corporate governance is an important control measure for any organization. We found that it can influence every facet of an organization's activities including knowledge management and firms' innovation activities. It is well-known fact that corporate governance has proven to be an essential feature of firms since it helps to improve the organizational strategic management. Organizational vision including realization of absorptive capacity is shaped by the board and the board harnesses organizational resources and ensures that adequate power is well distributed to guarantee goal realization. However, managers' response to innovation challenges could be opportunistic, thus occasioning the need for strong governance structures by the innovating firms. This means that managers could have personal interest such as increasing firms' absorptive capacity to achieve personal compensation often at the expense of the shareholders. This is the conflict of interests that often occurs between the principal and the agents based on agency theory (Jensen & Meckling, 1976). In their positive accounting theory, Watts and Zimmerman (1986) highlight that the possibility exists for managers to exercise discretion over corporate activities including managing knowledge to influence contractual benefit. Since we found this to be true in poorly governed firms, we expect effective governance structures to be

instituted while board should try to mitigate such tendencies around innovative ideas. Our analysis implies that board should be effective in providing an absorptive capacity to enable firms gain access to varied and current knowledge that enriches corporate entrepreneurship (Zahra et al., 2009) while controlling potential information asymmetry likely to result in opportunistic behaviour in the name of innovation. In addition, boards should play the following roles regarding firms' absorptive capacity management. Firstly, they could set broad direction, and then reevaluate it periodically as new information comes to highlight changes in the business environment and products and markets in which the firm is competing (Birkinshaw, 2003). Secondly, boards should reinforce efforts across the company that fit within the existing direction. The idea in this policy recommendation is that senior directors and executives are to be constantly evaluating strategy, making continual adjustment based on their views about the direction the company should be heading for and the feedback they receive from business units experimenting with a variety of new products and services (Birkinshaw, 2003) in particular for the commercialization ends. In this case, the central role of the directors is to magnify and reinforce those business unit initiatives that most clearly fit their stated goals (Birkinshaw, 2003). This could easily be realized as boards meet regularly for the reinforcement strategies. The board also plays key roles by allocating appropriate space for employees for entrepreneurship activities. This is important because problem could arise with the entrepreneurial approach if too much authority, space and time are given to employees to pursue their entrepreneurial ideas. Such excessive power can easily make them lose focus on the routine activities of their existing jobs. This can result in negative effect, which does affect the power of corporate new business venturing to impact firms' performance. By encouraging employees to continually share new opportunities, executives could take attention away from the existing businesses, which could yield long-term impact. Unless boards harness space opportunity given to employee to pursue new ideas, poorly planned or wasteful activities could occur, which at the same time could lead to lower performance impact. It is also important to understand that balance is the key because too little space and autonomy do frustrate entrepreneurial managers that vie for new exploitative knowledge. Thus, to maximize the meditative role of corporate governance, the board should help entrepreneurial executives to achieve a better balance between openness and control (Birkinshaw, 2003). Thirdly, corporate boards should set boundaries in entrepreneurship pursuit to mitigate potential agency conflict that could impact performance negatively. Boundaries are essential in any business organization and even if a company explicitly identifies boundaries, it will still end up leaving many of them such as those that concern legal, ethical, or moral behaviour, implicit (Birkinshaw, 2003). The result is that committed entrepreneur can often find a way of getting around the system to enhance self-interest. To avoid breaking boundaries, the board should provide explicit and sufficient rules regarding capital allocation and risk in creating business subsidiaries, absorptive knowledge pursuit and innovation. This means that the board should interpret the rules to avoid the employees exploiting the rules for opportunistic transactions. In line with prior research, to help establish boundaries, we recommend that firstly boards should identify innovation critical boundaries, which are the ones that can destroy the business if crossed because of opportunistic desire. In this case, using innovation for self-interested purpose should attract hard consequences including dismissal and the entrepreneurial employees should be made to understand that once they cross the corporate entrepreneurship boundaries dismissal awaits them. Secondly, as Birkinshaw (2003) recommended, board should be made to identify other innovation boundaries that are no less important but that can be controlled less intrusively in order to maintain the spirit of initiative. This would involve establishing codes of conduct or values statements for the corporate entrepreneurship. Fourthly, the boards should provide a balanced support for entrepreneurship activities and this support should cover the wealth of services companies provide to individuals and business units to enable them to do their innovation, new business venturing and proactivity jobs well. This would be based on promoting absorptive capacity to understand what competitors are doing. Boards should create network forums and committees to share experiences from training and development programmes. Generally, the mediating role of governance is vital to influencing firms' innovation performance impact because with too much support, even with the best intentions, the organization can become bureaucratic and complex as initiative could be killed. On the other hand, Birkinshaw (2003) warns that with little support, a real risk arises that individual managers will start to act like lone entrepreneurs, taking initiative without any regards for what is happening around the organizations. Organizationally, this

attitude will results in innovation duplication including lots of overlapping innovative and new business-venturing projects. This might also lead to different business units of the same firms pursuing the same customers with little or no synergy. There is also consequence from the individual innovator's perspective: it could lead to innovation zeal burnout, confusion and disillusionment (Birkinshaw, 2003). Thus, innovation support systems are very essential means for large organizations to help individuals and business units perform to their highest potential for maximum performance effect. But at the same time, unless well harmonized, such harsh system can become oppressive if they are too numerous or are forced on unnecessarily individuals from the boards and the top management. Therefore, the board should thus put in place enough support systems to help entrepreneurial individuals, which would help them make sure they know where to go for innovation assistance. Corporate governance boards should ensure that support system should encourage business units to collaborate on their own through frequent meeting to understand the employee real innovation material needs.

This study is limited by geographical location and firm sector. We also engaged few governance mechanisms while analysis of the corporate entrepreneurship dimensions used only single measure. We recommend studies from the global perspective that would involve a comparative study of the two or more countries with stronger governance structures. We also recommend studies that exploit all the key mechanisms of corporate governance such as ownership structure, audit committee, board leadership structures and institutional investors. Moreover, the latent dimensions of the innovation dimensions could be expanded and the governance viewed along the latent observable variables.

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