

# **Effect of Board Social Capital on Innovativeness in the Banking Industry in Kenya**

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## **Abstract**

Extant literature on impact of board capital on firm innovativeness, was prior to this research inconclusive, with some studies showing positive, negative or no effect. Anchored on agency, resource dependence and social capital theories, the researcher sought to determine impact of social capital on innovativeness in banks. Kenya has experienced innovations in the banking sector driven by mobile technologies. The researcher hypothesized that social capital positively impacts firm innovativeness. Independent variables were director interlocks, status and prestige of the directors and presence of personal or other affiliations between directors and the bank or chief executive. Two control variables were added, to mitigate their confounding effect on bank innovativeness. A causal research design was selected and purposive sampling undertaken to choose respondents to a questionnaire. Unit of analysis was boards of banks. 32 questionnaires were returned, a response rate of 74%. Data was analyzed using SPSS, after testing for assumptions made. The study found there was statistically significant relationship between director interlocks and status and prestige of the directors and innovativeness of banks. This study resolved disagreement in extant literature, concluding that board interlocks and board status and prestige were found to drive innovativeness. There was no statistically significant relationship between presence of personal or other affiliations between the directors and the bank or chief executive and bank innovativeness. This study benefits management, in providing a selection criteria for directors of entities focusing on innovativeness. Major limitation of the study is the narrow focus on banking sector impacting generalization of the study.

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**Keywords:** Board Social Capital, Innovativeness

## **Introduction**

Innovation is the process of developing new technological

knowledge and putting that knowledge to productive use (Lodh, 2014). When innovation is viewed from the standpoint of an attribute of organisations, Bantel and Jackson (1989) refer this to innovativeness. This study, consistent with Lodh (2014) conceptualised innovativeness as an attribute of the organisations that develop new technological knowledge and puts the knowledge to productive use. I posit that innovativeness of commercial banks in Kenya is a fertile ground for academic research because of the accelerated rate of adoption of banking innovations. M-Pesa, M-Kesho M-Shwari, M-Kopa and Pesalink are some of the significant banking innovations in Kenya. M-Pesa (M for mobile and Pesa for money in Swahili, one of the two national languages in Kenya) is a small-value electronic payment and store of value system that is accessible on a mobile phone (Burns, 2015).

Boards of directors play many roles including provision of resources (Pfeffer and Salancik, 1978), hiring chief executive (Masulis & Xie, 2011) and monitoring and advising management (Haynes and Hillman (2010). In discharging their responsibilities, boards utilize capital, i.e. board capital, defined by Hillman and Dalziel (2003) as consisting of both board human capital (experience, expertise, reputation) and board relational or social capital (network of ties to other firms and external contingencies).

There is extensive literature on role of board capital on various firm outcomes, namely firm performance (Hillman & Dalziel, 2003), strategic change (Haynes & Hillman, 2010), CEO selection (Tian, Haleban and Rajagopalan, 2011) and firm growth (Kor & Sundaramurthy, 2008). Literature on the role of board capital on innovations as a firm outcome exists, but has inherent contradictions. For instance, Bantel and Jackson (1989) found that education, a form of board human capital had no significant effect on administrative innovation while Dalziel *et al.* (2011) found that directors' educational qualifications negatively affect research and development expenditure, a proxy of innovation. On the contrary however, Subramaniam and Youndt (2005), Chen (2014) and Wincent *et al.*, (2010) found a strong association of directors' advanced education with innovation. Johnson *et al.*, (2013) recommend further research to clarify the effect of experience, another form of board human capital on firm outcomes.

Under resource dependence theory, Pfeffer and Salancik (1978) argue that directors provide resources from elements outside the firm through social interaction, enabled by social capital. This interaction yields resource exchanges that may promote innovation (Chen, 2014). Director interlocks, the primary proxy for social capital can cause flow of information hence providing resources (Rass *et al.*, 2013), but can also increase the level of business of directors sometimes to the detriment of the companies where they are directors (Masulis *et al.*, 2012).

## **Literature Review**

### **Board Social Capital and Innovativeness**

Board capital, as defined by Hillman and Dalziel (2003) consists of both human capital (experience, expertise, reputation) and relational capital (network of ties to other firms and external contingencies) and is used by boards to perform their roles of monitoring and resource provision (Haynes & Hillman, 2010). Boards of directors perform four roles: hiring and monitoring managers, providing information and counsel to managers, and linking the corporation to the external environment (Carter *et al.*, 2010). These roles are linked to the most popular theoretical frameworks used by researchers on corporate governance, namely agency and resource dependence theories. These theories are discussed in later sections. Masulis & Xie (2011) identify the core functions of a board as hiring, firing and compensation of managers. These board functions as identified by Masulis & Xie (2011) are perhaps not a true reflection of the practice in the real corporate world. The hiring of lower and middle level managers is a function of the top management team while the CEO significantly influences hiring his or her team, that is, the top management team.

Directors may differ in many important characteristics, such as educational and functional background, industry experience, social connectedness, insider status, gender and race (Ferreira, 2007). This is true especially considering that there are no formal qualifications for directorships. Hambrick *et al.*, (2008) observe that although boards are viewed as homogenous units, anecdotal evidence and available literature show that due to various reasons, some directors have far more influence than others. The differences in director characteristics as summarised by Ferreira (2007) can be harnessed to yield competitive advantage for the focal firm. No research has determined the effect of board human and social capital on firm innovativeness, a core source of competitive advantage. This research pursued this gap and attempted to generate new knowledge in ascertaining the effect of board human and social capital on firm innovativeness.

Consistent with Chen (2014), it is possible that board capital has a positive effect on research and investment which is an important determinant of a firm's innovative capabilities. This researcher recommended extension of their study beyond the realm of the Taiwanese electronics they studied to include multiple industries and countries so as to enhance generalization of their findings. As the study relied on secondary data, the researcher also recommended alternative ways of gathering data. This research pursues extensions to research as recommended by Chen (2014): by studying board capital in the banking industry in Kenya and using primary data. In summary, this study makes use of this literature by delineating board capital

as a construct that has received inadequate scholarly attention, providing guidance on operationalization of board capital, prising open Chen's (2014) recommendations for extension of research all of which this study takes into account in taking corporate governance research forward.

### **Theoretical perspectives**

Four prominent theoretical frameworks stand out as key in deepening our understanding on board capital as it exists in extant literature, discussed below.

#### **Agency Theory**

Agency theory as articulated by Jensen and Meckling (1976) advances the idea that firm managers behave opportunistically and require monitoring and control by the board. OECD (2004) recommends that a number of board members be independent of management and also suggests that separation of the roles of Chairman and CEO would further enhance independence. An independent board, as observed by OECD (2004) would conduct the board business more objectively, including effectively monitoring managers.

As observed by Roberts, McNulty & Stiles (2005), agency theory is increasingly being criticised for equivocal empirical findings and doubtful theoretical assumptions. A keen scholar evaluating agency theory would acknowledge that this classical theory that has had profound influence on corporate governance is not without flaws. First, the assumption of opportunistic behaviour has not been conclusively determined empirically. Second, the presumed capability by the board to monitor and control managers is perhaps premised upon symmetrical information. This assumption, when viewed against the prevalence of information asymmetry between directors and management makes the theory a fallacy and therefore unsuitable for the study of corporate governance.

There is vast literature in support of board independence as envisaged by both Jensen and Meckling (1976) and OECD (2004). However, this independence should not be viewed as a silver bullet to corporate governance challenges. A plethora of problems have been witnessed in corporate governance despite promulgation of stringent corporate governance regulations. Most notable corporate failures associated with corporate governance malpractices are Lehman Brothers that reportedly filed for bankruptcy in 2008 due to creative accounting issues and Enron Corporation whose failure is associated with inflation of earnings. Accordingly, agency theory is not the most practical lens for understanding corporate governance. Consistent with Johnson *et al.*, (2013), increased theoretical specificity in the measurement of director characteristics is necessary with a view to moving

board characteristics research stream forward. This approach would ensure researchers go beyond board independence and deepen understanding on how board decision making affects firm outcomes.

Despite the flaws, agency theory served this study well by setting the ground for corporate governance phenomenon from which board capital, the core of this study proceeds. Accordingly, resource dependence, human capital and social capital theories are reviewed for further insights on corporate governance.

### **Resource Dependence Theory**

In coming up with this theory, Pfeffer and Salancik (1978) argue that firms depend on their environment to survive and succeed and further note that boards expect a newly appointed director to support the firm with resolving challenges. This view is reinforced by Carter *et al.*, (2010) who find boards of directors as an important link between the corporation and the external environment. This latter finding validates the importance of directors in the success of the firm while interacting with the environment.

Pfeffer and Salancik (1978) present four main benefits of the external linkages, first, acquisition of information and expertise that the corporation requires in pursuit of business objectives, an example being innovation. Second, directors open channels of communication with the environment, enabling dissemination and acquisition of information that is pertinent to the organization's business success, including innovation. Third, directors help establish linkages to the entities in the environment and entities that the corporation requires in pursuit of business objectives. Fourth, directors legitimize the firm in the external environment.

Consistent with Hillman and Dalziel (2003), the limitations of resource dependence theory as articulated by Pfeffer and Salancik (1978) are apparent: the theory presents a wide range of resources that directors bring to firms but with little specificity of the resources or their potential value. Hillman and Dalziel (2003), attempt to deal with this tension by articulating board capital (sum of human and social capital of the board) as proxy for the board's ability to provide resources to the firm. These constructs are dealt with later in this chapter.

A critical evaluation of resource dependence theory reveals ambiguities. The theory is not expressly clear on the need to appoint directors. First, a firm should be able to procure required support or advice from consultants or similar service providers and thus circumvent the need for appointment of directors. Consultants, by their nature specialists in their spheres of knowledge should be able to provide superior support to the firms than directors. With proper terms of reference, one would expect to obtain superior level of advice and support from consultants relative to directors,

principally because the former are specialists in a given phenomenon while the latter are generalists sometimes appointed based on non-objective criteria. Second, the assumption that information flows in and out of the firm through directors can be faulted, principally because this role can be performed by managers in their interaction with the environment. However, the theory is not in vain as independent directors can provide new perspectives than those held by managers who may have vested interests. Resource dependence theory serves this study by setting the ground for understanding the role played by the directors in running of firms. It is imperative to turn to board human and social capital theories to assess if they are perhaps better theoretical lenses for understanding the relationship between corporate governance and innovation.

### **Social Capital Theory**

Social capital theory can be traced back to Adler and Kwon (2002) who reviewed the works of earlier writers from various disciplines including sociologists, economists and political scientists. Adler and Kwon (2002) attribute social capital to goodwill that others have toward the focal person and this is consistent with Chen (2014) who define social capital as an individual's ability to access resources through a network of relationships. The social relations of the directors can therefore be tapped into as sources of competitive advantage. Johnson *et al.*, (2013) observe that social capital can be viewed from three levels: directors' ties to other firms, personal relationships with firm managers, or social standing.

Most research use ties to other firms as the proxy for the presence or lack of social capital. Directors can be members of one or more boards. When a director serves in two or more boards, this is known as a director interlock. Through the interlock ties, directors can occasion flow of information and resources into and out of firms and this may positively or negatively impact the firm. Chen (2014) concluded that interlocking directorate ties indeed are positively related to a firms' research and development stance, a proxy for innovation. This theory serves this study by supplying the key social capital predictor variables for firm innovativeness, namely directors interlocks, status and prestige as well as personal or business connections between the directors and the chief executive.

### **Innovation in the banking industry in Kenya**

Innovativeness of commercial banks in Kenya has manifested itself through accelerated use of mobile banking products. The financial sector in Kenya is well developed as demonstrated, for instance, by having forty-three licensed commercial banks, nine deposit taking micro finance institutions an over 3000 SACCOs (Omwansa & Waema, 2014). In recent times, excluding

human resource costs, investments in technology by commercial banks is often the largest line item and perhaps the fastest growing (Aduda and Kingoo, 2012), perhaps all geared towards innovations. Innovations in the banking industry in Kenya include adoption of Automated Teller Machines (ATMs), smart cards, internet and mobile banking (Okiro and Ndungu, 2013). Consistent with Marfo-Yiadom and Ansong (2012), the Central Bank of Kenya observes that increase in the use of technology by banks has been driven mainly by stiff competition leading them to adopt cost effective channels in offering financial services to ensure efficiency and increase market share.

M-Pesa, M-Kesho M-Shwari and M-Kopa are the most significant banking innovations in Kenya. M-Pesa is a small-value electronic payment and store of value system that is accessible on a mobile phone (Burns, 2015). This mobile money service provided by Safaricom, one of the telecommunications firms in Kenya, (Eijkman, Kendall & Mas, 2010) was introduced in Kenya in 2007 (Demombynes & Thegeya, 2012) and enables customers to deposit and make payments using their mobile phones. Dalton,, Pamuk, van Soest, Ramrattan, & Uras (2017) in their study estimated that in Kenya, 95% households were using M-Pesa. As manifestation of wide adoption of this technology, in 2013, M-Pesa transactions amounted to US\$24 billion, more than half Kenya's GDP (Burns 2014).

M-Kesho is the interest-bearing bank integrated mobile saving system introduced in Kenya in 2010 (Demombynes & Thegeya, 2012), introduced into the market by Equity Bank and Safaricom. M-Shwari is a bank account offering savings and loans to M-Pesa customers, (Cook & McKay, 2015). M-Kopa, provides micro-financed energy products in Kenya to M-Pesa customers, (Nique & Opala, 2014). These three products, in addition to M-Pesa are manifestations of an innovative mobile banking service in Kenya over the recent past.

Pesalink (Pesa for money in Swahili), as reported in popular press is a real time interbank money transfer service available to bank customers effective July 2017, after four months of piloting. Transactions can be initiated from a mobile phone, internet banking, Automated Teller Machine or in a bank's branch or agency, with the end to end transaction taking less than a minute to complete. Under Pesalink, customers can transact amounts ranging from Kshs. 10 upto Kshs. 999,999 at any time. This service allows banks to share innovative infrastructure in delivery of cost effective and secure services to the banking community. As the service had only recently been launched, there were no publicly available statistics on uptake of the service, specifically regarding number of customers who have commenced use of Pesalink and amounts of money transacted on Pesalink.

### **The link between board capital and innovation**

Social capital is regarded as the bedrock of innovation, principally because innovation is a collaborative effort (Subramaniam & Youndt, 2005). This assertion was later validated by Zheng (2010) who observed that network size, uniqueness of the ties in the network, strength of the ties and the relative position of a player have a significant impact on innovation and further concluded that social capital is a recent addition to the list of innovation-inducing factors. Assuming that innovations often involve multiple functions of an organization, Subramaniam and Youndt (2005) are perhaps right that it would take social capital to ensure innovativeness. Teams that do not connect with others may frustrate idea creation process and this would kill innovation. Rass *et al.*, (2013) conclude that high amounts of social capital provide access to knowledge and medium of exchange of that knowledge which facilitates innovation. Hillman and Dalziel (2003) define board capital as the sum of human (experience, expertise, reputation) and relational or social capital of the board of directors.

From a resource based view, firms tap into human and social capitals of the directors for their monitoring and advisory resources. From the general assumption that human capital held by an actor will influence his or her social capital, it is possible that at board level social capital and human capital influence one another. Assuming that this holds, the benefits accruing from human capital would be inseparable from those accruing from social capital. Accordingly, there is merit in studying the impact of both human and social capitals on innovation.

### **Board social capital and innovation**

Social capital is the goodwill available to individuals or groups (Adler & Kwon, 2002). Essentially, social capital is derived from social relations of the directors, within and outside the focal organisation. Recent theories underlying social capital reveal two dominant types of social capital: ties to external organisations and high status or prestige (Johnson *et al.*, 2011). Each of these social constructs are discussed below to the extent that they affect innovation. This study adds a third construct, personal relationships or affiliations between the directors and chief executive that existing literature finds as requiring further research.

### **Director interlocks and innovation**

Johnson *et al.*, (2013) observe that information and resources flow into and out of focal firms based on the ties the directors have. Haynes & Hillman (2010) conclude that director interlocks enable access to better information which enables the focal firm to quickly understand industry



events and trends. The ties could take the form of a director having full time employment in another firm or sitting on the board of another.

Extant literature has identified pros and cons of director interlocks. Directors with a valuable tie can provide vicarious experience (Johnson *et al.*, 2013) as they will observe how their fellow directors in the firms where they serve as directors will deal with a variety of issues or decisions. Directors with external directorships gather more information but are also too busy to adequately monitor and advise firms. Looked at in totality, director interlocks can be another double-edged sword as there are benefits and costs that can accrue contemporaneously. Every cloud has a silver lining and one would be persuaded to agree with Rass *et al.*, (2013) that having network ties provide access to resources that are relevant for innovation. This study will test the effect of board interconnectedness on bank innovativeness.

### **Status of directors and innovation**

Prestigious directors or directors with high status are likely to seek to maintain or enhance their social standing (Johnson *et al.*, 2011). Directors' reputation in the industry is of importance to the individuals and the firms they represent. This is consistent with Johnson *et al.*, (2011) who posit that directors with prestige will invite people with prestige to join their boards and those being invited will also evaluate the prestige of both the directors and the firm they are being invited to join. It is possible that industry leadership for example in profitability or innovation are some of the attributes that yield status and prestige for both the firm and the directors of that firm.

Johnson *et al.*, (2011) have in their journal summarized how various past research has measured status and prestige, and these include attendance at an elite school, experience at a prominent firm and experience at firms generally recognized as prestigious. Experience at prominent firms in the focal industry is perhaps the only measure that can be linked to innovation on the basis that prominent firms have the resources required to invest in research and development necessary for innovation. Further, with a vast resource base such firms would be best placed to try new products in the markets without significantly affecting their bottom lines. This study tested the effect of status of directors on bank innovativeness.

### **Personal relationships or affiliations between the directors and chief executive and innovation**

Social capital can accrue from personal and loyalty relationships as these can affect the incentive of the directors (Adler & Kwon, 2002) or compromise their independence although the same could enhance open

communications. Johnson *et al.*, (2012) outlines the various relations that a director can have with the chief executive of the focal firm: business for example a customer or supplier resulting in an affiliation, a perception of ‘owing’ where the director has been appointed by the chief executive or personal where the director has personal or family connections with the chief executive.

Review of various peer reviewed journals by Johnson *et al.*, (2012) on the effect of these relationships to various firm outcomes yield mixed results, but suggest that these relations influence the level of advice and counsel in addition to strengthening the acceptability of the information. This study theorizes that the presence of these relations should enhance the advisory and counsel role of the directors and this is likely to result in innovativeness. This study tested the effect of director’s relations with the chief executive on bank innovativeness.

### Conceptual Framework

From review of extant literature, the independent variables, from which plausible relationships with the dependent variables are hypothesized, are shown in the conceptual framework in figure 2.1, overleaf.

### Conceptual Framework of how Board social capital affects innovativeness.

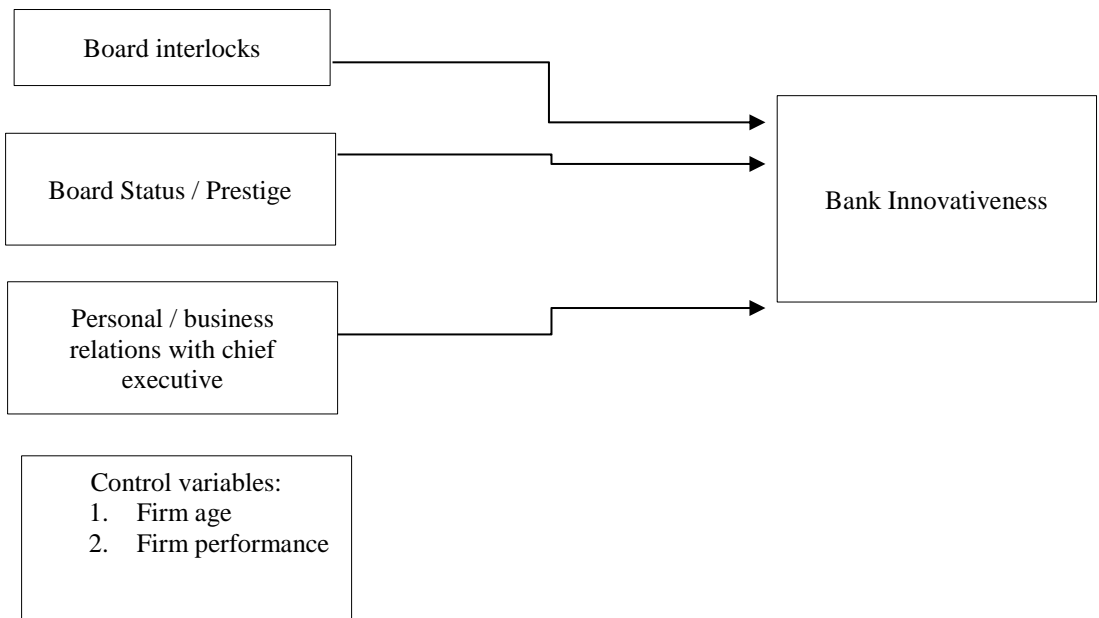


Figure 2.1: Interrelationship between variables subsumed in the study

## **Research Methodology**

### **Research Paradigm**

Research methodology deals with totality of procedures undertaken to uncover new knowledge. The steps taken by individual researchers in their search for knowledge depends on the way the researchers perceive the world. Research paradigm can be viewed from a philosophy and perspective point of view. Research philosophy deals with the sourcing of data, the nature of the data used for the research as well as how the knowledge is to be developed. This study utilised data collected from directors of commercial banks using a questionnaire. Questionnaires were sent out in quarter one of 2016, with telephonic follow ups being made to enhance response rate. The researcher believed this was the most effective method of extracting information from the directors of commercial banks, seeing that they are a busy lot. Secondary data was obtained from the published financial statements of the commercial banks for the listed firms, with the researcher gaining access to corporate websites for the unlisted banks to obtain secondary data. With regard to research approach, this research was a quantitative rather than qualitative one considering the objective of attempting to explain whether or not board capital drives firm innovativeness

### **Research Design**

Research can be broadly categorised into exploratory, descriptive or explanatory, (Zikmund *et al.*, 2012). Whereas explanatory research is aimed at hypothesis testing to establish the cause and effect relationships, exploratory research provides insights on a subject, thereby setting ground for further investigation. Descriptive research concerns itself with provision with information about people, organisations or objects. This is a causal research in which the effect of board human and social capital on innovativeness of commercial banks was investigated. Causal research design was preferred over exploratory or descriptive research designs as this study focused on specific research hypothesis aimed at generating managerially actionable results (Zikmund *et al.*, 2012).

### **Target population**

Consistent with Aduda and Kingoo (2012), the target population consisted of all the commercial banks in Kenya. Under the study, board human and social capital of the boards as well as the innovativeness of the banks were ascertained from questionnaires completed by at least one director of the forty-three banks.

### **Sample size and sampling method**

The sample size was forty-three and this study employed purposive sampling technique. The sample size of 43 was appropriate for multiple regression, consistent with Hair *et al*, (2010) who opine that small samples, characterised by fewer than 30 observations are only appropriate for simple regression with a single independent variable. As the study specified six independent variables, the researcher took special care to ensure that completed questionnaires exceeded 30, the threshold for use of multiple regression analysis as espoused by Hair *et al*, (2010). One of the tactics deployed by the researcher was to send out questionnaires to the managing directors of the forty-three banks. This way, response rate would be enhanced if questionnaires are addressed to the organisational representatives, i.e. to managing directors, rather than to individuals, consistent with Baruch (1999). Also, similar to the approach used by Bantel & Jackson (1989), follow up mails were sent to the respondents who had not responded within a month of sending the questionnaires out. Where responses were not obtained, telephonic follow up was made with the executive assistants of the managing directors. When the follow ups bore no fruit, the researcher chose to obtain responses from either an independent director, chairman, company secretary or chief finance officer of the banks, all of whom were deemed to be knowledgeable of the constructs under study.

### **Data collection**

This study made use of both primary and secondary data. Table 3.1 includes definition of the data collected as well as the source. Primary data was collected mainly from managing directors of commercial banks via use of questionnaires. Following Buzzacchi *et al.*, (1995), care was taken to ensure presence in the sample of large, medium and small tier banks. Where questionnaires were not received from some bank tiers, telephonic follow up was done. The directors were assured that the data was being collected for academic purposes only and that confidentiality will be observed. Personalized letters (see appendix 1) accompanying the questionnaires were sent to the directors using the postal addresses of the respective banks, see appendix 6. These letters stated the purposes of the research and how the results were going to be used. A research assistant was hired to help with data collection and coding. The data was collected between the months of April through to October 2016, after mailing the questionnaires earlier, in April 2016.

### **Validity and Reliability**

Construct validity can be viewed from a face validity, content validity and criterion validity points of view. Face validity refers to a

subjective rather than objective assessment whether a test measures the concept it is designed to measure, and that a lay person can agree that the proposed method is a valid in researching the question, (Greener, 2008). Content validity refers to the extent to which a measure covers the domain of interest, (Zikmund *et al.*, 2012). Criterion validity concerns itself with operationalization of the constructs being measured. Construct validity was achieved through initial discussions with two members of board of directors in the commercial banks. These two directors were not part of the final list of sampled directors. Also, discussions were held with two members of university faculty prior to sending out the questionnaires, primarily to ensure face validity, criterion validity as well as content validity. These reviews helped address clarity of the questions as well as whether the scales captured the desired information. Review by university faculty ensured that the study incorporate expert research experience accumulated in the faculty. Feedback obtained from the reviews was incorporated into the final questionnaire. Consistent with Subramaniam and Youndt (2005), reliability was tested by calculating Cronbach's alpha coefficients for each board human and social capital construct. The coefficient alphas were compared with the suggested value of 0.60 in deciding whether or not the measures utilized in this study were acceptably reliable, (Zikmund *et al.*, 2012).

### **Measurement of Variables**

There were three independent variables measuring social capital. Two control variables were included to ensure that the findings were not confounded by the effect of either the age of the firm or firm performance. Board social capital was measured using three variables: director interlocks consistent with Rass *et al.*, (2013), directors' status similar to the study by Johnson *et al.*, (2011) and personal connections to the chief executive as envisaged by Adler & Kwon (2002) and Johnson *et al.*, (2012). Innovativeness, as defined by Lodh (2014) and Crossan & Apaydin (2010) was the dependent variable. With regard to the control variables, firm performance was controlled for in keeping with the studies by Jermias & Gani (2014) as well as Chen *et al.*, (2013). Firm age was controlled for consistent with Chen *et al.*, (2014).

### **Director interlocks**

Director interlocks is often used as proxy for board social capital (Chen, 2014; Haynes & Hillman, 2010; Wincent *et al.*, 2010). In ascertaining the level of the boards' connectedness, the study sought to establish the interconnectedness of the board. Using a 5 point Likert scale, the respondents were asked to indicate their agreement to the statement that 'The directors of our board sit on other boards of firms listed in Securities

Exchange’. A score of 1 indicated strong disagreement with the above statement, with a score of 5 indicating strong agreement. Consistent with both logic as well as the findings by Chen, 2014; Haynes & Hillman 2010 and Wincent *et al.*, 2010, the more the board interconnectedness, the higher the anticipation of the innovativeness prospects.

### **Status of directors**

Extant literature shows inherent difficulties in the operationalization of status or prestige as a construct. Johnson *et al.*, (2011) reviewed biographical statements of the directors in the annual statements to determine presence or absence of status for each director. They identify five types of status: academic, business, military, social and political and treated all these types of status equally. No research has articulated whether some types of status are more valuable than others. For the purposes of this research, presence of status on the board was ascertained by obtaining respondents’ answer when asked to indicate their agreement to the statements that ‘The directors of our board have high status relative directors of other banks’ and ‘The directors of our board have connections to persons who have high status and prestige’. A score of 1 indicated strong disagreement with the above statement, with a score of 5 indicating strong agreement. Consistent with logic, the higher the board status, the better the innovativeness prospects.

### **Personal relationships or affiliations of directors with the chief executive**

Available literature suggests that while ties to other organizations act as a conduit for information, friendship and other affiliations seem to strengthen the acceptability of that information, (Johnson *et al.*, 2011). Under this study presence of friendship or other affiliations was ascertained by obtaining respondents’ answers when asked to indicate their agreement to the statements that criteria for joining our board includes business relations with the bank and personal relations with Chief Executive. A score of 1 indicated strong disagreement with the above statement, with a score of 5 indicating strong agreement. Higher scores on these two questions would reveal higher friendship and other affiliations that may strengthen the acceptability of information provided by the directors. Consistent with logic, the higher the personal and business connections between board members and the focal firm, the better the innovativeness prospects.

### **Dependent variable: Innovativeness**

Extant literature shows various methodologies of operationalization of innovativeness as a construct. Zheng (2010) reviewed empirical studies on the relationship of social capital and innovation and identified four measures of innovation. First, amount of innovative outcomes such as patent

counts. Second, subjective ratings such as evaluation by senior managers or directors. Third, efforts expended in innovative activities such as resource allocation and fourth, emphasis on innovation such as inclusion of innovation in the company vision. Considering contextual factors we picked on the second operationalization and sought to rely on the directors' assessment of the innovativeness of the banks where they serve as directors with the use of 5 point Likert scale questions. Measurement of innovativeness by directors of the respective banks would provide better insights on the banks' innovativeness based on the belief that the respondents had sound firm level information at their disposal.

Under this study, innovativeness was ascertained by obtaining respondents' answers to a 5 point Likert scale, where the respondents were asked to indicate their agreement to the statements regarding whether their banks had rolled out innovative products, policies and structures to support innovation; included innovations in their strategic agenda and was actively pursuing innovations. Scores of 1 indicated strong disagreement with the above statements, with scores of 5 indicating strong agreement.

### **Control Variables: Firm age and Firm performance**

In line with Bantel and Jackson (1989), this study was not intended to examine a complete model for innovation but rather to examine the role of board capital in firm innovativeness. Based on prior literature, there are many other variables that impact innovation. Two control variables were included in this study in keeping with the principle of parsimony. It was necessary to control for the effect of firm age and firm performance to ensure that our findings were not confounded by their effect on firm innovativeness. Consistent with Jermias and Gani (2014) as well as Chen *et al.*, (2013), firm performance was controlled for because some studies have shown that unprofitable firms reduce their research and development expenditure (a proxy for innovation) with other studies suggesting that less profitable firms experiment with innovative activity.

Following Chen *et al.*, (2013), this study also controlled for firm age measured by number of years the bank had been in existence because some studies have shown a negative relationship between a firm's age and research and development expenditure (a proxy of innovation). Firm age was sourced from corporate web sites (appendix 6) while firm performance was measured as firm's profit before tax for the year ended 2015.

### **Data Analysis**

Consistent with Haynes and Hillman (2010), the main effect of board capital on innovativeness as a firm outcome was tested using multiple linear regression model. Multiple regression was used to determine the presence

of, and the strength of relationships between the independent and dependent variables. Modelling was done to determine the causation between human and social capital of the board and firm innovativeness. The effect of six predictor variables derived from human and social capital constructs on the single dependent variable (innovativeness) was ascertained and reported in chapter four. Data was coded and analysed with the use of SPSS. Descriptive statistics as well as cross tabulation was used for data analysis and reporting.

With the use of Pearson product-moment correlation, beta coefficients were calculated to determine the direction and extent of relationship between the individual human and social capital variables and innovativeness. The matrix of coefficients was inspected for signs of multicollinearity. Further tests on multicollinearity were conducted, including calculation of Variance Inflation Factor (VIF). The values were compared to the rule of thumb's 10 or more values, the threshold indicating existence of multicollinearity (Salkind, 2007).

Consistent with Chen (2014), this study made use of lagged hierarchical regression analysis. First, the main effects variables (directors' education, experience, interlocks, status / prestige, connections to chief executive and functional diversity) were successively introduced and regressed against the dependent variable. Finally, the interactive effects (directors' education \* directors' experience) as well as the control variables (firm age and firm performance) were introduced and regressed against the dependent variable. For each model, Shrunken or adjusted  $R^2$  was computed to show the percentage of variance in the dependent variable explained by the independent or control variables in the model.

### Model Specification

In keeping with the principle of parsimony, only three independent and two control variables were included in the model specification, as shown below:

$$\text{Model I: } Inn = \beta_0 + \beta_1(Fa) + \beta_2(Fp) + \epsilon$$

$$\text{Model II: } Inn = \beta_0 + \beta_1(Di) + \beta_2(Sp) + \beta_3(Pr) + \epsilon$$

The models allowed us to estimate the effects of board capital on the firms' innovativeness. The variables in the model were as follows:

*Inn* = dependent variable, innovativeness as measured by directors of the focal firm, on a 5 point Likert scale;

$\beta_0$  = constant

$\beta$  = coefficients, for variables *Fa*, *Fp*, *Di*, *Sp*, and *Pr* described here below:

*Fa* = represents firm age in terms of the number of years the bank has been in existence. This information was obtained from the corporate web sites;



*Fp* is firm performance, measured by the focal firms' profit before tax for the year ended 2015;

*Di* represents directors' interlocks measured using a 5 point likert-type question;

*Sp* represents the presence or absence of status of individual board members measured using a 5 point likert-type question;

*Pr* represents the presence or lack of personal relations between the board member and the chief executive of the focal firm measured using a 5 point likert-type question, and

$\epsilon$  is the error term associated with unobservable factors driving innovativeness.

### **Model assumptions**

Four principal assumptions were made regarding the model. During data analysis stage of this, investigations were conducted on the observed data to ensure that the underlying assumptions had not been violated. First, it had been assumed that observed variables will follow a normal distribution. Consistent with Tarus & Omandi (2013), a plot of residuals was undertaken to validate the normal distribution. Second, it had been assumed that the relationship between human and social capital of the board and firm innovativeness would be linear. Third, an assumption of independence had been made for the observed data. With use of SPSS, we undertook Durbin-Watson test to check the data for autocorrelation similar to the study by Tarus & Omandi (2013). Lastly, homoscedasticity was presumed, meaning that random errors had the same constant variance (Yan, 2009).

### **Ethical issues**

The cover letter accompanying the questionnaire indicated that the questionnaire had been developed for academic purposes and that responses will be treated in confidence. Respondents were provided with the researchers' contact details to raise any concerns.

### **Results**

#### **Response Rate and generalizability of results**

Out of the 43 questionnaires sent to selected respondents of the 43 commercial banks, 32 were completed and returned to the researcher, representing a 74.4% response rate. This response rate is deemed appropriate as it exceeded the 70% threshold rule of thumb according to Kothari (2007). The study results were deemed to be generalizable, principally based on two criteria. First, the number of observations per independent variable not only exceeded the minimum acceptable threshold

of five, but attained the desirable level of between fifteen and twenty, and second, the sample was representative, Hair *et al*, (2010).

## **Robustness Tests**

### **Validity Test**

Prior to data collection, the instrument was subjected to face validity test. Construct validity was achieved through initial discussions with two members of board of directors in the commercial banks as well as two members of university faculty. This ensured face validity, criterion validity as well as content validity. These reviews helped to address clarity of the questions as well as concerns on whether or not the scales captured the desired information. The review by university faculty ensured that the study incorporates expert research experience accumulated in the faculty. Feedback obtained from the reviews was incorporated into the final questionnaire.

### **Reliability Test**

Consistent with Subramaniam and Youndt (2005), reliability was tested by calculating Cronbach's alpha coefficients for each board human and social capital constructs.. The coefficient alphas for social capital and innovativeness of .742 and .891 respectively were in excess of the rule of thumb values of 0.60 and 0.70 as suggested by Zikmund *et al.*, (2012) and De Vaus (2001) respectively. From the results, it can be concluded that the constructs measured had the adequate threshold of reliability for the subsequent stages of analysis since all the Cronbach Alpha values were greater than 0.6.

### **Factor Analysis**

Consistent with Yang (2014), exploratory data analysis was undertaken to ascertain potential redundancy. Factor loadings were generated from SPSS for all the constructs and inspected for potential weak loading. The factor loadings were compared to the threshold suggested by De Vaus (2002) who recommended that items with factor loadings below coefficient of 0.3 should be excluded. The factor loadings generated for this study had strong factor loadings, with the item 'Directors of our banks' board possess at least one academic degree' having a coefficient of 0.794, making it a key factor influencing innovativeness in banks. Accordingly, no item was excluded from subsequent analysis.

### **Auto-correlation**

Similar to the study by Tarus & Omandi (2013), Durbin-Watson test was calculated to check the data for autocorrelation among variables. The

Durbin-Watson statistic at 1.873 suggests that the data is free from autocorrelation, based on Ott & Longnecker (2001)'s rule of thumb that critical values below 1.5 and above 2.5 give suspicion to positive or negative serial correlation. Based on these findings, the study concluded that linearity assumption obtained before proceeding to undertake multiple regression analysis.

### **Test for Normality**

Normality test was undertaken by plotting the residuals, consistent with Tarus & Omandi (2013). The variables were subjected to normality tests to check whether the data provided by the dependent variable (Y) was normally distributed. The assumption of normality for innovativeness is satisfied. Further results on the test of normality using Kolmogorov-Smirnov test of normality shows negation of normality assumption since the p-value of 0.005 is less than 0.05. This is corroborated by the Shapiro-Wilk test, with p-value at .022 that is less than the .05, an indication that the data is not from a normally distributed population. Whereas the numerical methods of testing normality are sensitive to sample sizes, from the normal distribution curve in appendix seven we discerned that the data was normally distributed and proceeded with further robustness tests.

### **Multicollinearity, Tolerance and VIF**

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated. We tested the independent variables data for multicollinearity by generating variance inflation factors (VIF). We compared the VIF to the rule of thumb suggested by Zikmund (2007) that VIF above 5 indicate multicollinearity. As the VIF for the variables are in the region of 1, this study concluded there was no incidence of multicollinearity. The tolerance values are a measure of the correlation between the predictor variables and can vary between 0 and 1. The closer to zero the tolerance value is for a variable, the stronger the relationship between the two predictor variables.

### **Heteroscedasticity**

Heteroscedasticity means that previous error terms are influencing other error terms and this violates the statistical assumption that the error terms have a constant variance. This was checked using normal P plots and scatter diagrams and there was no evidence of heteroscedasticity. The Variance inflation factor (VIF) was checked in all the analysis and it ranged from above 1 to 4 which is not a cause of concern.

## **Descriptive statistics**

Respondents indicated that business relations with banks was high, with a mean of 3.63, closely followed by director interlocks, with a mean of 3.16. Director status and prestige had the lowest mean score, at 1.68.

## **Correlation Analysis**

Similar to the study by Tarus & Omandi (2013), this study made use of correlation analysis, the results of which are included in table 4.4.1. These results reflect a positive and significant correlation between all the variables under study and innovativeness, except for the variable regarding presence of relationships between the director and the bank or chief executive. In terms of robustness of the study, the correlation coefficients between the independent variables (education, experience, interlocks, diversity, presence of status and prestige and presence of relations) range between -0.297 and 0.451, indicating that the correlations are not major.

## **Regression Analysis**

Consistent with Haynes and Hillman (2010), the main effect of board social capital on innovativeness was tested using both Pearson correlation and linear regression. Shrunken or adjusted  $R^2$  was computed to show the percentage of variance in the dependent variable explained by the independent or control variables in the model. The results are presented in table 4.5.1 overleaf. Model 1 presents study results of the effect of control variables on the dependent variables. Model 2 presents the main effects while model 3 lays out the results of the full model, i.e. control and main effects.

## **Control variables**

Model 1 revealed an R value (coefficient of determination) of 0.458, implying that the control variables explain 45.8% of the variability of the dependent variable, innovativeness. The F critical at 5 percent level of significance was 2.27. Since F calculated is greater than the F critical (value =3.852) as shown in Table 4.5.1, this shows that the overall model was significant. The significance is less than 0.05, indicating that the control variables explain variation in the dependent variable, innovativeness.

With respect to impact of firm performance on innovativeness, the regression coefficient is 0.030. This implies that firm performance accounts for 3% of bank's innovativeness. With p-value of 0.010, this is evidence that there is significant relationship between firm performance and bank innovativeness. Regarding the second control variable, firm age, the regression coefficient is 0.020. This implies that firm age accounts for 2% of bank's innovativeness. With p-value of 0.154 which is higher than 0.05, this

implies that there is no significant positive relationship between firm age and innovativeness.

Table 4.4.1  
Pearson correlation matrix (n=32), (P-values in parenthesis)

	Innovativeness	Director interlocks	Personal relations	Status/prestige	Firm performance	Firm age
Director interlocks	.380 (.035)*	1				
Personal / business relations	0.078 (.056)	-.120 (.512)	1			
Status/prestige	.417 (.001)*	.083 (.652)	.104 (.577)	1		
Experience & education	.569 (.037)*	.596 (.000)	.008 (.964)	.260 (.151)		
Firm performance	.453 (.010)	-.246 (.175)	-.249 (.177)	.212 (.244)	1	
Firm age	.263 (.154)	-.297 (.099)	-.125 (.502)	.013 (.946)	.395 (.025)	1

\* Correlation is significant at the 0.05 level (2-tailed).

### Main effects

Model 2 revealed an R value (coefficient of determination) of 0.747, implying that director interlocks, director's status and prestige and presence of personal relations between directors and chief executive and or the bank account for 74.7% of bank innovativeness. In effect, the main effects as outlined explain 74.7% of the variability of the dependent variable, innovativeness. The F critical at 5 percent level of significance was 2.27. Since F calculated is greater than the F critical (value =5.262) as shown in Table 4.5.1, this shows that the overall model was significant. The significance is less than 0.05, as demonstrated by p-value of .001, indicating that the main effects explain variation in innovativeness.

With respect to the hypothesis regarding impact of director interlocks on bank innovativeness, the results in table 4.5.1 support this hypothesis. The regression coefficient for this variable, at .796 and p-value of .001 is evidence that there is a significant relationship between director interlocks and bank innovativeness. On the hypothesis dealing with status of directors and its associated impact on innovativeness of banks, the results in table 4.5.1 support this hypothesis. The regression coefficient for this variable, at 1.367 and p-values of .032 is evidence that there is significant relationship between functional diversity of directors and bank innovativeness.

The final hypothesis that had postulated that director's relations to the chief executive officer or other directors' affiliations to the bank impacted

bank innovativeness was also supported. The results in table 4.5.1 indicate that the regression coefficient for this variable, at 0.070 and p-values of .013 is evidence that there is a statistically significant relationship between this variable and bank innovativeness. This finding is astounding considering the Pearson correlation coefficient of .078 with a p-value of .056 as can be seen in table 4.5.1 which is a manifestation of absence of a statistically significant relationship between this variable and bank innovativeness. It is not clear why correlation and regression analysis yield contradictory results.

Table 4.5.1: Regression Results

Variable	Model 1 Control variable	Model 2 Main effects
Intercept	34.11 (1.69)	19.006(7.005)
Director interlocks		.796(.515)*
Presence of board status and prestige		1.367(.837)*
Presence of directors' relations with bank and chief executive		.070(.924)*
Firm performance	.030(.050)*	
Firm age	.021(.039)	
R	.458	.747
R Square	.210	.558
Adjusted R Square	.155	.452
F	3.852*	5.262*

Figures represent unstandardized coefficients. Values in parenthesis are standard errors. \* indicate variable is significant at 5%  
Dependent Variable: innovativeness\_fp

## Conclusion Summary

The first objective was to determine the effect of board interconnectedness on the innovativeness of banks and had a corresponding hypothesis that board interconnectedness has no statistically significant effect on innovativeness of commercial banks. The regression coefficient for this variable, at .956 and p-value of .035 is evidence that there is a significant relationship between director interlocks and bank innovativeness.

The second objective of this study was to investigate the effect of status of directors on innovativeness of banks and had a corresponding hypothesis that status of directors has no statistically significant effect on innovativeness of commercial banks. The regression coefficient for this variable, at .502 and p-values of .001 is evidence that there is significant relationship between status of directors and bank innovativeness.

The third objective aimed to investigate the effect of directors' relations with the chief executive on innovativeness of banks and had a corresponding hypothesis that director's relations to the chief executive had no statistically significant effect on innovativeness of commercial banks.

The regression coefficient for this variable, at 0.191 and p-values of .032 is statistically significant relationship between this variable and bank innovativeness. The astounding finding is that in model 2, where the control variables are introduced, the regression coefficient is .191 with p-value of .008, indicating that there is a statistically significant relationship between this variable and bank innovativeness

### **Limitations and recommendations for future research**

This study was not without limitations. First, although response rate was 74%, the absolute number of observations, at 32 is marginally above the threshold of small samples, Hair *et al.*, (2010). Small samples inherently give rise to sampling errors and it is imperative for future research to increase the sample size perhaps by studying the service industry in multiple sectors, rather than undertaking a sector specific study. This would enhance generalizability of the study findings.

Secondly, the unit of analysis in this study was the board of directors. Accordingly, the contribution of individual directors was not considered. Tian *et al.*, (2011) advocate for research aimed at finding out how independent directors can contribute to the focal company. It is imperative that future research is undertaken to ascertain the role played by individual directors on innovativeness of the focal company.

Most important is use if banking industry, hence a narrow focus that may impact on generalizability. An expanded scope is recommended in a bid to move corporate governance research forward.

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