

## Does board leadership influence bank innovativeness in Kenya?

---

Joel Kiplagat Tuwey and  
Daniel Kipkirong Tarus\*

Department of Accounting & Finance,  
Moi University, Eldoret, Kenya

Email: joeltuwey9@gmail.com

Email: kdtarus@gmail.com

\*Corresponding author

**Abstract:** We used data derived from 130 deposit-taking firms in Kenya to determine how boards influence banks' innovativeness. Analyses reveal that board members' openness, board chairman's self-efficacy, board members' expertise and board independence all have a positive and significant effect on bank innovativeness. Thus, boards play a vital role in fostering innovativeness when members are open to one another, have strong industry knowledge and experience, are independent, and are led by an able and competent chairman. This article provides an understanding of how board leadership affects bank innovativeness in Kenya.

**Keywords:** board leadership; chairman self-efficacy; openness; expertise; independence; innovativeness; banking institutions; Kenya.

**Reference** to this paper should be made as follows: Tuwey, J.K. and Tarus, D.K. (2021) 'Does board leadership influence bank innovativeness in Kenya?', *Int. J. Critical Accounting*, Vol. 12, No. 6, pp.492–512.

**Biographical notes:** Joel Kiplagat Tuwey is a Lecturer of Finance at Moi University, Department of Accounting & Finance. He has a PhD in Finance from Moi University and is a member of the Institute of Certified Public Accountants of Kenya (ICPAK). He has over five years of expertise in teaching and research in accounting and finance, with a focus on corporate governance and strategy. He has published in peer-reviewed journals such as *Corporate Governance: International Journal of Business and Society*, *SEISENSE Journal of Management*, and *Journal of Accounting, Business, and Finance Research*. His current research interests include corporate governance, strategy, and behavioural finance.

Daniel Kipkirong Tarus is a Professor of Finance in the Department of Accounting & Finance, Moi University. He has over 20 years of experience in teaching and research in the areas of corporate strategy, corporate social responsibility, leadership and governance. He has published widely in peer reviewed journals such as *Management Research Review*, *TQM Journal*, *Journal of African Business*, *Corporate Governance: International Journal of Business and Society*, *African Journal of Economics and Management*, *International Journal of Comparative Management*, among others. He is currently conducting research on corporate strategy and its outcomes.

---

## 1 Introduction

Innovation-defined as a process by which firms generate and implement novel ideas into usable products, processes, and services (Dobni et al., 2015; Gault, 2018) is a strategy to remain competitive and sustainable (Hamidi and Gabrielsson, 2017) especially in a dynamic market (Johnson and Kwak, 2012). Although innovation provides breakthrough for firms in terms of performance, competitiveness and sustainability (Gunday et al., 2011; Lawson et al., 2012), research on determinants of firm innovativeness has not been sufficiently studied. While most research has focused on the role of top management teams (TMTs) in influencing firm innovativeness (Makri and Scandura, 2010; Sunder et al., 2017), an important decision making organ: the board-has largely been ignored.

In this paper, we posit that corporate boards play a critical role in strategic decision making in the firm (Berraies and Rejeb, 2019; Tuwey and Tarus, 2016) which includes providing resources, strategic advising, approval of innovative proposals (Galia et al., 2015; Pugliese et al., 2009) as well as overseeing the CEOs and TMTs in setting strategic objectives (Machold et al., 2011). These roles are important in facilitating firm innovativeness. The corporate governance guidelines all over the world such as Sarbanes Oxley Act of 2002, Higgs Report of 2003 and Kings Report of 1994 among others, clearly bestows corporate boards with the responsibility of advising TMTs and CEOs on strategic initiatives including approval of budgets and creative thinking that support innovative activities (Jaskyte, 2012).

Additionally, boards create valuable links to the firm in terms of soliciting resources through their useful connections in different areas such as business, financial and political circles (Nicholson and Kiel, 2004). Indeed, boards create an enabling environment to generate innovative ideas, set organisational tone for innovation, set the goals and priorities for the firm as well as approve proposals geared towards undertaking innovative activities (Daft, 1978). Thus, for innovations to thrive in the firm, the role of the boards cannot be ignored. Despite scholarly attention on boards, the role of its leadership and the effect on firm innovativeness in the focal firm remains understudied (Charan et al., 2014). This paper, therefore, attempts to fill this gap by exploring whether board leadership enhances innovativeness in deposit-taking banks in Kenya.

### 1.1 Innovation in Kenya

There is a common perception that Africa is driven by the desire to invest rather than to innovate. This perspective has labelled most if not all African countries as adopters or at worst imitators and not innovators due to lack of innovative competencies (Crane, 1977). Contrary to this perception, a reasonable number of countries have taken lead in innovation particularly with the explosion of information technology. Kenya, for instance, is among the most innovative countries in the world (Dutta et al., 2018) in the use of information and communication technology in the banking sectors, particularly mobile money transfer systems (Tarus and Sitienei, 2015). These innovations have happened against a backdrop of a highly regulated sector worldwide. The banking sector in Kenya, like their counterparts, is highly regulated with the Central Bank of Kenya providing regulatory oversight. The country has a robust legal framework-the Banking Act Cap 488 to regulate the industry. The act has undergone several amendments in order to accommodate the changes in the sector, for instance, in 2006; the Banking Act was amended to allow for the mobile money transfers system.

Following this amendment to the Banking Act, Safaricom, a telecommunication company in Kenya led the pack in developing and actualising the innovations through *M-Pesa* technology (Hughes and Lonie, 2007). The *M-Pesa* system is a combination of two words ‘M’ for ‘mobile’ and *pesa* – a Swahili word meaning ‘cash’ – hence mobile cash money (Ngugi et al., 2010). Within the first three months of the commercial launch of *M-Pesa* in March 2007, 111,000 users registered for the service, a year after, there were 1.6 million users registered, and over 17 million by the end of 2014 (KBA, 2014). Because of the success of *M-Pesa*, other telecommunications companies developed their own money transfer products such as Orange Money by Orange, Yu-Cash by Essar, and Airtel Money by Airtel. These mobile telecommunications service providers have partnered with commercial banks such as Equity Bank, Kenya Commercial Bank, Barclays Bank, Co-operative Bank, Commercial Bank of Africa, I&M Bank among others to offer mobile-based money transfer solutions. These innovative money transfer innovations include among others: *M-Kesho*, *M-Shwari*, *M-Kopo*, *M-Co-op Cash*, and *Fuliza* (Muthinja and Chipeta, 2018).

Consequently, with these innovations in money transfer system, the mobile money market has expanded exponentially in Kenya, from about 900,000 users in 2007 to about 20.5 million users in 2018, transferring about Kshs. 4 billion (USD 40 million) by the end of 2007 to about Kshs. 3,747.33 billion (USD 37 billion) in 2018 (Omwansa, 2009). These innovative mobile money solutions allow users to deposit, withdraw, check balances, view a mini-statement of the account, get SMS alerts on credit and debit balances, borrow and save money anywhere anytime without physical access to the bank (Jack and Suri, 2011). It is also possible to transfer money from one bank account to another, one bank to another bank, pay utility bills such as water, electricity, shopping bills, school fees as well as apply for loan facility using a mobile phone. These innovations are indeed unique and as it stands Kenya is the only country that effectively uses mobile money transfers system (Lashitew et al., 2019) and is perceived as a country that transcended traditional banking to digital financial services without embracing the card money transfer system (Munyegeera and Matsumoto, 2016).

Additionally, as part of innovations in the banking sector, Kenya opened up banking channels to non-banks by passing an amendment to the Banking Act through the Finance Act, 2009 which allowed banks to use agents to deliver financial services, and so small shops, petrol stations, security firms, courier services and other retail outlets acted as agents to the banks in offering financial services such as cash deposits and withdrawals, balance enquiry, fund transfers, payment of bills, loan payment and repayment, payment of salaries, and document collection (e.g., debit and credit cards, account opening forms) and loan applications (Margaret and Ruth, 2019). To safeguard the banks against breaches, CBK requires that agents have secure systems, capable of executing transactions in real-time, generate audit trails and protect data confidentiality and integrity. The agency banking has grown exponentially in terms of the number of agents and transactions, for instance, since 2011, the number of active agents has increased from 9,748 in 2011 to 66,319 in 2018, while the value of transactions through the agency has increased from Kshs. 43.6 million (USD 0.436 million) in 2011 to Kshs. 620.6 billion (USD 6.2 billion) in 2018 (CBK, 2018).

Overall, innovation in the banking sector in Kenya is a success story. For this to happen, several players are at play, for instance, the boards who are the apex decision making organ play a strategic role. The governance framework of 2002 and the amendment of 2016 bestow boards with significant strategic roles for the firm, which

includes innovation. As such, we argue that since boards are expected to approve and formulate strategic decisions of the firm (Pugliese and Wenstøp, 2007) including innovation (Baysinger et al., 1991), we propose that board members who are open, independent, experienced, and led by a skillful chairman are more likely to influence the respective banks to innovative. Thus, we contribute to the existing literature on board and innovation from the resource dependence view (Pfeffer and Salancik, 1978) that boards bring into firm valuable resources such as technical competencies, professional contacts, and networks to the decision making process which yield immense innovativeness.

## **2 Theory and hypotheses development**

Scholars in the corporate governance realm have acknowledged boards of directors as key strategic leaders of organisations they lead (Brauer and Schmidt, 2008; Pugliese et al., 2009). Boards provide strategic direction to the organisation by monitoring CEOs and providing expertise, skills, experience, networks, and resources (Zattoni and Pugliese, 2012). As a result, a board is a one-of-a-kind leadership within the company that is vital for facilitating strategic outcomes such as innovativeness. Board leadership refers to the use of the chairpersons and board members' expertise, competencies, and experiences to make strategic decisions as a team, as well as identifying and utilising market conditions to innovate and become more sustainable in the future (Huse and Gabrielsson, 2012; Miller and Bergman, 2008; Vandewaerde et al., 2011). In the context of this article, board leadership is conceptualised as interactions, behaviours, and processes that enable board members have access to and provide relevant human and social resources with a view to boost firm innovativeness.

Earlier writers observed that top corporate leaders' perspectives, backgrounds, and experiences inspire firm innovativeness (Hambrick and Mason, 1984). In essence, the board is an important organ of the company that oversees and provides crucial resources that foster the company's innovativeness. We premised our arguments on resource dependence theory, which focuses on the provision of, and control over, vital resources that are critical to a firm's performance and survival (Pfeffer and Salancik, 1978). The firm's strategic direction and future survival is dependent on the critical resources provided by board in the form of the firm–industry experience, expertise, and skills, as well as access to crucial contacts, connections, and networks (Haynes and Hillman, 2010; Knockaert and Ucbasaran, 2013). Hence, with these unique and relevant resources, boards advise TMTs by interrogating firm strategy, including innovation (Tsai and Yang, 2013).

Although there is scanty evidence on the relationship between board leadership and firm-level innovativeness, some studies have examined potential influence of boards on varying firm outcomes such as financial performance (Campbell and Mínguez-Vera, 2008; Priya and Nimalathan, 2013), and corporate diversification (Ishak and Manaf, 2013). This body of knowledge concluded that boards have an active role in enhancing firm outcomes. In this paper, we argue that innovativeness is a function of the boards' ability to scan the environment and spot opportunities, including deciphering the needs of customers. As such, boards that have a bundle of resources in the form of skills and knowledge and efficacious chairman with a wealth of experience in the industry, and connections to the external market are likely to provide advice and on innovative

products and services. More importantly, we acknowledge that boards with a strong blend of efficacy, expertise, openness, and independence tend to create constructive debate and shared decision making, which ultimately stimulate bank innovativeness. Arguably, productive boardroom deliberations involve a diverse spectrum of opinions, which would be facilitated by diversified leadership attributes. Thus, we believe that a firm's ability to be innovative depend on the diverse perspectives, skills, knowledge, and independence of its boards. This paper studies four main aspects of the board leadership: openness, chairman efficacy, expertise, and independence and how it influences bank innovativeness.

### *2.1 Board members' openness and bank innovativeness*

Board member's openness-defined as the flow of information between board members themselves and with TMTs including the CEO (Gabrielsson and Huse, 2005) aids the board to function effectively (Sonnenfeld, 2002). Board members' openness allows boards to engage openly among themselves and with TMTs for quality decision making (Sun et al., 2015). Drawing from social capital theory, social networks constitute a valuable resource for the conduct of firm activities (Burt, 2002). As such, a strong social network among board members enhances free sharing and access to information that may be useful in facilitating firm innovativeness (Nahapiet and Ghoshal, 1998). In support of this theoretical perspective, innovation systems theory argues that successful innovations hinge on the quality of the social networks (Lundvall, 2007) in the sense that it affords genuine sharing of ideas and knowledge through open interactions among board members.

Thus, board members' ability to prop questions, challenge each other's views and seek honest opinions among each other improves the quality of the decisions in the boardroom (Nadler, 2004). Through such openness and interactions, board members may expend their skills to generate and share new ideas, suggestions and solutions to the problems that are novel and innovative (Sun et al., 2015). And therefore, board members are likely to influence firm innovativeness when there is a free and open exchange of ideas in the boardroom. Thus, we hypothesise that:

Hypothesis 1 The greater the board members' openness the higher the bank innovativeness.

### *2.2 Board chairman self-efficacy and bank innovativeness*

Self-efficacy is the belief in ones' abilities to establish and accomplish the courses of action needed to yield certain results (Bandura, 1977). It is also defined as the belief of the chairman to exert leadership by setting strategic directions to overcome complex situations (Paglis and Green, 2002). Indeed, the role of the chairman is to inspire, develop, integrate and coordinate the board member's towards the realisation of firm objectives (Gabrielsson et al., 2007) such as innovation. And so the chairman sets the tone in the board and, therefore, his leadership forms the basis for board effectiveness (Kakabadse et al., 2006). As the leader of the board, the chairman creates an enabling environment where board members are free to work together and participate in board deliberations that are beneficial to the firm.

Extant literature indicates that the role of the chairman is to steer and captain the board (Kakabadse et al., 2015). The board is a social system comprising of a mix of members with distinct personalities, skills, and experiences who are expected to influence board tasks and processes (Huse, 2007). Consequently, self-efficacy determines how to integrate, coordinate and manage the activities of a diversified board (Machold et al., 2011). Self-efficacy theory postulates that leaders with greater belief in themselves and their abilities are more productive because they are persuaded to use more efforts to accomplish their roles as leaders and endure for long when confronted with challenging situations (Bandura, 1977). Hence, the role of a chairman is to set strategic goals that utilise board members competencies. The chairman has to consistently provide an atmosphere where board members feel valued, respected and appreciated and, thus contribute to the formulation and execution of the strategic activities of the firm.

Previous studies have found that the leadership of the board chairman promotes and nurtures a culture of innovation in the boardroom by inspiring deliberations that harness new ideas and insights from the board members (Hamidi and Gabrielsson, 2017) and so make it possible for innovative proposals to be conceptualised, critiqued and approved (Pugliese et al., 2009). Furthermore, in complex business situations, self-efficacy allows the chairman to take charge of the board, by setting strategies that use board members' expertise to initiate innovative proposals (Paglis and Green, 2002). Hence, we postulate that:

Hypothesis 2 The greater the chairman self-efficacy the higher the bank innovativeness.

### *2.3 Board members' expertise and bank innovativeness*

Board member's expertise is defined as a process by which boards acquire industry and firm knowledge and expertise by serving on other boards (Harris, 2014). Board members serving on other boards accumulate industry knowledge and expertise, which subsequently enhances strategic decision-making in the focal firm. Drawing from the resource dependence theory (Pfeffer and Salancik, 1978), boards provide key resources in terms of expertise, experience, skills and knowledge to support firm innovativeness (Gabrielsson et al., 2007). In support of this theoretical perspective, the human capital theory suggests that expertise increases an individual's cognitive abilities which help to improve the quality of decision making (Becker, 1964). Early writers in strategy argue that board members who are experienced, knowledgeable and skilled generate innovative ideas (Jaskyte, 2015) because of their exposure and professional contacts with peers who are willing to transform ideas into new products and services (Wu and Lee, 2007). As such, board members who are experienced, informed and knowledgeable may have critical information about the market and in particular, the industry and also the necessary skills to identify and explore innovation opportunities (Dass et al., 2013).

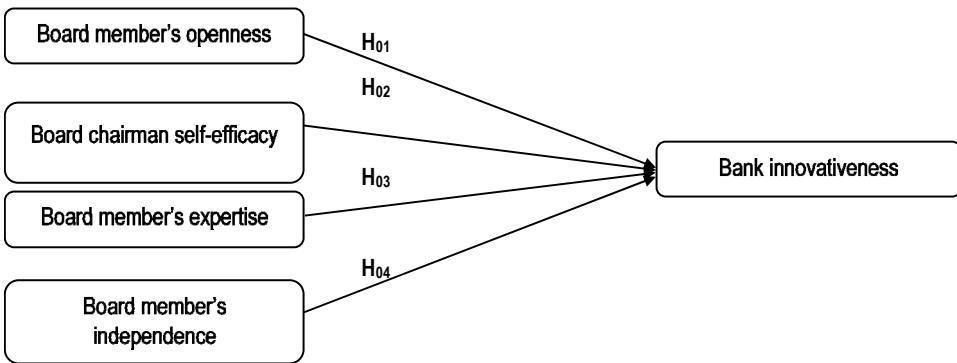
Although board expertise is a key aspect for board leadership, its influence on firm innovativeness remains inconclusive. For instance, using a sample of 1,095 listed US firms with 10,327 board of directors during the period 2008–2012, it was found that board member's expertise resulting from sitting on the boards of high-tech companies positively influence innovations in low-tech companies (Reguera-Alvarado and Bravo, 2018). Equally, board members who have specific information about the industry engage more in R&D activities in terms of patents (Faleye et al., 2018). Besides, utilising data for all newly listed Sweden firms during the period 1999–2013, Baum et al. (2018) found

expertise to be positively associated with new patents and trademarks in start-up firms. In another study of 25 banks in UAE Stock Exchanges, it was found that knowledgeable board members generate innovative ideas, particularly during the oil drop period (Iren and Tee, 2018).

Contrary to these findings, other studies have shown that knowledgeable board members may not facilitate firm innovativeness because they are largely risk averse (Kor, 2006). This notwithstanding, we draw our thesis from the resource dependence perspective and argue that board members who are experts insofar as industry and firm are more likely to scan a firm’s external and internal environment and provide strategic information and advice that may be useful in facilitating innovative activities. Hence, board members’ expertise is expected to spur firm innovativeness. We, therefore, hypothesise that:

Hypothesis 3 The greater board member’s expertise the higher the bank innovativeness.

Figure 1 A conceptual model



### 2.4 Board member’s independence and bank innovativeness

The independence of board members is critical in making strategic decisions for the firm. Board independence refers to the number of non-executive directors on the board who have no material association with the firm or its management (Abebe and Myint, 2018). Independent board members are expected to bring new insights to the board and are likely to influence firm activities through their work experience, knowledge and skills possibly derived from membership on other boards (Stevenson and Radin, 2009). Because of the absence of interests in the focal firm, independent directors are likely to be more objective in approving the decisions of management, particularly with regard to strategic decisions. Following the resource dependence theorists (Pfeffer and Salancik, 1978), independent board members bring important resources to the firm in terms of industry knowledge, contacts and legitimacy (Drees and Heugens, 2013). In support of this view, social capital theorist argues that independent board members have accumulated market and industry-specific information and other valuable resources through their social networks (Pugliese et al., 2009), that may be useful in making decisions on innovative strategies. In other words, such board members bring into critical firm information about the trends in the market and industry, as well as devise viable strategies for the firm (Kor and Sundaramurthy, 2009). Despite studies suggesting that

board independence influence firm innovativeness, the results are inconclusive with some indicating positive association (Balsmeier et al., 2017; Oh and Barker, 2018), negative association (Faleye et al., 2011), while others found no association (Zona et al., 2013). Thus, we hypothesise that:

Hypothesis 4 The greater the board members independence the higher the bank innovativeness.

### 3 Methods and data

We tested our hypotheses using data collected from deposit-taking financial institutions registered in Kenya; however, firms under receivership were excluded. We focused on deposit-taking financial institutions because they are associated with a high level of innovations and guided by sound governance framework (Giorgis Sahile et al., 2015). According to the report released by the Central Bank of Kenya in 2017, there are approximately 219 deposit-taking financial institutions. We used structured questionnaires to collect data from the CEO on behalf of the board. Because of the day-to-day involvement with the firm's activities and frequent engagement with the board, we believe the CEO was the appropriate respondent to the survey tool on board leadership and innovativeness. In addition, most corporate governance studies incorporating primary data have identified the CEO as a key respondent (Machold et al., 2011; Pearce and Zahra, 1991; Zahra and Pearce, 1990). This is typically because it has often been found that boards are not easily accessible within the firm (Daily et al., 2003). In the context of a country like Kenya characterised by high power distance, boards are difficult to reach, making it difficult to get a holistic view of the board's contribution to innovation. In total, 130 CEOs agreed to participate in the study hence a response rate of 59%. The questionnaires were appropriate since other studies investigating firm innovativeness rely on opinions based on key informants (Subramaniam and Youndt, 2005). When data collection applies common procedures across measurements, common method bias arises, which can impair validity and conclusions about empirical relationships (Podsakoff et al., 2012). In this work, the issue of common method bias was addressed at the instrument development and data collection phases, which is consistent with earlier research (Podsakoff, 2003). For example, a reasonable amount of time and effort was put during survey tool development to ensure survey items were brief, detailed, and used simple wording to avoid respondents' varied interpretations. Furthermore, to overcome common approach bias, a pilot analysis was carried to improve the construct validity of the survey measures (Fowler, 1993). This was done to assist in the modification of the survey questionnaire and the detection of items that may be confusing to respondents. By seeking responses from the CEO, self-reported bias from board members could be reduced, that may otherwise distort conclusions drawn on the board's contribution to innovativeness.

#### 3.1 Measures of variables

*Bank innovativeness* was measured using six items on a scale of 1 to 5 (1 for *strongly disagree* to 5 for *strongly agree*) as validated by Calantone et al. (2002). The items asked the CEO the extent to which the firm "is the first to introduce products and services over



the last five years; is the first to market with new products and services; perceives innovation as risky and is resisted; is creative in its approaches to operations; tries out new ideas; seeks out new ways of doing business”.

*Board member's openness* was measured using four questions on a Likert scale of 1–5 (1 = *strongly disagree* to 5 = *strongly agree*). The items used were adapted from the instrument of Huse et al., (2009). The items sought CEOs response on the extent to which board members “acknowledge the possibility of being wrong in their considerations; are ready to offer advice based on private knowledge, ideas, and views; communicate their personal preferences and considerations open and freely; are free to give their considerations and suggestions on board discussions”.

*Board chairman self-efficacy* was measured using seven items on a Likert scale of 1–5 (1 = *strongly disagree* to 5 = *strongly agree*) derived from Huse (2007). The items asked whether the chairman “encourages and utilizes members’ knowledge and competence; is always well prepared for board meetings; works well with the CEO; has an open and trustful leadership style; leads board discussions without prompting his/her own agenda; has developed operative board structures and processes; conveys proposals for decisions and summarizes conclusions after board discussions”.

*Board member's expertise* used seven items on a Likert scale of 1–5 (1 for *strongly disagree* to 5 for *strongly agree*) from Minichilli and Hansen (2007). The questions asked the CEO the extent to which board members; “understand the company’s main operations; know the company’s critical technology and key competence; understand the firm’s weak sides and products and services; are aware of threats from entrants and new products and services; actively engage in board discussions during board meetings; present creative and innovative advice and suggestions; often find very creative and innovative solutions”.

*Board member's independence* was measured using seven items on a Likert scale of 1–5 (1 = *strongly disagree* to 5 = *strongly agree*) as validated by Sellevold et al. (2007). The items asked the CEO on the extent to which board members “are comprised of a significant proportion of non-executive or outside directors; have no close family relations and friendship connections to the CEO; have no close ties to other persons and firms which holds large stakes in the firm; have no close connections and dealings to each other through common membership on other boards; are free to object or disapprove CEOs decisions or suggestions”.

### *Control variables*

We controlled for variables that have been found to influence firm innovativeness such as financial performance, firm size, and age. Financial performance was measured using six items anchored on a Likert scale ranging from 1 for strongly disagree to 5 for strongly agree. The measure was adapted from Flynn et al. (2010). The items asked the CEO the extent of satisfaction on the growth of return on investment, equity and assets, sales, market share and profitability. Literature shows that profitable firms have a high propensity to innovate due to adequate resources (Jiang et al., 2012). Firm size was measured using the number of employees (Brunninge et al., 2007), and firm age was measured using the time in years for which the firm has been in existence (Anderson and Reeb, 2003).

### 3.2 Preliminary analysis

The first test to assess the quality of the research instrument is to conduct reliability tests. Towards this end, Cronbach's alpha was used in line with other scholars (Nunnally, 1978; Sekaran and Bougie, 2016). The recommended value for reliability is normally greater than .70 and so the instrument was considered reliable because all the variables had a Cronbach's alpha of  $>.70$  (bank innovativeness  $\alpha = .72$ , board openness  $\alpha = .726$ , board expertise = .859, chairman self-efficacy  $\alpha = .823$ , board independence  $\alpha = .808$ ). To confirm the validity of the items in the questionnaire, we adapted measurement scales used by other researchers. Factor analysis was also performed to reduce, summarise and prepare data for regression analysis (Bagozzi and Yi, 1988). To ensure that items loaded into their variable, a principal component analysis with VARIMAX rotation was conducted (Huang et al., 2018). Bank innovativeness yielded a one-factor solution with an eigenvalue of 2.568 and item loadings greater than .50 (Hair et al., 2014). Equally, all independent variables had eigenvalues  $>1$  and factor loadings above .50 except for 1 item related to chairman self-efficacy and 1 item for board member's independence which loaded less than .50. In line with statistical mitigation strategies, these two items were dropped from the analysis (Hair et al., 2006). The results for the items used for further analysis are displayed in Table 1.

**Table 1** Factor analysis

<i>Items</i>	<i>Factor loadings</i>	<i>Eigenvalue</i>	<i>% variance</i>	<i>Alpha <math>\alpha</math></i>
<i>Innovativeness</i>		2.568	42.795	.720
Our firm as the first to introduce products and services over the last five years	.624			
Our firm as the first to market with new products and services	.656			
Our firm perceives financial innovations as risky and is resisted	.504			
Our company is usually creative in its approaches to financial operations	.813			
Our company frequently tries out new business ideas	.711			
Our firm often seeks out new ways of doing business activity	.572			
<i>Board member's openness</i>		7.049	29.371	.726
Our board members acknowledge the possibility of being wrong in their considerations	.571			
Our board members are ready to offer advice based on private knowledge, ideas, and views	.809			
Our board members communicate their personal preferences openly at board meetings	.628			
Our board members are free to give their considerations and suggestions on board discussions	.723			

Note: Extraction method: a principal component analysis.

**Table 1** Factor analysis (continued)

<i>Items</i>	<i>Factor loadings</i>	<i>Eigenvalue</i>	<i>% variance</i>	<i>Alpha <math>\alpha</math></i>
<i>Board chairman self-efficacy</i>		2.586	10.775	.859
Our board chairman encourages and utilises board members' knowledge and competence	.557			
Our board chairman is always well prepared for board meetings	.697			
Our board chairman works well with the CEO	.541			
Our board chairman has an open and trustful leadership style	.795			
Our board chairman leads board discussions without prompting his/her own agenda	.732			
Our board chairman has developed working board structures and processes	.788			
<i>Board member's expertise</i>		2.232	9.299	.823
Our board members understand the main operations of the firm	.648			
Our board members know the firm's critical technology and key competencies	.845			
Our board members are aware of threats from entrants and new products and services	.760			
Our board members know the firm's weak sides and products and services	.715			
Our board members present creative and innovative counsels and suggestions to the CEO	.572			
Our board members often find very creative and innovative solutions to the firm's challenges	.524			
<i>Board member's independence</i>		1.794	7.473	.808
Our board members have no close family relations to the CEO	.854			
Our board members have no close friendship transactions with the CEO	.862			
Our board members have no close ties to other persons and firms with large stakes in the firm	.853			
Our board members have no ties with each other through common membership on other boards	.708			
Our board members are free to object or disapprove CEOs decisions or suggestions	.557			

Note: Extraction method: a principal component analysis.

**Table 2** Descriptive statistics and correlation analysis

	1	2	3	4	5	6	7	Mean	SD
1 Innovativeness	1							3.58	.506
2 Board openness	.633**	1						3.71	.707
3 Chairman self-efficacy	.723**	.653**	1					4.01	.805
4 Board expertise	.654**	.633**	.735**	1				3.85	.735
5 Board independence	.608**	.491**	.636**	.437**	1			3.75	.730
6 Firm performance	.239**	.166	.292**	.251**	.132	1		3.75	.699
7 Firm size	.109	.069	.048	.213*	.026	-.088	1	1.82	1.462
8 Firm age	-.137	-.039	-.081	-.057	-.033	-.206*	.181*	2.81	.451

Note: Correlation is significant at \*\* $p < 0.01$ , \* $p < 0.05$  (two-tailed)

## 4 Analysis and findings

### 4.1 Descriptive results

The means, standard deviations, and correlations of the variables are reported in Table 2. As indicated, all the predictor variables are positively and statistically correlated to innovativeness.

### 4.2 Regression analysis and findings

Before performing regression analysis, several diagnostic tests were undertaken to determine the adequacy of data to perform multiple regression analysis. First, multicollinearity test was performed using the variance inflation factor (VIF) and tolerance values (Hair et al., 2014; Stevens, 2012) to determine the extent of correlation among predictor variables. The results showed that multicollinearity was a non-issue since the VIF and tolerance values are within the acceptable threshold of <10 and >.2 respectively. We also performed tests of independence of errors using the Durbin-Watson statistic. The Durbin-Watson statistic value of 1.602 is well within the recommended range of 1.5 and 2.5, thus there is no violation of the assumption of independence of errors.

**Table 3** Regression results

	<i>Unstandardised coefficients</i>	<i>Collinearity statistics</i>	
	<i>B</i>	<i>Tolerance</i>	<i>VIF</i>
(Constant)	1.386 (.301)		
Control variables			
Firm performance	.022 (.043)	.866	1.155
Firm size	.019 (.020)	.886	1.129
Firm age	-.103 (.064)	.929	1.077
Predictor variables			
Board member's openness	.140* (.055)	.509	1.966
Board chairman self-efficacy	.177* (.063)	.303	3.296
Board member's expertise	.134* (.062)	.383	2.611
Board member's independence	.166* (.050)	.577	1.734
Model summary			
R <sup>2</sup>		.626	
F test		29.156***	
Durbin-Watson		1.602	

Notes: Dependent variable: innovativeness, \* $p < .05$ ; \*\*\* $p < .01$ ;  $N = 130$ . Standard errors are given in parentheses. All numbers are rounded to three decimal places

As shown in Table 3, all of the control factors (firm performance, size, and age) yielded insignificant results, implying that they had no influence on firm innovativeness. Further, Table 3 shows the analysis of regressions. *Hypothesis 1* postulated that the greater the board member's openness, the higher the bank innovativeness. This hypothesis was

supported ( $\beta = .140, \rho < .05$ ). *Hypothesis 2* predicted that the greater the board chairman self-efficacy the higher the bank innovativeness. This hypothesis was accepted ( $\beta = .177, \rho < .05$ ). *Hypothesis 3* hypothesised that the greater the board member's expertise the better the innovativeness. So, the hypothesis was held ( $\beta = .134, \rho < .05$ ). *Hypothesis 4* proposed that the greater the independence of the board members the higher the bank innovativeness. The results supported the hypothesised relationship ( $\beta = .166, \rho < .05$ ).

## 5 Discussion and conclusions

Using deposit-taking financial institutions in Kenya, this study explores how board leadership affects company innovativeness. We find support for the claim that board leadership is critical in executing out the firm's strategic decisions. Members, in particular, contribute a trove of resources in the form of professional contacts, networks, expertise, and skills that are necessary for organisations to innovate. Consistent with previous studies, we believe that innovativeness is the outcome of a combination of diverse abilities, knowledge, and competence of the board members (Wu, 2008). We contend that interactions and openness among board members during board discussions promote bank innovativeness. Like previous scholars interactions and openness among board members, improve information sharing and the generation of innovative ideas (Huse and Gabrielsson, 2012; Sun et al., 2015). As a result, board members who engage freely and are open to each other create conducive space for new ideas to flow, allowing board members to openly provide proposals to management for actions. Our findings indicate strong chairman leadership is required for organisations to remain innovative. This finding is based on the rationale that leaders encourage, develop, integrate, and coordinate the team members' competencies (Wu et al., 2010), and so is the board chairman.

Thus, a self-efficacious chairman encourages other board members to participate in board deliberations and creates an environment in which members can freely critique and debate on the board (Bailey and Peck, 2013). Such open and honest dialogues increase decision quality and empower board members to think outside the box when advising management. According to studies, innovative ideas are generally generated in an environment with a free flow of ideas (Leblanc and Gillies, 2005). We further concluded that board knowledge and expertise promotes firm innovativeness. We maintain that a board endowed with a breadth of experience, expertise, and abilities is more likely to be innovative since they are well-versed in the firm and the industry (Faleye et al., 2014). Moreover, experienced and informed board members can scan and analyse market information to find and capitalise on innovation opportunities by continuously trying out new ideas and seeking new ways of doing things (Chen, 2014; Swift, 2018). According to the resource dependence theory, industry-specific knowledge and skills are crucial in making quality decisions, particularly when conceptualising strategic decisions involving innovation.

We also found support to the view that the board member's independence enhances firm innovativeness. Independent board members are custodians and supporters of innovativeness (Chen, 2014) because they can link the firm and its environment to secure collaboration and commitment of other institutions and partners (Hillman et al., 2000) in promoting firm innovativeness. Further, consistent with earlier scholars, board members

who are independent tend to be innovative since they can bring into the firm information and experience by virtue of being managers in other firms (Jiraporn et al., 2018), and bring an independent view of the firm vis-à-vis other players in the industry. Independent directors have been found to have more industry experience (Kor and Sundaramurthy, 2009), have worked in other boards (Lei and Deng, 2014), have more social networks (Cao et al., 2014; Nicholson et al., 2004), and so bring a bundle of experiences and skills relevant for innovation to thrive. Therefore, we conclude that board leadership aspects such as chairman self-efficacy, board openness, board expertise and the independence of the board members foster innovativeness in deposit-taking financial institutions in Kenya because it provides the necessary guidance to management in conceptualising, formulating, approving, and implementing innovative decisions in the firm.

### *5.1 Policy implications*

This research has theoretical as well as managerial implications. Our findings contribute theoretically to the literature on board-innovation relationship. First, we conceptualised all key constructs, such as board members' openness, expertise, and independence, and the chairman's self-efficacy. We contribute to the ongoing discussion about how corporate boards influence innovation by utilising the resource dependence theory. More specifically, on how specific aspects of the board of directors influence firm innovation. The resource dependence theory offers a valuable perspective that board members bring into the firm relevant resources that are key for strategic decisions more particularly in the dynamic industry such as the banking sector in Kenya. The positive results seem to suggest that board members provide requisite resources in the form of openness, independence, expertise and chairman self-efficacy that provide an opportunity for firms to engage in strategic decisions such as innovativeness. This imply that board members who are open and social tend to exchange relevant industry information; chairman with greater self-efficacy is more likely to coordinate and utilise board members competencies; directors who have the required expertise are knowledgeable and endowed with effective processing of market information; and those members who are independent bring into the firm industry-specific experience that allows them to spot opportunities for innovation. In terms of managerial implications, this paper recognises the importance of composing boards that have particular skill-base if innovation is to be realised in banks. In other words, board members' independence, expertise, openness and efficacy of the chairman are key features that require attention when boards are being constituted.

### *5.2 Limitations and areas for future research*

This study was not without limitations. First, we had a relatively small sample of 130 CEOs in a single sector; future research could focus on larger samples that may be drawn from different sectors and also cross-country. Second, since the study was cross-sectional, future studies may explore the use a longitudinal approaches to understand how corporate board's characteristics may influence innovation over time and stronger causal inferences. Third, although we focused on the role of boards, we take cognizant of the fact that TMTs play important part in the innovation process, and hence, the interaction effect of TMT leadership traits need to be integrated into the model. Fourth, our study focused largely on product innovation, and excluded other aspects of innovation such as process, technology, and sustainability. Therefore, future research

should consider including these variables in measuring innovativeness in order to provide a holistic view. Finally, we gathered responses from the CEO on behalf of the board. Although CEO response could eliminate the self-report bias of the board, their views with regard to their leadership competencies are crucial, thus, future research should incorporate their responses.

## References

- Abebe, M. and Myint, P.P.A. (2018) 'Board characteristics and the likelihood of business model innovation adoption: evidence from the smart home industry', *International Journal of Innovation Management*, Vol. 22, No. 1, p.1850006.
- Anderson, R.C. and Reeb, D.M. (2003) 'Founding-family ownership and firm performance: evidence from the S&P 500', *The Journal of Finance*, Vol. 58, No. 3, pp.1301–1328.
- Bagozzi, R.P. and Yi, Y. (1988) 'On the evaluation of structural equation models', *Journal of the Academy of Marketing Science*, Vol. 16, No. 1, pp.74–94.
- Bailey, B.C. and Peck, S.I. (2013) 'Boardroom strategic decision-making style: understanding the antecedents', *Corporate Governance: An International Review*, Vol. 21, No. 2, pp.131–146.
- Balsmeier, B., Fleming, L. and Manso, G. (2017) 'Independent boards and innovation', *Journal of Financial Economics*, Vol. 123, No. 3, pp.536–557.
- Bandura, A. (1977) 'Self-efficacy: toward a unifying theory of behavioral change', *Psychological Review*, Vol. 84, No. 2, p.191.
- Barroso-Castro, C., Villegas-Periñan, M.M. and Dominguez, M. (2017) 'Board members' contribution to strategy: the mediating role of board internal processes', *European Research on Management and Business Economics*, Vol. 23, No. 2, pp.82–89.
- Baum, C.F., Lööf, H., Stephan, A. and Viklund-Ros, I. (2018) *Outside Board Directors and Start-Up Firms*, Innovation, CESIS, Royal Institute of Technology.
- Baysinger, B.D., Kosnik, R.D. and Turk, T.A. (1991) 'Effects of board and ownership structure on corporate R&D strategy', *Academy of Management Journal*, Vol. 34, No. 1, pp.205–214.
- Becker, G. (1964) *Human Capital*, University Press, New York, Columbia.
- Berraies, S. and Rejeb, W.B. (2019) 'Boards of directors' roles and size: what effects on exploitative and exploratory innovations? Case of listed Tunisian firms', *International Journal of Entrepreneurship and Innovation Management*, Vol. 23, No. 2, pp.161–179.
- Brauer, M. and Schmidt, S.L. (2008) 'Defining the strategic role of boards and measuring boards' effectiveness in strategy implementation', *Corporate Governance: The International Journal of Business in Society*, Vol. 8, No. 5, pp.649–660.
- Brunninge, O., Nordqvist, M. and Wiklund, J. (2007) 'Corporate governance and strategic change in SMEs: the effects of ownership, board composition and top management teams', *Small Business Economics*, Vol. 29, No. 3, pp.295–308.
- Burt, R.S. (2002) 'The social capital of structural holes', in M.F. Guillen, R. Collins, P. England and M. Meyer (Eds.): *The New Economic Sociology*, pp.148–189, Russell Sage Foundation, New York.
- Calantone, R.J., Cavusgil, S.T. and Zhao, Y. (2002) 'Learning orientation, firm innovation capability, and firm performance', *Industrial Marketing Management*, Vol. 31, No. 6, pp.515–524.
- Campbell, K. and Mínguez-Vera, A. (2008) 'Gender diversity in the boardroom and firm financial performance', *Journal of Business Ethics*, Vol. 83, No. 3, pp.435–451.
- Cao, Y., Dhaliwal, D., Li, Z. and Yang, Y.G. (2014) 'Are all independent directors equally informed? Evidence based on their trading returns and social networks', *Management Science*, Vol. 61, No. 4, pp.795–813.



- Central Bank of Kenya (CBK) (2018) *Bank Supervision Annual Report*, Central Bank, Nairobi, Kenya.
- Charan, R., Carey, D. and Useem, M. (2014) *Boards That Lead: When to Take Charge, When to Partner, and When to Stay Out of the Way*, Harvard Business Press, Boston.
- Chen, H.L. (2014) 'Board capital, CEO power and R&D investment in electronics firms', *Corporate Governance: An International Review*, Vol. 22, No. 5, pp.422–436.
- Crane, D. (1977) 'Technological innovation in developing countries: a review of the literature', *Research Policy*, Vol. 6, No. 4, pp.374–395.
- Daft, R.L. (1978) 'A dual-core model of organizational innovation', *Academy of Management Journal*, Vol. 21, No. 2, pp.193–210.
- Daily, C.M., Dalton, D.R. and Cannella, Jr., A.A. (2003) 'Corporate governance: decades of dialogue and data', *Academy of Management Review*, Vol. 28, No. 3, pp.371–382.
- Dass, N., Kini, O., Nanda, V., Onal, B. and Wang, J. (2013) 'Board expertise: do directors from related industries help bridge the information gap?', *The Review of Financial Studies*, Vol. 27, No. 5, pp.1533–1592.
- Dobni, C.B., Klassen, M. and Nelson, W.T. (2015) 'Innovation strategy in the US: top executives offer their views', *Journal of Business Strategy*, Vol. 36, No. 1, pp.3–13.
- Drees, J.M. and Heugens, P.P. (2013) 'Synthesizing and extending resource dependence theory: a meta-analysis', *Journal of Management*, Vol. 39, No. 6, pp.1666–1698.
- Dutta, S., Lanvin, B. and Wunsch-Vincent, S. (2018) *The Global Innovation Index*, Cornell, INSEAD and WIPO, Ithaca, NY.
- Faleye, O., Hoitash, R. and Hoitash, U. (2011) 'The costs of intense board monitoring', *Journal of Financial Economics*, Vol. 101, No. 1, pp.160–181.
- Faleye, O., Hoitash, R. and Hoitash, U. (2018) 'Industry expertise on corporate boards', *Review of Quantitative Finance and Accounting*, Vol. 50, No. 2, pp.441–479.
- Faleye, O., Kovacs, T. and Venkateswaran, A. (2014) 'Do better-connected CEOs innovate more?', *Journal of Financial and Quantitative Analysis*, Vol. 49, Nos. 5–6, pp.1201–1225.
- Flynn, B.B., Huo, B. and Zhao, X. (2010) 'The impact of supply chain integration on performance: A contingency and configuration approach', *Journal of Operations Management*, Vol. 28, 1, pp.58–71.
- Fowler, Jr., F.J. (1993) 'Applied social research methods series', paper presented at the *Survey Research Methods*.
- Gabrielsson, J. and Huse, M. (2005) 'Outside directors in SME boards: a call for theoretical reflections', *Corporate Board: Role, Duties and Composition*, Vol. 1, No. 1, pp.28–37.
- Gabrielsson, J., Huse, M. and Minichilli, A. (2007) 'Understanding the leadership role of the board chairperson through a team production approach', *International Journal of Leadership Studies*, Vol. 3, No. 1, pp.21–39.
- Galia, F., Zenou, E. and Ingham, M. (2015) 'Board composition and environmental innovation: Does gender diversity matter', *International Journal of Entrepreneurship and Small Business*, Vol. 24, No. 1, pp.117–141.
- Gault, F. (2018) 'Defining and measuring innovation in all sectors of the economy', *Research Policy*, Vol. 47, No. 3, pp.617–622.
- Giorgis Sahile, S.W., Tarus, D.K. and Cheruiyot, T.K. (2015) 'Market structure-performance hypothesis in Kenyan banking industry', *International Journal of Emerging Markets*, Vol. 10, No. 4, pp.697–710.
- Gunday, G., Ulusoy, G., Kilic, K. and Alpkan, L. (2011) 'Effects of innovation types on firm performance', *International Journal of Production Economics*, Vol. 133, No. 2, pp.662–676.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006) *Multivariate Data Analysis*, Vol. 6, Pearson Prentice Hall, Upper Saddle River, NJ.

- Hair, Jr., J.F., Sarstedt, M., Hopkins, L. and G. Kuppelwieser, V. (2014) 'Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research', *European Business Review*, Vol. 26, No. 2, pp.106–121.
- Hambrick, D.C. and Mason, P.A. (1984) 'Upper echelons: The organization as a reflection of its top managers', *Academy of Management Review*, Vol. 9, No. 2, pp.193–206.
- Hamidi, D.Y. and Gabriellson, J. (2017) 'Corporate governance and innovation in small entrepreneurial firms: the board chairperson's role', *Handbook of Research on Corporate Governance and Entrepreneurship*, 248.
- Harris, E.E. (2014) 'The impact of board diversity and expertise on nonprofit performance', *Nonprofit Management and Leadership*, Vol. 25, No. 2, pp.113–130.
- Haynes, K.T. and Hillman, A. (2010) 'The effect of board capital and CEO power on strategic change', *Strategic Management Journal*, Vol. 31, No. 11, pp.1145–1163.
- Hillman, A.J., Cannella, A.A. and Paetzold, R.L. (2000) 'The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change', *Journal of Management Studies*, Vol. 37, No. 2, pp.235–256.
- Huang, S., van der Veen, R. and Song, Z. (2018) 'The impact of coping strategies on occupational stress and turnover intentions among hotel employees', *Journal of Hospitality Marketing & Management*, Vol. 27, No. 8, pp.926–945.
- Hughes, N. and Lonie, S. (2007) 'M-PESA: mobile money for the 'unbanked' turning cellphones into 24-hour tellers in Kenya', *Innovations: Technology, Governance, Globalization*, Vol. 2, Nos. 1–2, pp.63–81.
- Huse, M. (2007) *Boards, Governance and Value Creation: The Human Side of Corporate Governance*, Cambridge University Press, UK.
- Huse, M. and Gabriellson, J. (2012) 'Board leadership and value creation: an extended team production approach', in Clarke, T. and Branson, D. (Eds.): *The SAGE Handbook of Corporate Governance*, Sage Publications, London.
- Huse, M., Nielsen, S.T. and Hagen, I.M. (2009) 'Women and employee-elected board members, and their contributions to board control tasks', *Journal of Business Ethics*, Vol. 89, No. 4, pp.581–597.
- Iren, P. and Tee, K. (2018) 'Boardroom diversity and innovation in the UAE banks', *International Journal of Innovation Management*, Vol. 22, No. 3, pp.1850029.
- Ishak, Z. and Manaf, N.A.A. (2013) 'Board of directors and corporate diversification in Malaysia', *International Journal of Critical Accounting*, Vol. 5, No. 2, pp.123–142.
- Jack, W. and Suri, T. (2011) *Mobile Money: The Economics of M-PESA*, National Bureau of Economic Research, Massachusetts Avenue Cambridge, MA.
- Jaskyte, K. (2012) 'Boards of directors and innovation in nonprofit organizations', *Nonprofit Management and Leadership*, Vol. 22, No. 4, pp.439–459.
- Jaskyte, K. (2015) 'Board of directors and innovation in nonprofit organizations model: Preliminary evidence from nonprofit organizations in developing countries', *Voluntas: International Journal of Voluntary and Non-profit Organizations*, Vol. 26, No. 5, pp.1920–1943.
- Jiang, J., Wang, S. and Zhao, S. (2012) 'Does HRM facilitate employee creativity and organizational innovation? A study of Chinese firms', *The International Journal of Human Resource Management*, Vol. 23, No. 19, pp.4025–4047.
- Jiraporn, P., Lee, S.M., Park, K.J. and Song, H. (2018) 'How do independent directors influence innovation productivity? A quasi-natural experiment', *Applied Economics Letters*, Vol. 25, No. 7, pp.435–441.
- Johnson, S. and Kwak, J. (2012) 'Is financial innovation good for the economy?', *Innovation Policy and the Economy*, Vol. 12, No. 1, pp.1–16.

- Kakabadse, A., Kakabadse, N.K. and Barratt, R. (2006) 'Chairman and chief executive officer (CEO): that sacred and secret relationship', *Journal of Management Development*, Vol. 25, No. 2, pp.134–150.
- Kakabadse, N.K., Figueira, C., Nicolopoulou, K., Hong Yang, J., Kakabadse, A.P. and Özbilgin, M.F. (2015) 'Gender diversity and board performance: Women's experiences and perspectives', *Human Resource Management*, Vol. 54, No. 2, pp.265–281.
- Kenya Bankers Association (KBA) (2014) *The Mobile Banking Survey*, Center for Research on Financial Markets and Policy & Think Business Ltd, Kenya [online] <https://www.kba.co.ke/surveys.php>.
- Knockaert, M. and Ucbasaran, D. (2013) 'The service role of outside boards in high tech start-ups: A resource dependency perspective', *British Journal of Management*, Vol. 24, No. 1, pp.69–84.
- Kor, Y.Y. (2006) 'Direct and interaction effects of top management team and board compositions on R&D investment strategy', *Strategic Management Journal*, Vol. 27, No. 11, pp.1081–1099.
- Kor, Y.Y. and Sundaramurthy, C. (2009) 'Experience-based human capital and social capital of outside directors', *Journal of Management*, Vol. 35, No. 4, pp.981–1006.
- Lashitew, A.A., van Tulder, R. and Liasse, Y. (2019) 'Mobile phones for financial inclusion: what explains the diffusion of mobile money innovations?', *Research Policy*, Vol. 48, No. 5, pp.1201–1215.
- Lawson, B., Samson, D. and Roden, S. (2012) 'Appropriating the value from innovation: inimitability and the effectiveness of isolating mechanisms', *R&D Management*, Vol. 42, No. 5, pp.420–434.
- Leblanc, R. and Gillies, J. (2005) *Inside the Boardroom: How Boards Really Work and the Coming Revolution in Corporate Governance*, John Wiley & Sons, Mississauga, Canada.
- Lei, A.C. and Deng, J. (2014) 'Do multiple directorships increase firm value? Evidence from independent directors in Hong Kong', *Journal of International Financial Management & Accounting*, Vol. 25, No. 2, pp.121–181.
- Lundvall, B.Å. (2007) 'National innovation systems – analytical concept and development tool', *Industry and Innovation*, Vol. 14, No. 1, pp.95–119.
- Machold, S., Huse, M., Minichilli, A. and Nordqvist, M. (2011) 'Board leadership and strategy involvement in small firms: a team production approach', *Corporate Governance: An International Review*, Vol. 19, No. 4, pp.368–383.
- Makri, M. and Scandura, T.A. (2010) 'Exploring the effects of creative CEO leadership on innovation in high-technology firms', *The Leadership Quarterly*, Vol. 21, 1, pp.75–88.
- Margaret, K.G. and Ruth, N.K. (2019) 'The effect of banking services on the business performance of bank agents in Kenya', *Cogent Business & Management*, Vol. 6, No. 1, pp.1–15.
- Miller, B.S. and Bergman, J. (2008) 'Developing leadership on boards of directors', *Journal for Nonprofit Management*, Vol. 12, No. 1, pp.2–12.
- Minichilli, A. and Hansen, C. (2007) 'The board advisory tasks in small firms and the event of crises', *Journal of Management & Governance*, Vol. 11, No. 1, pp.5–22.
- Munyegera, G.K. and Matsumoto, T. (2016) 'Mobile money, remittances, and household welfare: panel evidence from rural Uganda', *World Development*, Vol. 79, pp.127–137.
- Muthinja, M.M. and Chipeta, C. (2018) 'What drives financial innovations in Kenya's commercial banks? An empirical study on firm and macro-level drivers of branchless banking', *Journal of African Business*, Vol. 19, No. 3, pp.385–408.
- Nadler, D.A. (2004) 'Building better boards', *Harvard Business Review*, Vol. 82, No. 5, pp.102–105.
- Nahapiet, J. and Ghoshal, S. (1998) 'Social capital, intellectual capital, and the organizational advantage', *Academy of Management Review*, Vol. 23, No. 2, pp.242–266.

- Ngugi, B., Pelowski, M. and Ogembo, J.G. (2010) 'M-pesa: a case study of the critical early adopters' role in the rapid adoption of mobile money banking in Kenya', *The Electronic Journal of Information Systems in Developing Countries*, Vol. 43, No. 1, pp.1–16.
- Nicholson, G.J. and Kiel, G.C. (2004) 'A framework for diagnosing board effectiveness', *Corporate Governance: An International Review*, Vol. 12, No. 4, pp.442–460.
- Nicholson, G.J., Alexander, M. and Kiel, G.C. (2004) 'Defining the social capital of the board of directors: an exploratory study', *Journal of Management & Organization*, Vol. 10, No. 1, pp.54–72.
- Nunnally, J.C. (1978) *Psychometric Theory*, 2nd ed., McGraw-Hill, New York.
- Oh, W-Y. and Barker, III, V.L. (2018) 'Not all ties are equal: CEO outside directorships and strategic imitation in R&D investment', *Journal of Management*, Vol. 44, No. 4, pp.1312–1337.
- Omwansa, T. (2009) 'M-PESA: progress and prospects', *Innovations/Mobile World Congress*, p.107, University of Nairobi, Kenya [online] <http://profiles.uonbi.ac.ke/tomwansa/publications/m-pesa-progress-and-prospects>.
- Paglis, L.L. and Green, S.G. (2002) 'Leadership self-efficacy and managers' motivation for leading change', *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 23, No. 2, pp.215–235.
- Pearce, J.A. and Zahra, S.A. (1991) 'The relative power of CEOs and boards of directors: Associations with corporate performance', *Strategic Management Journal*, Vol. 12, No. 2, pp.135–153.
- Pfeffer, J. and Salancik, G.R. (1978) *The External Control of Organizations. A Resource Dependence Perspective*, Harper & Row, New York.
- Podsakoff, N. (2003) 'Common method biases in behavioral research: a critical review of the literature and recommended remedies', *Journal of Applied Psychology*, Vol. 88, No. 5, pp.879–903.
- Podsakoff, P.M., MacKenzie, S.B. and Podsakoff, N.P. (2012) 'Sources of method bias in social science research and recommendations on how to control it', *Annual Review of Psychology*, Vol. 63, pp.539–569.
- Priya, K. and Nimalathasan, B. (2013) 'Board of directors' characteristics and financial performance: a case study of selected hotels and restaurants in Sri Lanka', *Merit Research Journal of Accounting, Auditing, Economics and Finance*, Vol. 1, No. 2, pp.018–025.
- Pugliese, A. and Wenstøp, P.Z. (2007) 'Board members' contribution to strategic decision-making in small firms', *Journal of Management & Governance*, Vol. 11, No. 4, pp.383–404.
- Pugliese, A., Bezemer, P.J., Zattoni, A., Huse, M., Van den Bosch, F.A. and Volberda, H.W. (2009) 'Boards of directors' contribution to strategy: a literature review and research agenda', *Corporate Governance: An International Review*, Vol. 17, No. 3, pp.292–306.
- Reguera-Alvarado, N. and Bravo, F. (2018) 'The impact of directors' high-tech experience on innovation in low-tech firms', *Innovation*, Vol. 20, No. 3, pp.223–239.
- Sekaran, U. and Bougie, R. (2016) *Research Methods for Business: A Skill Building Approach*, John Wiley & Sons, New Jersey.
- Sellevoid, T., Huse, M. and Hansen, C. (2007) *The Value Creating Board: Results from the Follow-up Surveys' 2005/2006 in Norwegian Firms*, The Value Creating Board Program Center for Boards and Governance, Oslo, Research Report 2/2007, ISSN: 0803-2610.
- Sonnenfeld, J.A. (2002) 'What makes great boards great', *Harvard Business Review*, Vol. 80, No. 9, pp.106–113.
- Stevens, J.P. (2012) 'Exploratory and confirmatory factor analysis', in *Applied Multivariate Statistics for the Social Sciences*, pp.337–406, Routledge, New York, London.
- Stevenson, W.B. and Radin, R.F. (2009) 'Social capital and social influence on the board of directors', *Journal of Management Studies*, Vol. 46, No. 1, pp.16–44.

- Subramaniam, M. and Youndt, M.A. (2005). The influence of intellectual capital on the types of innovative capabilities', *Academy of Management Journal*, Vol. 48, No. 3, pp.450–463.
- Sun, S.L., Zhu, J. and Ye, K. (2015) 'Board openness during an economic crisis', *Journal of Business Ethics*, Vol. 129, No. 2, pp.363–377.
- Sunder, J., Sunder, S.V. and Zhang, J. (2017) 'Pilot CEOs and corporate innovation', *Journal of Financial Economics*, Vol. 123, No. 1, pp.209–224.
- Swift, T. (2018) 'PhD scientists in the boardroom: the innovation impact', *Journal of Strategy and Management*, Vol. 11, No. 2, pp.184–202.
- Tarus, D.K. and Sitienei, E.K. (2015) 'Intellectual capital and innovativeness in software development firms: the moderating role of firm size', *Journal of African Business*, Vol. 16, Nos. 1–2, pp.48–65.
- Tsai, K-H. and Yang, S-Y. (2013) 'Firm innovativeness and business performance: the joint moderating effects of market turbulence and competition', *Industrial Marketing Management*, Vol. 42, No. 8, pp.1279–1294.
- Tuwey, J.K. and Tarus, D.K. (2016) 'Does CEO power moderate the relationship between board leadership and strategy involvement in private firms? Evidence from Kenya', *Corporate Governance: The International Journal of Business in Society*, Vol. 16, No. 5, pp.906–922.
- Vandewaerde, M., Voordeckers, W., Lambrechts, F. and Bammens, Y. (2011) 'Board team leadership revisited: a conceptual model of shared leadership in the boardroom', *Journal of Business Ethics*, Vol. 104, No. 3, pp.403–420.
- Wu, H-L. (2008) 'When does internal governance make firms innovative?', *Journal of Business Research*, Vol. 61, No. 2, pp.141–153.
- Wu, H-L. and Lee, C-Y. (2007) 'The effects of board competence on operational innovation: tests of universal, contingency and configurational models', *International Journal of Technology Management*, Vol. 39, Nos. 3–4, pp.330–345.
- Wu, J.B., Tsui, A.S. and Kinicki, A.J. (2010) 'Consequences of differentiated leadership in groups', *Academy of Management Journal*, Vol. 53, No. 1, pp.90–106.
- Zahra, S.A. and Pearce, II, J.A. (1990) 'Determinants of board directors' strategic involvement', *European Management Journal*, Vol. 8, No. 2, pp.164–173.
- Zattoni, A. and Pugliese, A. (2012) 'Board's contribution to strategy and innovation', in Clarke, T. and Branson, D. (Eds.): *The Sage Handbook of Corporate Governance*, pp.217–231, Sage, London.
- Zona, F., Zattoni, A. and Minichilli, A. (2013) 'A contingency model of boards of directors and firm innovation: the moderating role of firm size', *British Journal of Management*, Vol. 24, No. 3, pp.299–315.