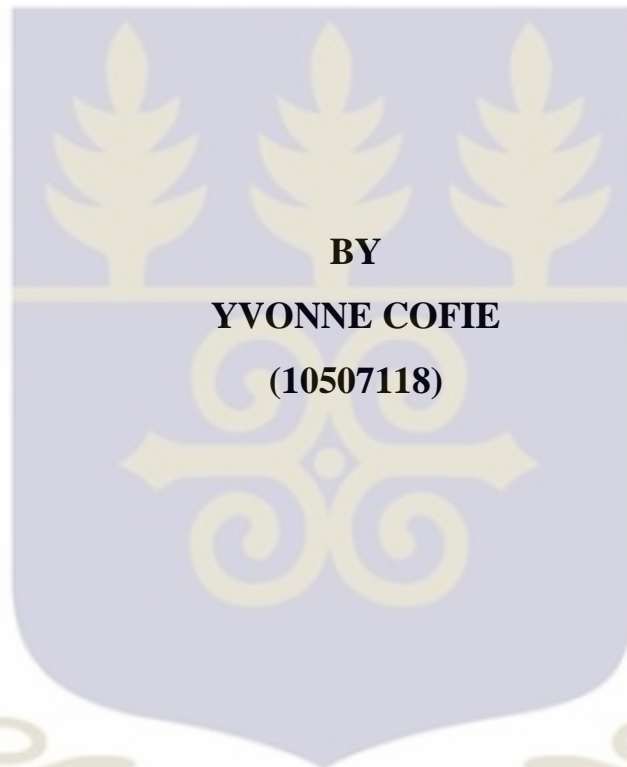


**UNIVERSITY OF GHANA**

**ANTECEDENTS AND CONSEQUENCES OF BOARD  
INTERLOCKS: EVIDENCE FROM THE GHANA  
STOCK EXCHANGE**



**BY**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,  
LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT  
FOR THE AWARD OF MPhil FINANCE DEGREE**

**JUNE 2016**

## DECLARATION

I, Yvonne Cofie, do hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in this work have been fully acknowledged.

I bear sole responsibility for any shortcomings.



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## CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

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Date

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Dr. LORD MENSAH  
(Co-Supervisor)

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Date



## DEDICATION

This work is dedicated to God for being my help in ages past and my hope for years to come, my parents, the late Very Rev. Emmanuel Peregrino-Brimah and Mrs. Juliana Peregrino-Brimah, to my husband Mr. Richard Cofie and my children Jadon and Raziela



## **ACKNOWLEDGEMENT**

I am very grateful to my supervisors, Prof. Godfred Bokpin and Dr. Lord Mensah for their timeless dedication during the supervision of this work. I also acknowledge Mr. Godfred Owusu, Dr. George Acheampong, Dr. Patrick Assuming, Mr. Richard Cofie, Mr Ebenezer Dsane-Laryea, my siblings for their love and Support and all who have in one way or the other contributed to the success of this work.



## ABSTRACT

This study investigates the antecedents and consequences of board interlocks on the Ghana Stock Exchange. The study looks at how factors such as the auditor network, industry network, foreign or local ownership network, gender effect, age effect, gender homophily and age homophily could influence the formation of interlocks between firms. The study also examined the relation between interlocks and Return on Assets, Return on Equity and Profitability among the firms.

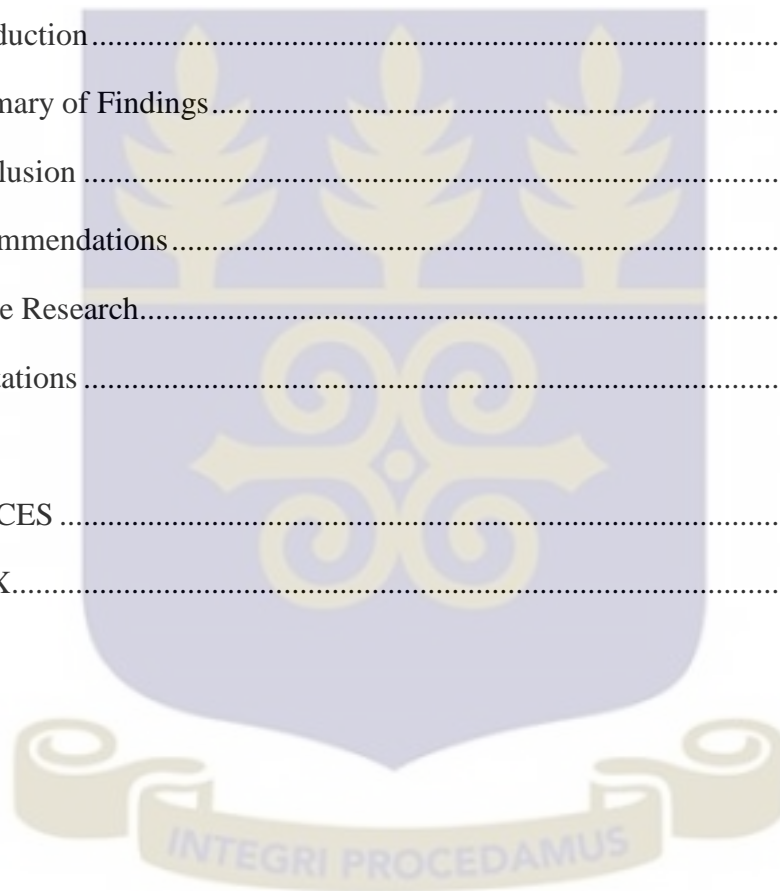
Data for the study was based on a five year panel data covering 2005 to 2009 on 35 listed companies on the Ghana Stock Exchange. The data was transformed from a bipartite to a co-affiliations data using the Bonacich transformation approach. The estimation technique applied by the study is the Hubert and Mantel MR-QAP to perform logistic regression across the cells of the dependent and Independent matrices. The study found that auditor network, industry network and age homophily had significant effect on who is appointed as a board member by these firms. Also firms that shared common board members displayed similar performance patterns which was tested using the constant homophily, variable homophily and the structural block models. The study therefore recommends that policy makers should take a look at the influence the auditors are having on board interlocks and firms should appoint members who sit on boards of well performing firms.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

Corporate governance according to Larcker, So & Wang, 2013 is a mechanism used to resolve agency problem. This can be done when boards of directors are constituted. The agency problem usually arises as a result of the agents (managers) looking out for their own interest as opposed to that of the shareholders (Jensen & Meckling, 1976; Shleifer & Vishny, 1986; and John & Senbet, 1998). Some of these agents do not put in their very best efforts yet enjoy the full benefits of the little work done and this practice can be termed Moral hazard (Asante-Antwi, 2016). Information asymmetry is also another problem observed where managers disclose little or no information on the operations of the firm to shareholders. This problem can be resolved according to Schoorman, Bazerman and Atkin (1981), when board members are selected to act as intermediaries between the shareholders and management ensuring that managers give off their best, are remunerated accordingly and the shareholders' interests are well managed.

Gregory and Simms (1999) contend that effective corporate governance is important as it promotes the efficient use of resources both within the firm and the larger economy. It also helps in assisting firms and economies to attract lower-cost investment capital via the improved confidence of investors and creditors, both domestically and internationally. They also suggest that it helps in increasing the responsiveness of firms to societal needs and expectations and improving the long-term performance of firms. In other words, corporate performance is presumably reflected in the way the firm is managed as well as the efficacy of the firm's governance structure.

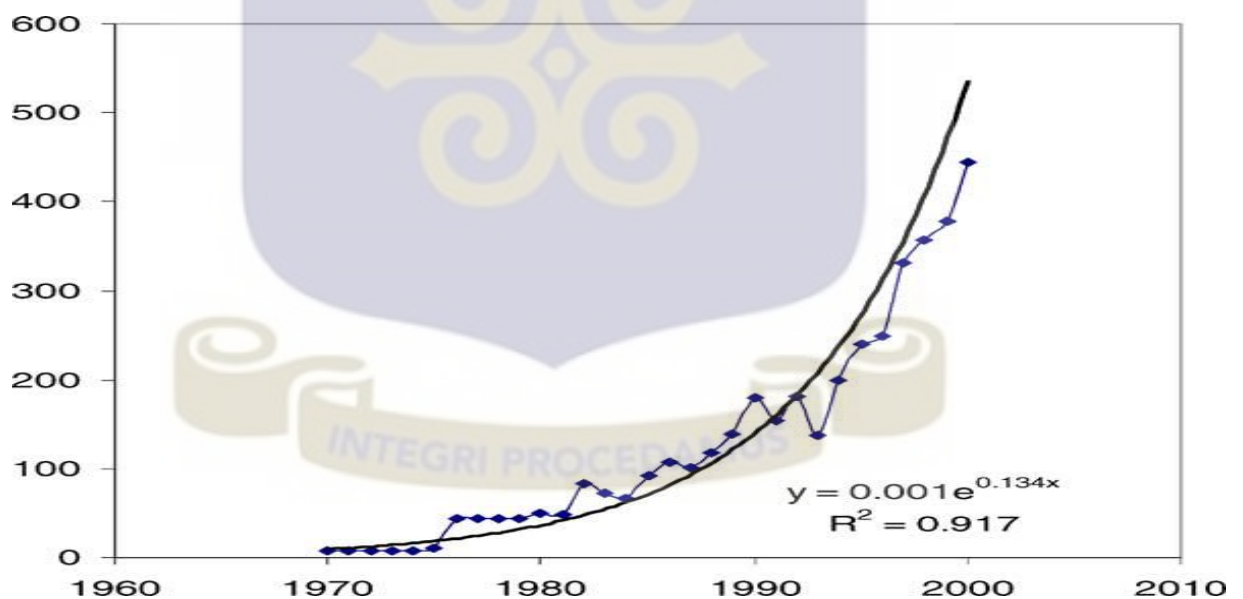
The increased competition in the corporate world, has made organizations to consistently increase their productivity and decrease their costs. Firms can achieve this by choosing very good board members who can help improve firm performance thus increasing profitability. The constitution of board of directors of a firm is a very important corporate governance mechanism which seeks to monitor managers, regulate relevant decisions, and set good strategic guidelines for a firm (Santos, Francisco, Arantes & Carneiro, 2009). There is the possibility that the value of a firm can be affected by the number of board seats occupied by the directors of the firm and this can be termed board interlock which occurs “when a director serves as a board member in two or more companies, thus establishing a connection between them” (Fich and White, 2001).

According to Larcker et al.(2013) social and economic networks are a vital ingredient of all economic activities which acts as a link through which individuals and organizations interact by sharing support, influence, and information among themselves. These links between individuals and firms act as channels through which information is exchanged, resources are shared, new contacts are established, and existing relationships are maintained. “Economists and sociologists have long studied the influence of social networks on labor markets, political outcomes, and information diffusion” (Larcker et al., 2013). One such important network in corporate finance is the boardroom network formed by having common board of directors.

This boardroom network can be termed as board interlocks which comes under Social Network Analysis (SNA). Borgatti, Everett and Freeman (2011), explains that SNA studies is currently on the ascendency as shown in figure 1.1. Its study cuts across various disciplines such as the performance of firms (Sparowe et al., 2001), firms turnover (Kilduff

& Krackhardt, 1994) and also (Krackhardt & Porter 1986), creativity (Burt, 2004), unethical behavior (Brass, Butterfield & Skaggs, 1998).

Borgatti et al. 2011 also observe that network analyses have become “standard diagnostic and prescriptive tools” in management consulting (Anklam, 2007; Baker, 2000; Bonabeau & krebs, 2002). Board interlocks are relevant since it helps directors to gather knowledge on business drifts, activities in the market including market data information (Larcker et al., 2013). Having well connected individuals on a firm’s board can give a firm competitive advantage over other players in the industry due to information availability through these board networks (Mizruchi, 1990). Haunschild and Beckman (1998), states that these board networks can enable a firm to gain some productive and unique business ideas.



**Figure 1.1: Exponential growth of publications indexed by Sociological Abstracts containing “social network” in the abstract or title**

Source: S.P. Borgatti, P.C. Foster / Journal of Management 2003 29(6) 991–1013

Figure 1.1 above shows the importance of this study and the rising interest of researchers in the subject area. This figure clearly shows that social network analysis (SNA) has firmly established itself as a major research area across a variety of disciplines (Borgatti & Halgin, 2011), the number of publications referencing “social networks” is on the ascendency. Even the proportion of network papers is rising at an exponential rate. “In organizational research, social networks have been used to understand a wide range of outcomes including individual, group, and organizational performance, power, turnover, job satisfaction, promotion, innovation, creativity, and unethical behavior” (Borgatti & Foster, 2003; Brass, 2012; Kilduff & Brass, 2010).

## **1.2 Statement of the Research Problem**

Miles (2012), observes that although the agency theory has great influence on management and organizational research, it is very controversial (Eisenhardt, 1989). In that a lot of research have failed to prove the “efficacy of ways to mitigate the agency problem” (Dalton, Daily, Certo & Roengpitya, 2003; Dalton, Hitt, Certo & Daily, 2007). According to Miles 2012, after reviewing fifty four articles on independent boards he found no influence of these boards on the performance of the firm. Also a similar review by Ghoshal (2005), of thirty one articles on separating leadership roles of board chairperson and CEO had no influence on corporate performance.

Larcker et al. (2013) suggests that there are potential benefits of having well connected boards such as the exchange of the wealth of information or technical know-how of these directors as a result of being industry players for a period of time. Mol (2001) also explains that being part of such networks gives firms access to these information and thus they gain comparative advantage in strategic decision making. These interlocks also helps gain

important and very vital business contacts that can help improve the relations between firms and their customers or suppliers and other economic agents or even gain political favors (Mol,2001; Nicholson, Alexander & Kiel, 2004). Pennings (1980), also suggests that such networks can be a source of communication and resource exchange which can create competition and yield economic benefits for interlocked directorates.

Mutlu et al. (2015) suggest that the relation between board interlocks and firm performance has varied views and therefore still needs to be looked into. Mizruchi (1996), also agrees that evidence on interlocks is uncertain so far. This is because Carrington (1981), Meeusen and Cuyvers (1985), Keister (1998) and Larcker et al. (2013) who researched on board interlocks in Canada, Belgium, China and USA respectively all found a positive relation between board interlocks and performance. Yet, Fligstein and Brantley (1992), Richardson (1987), Lincoln et al.(1996) and Santos et al.(2009) who also conducted their research in USA, Canada, Japan and Brazil respectively had a negative relation.

The vast literature on board interlocks according to Larcker et al. (2013) does not really show the economic impact of a board's well connectedness. This is because all that most studies do are on interpersonal relation between particular economic agents such as lender and creditors (Engelberg & Parsons, 2012). This boardroom network can also have some negative impacts on the performance of a firm.

Armstrong and Larcker (2009), found that this network can cause a decrease in some practices by management which creates misunderstandings between managers and shareholders such as moral hazard, risk treatment, time horizon and earnings retention and can affect firm performance negatively. Also since board interlocks demands that one

should be on two or more boards it can result in a reduction or total neglect in the advisory and monitoring functions of board members. The same way vital information can be obtained through this network, false information can also flow quickly which can result in some corporate blunders.

The importance of this study is to ascertain if there exist any clear predictions on the relationship between a firm's performance and its connectedness in Ghana, how these connections improve or otherwise their profitability and if these interlocks do exist in the first place.

### **1.3 Objectives of the study are to**

- examine the nature of board interlocks in the GSE
- determine the antecedents of board interlocks
- determine the relationship between board interlocks and firm performance in the GSE

### **1.4 Research Questions**

- Are interlocks present in the listed firms on the GSE?
- What are the antecedents or causes of these interlocks?
- Is there a relationship between board interlocks and the performance of the firm?

### 1.5 Significance of the Study

The significance of the study can be seen in the fact that the findings can be applied in the development of national policy framework as a guide for choosing board members, who possess a wealth of information on industry trends, market conditions, regulatory changes and other key market data which can flow across the boardroom network to facilitate economic and social growth. In this respect, the study will improve our understanding of the following issues as they apply in the Ghanaian situation.

- The relevance of boardroom interlocks for a developing country like Ghana
- The relationship between boardroom networks and the performance of a firm
- Expected benefits or otherwise derived from nominating competent board members

This study, enables corporations to have a better understanding of the importance of board connectedness which could help them when deciding on future board member nomination. Also it can be a basis for future researchers to get some understanding of the topic area and therefore build on it.

### 1.6 Chapter Disposition

The rest of the study is put into four additional chapters: **Chapter two** shows a review of relevant literature. In this chapter, literature survey, existing views, knowledge and other information relevant to the theme of this study but more importantly to the objectives and research questions set for this study were presented. **Chapter three** comprises of the research design, methodology and strategy. This chapter discussed the research design and the methods used in collating the data. In **Chapter Four**, a discussion of the findings of the results of the study was undertaken. The summary statistics of the variables were

presented in the form of tables and graphs. In **Chapter Five** summarization, conclusions, implications for stakeholders, recommendations and areas for further research were dealt with.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

Studies over the years have addressed the issue of board members and their direct and indirect contribution to firm performance. These tend to agree that a firm's connectedness is key to how it performs economically (Ahuja, 2000; Hagedoorn, 1993; Owen-Smith & Powell, 2004; Nooteboom, 1992). This chapter will review literature on board interlocks and its relation to the governance of a firm. Also how some corporate governance theories contribute to board interlocks and the performance of firms.

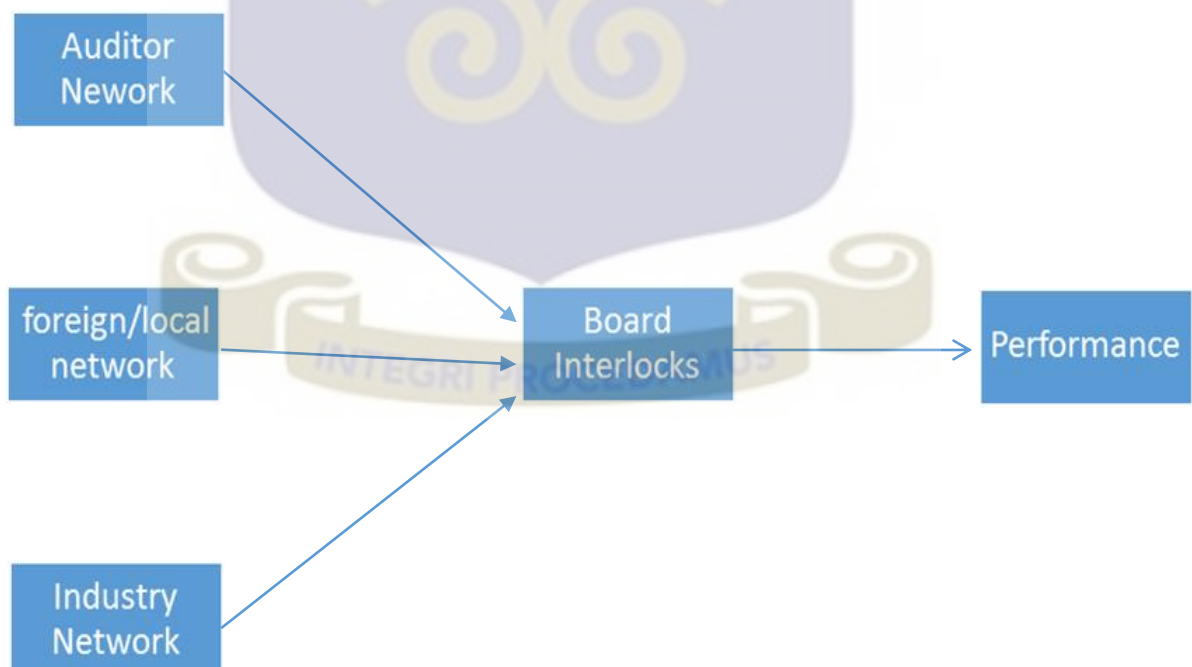
#### 2.2 Conceptual Framework

In a study by Borgatti and Foster (2003) they explained that all economic units are embedded in a social unit. This unit enables them gain social capital which is seen as both tangible and intangible resource that is gained as a result of being part of this social unit. The study pointed out that economic activities of firms is as a result of the social network they are part of. Granovetter (1985) also asserted to the fact that economic interactions between firms are usually as a result of the social networks they are embedded in. Firms were engaging particular organizations because they were embedded in a social network and this was to reduce cost and protect their businesses (Powell, 1990). The study (Borgatti & Foster, 2003) further explains that these embeddedness according to empirical literature results in interlocks among firms and this resulted in the exchange of social capital also embedded in the resource dependency theory.

Borgatti and Everett (1997), in a study on social networks explained that correlation can be conducted between pairs of respondents to form a one mode matrix (person by person)

which will record the similarities in behavior among individuals in the sample. The matrix can then be analyzed as a dyadic attribute. To conduct this analysis, cohesive subgroup algorithm can be used to assess groups of individuals in the sample with similar attitudes to form these subgroups, or the centrality measures can be employed to identify the most central individuals.

Some factors such as auditors, industry in which the firm operates, gender of the chief executive officer, age and location of a firm are all attributes of a firm that can create these subgroups. The study therefore identifies similarities in its sample such as auditors employed by these firms, industry in which these firms operate and ownership base of the various firms listed on the GSE. These similarities led to the subgrouping of the firms into Auditor network, foreign or local network and Industry network.



**Figure 2.1:** Conceptual Framework

Source: Author's compilation, 2016

In 1978, Knoke and Wood collected data from workers at 95 organizations in Indianapolis. Respondents indicated with which other organizations their own organization had 13 different types of relationships. Knoke and Kuklinski (1982) selected a subset of 10 organizations and two relationships. Money exchange network is recorded as KNOKM, information exchange network recorded as KNOKI. Unlike other analytical procedures, network analysis turns attention away from individual attributes and toward the relationships among units.

As Wellman (1983, p. 156) contends, however, “the power of network analysis resides in its fundamental approach to the study of social structure and not as a bag of terms and techniques.” Social network analysis is more than a set of methods, it is an orientation toward the understanding of human behavior that focuses on the importance of social relations, as well as the set of tools that enable the investigation of social relations and their consequence.

Therefore following Knoke and Kuklinski (1982) who stated that there is a systematic structure to these social relations, this study conceptualizes that auditor network, industry network and foreign or local ownership network could be the forces driving the interlocks among the listed companies and this interlocks when formed reflects in the performance of the firms. The auditor network seeks to propose that firms with common auditors have common board members and that their links as a result of having the same firms audit them, influences their decision when appointing board members. The same applies to the industry network implying that firms in a common industry tend to appoint people within the industry as board members this could be as a result of their expertise and experience

in the field. Also foreign or local ownership could be an influence in who a firm appoints as a board member due to some social ties between these directors as a result of their being foreigners or indigenes of the land.

## **2.3 Theoretical Review**

Galaskiewicz (1985), Pettigrew (1992), Mizruchi (1996), Podolny and Page (1998) and Gulati, Nohria and Zaheer (2000 and 2011), all agree that more than one theory can be used when studying board interlocks because of that, this study adopted the Agency theory, Resource based theory, Social capital theory and social network theory.

### **2.2.1 Agency Theory**

The agency problem according to (Dalton, Hitt, & Certo, 2007) may arise if there are divergent views with respect to the interests of the principal and agent, then the agent might tend to pursue his own selfish interests as oppose to that of the principal. According to Smith (1776 and 1952), managers will not look after the resources given to them as the owners will so there will always be negligence on the part of these managers. This theory states that an agent(s) is hired by a person called the principal to effectively utilize his or her resources to achieve expected results for the principal. However some authority or power is given to the agent with regards to decision making to achieve the said results. Principal and agency relationships occurs in circumstances such as doctor-patient, lawyer-client, real estate agent-client, employer- employee and president citizenship relationships (Keiser, 1999). According to Petersen (1993), there are five central elements which helps understand this principal-agent relationship and they are the attributes of the agent. That is, is the agent lazy, reliable, efficient, effective and finally is there information asymmetry.

Two models were used by Arrow (1985) to explain information asymmetry and these are “hidden action model” and “hidden information model”. In the hidden action model, the principal only gets to observe the results of actions taken by the agent but have no idea of the actions itself while in the hidden information model, the principal gets to observe the actions but some vital information needed to perform these actions he is not privy to. The principal therefore feels left out or kept in the dark and this can result in an agency problem. Davies and Prince (2010) states that in this theory, an agent can exaggerate his skills and expertise when seeking for a job resulting in the principal choosing the wrong agent for the job and this can be called “adverse selection”. Therefore there is the need for someone to directly monitor the activities of agents so this is avoided.

Ellis and Johnson (1993) also explained that an agent can give off only part of the outcome he was contracted to deliver, yet enjoys his full benefits for very minimal effort and this can be termed “moral hazard”. This moral hazard heightens in circumstances where the agent has some expertise which is needed to execute the task (Holmstrom, 1979). To avoid this agency problem the principal might constitute a board that is independent of the managers (agents) or the agents are made part owners or shareholders of the firm thus they would try to pursue shareholder interests in the firm( Dalton et al.,2007).

Jensen and Meckling (1976) also agree that granting agents some amount of equity in the firm can help align their interests with that of the principal. Board members were also recognized by Fama and Jensen (1983) as a conduit for information control that can also curb inappropriate behavior of managers or agents. The kind of directors a firm has on its board can place that firm in a competitive advantage over others (Pfeffer and Salancik 1978; Wincent, Anohkin & Boter, 2009). This study thus seeks to find the relation between

the governance of a firm when a board is constituted and the performance of the firm and how this relation can help solve this agency problem.

### **2.2.2 Resource- Based Theory**

This theory analyses the difference in the performance of organizations as a result of the resources available to them or at their disposal (Peteraf & Barney, 2003). According to Barney (1991) two assumptions can be made with regards to this theory. That is, firms found in the same industry may have different resources and these differences maybe unique to them such that it cannot be moved across firms, thus, this differences can exist for a long while. These differences should be based on how they affect positively the performance of their firms (Peteraf & Barney, 2003). This uniqueness in resources allows the firms to enjoy a sustainable lead with competitors (Hoppes, Madson & Walker, 2003).

Barney (1991) and Wernefelt (1984) are both of the view that, the main idea of this theory is for firms to gain competitive advantage over each other mainly due to the unique resources and capabilities they have. Wernefelt (1984) further explains that a resource here is what a firm has, that it can be described as a strength comparative to other firms which may include brand names, employee knowledge, abilities and skills. This brings to light the fact that the knowledge, experience and expertise of board members can be valuable resources to the firm they serve. Caves (1980), also defines “resources as any tangible or intangible assets that are semi permanently tied to the organization”. Rumelt (1974) stated that for an organization to have competitive advantage it would depend on the uniqueness of its relationships. These relationships can be created by these board members who serve on other boards. Miles (2002) explains that superiority or inferiority of the resources would

reflect in the end products. This implies that the superiority or inferiority of the board members can reflect in the performance of a firm.

Wincent et al. (2009) explains that having the right people on a board can be advantageous to the firm because the organization tends to gain valuable external resources which helps the firm to be abreast with happenings in the industry in which it operates (Pfeffer & Salancik, 1978). Most literature assert to the fact that directors provide resources to the firm through their connections with other entities outside the firm, this is mainly due to board interlocks according to these papers (Nahapiet & Ghoshal, 1998; Gulani et al., 2000; Beckman & Haunschild 2002; Hillman & Dalziel 2003; Kor & Sundaramurthy 2009 and Ortiz, Aragon, Delgado & Ferron, 2012). Extant studies show that resources provided by these directors can affect the performance of the firm positively (Kim & Cannella, 2008 and Larcker et al., 2011) and negatively (Goerzen & Beamish, 2005). Therefore, the technical know-how of people selected to act as board members is very vital.

### **2.2.3 Social Capital Theory**

Bourdieu (1986) and Putnam (2000) both assert to the fact that one acquires social capital through connections and interactions with other people which earns them tangible or intangible resources. These interactions could be at the personal level, firm level or group level (Coleman, 1988 and Lin, 2001). According to Bolino et al. (2002), the main motivation behind this theory is that there are some social capital resources in every social network of people, group or nations that are interconnected. However Hanifan (1916), is said to have been the first to use the term social capital where he explained it as being “goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit or rural community”. Meanwhile

Jacobs (1965) and Loury (1977) were the first to use the concept of social capital to understand or to explain the essence of building family ties and having local communities.

Nahapiet and Ghoshal (1998) also explained that social capital can be defined as “the sum of both actual and potential resources that can be obtained or derived from the network of relationship of which an individual or a social unit is a member”. This network of relationship can be that of board members sitting on common boards. Unlike other types of capital, social capital is as a result of people occupying particular positions or location in a social network of relations (Miles, 2012). This is attributable to individuals in the network (Portes, 1998; Coleman, 1990 and Loury, 1977) and other groups this individuals belong to such as political units, communities, and nations-states (Bourdieu & Wacquant, 1992; Putnam, Leonardi & Nanetti, 1993). Therefore, the source of this capital lies within the network of individuals, group or nation.

Fulkerson and Thompson (2006) divided social capital into six subgroups such as Civic responsibility (Haifan, 1916), Communal deed, social capital and awareness of common interests (Coleman 1985 and 1990), mutual dependence and assistance (Putnam, 2000), Individual and group interactions (Bourdieu, 1986), local appointment and voluntary association (Putnam, 2000) and social ties and networks (Granovetter, 1973). Social capital can therefore be shared or gained by belonging to the same board or acting as board of directors in the same firm. This type of capital can also be classified as normative and resource social capital (Miles, 2012) where resource social capital is defined as sharing resources, networks and social ties.

Portes and Landolt (2000) articulates that social capital enables resource exchanges among members because of that team spirit and ones duty as a member. Social capital comes with some advantages such as easy job access, job progression and huge remuneration for officials and growth in the organizations (Miles 2012). A firm can therefore enjoy social capital when its board members tend to sit on boards of other firms as well and this will in the end reflect in the performance of the firms. Meanwhile it also has some disadvantages which are constraints on the freedom of members, marginalization of non-members and excessive requests from members (Portes & Sensenbrenner,1993; Portes & Landolt,1996). Other negative sides to social capital according to Inkpen and Tsang (2005) such as being too committed to one's social network can affect information flow since they tend to share it only among themselves.

Hansen (2002) also explains that having social ties with other organizations can be very expensive to maintain. Such ties can be maintained by investing a lot of time and energy. Social capital looks at how people gain resources which are both “tangible and intangible” when they interact with others individually, as a group or as an organization through social interactions (Miles, 2012). These resources are found and implanted in the social connectedness with other entities be it individuals groups organizations and even nations (Miles, 2012).

#### **2.2.4. Social Network Theory**

This theory postulates that people behave in like manner because they are linked together. This theory investigates the links that connect a defined group of players (Miles, 2002). Knowing ones links or ties can aid in predicting their social behavior (Mitchell, 1969; Tushman & Fombrom, 1979). Social Network theory analyses the network created as a result of belonging to a common group from two main perspectives the micro-level that is leadership in firms, revenue of organizations and team commitment and the macro-level which is interactions between firms, alliances, networks and governance (Miles,2002). Sparrowe, Liden, Wayne, and Kraimer (2001) suggests that this theory can be used to understand the performance of a firm. It can also help measure a firm's income (Krackhardt & Porter, 1986), its novelty and creativity (Burt, 2004 and Obstfeld, 2005).

#### **2.3 Review of Empirical Literature**

In a study by Sánchez and Barroso-Castro (2015), investigated how and in which way board members who serve on more than one board can affect a firm's profitability and how these interlocks based on how they are derived can be useful or not to a firm. The study was conducted over a four year period spanning 2005 to 2008 using 88 firms on the Spanish market. It was observed that all external ties of both non-executive and executive directors positively affect the profitability of the firm. It was found from this study that the relationship between directors, helps improve the performance of a firm. That is the longer an executive and non-executive stay on a board the better their relationship which in turn translates into familiarity and shared knowledge. This study was conducted using the dynamic panel data analysis (GMM).

Another study on how board connectedness affects its effectiveness by Intintoli, Kahle and Zhao (2015) sort to find how the status or position of independent directors affects positively their monitoring and evaluation roles. It explains that directors with close ties to the CEO could help in covering up for management. Therefore, in order for these directors to perform their monitoring and advising roles well, they should be independent of the managers and protected from any costs and this can occur if they are well connected. This study tested the career consequences to directors in an event of fraud and found that, although there might be no costs, well connected board members readily gain another board seat. The study also found that a well-connected audit committee affects financial reporting positively in that firms with well-connected audit committee members have a low probability of committing fraud. It also confirmed the fact that well connected directors are more likely to dismiss CEO's who do not perform well. They also detected that when board connectedness increases cost decreases and firms with such connected directors enter the equity market offering low discount equity. An inverse relationship was also observed between board connected and cost of debt.

Peng, Mutlu, Sauerwald, Au and Wang (2015), conducted a research to explore the relationship between board interlocks and performance in relation to Chinese firms listed on the Hong Kong exchange. The study used data from 1993 and 1995 because this was the period that marked the beginning of Chinese firms listing in Hong Kong, with 21 and 75 firms respectively listing in both years. It sort to find an answer to the question of whether board interlocks really matter to firm performance and the answer was a yes. This paper also found that the performance of a firm initially can draw interlocking directors to it later. This is because experienced directors that are well connected and highly sort after would want to be a part of a firm with a history of good performance. The study also sort

to find out if firms listed abroad needed to be interlocked in order to perform well in their new territory or market. It was observed that interlocks were relevant when it comes to performance of firms listed abroad. It also observed using their centrality measures of closeness, degree and betweenness that at the overall organization level, network centrality greatly influences performance. Yet at the individual level, it was quite relatively challenging to identify the contributions of individual directors. Firm performance was measured using ROA and ROE.

Using vertex centrality, Croci and Grassi (2013), explored the economic effects of board interlocks in Italy. The study employed degree, eigenvector, betweenness, clustering effect and flow betweenness centrality measures to calculate the interlocks. The study found a negative relationship between eigenvector centrality and degree centrality with respect to the performance of the firm. Although betweenness and flow betweenness on the other hand was not connected to the negative firm performance, this was understandable because eigenvector centrality and degree centrality both measure power and influence while the two betweenness measures act as proxies for information flow in the network. The study also showed a negative relationship between the centrality measures and firm value using performance measures and market values. An implication is that in Italy well connected board members reduce the value of the firms they act on. Reason being that they tend to cover up for managers inefficiencies. This study applied the following financial and stock market variables return on assets (ROA), market capitalization, leverage, age, sales growth, and the Q-ratio. The centrality measures were calculated using Ucinet 6.0 as in Borgatti et al. (2002).the study comprised of 282 firms listed on the Italian Stock Exchange as at 2008 with directors numbering 2351.

A study conducted in Ghana by Puni, Osei and Ofei (2014) on how the constitution of a board can affect the performance of a firm. The study was conducted using data from a compilation of a five year annual reports of 36 firms of the Ghana Stock Exchange. Out of the 36 firms, 7 of them had not been continuously listed on the exchange during the period so were excluded from the study. A static panel regression model was used to compare board composition and firm performance. The performance measures used are return on assets (ROA) and return on equity (ROE). Their results showed that executive (inside) directors have a positive effect on firm performance whilst non-executive directors have a negative and insignificant effect on performance. The study suggested that instead of appointing non-executive directors to act as monitors for the executive directors, the executive directors should be empowered to do their work efficiently. They observed a lack of transparency in the appointment of board members by the nomination committee.

In a similar study by Field, Lowry and Mkrtchyan (2011), on whether or not having busy board of directors can have implications on a firm, they found that it depended largely on the size and age of the firm. There has been a lot of criticism about busy directors not being effective. However this study shows that they are actually an added advantage. This is because they are very good advisers and this is especially beneficial to initial public offering firms (IPO). Old and large firms do not really benefit from this advisory role of busy directors because what such firms need is monitoring. The study found a lot of busy directors on the IPO firms that is 49% of directors on these boards serve on three or more boards. This clarified the argument that firms that are new to the public lacks experience and would therefore need the experience of these busy directors to be brought on board unlike seasoned firms that have been in existence for some time and therefore have experience and exposure needing only monitoring. The study used 232 firms from the

Securities and Exchange Commission prospectuses that had been filed and 1099 venture backed IPO's from 1996 to 2008. Data on 5747 directors were also analyzed and market to book ratio, return on sales were used to measure performance.

Sparrowe, Liden, Kraimer and Wayne (2001), undertook a study on how socially connected individuals and groups can influence performance. It involved 190 employees in 38 work groups (departments) from 5 different organizations and it was found that centrality of both individuals and groups can have both negative and positive relations with performance. The study found a positive relationship between individual performance and centrality with regards to advice network, and negatively related to centrality that involves hindrance network. Advice network being individual relationships with colleagues where information is shared, resources are exchanged, and guidance given while hindrance network is defined as adverse relationships, such as meddling, rage, emotional distress, coercions and backbiting. The study focused on centrality and density between individuals and departments within a firm rather than the firm as a whole. This centrality was calculated using a software package by Borgatti et al. (1992) called the UCINET IV.

What could be the reason behind firms appointing chief executive officers as their board members is the question Fahlenbrach, Low and Stulz (2010) sort to answer. Using data from 1988 to 2005 of 10,000 firms. It was found that most public firms do not have CEO directors on their boards, yet these firms that appoint these CEOs tend to benefit from it and these CEOs knowing that they are in high demand tend to hand pick firms that offer compensation and have good reputation to avoid any

damage to their reputation. These CEOs also look out for firms that are geographically close to their places of work as CEOs and firms that share similar policies, principles and practices as their main companies. It was observed that the stock prices increases in favor of firms that appoint CEO Directors than when an ordinary director is appointed. Also the study found that these CEO Directors prefer to sit on boards of bigger firms because they also derive intangible resources like prestige and connections. Investors on the other hand feel safe putting their investments in firms with CEO Directors. The study also sought to find if firms with CEO Directors make better decisions but the results showed that it is not the case, they actually make bad acquisition decisions.

Haniffa and Hubaid (2006), performed a research involving 347 listed firms on the Kuala Lumpur Stock Exchange (KLSE) during the period of 1996 to 2000. The study was on how Malaysian firms perform considering their governance structure and their performance as a result. The performance measures used in this research are Tobin's Q as a proxy for the market's return and return on assets as a proxy for accounting return. The findings indicate a positive relationship between the size of the board and these measures. It also found that having multiple directors is profitable to the organization. The result when considering Tobin's Q indicate a negative relation between large boards and performance but in respect of accounting returns these boards are beneficial in that they help provide contacts, needed skills and technical know-how for better performance. It was also observed that having more non-executive directors on boards did not improve performance. This was so because according to the study most of these directors were appointed due to political reasons and thus they are not able to perform their monitoring

roles well. It was also observed that firms with executive directors which is on the higher side in Malaysia do not perform as well as those with non-executive directors this means it very essential to separate directorship from management.

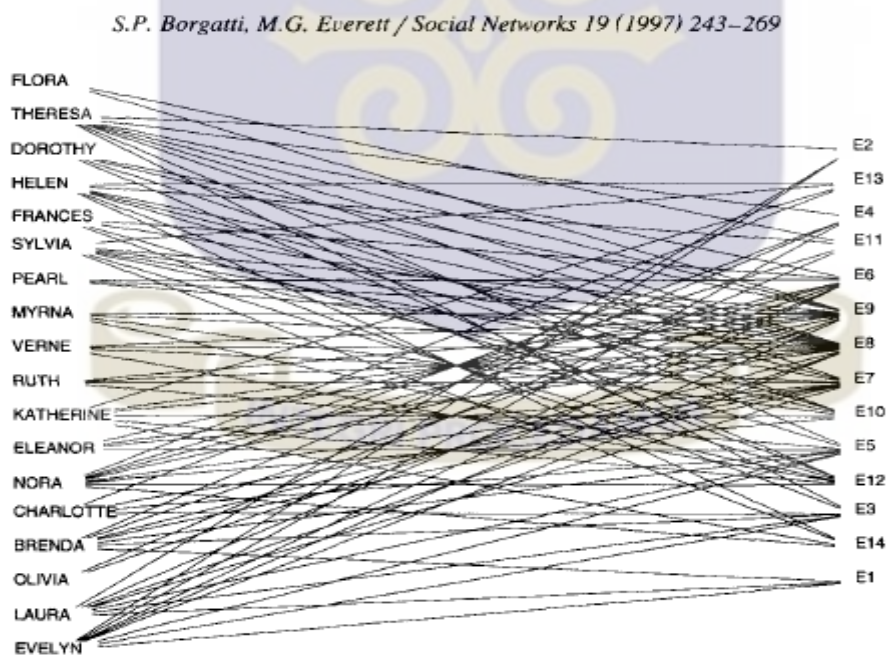
Another study also on corporate governance and performance conducted in Australia by Christensen, Kent and Stewart (2010) focused on maintaining a balance between monitoring and performance by investigating whether the four governance structures, that is board size, diligence, independence, and the existence of committees stated in the Australian Securities Exchange governance guidelines (ASX 2003) improves performance of 1039 listed companies as at 2004. The performance measures applied in this study are Tobin's Q and ROA. Although ROA showed a negative relation to board size implying that large boards are not profitable to a firm, Tobin's Q being the market measure of performance, also showed a positive relation which means that the market views large boards as efficient and profitable to a firm. Board diligence measured by number of board meetings was also negatively related to performance. That means boards that seem to be holding frequent meetings is an indication of poor performance or operational inefficiencies by the firm. The study found an inverse relationship between having more independent board members and performance. Market measure (Tobin's Q) supports having CEO who is also the board chairperson while the use of the accounting measure ROA did not support that.

In a research involving 495 observations over a three-year period for 205 publicly traded firms in United States of America on whether the governance structure and composition can influence CEO's compensation at the detriment of performance. This study was conducted by Core, Holthausen and Larcker (1998). There is the argument that CEO's

seem to have some influence on board members therefore which results in the CEO's compensation being structured at the expense of the shareholder. The findings show that firms that do not have good governance structure tend to have high CEO compensation resulting in agency problems and firms with high agency problems perform badly. Also firms with CEO acting as board chairperson have high CEO compensation and this also occurs in firms with board interlocks. It was also observed that where there is a shareholder who is part of management but is not the CEO, CEO compensation is low. An inverse relationship exists between governance structure and CEO compensation which reflects in performance that is firms with good governance structure pay their CEO'S and also perform well and have less agency problems.

Using a sample of 133 companies in German, Andres, Bongard and Lehmann (2013) in a four year study (2003 to 2006) explored the connection between busy boards and performance. In the findings, boards that are interlocked perform poorly and pay their managers more, this was attributed to them being too busy in their social network. The argument that was made in this study is that it's not just the number of board seats one occupies that makes one busy but also the number of connections those they are connected to have, can contribute to the utilizing of a lot of temporal and cognitive resources thus failing in their monitoring role. Philosophies of Social capital theory and social network analysis were applied in this study. The data involved 1600 directors with 35000 connections and those board members who play very vital roles in their formal and informal networks cannot perform their monitoring duties well and such directors belong to firms with weak governance structures. This study recommended that multiple directorships should be avoided by firms and this can be done when firms do not look at solely reputational directors instead of quality.

A 2-mode network data analysis was conducted by Borgatti and Everett (1997). The study compares monadic (characteristics of an actor) and dyadic (characteristics of a pair of actors) data sets. Dyadic attributes such as social relations in board networks are denoted by a square one mode matrix while it was formally denoted by a two mode matrix. Traditionally, social science analyzed individual attributes of actors but social network analysis analyzes the social relationship between pairs of individuals. Here some characteristics of the relationship are also analyzed such as in a sexual network, the frequencies of contact with partners are considered. A bipartite representation of the data is drawn to prevent data loss but a disadvantage would be that it might be seen as a graph showing positions or distances which is not the case but rather to observe the relationships that exist between the dyadic variables.



**Figure 2.2:** Bipartite graph of women and their attendance of a social event

Fig. 2.2 above is a mathematical graph of Davis, Gardner and Gardner data represented as a classic bipartite Graph of women who attended a social event. An alternative approach to finding subgroups is based on block modelling and traditional clustering techniques.

The Davis et al (1941) study, was conducted collecting data from 18 women who co attended 14 social class events. The study investigated patterns of attendance by these women at the various events on the basis of social ties, factions and groups. The data used in this study explains ties between two sets of nodes at two different levels of analysis. The ties that Davis identifies are between actors (the women) and events (the parties of the social season). Data like these involve two levels of analysis, and it's called "affiliation" data because they describe which actors are affiliated or linked to which macro structures. The study revealed the meaning of the choices of the individual women based on why they attended or not the parties and how the parties, as macro structures may affect the choices of the individual women.

After the centralized privation in Russia in 1994, Peng, Buck and Filatochev (2013), undertook an exploratory study on the connection between non-executive board members, new managers and the performance of the organization and hypothesized a positive relation. In that having non-executive shareholders bring on board a major shakeup in the structure of the firm and new managers are likely to perform better than old ones in order to prove themselves. A sample of 314 privatized firms was used. The results show that suggestions in the agency theory that outside directors and new managers affect positively performance is not completely true. Here purchasing of shares by outside directors does not really improve performance until the new investors are able to influence major decisions in the firm and monitor management.

Steinfeld, Ellison and Lampe (2008) undertook a longitudinal panel data analysis on Facebook (a social network website) to better understand why individuals frequently log on to Facebook in relation to psychology and social capital. Data was collected from two universities in the United States of America and also from 18 Facebook users. The findings show that these social network sites can help in the development of relationships and the maintenance of old ones especially among young adults which in turn creates social capital. It categorized the students into two subgroups, low and high self-esteem students. It was observed that low self-esteem students benefited more from using Facebook than high self-esteem students because it was easier to initiate friendship which they might find difficult to in their classes or dormitories and also know much about these new friends from their posts and profiles. This therefore creates “bridging social capital”.

In a handbook on criminology, McGloin and Kirk (2010) studies on social network in relation to crime, it was found that most crimes that are committed is as result of behavioral deficiencies which are cultivated through intimate social groups. This proposal explains what most findings in criminology states and that is, most people break laws easily when in a group. It was observed that most offenders are in a network of friends who are all offenders too. Even Juveniles observed by Shaw and McKay’s (1931) who were arraigned before court were in a network with 80% of these children having accomplices. The study sort to explain the behavior of criminals in a network by studying specific properties of the elements in the relation.

In a study by Mascia, Vincenzo, Fantini and Cicchetti (2015) on how institutional and professional homophily affect the formation of interphysician networks. The data for the

study was collected from 300 physicians employed with the Italian National Health Service.

The MR-QAP was employed by this study to ascertain the influence institutional homophily and professional homophily has on interphysician networks. The results showed that Physicians who exhibited similar interest and worked in similar fields were more likely to be linked thus form professional ties as well. This implies that both institutional and professional homophilies matter in explaining interphysician networks. Also the results showed that professional homophily was more relevant than the institutional when explaining links and ties.

A study on how the appointments of executive directors of other firms on corporate boards affect the performance of these appointing boards by Muravyev, Talavera and Weir (2014) based on a new panel dataset of UK firms, from 2002-2008. The study investigated the effect of independent directors working in similar industries as the firms where these directors have been appointed are having on the performance of these firms. They sort to find out if directors who work as executive directors in the same industry as that of the appointing firm will improve the quality of advice offered to the appointing firm. This suggests that the human capital of these directors will be more beneficial than that of a director without such a detailed knowledge and understanding of the industry. The study found a positive relationship between the presence of these non-executive directors and the accounting performance of the appointing companies. The effect is stronger if these directors are executive directors in firms that are performing well. We also find a positive effect when these non-executive directors are members of the audit committee. The study was consistent with the view of many literatures that non-executive directors that are

executives in other firms contribute to both the monitoring and advisory functions of corporate boards.

## **2.4 Board Centrality and Board Interlock**

Larcker et al. (2013), states that “Social and economic networks are a central feature of virtually all economic activities. The existence of these links makes it easy for organizations to interact, share information and assist each other as a result of being in a common network.”

Centrality with regards to its application as a channel of communication to humans was introduced by Bavelas in 1948. The investigations was on the influence of communication on group processes among members of small groups. Further research by Bavelas (1950), Bavelas and Barrett (1951) and Levitt (1951) showed how efficiently a group solves problems, its views on leadership, and the contentment of its members, based on how central the group is.

Centrality emanates from two schools of thought. Those who are of the view that an individual is central in a social network to the degree at which this individual is close to others also in the network (Bavelas, 1950; Katz, 1953; Bonacich, 1972; Burt, 1982; Mizruchi et al., 1986 and Friedkin, 1991). They are of the opinion that if an individual is close to others in the same network he or she is privy to relevant information (Leavitt, 1951), will be in good standing (Katz, 1953), enjoy power (Bonacich, 1987), prestige (Burt, 1982), and influence over other members (Friedkin, 1991).

The other school of thought or group are also of the opinion that the connectedness of an individual depends on the position this individual occupies with respect to whether he or

she is the main channel of information brokerage to others in the network. That is, the individual stands between others on the communication path (Bavelas, 1948; Shaw, 1950; Anthonisse, 1971; Freeman, 1977; Friedkin, 1991). Such central figures aid in the expedition of information at the same time can prevent relevant information from getting to others due to their position in the network.

The idea of connectedness or interlocks was applied in 1958 by Cohn and Marriott who upon realizing how diverse social life in India, was researched on how they would be able to mix politically. They found out that the social life of Indians was “bound and intertwined” in a network of matched structure. Pitts (1965) also applied centrality in his examination of how communication paths aid urban growth. He found that Moscow was at the center of a huge transport and communication network in Russia. Connectedness was also applied by Beaucamp (1965) to investigate the effects of centrality on organizational policies. He found that connecting subunits together at the dominant points can enhance the efficiency of a new firm and Czepiel (1974) also used the idea connectedness to expand the effect of technological innovations. They found through the use of centrality that no matter the differences in its measure, some firms would be more central than others.

According to Borgatti and Halgin(2011), Social network analysis(SNA) is the study of social groups as networks of nodes connected by social ties. What SNA seeks to do is to study the relationship between individuals and groups in a social network. There is an increasing popularity in academia that an organization’s relationship with other firms in a network has an effect on its economic and innovative performance (Hagedoorn, 1993; Powell et al., 1996; Rowley et al., 2000; Ahuja, 2000).

What SNA understudies here are the attributes of the partners to show their creativity (Stuart, 1998) and also how the characteristics of other firms they have connections with, can also affect their performance and decisions.

Interlocking directorate” refers to the practice of members of a corporate board of directors serving on the boards of multiple corporations” (Scott, 1997). A person that sits on multiple boards is known as a multiple director. Two firms are described as being interlocked if they have a common board member and an indirect interlock is where two directors are members of a common board of a third organization. The monitoring and evaluation role of independent directors is affected positively depending on their status or position (Larcker et.al, 2013). Directors with high social networks are very important in terms of information transfer and information exchange between the firm these directors serve on and other firms in the network. Social Network Analysis (SNA) according to Borgatti and Halgin (2011) has to do with players (nodes) who are connected by ties. This tie can be defined as friendship, membership or family relation.

## **2.5 Antecedents of Board Interlocks**

Mizruchi (1996), states that a situation whereby an individual linked with a particular firm acts as a director for a second firm is termed “interlocking directorate”. Interlocking directorate according to Davis and Greve (1997) is the most studied topic in organizational theory in relation to social structure. Many researchers such as Mizruchi(1996), Ferns et al.(2003), Ho et al. (2004), Fich and Shivdasani (2006), Piccardi et al. (2010) and Lehman and Larcker et al.(2013) have worked on interlocking directorates and its studies is on the ascendancy in spite of all the laws set to stifle it. Crochi and Grassi (2013) examined

whether the position of a firm in a network affects its value. This was based on firms in Italy to ascertain the effect on multiple directorships on the monitoring role of these directors because being on two or more boards will mean more responsibility thus making them busy which could result in neglect of duty.

Although these Interlocking directorates give rise to the corporate board network they found that board interlocks can affect firm performance negatively. According to Mizruchi (1996) most firms in selecting board members would prefer to go for individuals serving on boards who share the same values and beliefs as theirs thus resulting in interlocks. He also found that firms want to gain “visibility and prestige” through the members of their boards resulting in they choosing individuals who are already serving on other boards. Mizruchi further asserts that inasmuch as directors with good reputation and standing can affect positively the performance of the firm so it is that if a firm is involved some fraud or negative scandal it can also affect the reputation other firms that the directors of these firms serve on.

Also directors of a firm on other boards provide vital information and resources on the governance structure of the firm due to their experience from the firm they share directorate with (Pennings,1980). This information can help the firm in their decision making. Board interlocks gives an organization influence and power over another because of its impact into their decision making (Carpenter & Westphal, 2001). This interlocks enables firms secure more resources to improve their performance (Burt, 1983 & Bryd, 1990).

Boards of directors sitting on multiple boards with good reputation can create some positive impression to investors who would want to ensure that their investment are in

competent hands who can take good decisions (Ferns et al., 2003; Canella, 2008; Vincent et al. 2009; Shropshire, 2010; Johnson et al., 2011). Zajac (1983) explains that although interlocks occur between organizations or firms it is created by individuals in the organization. This implies that who and who constitutes a firm's board of directors is very vital. Podolny and Page (1998), also states that "if an actor in a network's partner possesses considerable legitimacy or status, then the other actors in the network may derive legitimacy or status through that association". This implies that if an individual is attached to a prominent firm he or she enjoys from that prominence and vice versa (Podolny, 1994). Individuals have limitations with regards to time and energy so one cannot serve on every board at a time therefore having a board member may prevent a rival from access to such an asset thereby stirring competition between industry players.

## **2.6 Homophily Networks**

According to Lazarsfeld and Merton (1954), the propensity of having an interaction between persons with similar attributes can be termed homophily. This homophily effect can improve the understanding of how social networks are formed. This can be attributed to according to McPherson, Smith-Lovin and Cook (2001) to one's social or demographic features, attributes of the individual and the behavior or character of the individual. This homophily effect explains how individuals get connected to a particular network (Schaefer, 2015).

Schaefer (2015) further explains that "homophilous relationships have consequences at the macro and micro level". Homophily helps to reduce stress among individuals (Newcomb, 1961), ease communication (Rogers & Bhowmik, 1970) and improve coordination (Bryne, 1971).

From the study by Schaefer (2015) it was observed that there can be different causes of homophily, such as chance and subsets in a population when focusing mainly on connections based on schools, workplaces and neighborhoods. Schaefer (2015) further expounds on the fact that actors might also find themselves in homophilous relationships as result of displaying certain characteristics and therefore being rejected by the larger population an example being depression homophily where adolescents that are depressed because of their unreceptive and reserved nature tend to have their peers shunning them as friends thus, "they become the 'leftovers' in the peer selection game, with only themselves to befriend" (Hogue and Steinberg,1995).This follows similar assertions by Sijtsema et al. (2010) on belligerence, fatness by Crosnoe, Frank and Mueller (2008) and attractiveness by Walster et al. (1966).Concluding that chance, preference and structural forces can all result in homophily network formation(Schaefer, 2015).

According to Renoust, Melacon, Luce and Viaud (2015), to investigate social networks, it is dependent on which relationship exist. Homophily (Similarity), networks or relationships is a very important way of classifying individuals with similar attributes or behavioral patterns. In their study they tested how institutional homophily (belonging to the same clinical directorate) and professional homophily (belonging to the same medical specialty) can influence the decision of physicians to get connected. As explained earlier, homophily can form from “induced homophily “or from individual preference” (McPherson & Smith-Lovin, 1987). Their result showed that homophily matters in the formation of connections within healthcare organizations which was consistent with numerous studies in other settings, which have found that homophily strongly affects connections. “People expect, a priori, that self-similar colleagues are more likely to accept

them, be trustworthy, and hold similar beliefs, thereby mitigating the potential conflicts, misunderstandings, and monitoring costs that come with making connections” (McPherson and Smith-Lovin, 2001& Ibarra, 1997). Renoust et al. (2015) concluded that applying homophily theory is a way to ascertain the formation of professional and institutional networks among physicians.

## **2.7 Consequences of Board Interlocks**

Board interlocks helps a firm to ascertain opportunities in the economy (Tuschke et al., 2014) determine some sources of finance (Mizruchi & Stearns, 1994) and board independence (Zajac & Westphal, 1996). The notion behind people agreeing to be part of a board is usually for prestige, contacts and financial gains (Johnson et al., 2011).Larcker et al.(2013) found that board members that are well connected or central earn ”superior-risk adjusted stock returns” and also enjoy high return on asset in the future.

Negative information just like the positive, spreads quickly through this network of interconnectedness and can result in bad decision making which will be a loss to the organization (Miles, 2012).The model which is the connectedness of boards is based on the assumption that having common board members is the primary source of information and resource exchanges between board of directors of the firms (Larcker et al. 2013).There may be other informal channels of information flow between these directors but the formal one which is the board interlock is more important since that can be easily observed and studied by industry players and market participants. Puni et al. (2014) observed that directors have a positive effect on the performance of firms in Ghana but there was a lack of transparency and professionalism in the discharge of some of their duties.

There is also the notion that individuals sitting on multiple boards are not effective since they cannot monitor their managers as they ought but Field et al.(2013), found that to be false. Rather busy directors tend to improve the performance of the firms they serve on due to their experience and contacts. Stulz et al. (2010) investigated why firms have directors who happen to be CEO's of other firms and they found that these firms preferred directors of firms who have similar job descriptions, similar investment and finance policies and also similar governance structures as theirs. Huge firms in the developed world were also found to have interlocks and they were beneficial to the firms in their advisory roles although it's on the low side and actually what most of these big firms need is monitoring rather than advice (Field et al., 2013).

Most directors on multiple seats tend to be more qualified and experienced thus they are highly sort after and this maybe the reason for their presence on more boards (Field et al, 2013). Well established firms are more complex and so they deserve to be monitored very well therefore busy directors may not be so beneficial to them whereas firms that are young or just being introduced into the stock exchange need experience and therefore busy directors tend to be more beneficial to initial public offering firms rather than well-established firms.

## **2.8 Social Network Analysis**

Hanneman (2005) in a study on social network explained that social network data usually involves actors and their relationships or ties with each other. Comparable to other studies on social sciences, network data studies is usually focused on the relations among actors rather than the individual attributes of a particular actor. This means that actors are not independent of each other as in other studies where actors are viewed as independent

probability samples, but rather include all members of usually a naturally occurring boundary. This involves members of an entire population instead of the usual sample from a population as applied by non-network studies. Therefore in network studies clear boundaries need to be set to show the exact population being used in the study and how the individual actors in the population are going to be categorized for further study. Network data sets are made up of several levels of analysis.

Hanneman further explained that in social network, data is usually made up of a population such as “persons at a birthday party, all members of a kinship group, employees of an organization, individuals in a neighborhood, or members of a social class”. The study also revealed that social analysts usually do not draw samples but rather apply the whole population in their study because the focus in network study is relations among actors. Boundaries for these populations the study observed, are usually drawn by the researcher such as “All the members of a classroom, organization, club, neighborhood, or community constitute a population” which are naturally occurring networks. This implies that in social network studies the boundaries are usually drawn from an already existing population. Boundaries according to the study can also be drawn based on demographical or ecological approach, individuals found in a particular catchment area or actors who meet a set benchmark.

## **2.9 Nature of Board Performance in Ghana**

As per the corporate governance guidelines issued by the Securities and Exchange Commission of Ghana, every equity holder is accorded what is known as property rights which gives them some control and protection over their interest in a firm. This notwithstanding shareholders cannot always interfere in the day to day running of a

corporation thus board of directors are appointed to oversee this right of the financiers. The board members are given the authority to hire, motivate and even dismiss management when necessary. This implies that individuals to be appointed as board members should be people of high veracity and very competent.

The Security and Exchange Commission guidelines charges the board members of the various firms to perform certain vital task which includes revising or ensuring the strict adherence to corporate strategy, business plans, budgets, acquisitions, improving performance, monitoring management and helping to curb any incidents of conflict of interest, ensuring credible and independent auditors, ensuring compliance with the law and ensuring they abide by the governance rules of the body corporate they belong to.

To enable board members perform their duties efficiently and effectively, they should be independent of management and this can be achieved by ensuring that majority of these board members are not related or linked in anyway with the managers. Therefore in any case managers should not appoint majority of the board members. This results in independent and often objective views from these shareholders which helps improve the performance of the organization. Shareholders can decide to be part of the board but there should always be a balance. It does not mean though that shareholders are discouraged from being board members. However, it does imply that a balance must be maintained between controlling shareholders and managers and other persons with ownership or proprietary interests in the company.

Having independent board members who are not part of management can send good signals to other potential investors that their interest will be well taken care of should they decide to be part of the organization.

In Ghana, mismanagement of some State Owned Enterprises has been a major cause of the revenue generating challenges of the country (Asante-Antwi, 2016). The frequency of government lending to Public firms has created an increase in the liability exposure of the country (Asante-Antwi, 2006). Hermalin and Weisbach (2001), explain that the structure of boards is based on past performance of the nonexecutive directors and the managing director. Conditions such as imprudent financial policies, bribery and disproportionate risk taking engaged in by management of both private and public firms result in the destruction of shareholder value (Asante- Antwi, 2016). There is therefore a growing concern over failed State Owned Enterprises and divestiture processes in Ghana, which is a major topic of policy discussions in relation to the performance of corporate boards.

The macroeconomic instability that has engulfed the country in recent times has really brought to bear the flaws in the governance of both public and private organizations. There is the issue of shareholder-board wrangling, overly paid benefits to executives, abuse of power and some conflict of interest (Asante-Antwi, 2016).

Engaging the International Monetary Fund in recent times, they have strongly recommended that the country undertakes some corporate governance reforms as part of its debt management policies. This clearly indicates that there is a weakness in our corporate governance structure (IMF Article 4). There is therefore a serious corporate governance issue, lack of transparency, accountability and efficiency with regards to the

operations of both management and the board thus resulting in the state owned firms being sold at a lesser value resulting in a loss to the state (Asante-Antwi, 2016).

Cal Bank Limited a private firm in 2005, experienced some internal misunderstandings as a result of a shareholder with 14.5% holding demanding to be a part of the board and also asking for the removal of the managing director, there is also the case of Social Security and National Insurance Trust (SSNIT) owning majority shares in HFC bank that sought to replace three board members. They were of the view that the bank had three executive members on the board and had also appointed two non-executive directors which adds up to five. This implies that they form a quorum per the regulations of the firm and can hold board meetings and take major decisions without the knowledge of the majority shareholder (SSNIT) this is the power conferred on the board by the companies code (Act 179 section 137 subsection 4) and this is exactly what the Security and Exchange Commission guidelines is against.

Then there is the case of Agricultural Development Bank (ADB) in 2015 where instead of the Board of Directors holding management accountable for the resources allocated to them by the shareholders, it was rather the employees union demanding accountability from both management and directors. This they claim is as a result of the Board of directors and management conniving in financial malpractice. They therefore demanded for the dissolution of the board and removal of the Managing Director because of lack of trust and transparency (Asante-Antwi, 2016). This clearly shows a lack of independence between management and the board of directors.

All the above and the relatively scarce research on Board interlocks in Africa compared to the west, is part of the reasons why this research seeks to investigate the relation between boards' well- connectedness, how it is formed and its relation to firm performance at the macro level in Ghana since we are yet to come across any such literature on Ghana. The Corporate Governance Guidelines on Best Practice Code (CGGBPC) introduced in Ghana in 2004 has resulted in voluntary compliance by most of the firms on the GSE of its recommendations that having majority non-executive directors will lessen the agency problem and improve firm performance.

Therefore this study is conducted with post compliance data to observe if by complying interlocks occurred and what could be some of the reasons for this occurrence. The construct of interest in this study is the "interlocks" of boards established by their directors' formal or professional ties. This research assessed the shared directorates between two boards as channels of information or resource exchange, and studies a board's well-connectedness through such channels, using standard tools of analysis developed by social network theory.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter of the studies takes a look at the various methods applied in the study. We follow the Hubert/ Mantel Multiple Regression Quadratic Assignment Procedure as applied by Dekker, Krackhardt and Snijders (2007) and Krackhardt (1987) to estimate the various networks in relation to Board Interlocks. The Bonacich transformation approach was also used to transform the data from bipartite to coaffiliation network as applied by Borgatti (2004). This chapter also discusses the estimation of the financial performance in relation to board interlocks and it discusses the empirical model, data used, as well as the variables employed in the estimation of the model.

#### **3.2 Estimation Technique**

The Hubert / Mantel Linear Regression Quadratic Assignment Procedure (LR-QAP) was used in the estimation of the variables. It performs randomization test of autocorrelation for a categorical variable. This procedure regresses a dependent matrix on one or more independent matrices. It also performs standard multiple regressions across cells of dependent and independent matrices. To estimate standard error it permutes rows and columns of the matrices and recomputes the regression over hundreds of times. With MR-QAP, a double regression is performed on the residuals and variables to partial out any effect of collinearity (Dekker et al., 2007 and Krackhardt, 1987).

This Quadratic Assignment Procedure was selected because it ascertains the value of the measure of association between the two relations when there isn't any systematic connection. In the Hubert / Mantel QAP approach, all variables are tested as actor-by-actor

matrices as shown in equations 3.1 and 3.2 where one relation usually called a dyadic variable is used to predict another (Borgatti, 2004) as follows

The test statistic is  $\gamma = \sum_i \sum_j x_{ij} y_{ij} \gamma$  (3.1)

**Table 3.1: Hubert and Mantel QAP matrices**

	A	B	C	D
A	-	1	0	1
B	1	-	1	0
C	0	1	-	1
D	1	0	1	-



Significance is  $prop(\gamma \geq \gamma^p); \gamma^p = \sum_i \sum_j x_{ij} y_{p(i)p(j)}$  (3.2)

	A	B	C	D
A	-	3	9	2
B	3	-	1	15
C	9	1	-	3
D	2	15	3	-



source: Borgatti (2004).

Where  $\gamma$  is the relation (friendship, comembership),  $i$  and  $j$  represent different firms,  $\gamma^p$  is the proximity of the relationship,  $x$  and  $y$  measures the relationship between firm  $i$  and  $j$ . This follows a study by Ron Breiger (1974) called "The duality of persons and groups". Breiger revealed that the duality of social network enables individuals, by their

agency, to generate social capital which further results in “an institutionalized reality” which tends to mould the character of members in the network.

This procedure (MR-QAP) applies the constant homophily model, variable homophily model and structural block model to test the inbreeding and outbreeding tendencies of actors and groups in a network.

### **3.3 Exploring Board Interlocks**

In order to accomplish the first objective, the study performs a test using the MR-QAP Correlation (autocorrelation), calculates measures of nominal, ordinal, and interval association between the relations in two matrices, and uses quadratic assignment procedures to develop standard errors to test for the significance of association between the board members of the listed firms after using the Bonacich (1972) approach to transform the data to a coaffiliation data because coaffiliations data provide the conditions needed to develop various social ties.

For the purposes of objective two, the study performs the constant homophily, variable homophily and structural block models which is an Anova Density test of categorical autocorrelation on the attributes of the relationship between the firms and its effect on the performance of the firm. The Constant Homophily test sets the hypothesis that actors prefer to interact with members of their own kind (as defined by the actor attribute), and assumes that all groups have equal inbreeding tendencies, while the Variable Homophily sets the hypothesis also akin to the constant homophily model, with the exception of predicting that each group or class of actors have different inbreeding tendency and Structural Block model also hypothesizes whether the different classes have significantly different interaction patterns. The analyses are made between firms to ascertain the interlocks and

the attributes of the firms to create the networks and the characteristics of the relationships to confirm or otherwise its effect on performance. Attributes of the firm such as industry was divided into two manufacturing and service industries and given a dummy of 1 for manufacturing Industry and 2 for service industry; ownership was also divided into foreign owned firms and locally owned firms giving a dummy of 1 for local firms and 0 otherwise. Performance measure used was ROA, Profitability and ROE.

### 3.4 Empirical Model

Following Davis et al. (1941), Larcker et al. (2011) and Puni et al. (2013), the study is based on two hypotheses. The first is that the antecedents of board interlocks can be ascertained using network, attributes and homophily effects. The specified model for estimation is

$$BI_{i,j} = \beta_1 Aud_{i,j} + \beta_2 ForLoc_{i,j} + \beta_3 Indus_{i,j} + \beta_4 Geni_{i,j} + \beta_5 Age_{i,j} + \beta_6 GH_{i,j} + \beta_7 AH_{i,j} + \theta_{i,j} \rightarrow (3.3)$$

where  $i$  represents firm  $i$  and  $j$  represents firm  $j$ . The dependent variable  $BI_{i,j}$  is estimated from the number of boards having a common board member.  $\beta$  which is equal to  $[\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7]$  is a vector of parameters to be estimated on explanatory variables of auditors, gender of the Chief executive officer, industry, Age of firm, Age homophily, Gender Homophily and locality of firm(ownership).  $\theta_{i,j}$  is the error term that includes omitted firm specific and idiosyncratic error. The second hypothesis is based on the assumption that board interlocks can influence firm performance. The specified model for estimation is

$$PF_{i,j} = BI_{i,j} + \omega_{i,j} \quad \text{-----} \quad (3.4)$$

$\omega_{i,j}$  is the error term that includes omitted firm specific and idiosyncratic error and  $PF_i =$  ROA ;ROE and Profitability. PF is measured by three accounting based measures

(Profitability, ROA and ROE). ROA is measured as Net profit divided by total assets, ROE is measured as Net profit divided by the equity value and profitability is measured by the profit after interest and tax.

### **3.5 Data and Sources**

The data for this study is mainly secondary data of mandatory and voluntary information from the Ghana Stock Exchange (GSE) Fact Book (2010). The Fact book is made up of annual reports from all listed companies on the exchange during the five year period of 2006-2010. Information that was used for the analysis is from the data section of the annual reports in the Fact Book. Data for the 35 listed companies on the GSE during the period of 2006 and 2010 with 290 board members. The companies comprised of 14 foreign firms (based on their ownership) and 21 local firms. The firms were also categorized into service and manufacturing firms based on their core operations. The service firms included banks, insurance companies, telecommunication firms, sales organizations, marketing firms, and Purchasing and supply firms while the manufacturing firms included manufacturing companies, those into production and mining firms. Therefore in all there were 17 service firms and 18 manufacturing firms. The performance measures used were Return on Asset, Return on Equity and Profitability.

### **3.6 Affiliations network and board interlocks**

Data on membership in a group, friendship or participation in an event in Social Network Analysis according to Borgatti and Halgin (2011) is called Affiliations. They explained further that affiliations data “consist of a set of binary relationships between members of two sets of items”. There is quite a number of researchers who believe that a social connection exist between members of a group or association (Davis Gardner & Gardner,

1941). Also Domhoff (1967) used data on boards of directors of corporations when he was searching for the elite in society and Davies (1991) examined how some business practices such as poison pill and golden parachute is transmitted through board interlocks. A couple of affiliations data in literature are data on membership in clubs by McPherson (1982), data on internet groupings by Allatta (2003), data on authors by Lazer et al. (2009), data on board of directors by Mizruchi,(1983) and data on co-attending an event by Faust et al.(2002).

### 3.7 Network Transformation

Data for this study was transformed from a bi-partite to co-affiliation network data using the Bonacich transformation approach (1972). This transformation approach was chosen because it creates a network from affiliation data. Converts an  $m \times n$  (firm to board member) matrix to an  $m \times n$  or  $n \times m$  by forming  $AA'$  or  $A'A$  using two different types of binary multiplication. Given a binary incidence matrix  $A$  where the rows represent directors and the columns firms, then the matrix  $AA'$  gives the number of firms in which directors simultaneously preside as board members on. Hence  $AA' (i,j)$  is the number of firms having both director  $i$  and director  $j$  as board members. The matrix  $A'A$  gives the number of firms simultaneously directed by a pair of directors. Hence  $A'A (i, j)$  is the number of directors who sit on both firm  $i$  and firm  $j$  boards. If the data is valued there are two options. The cross product (or co-occurrence method) constructs the standard matrix product as in the binary case. The minimum method takes the minimum of the two values in the sums instead of the products. Hence if row  $i$  was  $(5,6,0,1)$  and row  $j$  was  $(4,2,4,0)$  then  $AA' (i, j)$  is  $5 \times 4 + 6 \times 2 + 0 \times 4 + 1 \times 0 = 32$  for the cross product and  $\min(5,4) + \min(6,2) + \min(0,4) + \min(1,0) = 6$  for the minimum method (Bonacich,1972). These produce the same answers for binary data. The routine also allows for the final matrix to be normalized

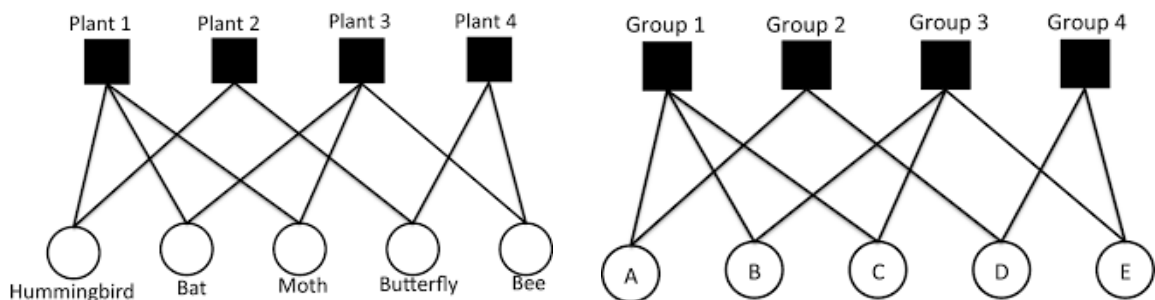
to accommodate the different sizes of the firms. Consider two directors  $i$  and  $j$  and let  $X$  be the product of the number of firms they both have board seats on and the number of firms they both have no board seats on, let  $Y$  be the product of the number firms  $i$  directs on and  $j$  does not with the number of firms  $j$  directs on and  $i$  does not. If  $X = Y$  the normalized entry is 0.5 otherwise it is  $(X - \sqrt{XY}) / (X + Y)$ .

Bipartite tool converts two-mode rectangular matrices to two-mode bipartite matrices. This measure explains how an “observed overlap” between two firms or entities exceeds overlaps that would occur by chance. This is estimated as

$$a_{ij}^* = \frac{a\sqrt{adbc}}{ad - bc}, \text{ for } ad \neq bc$$

The quantity  $a_{ij}^*$  is the normalized board interlock of firm  $i$  and firm  $j$  this measure gives the extent to which the overlap observed between  $i$  and  $j$  exceeds the amount of overlap we would expect by chance, given the number of firms that  $i$  and  $j$  each have board members on.  $a$  is the number of board members firm  $i$  and firm  $j$  have in common,  $b$  is the board firm  $i$  has co-membership with to but  $j$  does not have a co-membership with and  $c$  is the board firm  $j$  has co-membership with but firm  $i$  does not have co-membership with and  $d$  is the board that both firm  $i$  and firm  $j$  do not have co-membership with.

Here are two examples of bipartite networks from Hanneman (2003)



**Figure 3.1:** Bipartite graph

Although the two graphs in Fig.3.1 might appear the same, they are different in that, in the first graph the actors (pollinators and plants) cannot have reciprocity as occurs in network in that plants cannot pollinate animals so it's a one way process, only the animals pollinating the plants. In the second graph however we have co-membership of persons in a group known as affiliation network. Individuals constitute groups and groups comprise of persons. The second graph can therefore be used to create a social network using bipartite or one mode projection.

**3.8 Justification of variables**

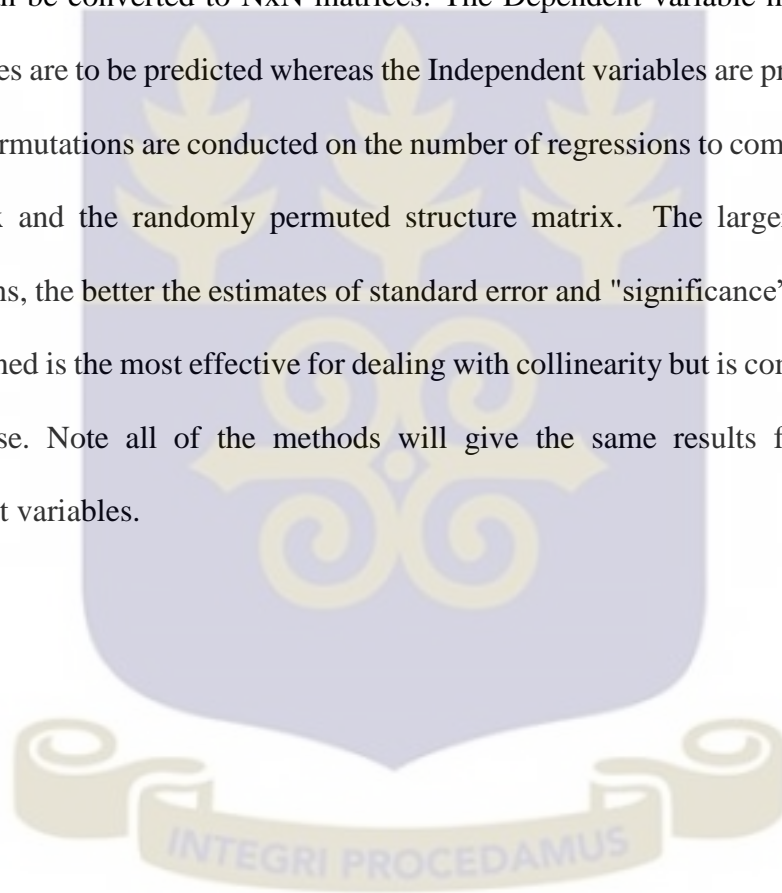
The variables in this research was primarily gotten from a fact book and CD-ROM of the annual reports of firms listed on the Ghana Stock Exchange. They comprise information, which contains statistics on both executive and non-executive directors, core business of the firms, share distributions, location of business, management information, ownership base and financial data. Information on multiple directorships is not directly provided in any of the sources. Hence, we created a dataset by listing the names of all directors and their affiliated companies, sorted the data by name and counted the number of directorships held by each director. The performance of firm (PF) was measured using Profitability and return on assets (ROA) and Return on Equity (ROE). The higher the profit, the more effective the governance mechanisms and the better the profitability of the firm. In the same vein, high ROA indicates effective use of companies' assets in serving shareholders' economic interests. These performance indicators have also been used in previous studies on firm performance (Puni et al.2013; Larcker et al. 2011). Various accounting-based measures have been used to evaluate financial performance. These include sales (Wintoki

et al. 2010), profit (Joh 2003; Muth & Donaldson 1998), ROA (Elsayed 2007), ROE (Bonn 2004; Hutchinson and Gul 2004; Muth & Donaldson 1998). Accounting-based measures are historical gauges that focus on management's stewardship of the company. Core, Guay and Rusticus (2006) suggest that operating performance measured by ROA is a preferred measure for examining the relation between performance and corporate governance because it is not affected by leverage, extraordinary items and other discretionary items. ROA is used as a measure of accounting performance in this study, having been widely used by previous researchers (Balatbat et al., 2004; Brown & Caylor, 2009; Haniffa & Hudaib, 2006; Kiel & Nicholson, 2003; Muth & Donaldson, 1998; Vafeas, 1999; Wintoki et al. 2010).

### **3.9 MR-QAP Hypothesis**

Dekker, Krackhardt and Snijder (2007) and Krackhardt (1987), in a research on Sensitivity of MRQAP tests to collinearity and autocorrelation conditions and Predicting with networks-Nonparametric multiple-regression analysis of dyadic data respectively, explained that the multiple regression Quadratic Assignment Procedure (MR-QAP) is used to regress a dependent matrix on one or more independent matrices, and assess significance of the r-square and regression coefficients using double semi-partialling. This is principally used to model a social relation (matrix) using values of other relations. The process is in two stages. In the first stage, it performs a standard multiple regression across corresponding cells of the dependent and independent matrices. In the second step, it randomly permutes rows and columns (together) of the matrices and recomputes the regression, storing resultant values of r-square and all coefficients. This step is repeated hundreds of times in order to estimate standard errors for the statistics of interest. For each coefficient, there is a count of the proportion of random permutations that yielded a

coefficient as extreme as the one computed in stage 1. The effect of any collinearity amongst the independent variables is partialled out by performing a double regression first on the residuals and the independent variables and then on all the variables and residuals. The primary requirement for conducting a multiple regression quadratic assignment procedure is that all the variables in the regression have to be one-mode, two-way matrices. That is, they must all be  $N \times N$  networks. Person-by-object or Person-by-event matrices can be converted to  $N \times N$  matrices. The Dependent variable here is the matrix whose values are to be predicted whereas the Independent variables are predictor matrices. Random permutations are conducted on the number of regressions to compute between the data matrix and the randomly permuted structure matrix. The larger the number of permutations, the better the estimates of standard error and "significance". This procedure they explained is the most effective for dealing with collinearity but is computationally the most intense. Note all of the methods will give the same results for non-collinear independent variables.



**Figure 3.2** : Summary Expectations Variable

	<b>Symbol</b>	<b>Expected Sign</b>
Auditor Network	<i>Aud</i>	-
Industry Network	<i>Indus</i>	+
Foreign / Local Network	<i>ForLoc</i>	+
Age Effect	<i>Age</i>	+
Gender Effect	<i>Gen</i>	-
Age Homophily	<i>AH</i>	+
Gender Homophily	<i>GH</i>	-

Source: Author's Compilation 2016



## CHAPTER FOUR

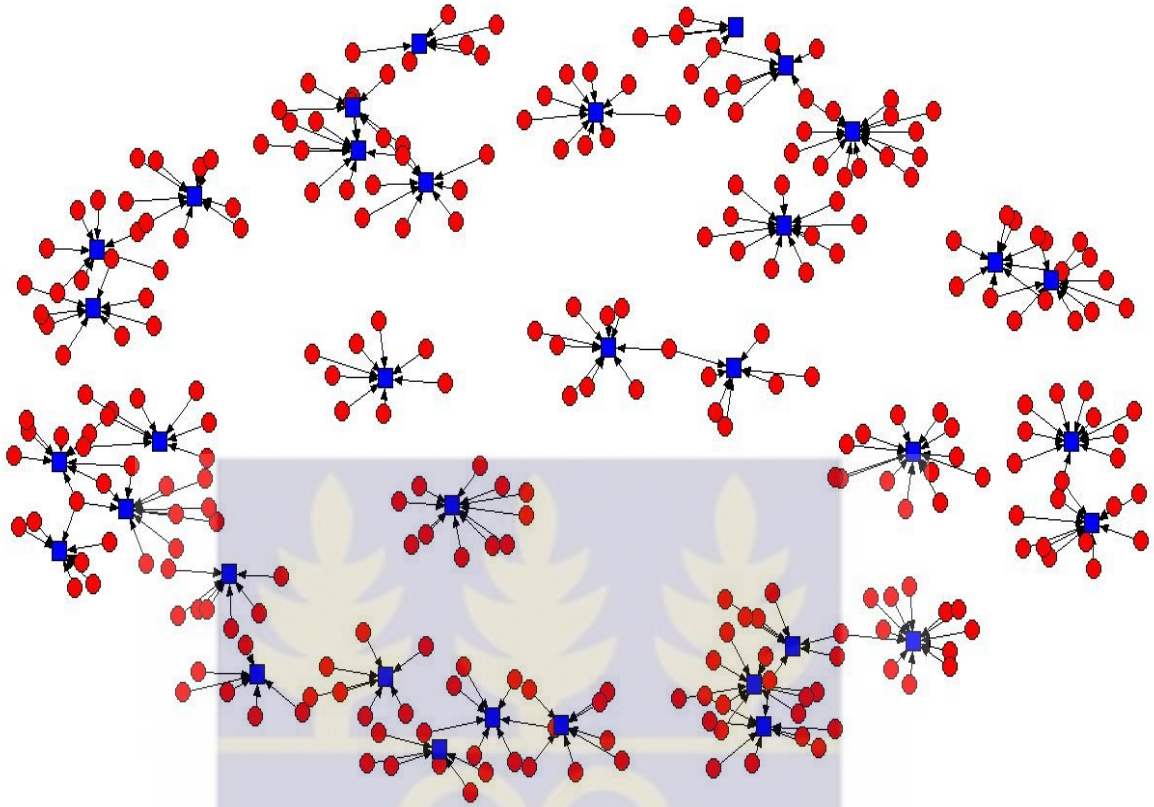
### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

This chapter discusses the analysis and findings of the study. That is the findings on the antecedents and consequences of board interlocks on the Ghana Stock Exchange as well as descriptive statistics of the other variables used in the study. The relationships between the variables are explained as part of discussions on these findings of the econometric models stated in chapter three. The data used for the research can be found in the appendix.

#### 4.2 Board Interlocks on the Ghana Stock Exchange

A resourceful or efficient way of describing a social network is by graphing information on the associations or links among the nodes in the network. Having a look at the graph should project the features of a social network structure and answer questions like: are there ties among actors in the network? , Do subgroups of actors linked to one group and not the other exist? , are all the nodes in the network connected? , Are some actors more connected than others? This is to help understand how “egos” are interconnected as a larger graph “pendant”, how actors are constrained or are at an advantage in the entire “ego network” and the roles these actors play.



**Figure 4.1:** A network graph on Board interlocks of listed firms

Source: computations from research data, 2016

The network graph in figure 4.1 above represents the connectedness of firms listed on the Ghana Stock Exchange for the period 2006 to 2010. As indicated earlier on, there is an interlock or connectedness among firms that share a common board member. The measure therefore of Board interlocks is that Two companies are linked if they share at least one board member also two companies are not linked if they do not share a board member. Reading from the graph in figure 4.1, there exist 18 interlocks among listed firms from 2006 to 2010. These interlocks act as proxies for communication paths between the firms which implies the more interlocked a firm is with others, the more information the firm sends or receives. The position a firm occupies between two or more firms makes that firm central and gives it power since it has more options in terms of where to either send or

receive information. The blue nodes represent the firms in the network and the red nodes represent the board members of the various firms. To avoid a clustered graph and to make viewing more visible the labels of the graph, which are the names of the firms and the board members, were not made visible in the graph.

The Bonacich transformation approach was applied using the UCINET 6.0 software to transform this bipartite graph (two mode incidence matrix) into an affiliation matrix (one mode adjacency matrix). The two modes in this study are the firms and the board members so this graph consists of a union of firms and board members as vertices with edges connecting firms with board members. Here the resultant adjacency matrix is therefore a square matrix.

### 4.3 Descriptive Statistics

**Table 4.1:** Descriptive statistics for the boardroom network

#### Statistics

		1 net
1	Observations	1190
2	Missing	0
3	Minimum	0
4	Maximum	1
5	Sum	18
6	Average	0.015
7	SSQ	18
8	Standard Deviation	0.122
9	Variance	0.015
10	MCSSQ	17.728
11	Euclidean Norm	4.243

11 rows, 1 columns, 1 levels.

Table 4.1 provides the summary statistics for the board interlocks of the various firms (nodes). Each node gets to another through what is called links. A firm is said to be isolated if it has no link with the other nodes. These links between firms is as a result of sharing board members. The descriptive summarizes some characteristics of the measures of distribution of the Univariate Statistics on the network. The boardroom network of listed firms is therefore made up of 1190 observations of 291 board members sitting on the boards of the 34 firms that ranges from 0 (minimum score) to 1 (maximum of one). The sum of the ties between the firms is 18, and the average value of the ties is  $18/34 = .529$ . Since the relation has been coded as a "dummy" variable (zero for no relation, one for a relation) the mean is also the proportion of possible ties that are present (or the density), or the probability that any given tie between two random actors is present (52.9% chance). This means 52.9% of the time, two firms connected with the same firm are also linked. Other measures that indicates variability of the distributions can also be seen in the statistics such as sum of squared deviations from the mean, variance, standard deviation and Euclidean norm (which is the square root of the sum of squared values). Studying the table it can be observed that the mean (or density) for board interlocks is high after establishing the existence of ties with the boardroom network of the GSE.

This study seeks to find what is causing (antecedents) these ties and that seeks to answer the first objective. If there is a tie between two particular actors in one relation (board interlock), is there likely to be a tie between them in another relation (auditor, industry and foreign or local network)? If two actors have a strong tie of one type, are they also likely to have a strong tie of another? However in the conceptual framework for this study there are three subgroupings that are believed to be the antecedents of the boardroom network which are the auditor network, foreign or local network and industry network. This is

consistent with what social network theory postulates. These networks are hypothesized to be influencing the interlocks being observed in the graph or the ties being observed in the descriptive. Therefore a regression analysis is conducted to accept or reject this hypothesis.

#### 4.4 Regression Results

**Table 4.2:** Results of the MR-QAP regression on the antecedents of board interlocks

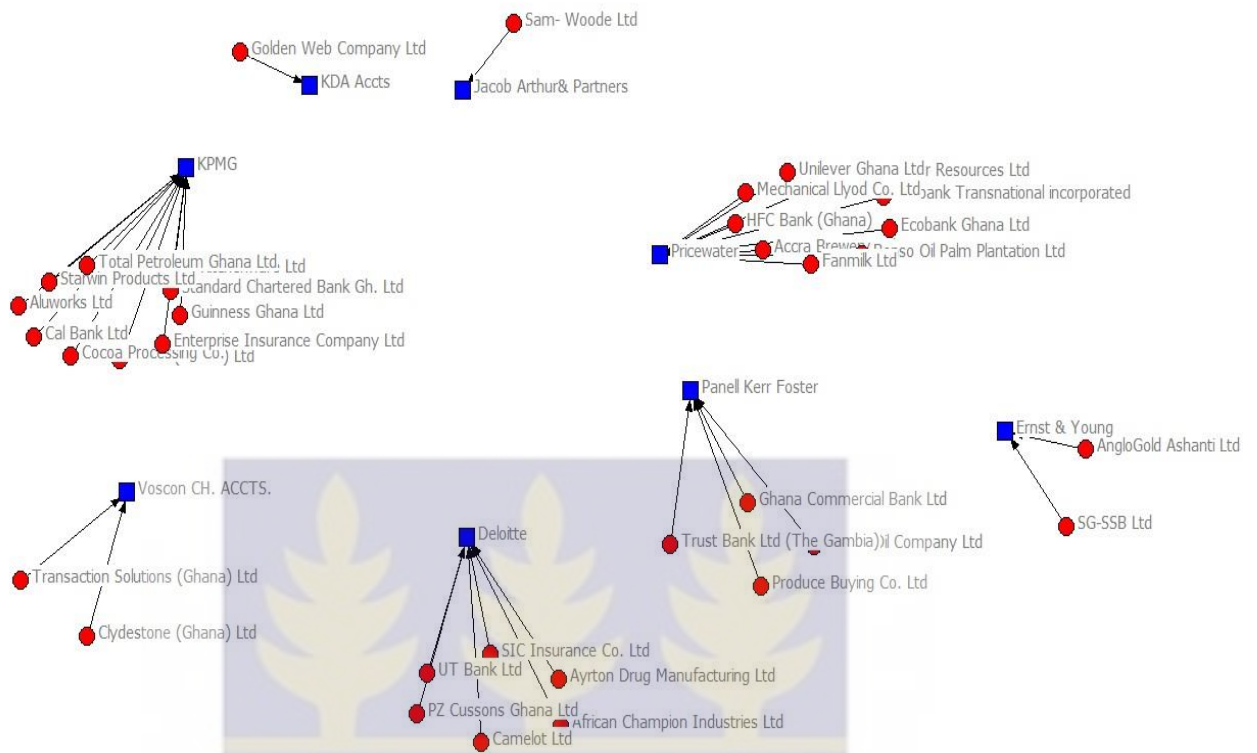
BOARD INTERLOCKS	MODEL 1	MODEL 2	MODEL 3
AUDITOR NETWORK	6.489***	6.636***	7.715***
FORLOC NETWORK	1.426	1.441	1.711
INDUSTRY NETWORK	3.934**	3.965**	4.106**
GENDER EFFECT		-0.371*	1.053
AGE EFFECT		1.004	0.993
GENDER HOMOPHILY			0.23
AGE HOMOPHILY			1.028**
R-SQUARE	0.05	0.047	0.033
OBSERVATIONS	1190	1190	1190
PERMUTATIONS	1000	1000	756

The symbols \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% levels respectively. Source: computation from research data, 2016

Applying the MR QAP hypothesis as explained by Dekker, Krackhardt and Snijder (2007) and Krackhardt (1987), a regression is performed using the data matrix and the randomly permuted structure matrix of the board interlocks. The number of permutations is 1000 because according to Hanneman (2008), high degrees of permutations produces better estimates of standard error and significance. The matrix has each element being coded "1"

if both organizations in the dyad have a common auditor, or both are in the same industry or both have foreign or local ownership (ForLoc), and "0" if otherwise. A standard multiple regression analysis is therefore performed by regressing each element in the boardroom network on its corresponding elements in the auditor network, industry network and foreign or local network respectively. To estimate standard errors for R-squared and for the regression coefficients, the study applied quadratic assignment procedure by running many trials with the rows and columns with the dependent matrix being randomly shuffled, and recover the R-square and regression coefficients from these runs. These were then used to assemble empirical sampling distributions to estimate standard errors under the hypothesis of no association.

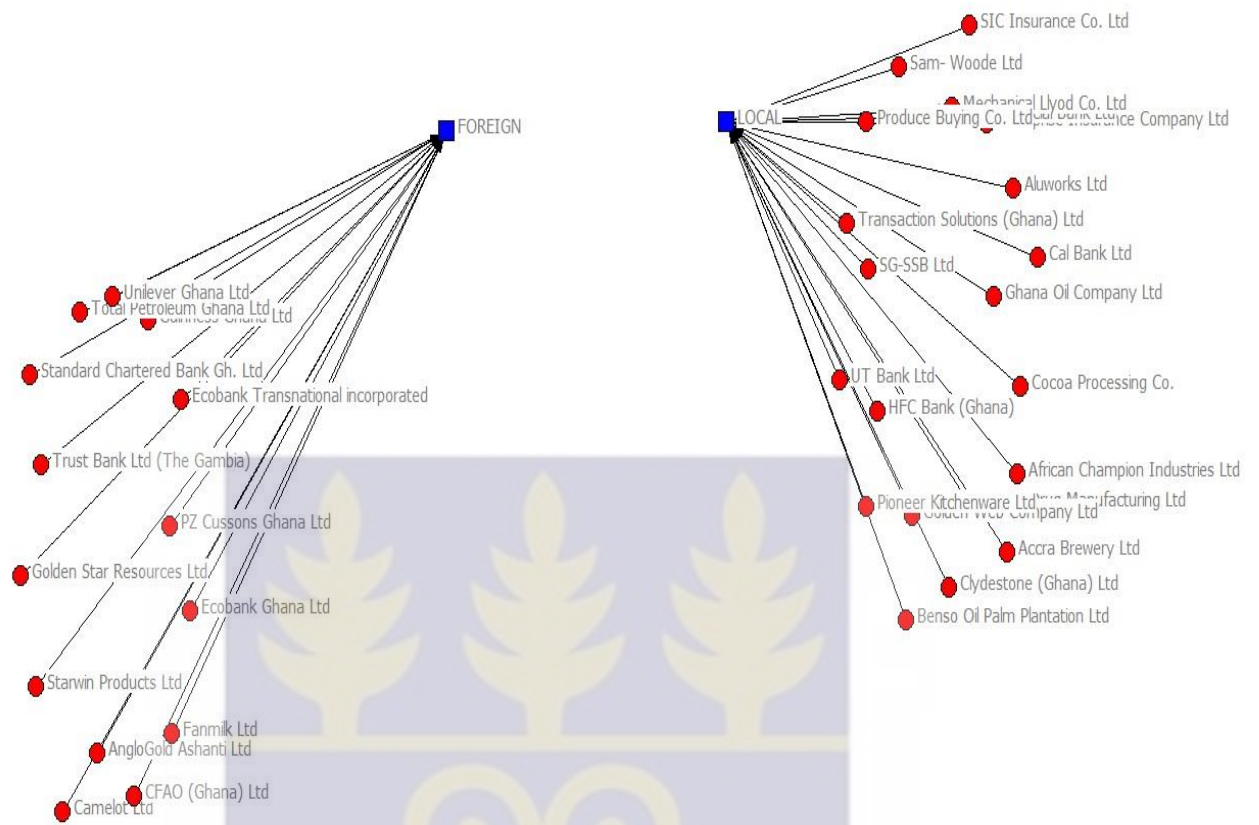
Board Interlocks which is the dependent variable has positive and significant relationship with auditor network and industry network but has positive but insignificant relationship with the Forloc network. Age effect has positive relationship with board interlocks, but negative relationship with Gender effect. Gender homophily has positive relationship with board interlocks. Age homophily has a positive relationship with board interlocks. To prevent Multi-Collinearity the control variables were dropped two at a time and hence three different regressions were run. This implies that the auditor network and the industry are influencing the interlocks whiles the foreign or local ownership has no influence on these interlocks. This is consistent with Mitchell (1969) who stated that knowing ones links or ties aids in predicting their social behavior.



**Figure 4.2:** A graph on Auditor Network in Relation to Interlocks

Source: computation from research data, 2016

From the results it was observed that firms that share common auditors tend to share common board members as well this could be as a result of they co attending events organized by these auditors or that this auditors in other ways are influencing these firms in their appointment of board members.

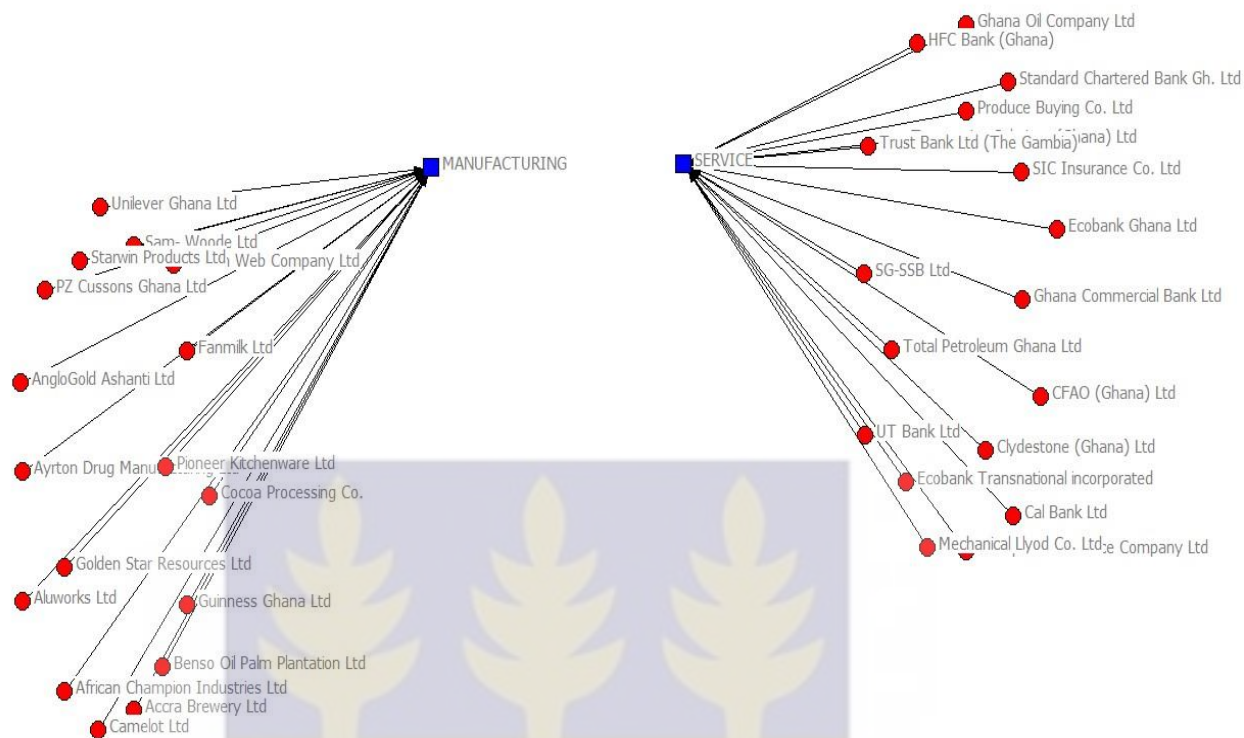


**Figure 4.3: Foreign and Local Network in Relation to Interlocks**

Source: computation from research data, 2016

However, there was no connection between firms within the Forloc network which implies that foreign or local ownership does not influence the choice of board members by firms.





**Figure 4.4:** Industry Networks in Relation to Board interlocks

Source: computation from resource data, 2016

With regards to industry networks it was also observed that firms are in the same industry also share common board members which could also be as a result of they seeking the social capital that is embedded in certain people within that industry to improve their performance as a firm.

#### 4.5 Correlation between two networks with the same actors

This study seeks to find the probability that if a link exists between two particular actors in one relation, there is a likelihood that another tie could exist between them in another relation? If two actors have a strong tie of one type, are they also likely to have a strong tie of another? Following Hanneman (2008) who stated that an evident and very essential predictor of whether two actors are likely to be connected is their similarity or closeness.

In many sociological theories, two actors who share some attribute are predicted to be more likely to form social ties than two actors who do not. This "homophily" hypothesis is at the core of many theories of differentiation, solidarity, and conflict. Two actors who are closer to one in a network are often hypothesized to be more likely to form ties; two actors who share attributes are likely to be at closer distances to one another in networks.

This hypothesis is what the results in Table 4.3 results is based on. The results are based on the constant homophily model, variable homophily model and the structural block model. Here the study is to ascertain if organizations with similar characteristics like to be linked thus exchange information, which is correlated to the performance of the firm. Constant homophily model tests hypothesis that actors prefer to interact with members of their own kind (as defined by the actor attribute), and assumes that all groups have equal inbreeding tendencies. The attribute here is the performance of the firm.

Variable Homophily is comparable to the constant homophily model, except that it assumes that each group or class of actors has a different homophilic tendency (different inbreeding parameter). Here the in group is subdivided into profitable and less profitable firms on the other hand the structural block model tries to investigate the significance pattern of the different parameters or groups. That is do profitable firms prefer to interact with profitable firms or do less profitable firms prefer to interact with profitable firm.

#### 4.6 Homophily Models Results

**Table 4.3:** Constant Homophily Effect

	ROA	ROE	PROF
In-group	0.105***	0.100**	0.015
Permutations	5000	5000	5000
R-square	0.011	0.01	0.000
Observations	1190	1190	1190

The symbols \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% levels respectively

Source: Computations from research data, 2016

**Table 4.4:** Variable Homophily Effect

	ROA	ROE	PROF
Profitable firms	0.082**	0.075**	0.083*
Less Profitable firms	0.144***	0.163***	-0.002
Permutations	5000	5000	5000
R-square	0.021	0.025	0.007
Observations	1190	1190	1190

The symbols \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% levels respectively

Source: computations from research data, 2016

**Table 4.5:** Structural Block Model

	ROA	ROE	PROF
LPF-LPF	0.101**	0.127***	-0.176*
LPF-PF	-0.067**	-0.060**	-0.139**
Permutations	5000	5000	5000
R-square	0.021	0.004	0.019
Observations	1190	1190	1190

The symbols \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% levels respectively Source: computations from research data, 2016

The result above seems to support homophily models. Homophily is highly dynamic, subject to change and is influenced by exogenous forces that affect the processes of individuals' social identification (Moody, 2001).

The statistical test applied is the Mixed Dyadic/Nodal Categorical Attributes of ANOVA Density. The study shows a positive relationship between ROA, ROE and profitability (Prof) the least-specific notion that members of groups prefer to have ties within their group. The implication is that firms that perform well as per their ROA, ROE and profitability are connected or have common board members with firms in similar positions which could be what is reflecting in their performance. This grouping was then subdivided into profitable and less profitable firms to study the pattern of interaction between these groups because the constant homophily model lumps up the whole group effect and can create an impression which could not be caused by the whole group.

The results, using the variable homophily model, shows that there is a positive relationship between profitable firms that interact with each other and the performance measures (ROA and ROE) and a positive relationship between less profitable firms (LPF) interacting with each other and performance.

The Structural Block model option conducts a test to show that the interaction patterns of within and between group ties or interactions differ across groups this is necessary to ascertain if there is a between group effect just as the within group pattern observed from using the variable Homophily effect. The interaction between profitable firms (PF) is used as the reference category. The results show a positive relationship between the interactions of LPF-LPF with regards ROA and ROE but has a negative relationship with profitability.

It also shows a negative relationship in the interactions between LPF –PF and ROA, ROE and profitability.

This is consistent with the findings by Peng, Mutlu, Sauerwald, Au and Wang (2015), who sort to find an answer to the question of whether board interlocks really matter to firm performance and the answer was a yes. This paper also found that the performance of a firm initially can draw interlocking directors to it later. This because experienced directors that are well connected and highly sort after would want to be a part of a firm with history of good performance.

Given the observations in the results above, it is obvious that the constant homophily model does not fit these data well. The results show that two of the groups (LPF-PF) have no apparent tendency to homophily and that differs greatly from the LPF-LPF group. The block model of group differences only accounts for 1.1% of the variance in pair-wise ties. This model only has two parameters, because the hypothesis is proposing a simple difference between the diagonal cells (the within group ties PF-PF and LPF-LPF) and all other cells. The hypothesis is that the densities within these two partitions are the same. Also the estimated average tie density of pairs who are not in the same group is 0.20 that means there is a 20% chance that heterogeneous dyads will have a tie. If the members of the dyad are from the same group, the probability that they share a tie is 0.105 greater, or 0.10. Although there is some defect with the constant homophily model by its inability to predict individual ties so well it showed that generally homophily effect does exist.

To investigate further the Variable Homophily is applied which tests the model that each diagonal cell (that is ties within PF and within LPF) differ from all ties that are not within-

group. This model fits the data much better with R-square of 0.021 and 0.025 than the constant homophily model. With this model, the intercept (0.20) is the probability that there will be a dyadic tie between any two members of different groups. It can be seen that the probability of within group ties among PF is 0.082, 0.075 and 0.083 for ROA, ROE and Prof respectively which is highly significant. Within-group ties among LPF 0.144 and 0.163 and very significant.

The results from the structural block model indicate that. Members of the LPF have a high probability of 21% and 0.4% being tied to one another. This explains what the social network theory tends to predict, that actors in a group have similar behavior patterns (Miles 2012). The last block PF-PF is used as the reference category. 5000 trials with random permutations of the presence and absence of ties between pairs of actors were run.

The results therefore confirm what Peng et al (2015) found that well connected board members prefer to serve on boards of well performing firms yet it also disagrees with the findings by Croci and Grassi (2013), who explored the economic effects of board interlocks in Italy and showed a negative relationship between centrality and firm value. An implication being that well connected board members reduce the value of the firms they act on because they tend to cover up the inefficiencies of managers.

These results are also consistent with the findings by Muravyev et al. (2014) who found a positive relationship between the presence of these non-executive directors and the accounting performance of the appointing companies. The results showed a stronger effect when these directors are executive directors in firms that are performing well.

This study is therefore consistent with extant literature that states that non-executive directors that are executives in other firms contribute to both the monitoring and advisory functions of corporate boards thus resulting in an improvement in the performance of firms they direct.



## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter of the study gives a summary of the findings and its conclusion on the antecedents and consequences of board interlocks. The study as well makes necessary recommendations for policy implementation and future research. The chapter also discusses some limitations of the study.

#### **5.2 Summary of Findings**

Issues bothering on corporate governance became a topic for discussion in most developed economies in the 1900's. A lot of businesses were collapsing at the time this was largely due to lack of better governance structures. Although, there is a lot of debate on the subject matter, most researchers agree to the fact that lack of proper corporate governance in organizations operating in developed economies resulted in the collapse of these organizations. As a result, efforts were made internationally to improve the levels of corporate governance, especially in emerging market economies. This initiative was no doubt spurred on amongst other factors by the recognition that the degree to which corporations observe basic principles of good corporate governance will be an increasingly important factor for investment decisions in the future. Organizations in the developing economies are also bedeviled by this cancer of poor governance structures. To solve this problem ownership is to be separated from the operations of the organization, therefore managers are appointed. These managers after their appointment often seek their own interest as oppose to that of the shareholders or the shareholders also concentrate only on

how to maximize their investment as opposed to interests of the managers, thus a conflict arises and this is termed the agency problem.

To mitigate this problem, a board is constituted by the shareholders to act as mediators between the interests of the shareholders and the benefits of management. These board members when they are constituted are expected to bring their resources on board to help improve the performance of the organization. The resources they bring on board can be financial and non-financial, such as their connections, experience, technical know-how and knowledge.

Resources such as connections or business links that these board members contribute to the firms are embedded in social capital theory. This social capital flows through social networks that these board members are a part of. These networks include sitting on multiple boards and thus creating a business link between these two firms.

The study investigates if there are board interlocks between the firms listed on the Ghana Stock Exchange and what could be the possible causes of these interlocks. It tries to find what influences board composition among the following factors such as auditors, industry, gender of the chief executive officer, age of the firm and ownership base of the firms. It revealed that these firms had connections by applying the Bonacich's transformation approach. The results showed that among the 35 listed firms on the exchange, there are 18 direct and indirect connections between them. This means some listed companies share board members and therefore have access to vital information, and resources of the other firm. The question to be answered is what could be influencing the formation of these

interlocks is it the auditors, industry gender of the CEO or how long the business has been in existence.

The results revealed that there was a positive and significant relationship between auditor network and this connectedness. What this means is that the social network of firms with common auditors is influencing the choice of board members that firms within that network make. This could be attributed to some advice that these auditors are giving to these firms or it could be that the shareholders of such firms get to connect through this social network and thus share information which helps them in their choice of board members. This is consistent with what social capital theory as stated by Baker (1990) explains that social capital is a “resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors”.

In the same vain there was a positive and significant relationship between the industry network and the board interlocks which means boards that are in the same industry or perform similar functions are interlocked. Although with regards to whether the firm had foreign or local ownership the results show a positive relationship it wasn't significant which means that there isn't strong evidence that firms' selection of board members is influenced by whether they are foreign owned firms or locally owned firms.

The study also sorts to find out if firms with CEO of similar gender were connected. The study revealed a positive but not significant relationship between interlocks and gender effect. This implies that gender effect was not influencing the decision of firms when appointing board members. The study also revealed that the age of the firm did not

influence the choice of board members these firms made. The result showed a positive but not so significant relationship between board interlocks and age effect. However a test on whether gender homophily had an influence on board interlocks showed a positive yet not so significant effect and a similar test on age homophily showed a positive and significant relationship between board interlocks. The homophily effect usually explains how actors with similar attributes connect that is “birds of a feather flock together”. Age homophily here implies that firms that have been in existence for similar periods of time are interlocked. That is old firms have common board members while fairly young ones too have similar board members and from the results one can see that age homophily really does influence board interlocks thus firms that have similar ages do share common board members. This is consistent with the findings by Davis et al (1974) which explained that liked minded actors tend to be linked and also actors with similar attributes are connected.

The study also investigated which factors influence the likelihood that two actors will have a relationship and one vital predictor of whether two actors are likely to be connected or not is their similarity. In social network theory, two actors who share some attribute are predicted to be more likely to form social ties than two actors who do not and this is termed homophily (Hanneman 2002 and Borgatti et al. 2002). This study therefore applied the homophily models to predict whether actors have ties, or are close to one another and how robust the results were.

From the results it was observed that applying the constant homophily model, firms that have similar performance pattern based on the performance measures employed in the study are linked or share common board members.

The study then applied the variable homophily model because the constant homophily model predicted a general form of homophily among the firms but not individual's ties. The results revealed a positive and significant relationship between firms that are profitable, making good returns from their assets and equity and their connections with similar firms. That is firms that are performing well have a within group homophily whereas with firms that were less profitable, based on the similarities in their ROA and ROE the results revealed a positive and significant relationship between them yet profitability was negative. This implies that firms that do not perform so well based on their ROA and ROE are linked and connected whereas there was a no link between firms based on their profitability.

Applying the structural block model, which shows how members of groups relate to members of other groups that is actors in one group may prefer to have ties only within their group while actors in another group might prefer to have ties only outside of their group. The results reveal that firms that perform well based on their ROA and ROE values are connected and in the same vein actors that do not perform well based on these same measures are also connected. Yet there is no tie between firms that do not perform well and well performing firms. This implies that the similarities in their attributes is what is influencing their connectedness or links as proposed in the social network theory (Miles, 2002) and consistent with findings of Davis et al. (1974) and Knoke and Wood (1981).

### **5.3 Conclusion**

In agreement with other literatures (Mutlu et al., 2015, Mizruchi, 1996, Carrington, 1981, Mecusen and Cuyvers, 1985, Keister, 1998 and Larcker et al., 2013, Davies et al. 1974, Hanneman, 2002 and Knoke & Wood, 1981), on board interlocks, what influences it and

what can be the consequence of these interlocks, the study concludes from the findings that auditor network and industry network can influence the decision of firms to appoint particular people as board members and firms that share board members with other firms tend to benefit from the resource these firms have and this reflected in the finding that firms that share common boards also perform well. Therefore, these social networks has embedded in it social capital which are available to firms as a result of who they are connected to and this social capital influences their performance, therefore it can be observed that firms with similar board members perform well as a result of the resources this board members contribute through social capital. Thus there is a positive relationship between connectedness and performance as stated in Larcker et al. (2011). While our overall evidence is consistent with board connectedness leading to better firm performance, it however acknowledged that these results does not allow one to fully establish a causal relation. Our tests provide descriptive evidence on the benefits associated with board-of-director networks and establish several important regularities regarding the relation between board interlocks and multiple measures of firm performance. Similarly, our findings do not imply that all firms should or can increase their boardroom network in order to improve performance. Although there appears to be substantial economic benefits for at least some firms to improve the breadth of their board networks.

#### **5.4 Recommendations**

Based on the results of this study, it is suggested that government appointment of board members to public firms should not be based on political affiliations but competence and technical knowhow in the industry in which the firm operates. Policy makers such as the Securities and Exchange Commission should investigate the influence of these auditors on

board appointments because according to their corporate governance rules, the auditors should be independent of the firm. Also the study suggests that firms should appoint people who are familiar with the industry in which they operate and are sitting on well performing boards of other firms. Firms should connect with well performing firms.

### **5.5 Future Research**

Future researchers can investigate board interlocks by extending the study to other countries in Sub-Saharan Africa to ascertain the nature of boardroom network in the region. Further studies may explore the possible effect of boardroom network on the future performance of firms in Ghana. Last but not the least, future studies can explore the relationship between centrality and profitability of firms in Ghana.

### **5.6 Limitations**

To determine the antecedents of board interlocks, some studies applied the centrality measures of the individual actors in the network and then based on that the consequences are determined but this study used the attributes of the relation between the actors instead of the attributes of the actors. It also used the LR-QAP analysis as applied by Knoke and Wood (1981). This is because data on the attributes of the board members were difficult to come by.

## REFERENCES

- Ahuja, G. (2000). *Collaboration networks, structural holes, and innovation: a longitudinal study*”, *Administrative Science Quarterly*, Vol. 45 No. 3, pp. 425-455.
- Allatta, J. T. (2003). Structural analysis of communities of practice: an investigation of job title, location, and management intention. In *Communities and Technologies*, Eds. Huysman, M. Wenger, E., and Wulf, V. pg 23- 42. Kluwer Academic Publishers
- Andres, C., Bongard, I. V.D. & Lehmann M. (2013). Is Busy Really Busy? Board Governance Revisited. *Journal of Business Finance & Accounting*, 40(9) & (10), 1221–1246.
- Anklam, P. (2007). *Net Work: A Practical Guide to Creating and Sustaining Networks at Work and in the World*. Butterworth-Heinemann, Woburn, MA.
- Anthonisse, I. M. (1971). *The Rush in a Graph*. Amsterdam: *Mathematisch Centrum* (mimeo).
- Armstrong, C. & Larcker, D. (2009). Discussion of ‘the impact of the options backdating scandal on shareholders’ and ‘taxes and the backdating of stock option exercise date’. *Journal of Accounting and Economics* 47, 50–58.
- Arrow, K. J. (1985). The economics of agency. In J. W. Pratt & R.J. Zeckhauser (Eds.), *Principals and agents: The structure of business* (37-51), Boston, MA: Harvard Business School Press.
- Asante-Antwi, N. (2016). Ineffective Boards of Directors A Case of Moral Hazard? *Business and Financial Times Ghana*, May Ed., Pp.1.
- Baker, W. (2000). *Achieving Success through Social Capital: Tapping the Hidden Resources in Your Personal and Business Networks*. Jossey-Bass, San Francisco.
- Balatbat, M. C. A., Taylor, S. L. & Walter, T. S. (2004). Corporate Governance, Insider Ownership and Operating Performance of Australian Initial Public Offerings. *Accounting and Finance Journal*, 44, 299–328.
- Barney, J.B.(1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99-120.

- Bavelas, A. (1948). A mathematical model for group structures". *Human Organization* 7, 16-30.
- Bavelas, A., (1950). Communication patterns in task-oriented groups. *Journal of the Acoustical Society of America* 22, 271–282.
- Beauchamp, M. A. (1965). An improved index of centrality". *Behavioral Science* 10, 161-163.
- Beckman, C. & Haunschild, P. (2002). Network learning: the effects of partners' heterogeneity of experience on corporate acquisitions. *Administrative Science Quarterly* 41, 92–124.
- Bolino, M. C., Turnley, W. H., & Bloodgood, J. M. (2002). Citizenship behavior and the creation of social capital in organizations. *Academy of Management Review*, 27,505-522.
- Bonacich, P. (1972). Factoring and weighting approaches to status scores and clique identification. *Journal of Mathematical Sociology* 2,113–120.
- Bonabeau, E., V. Krebs. (2002). Model behavior. *Optimize* (12) 1–3.
- Bonn, I. (2004). Board Structure and Firm Performance: Evidence from Australia. *Journal of Management and Organization*, 10, 14–25.
- Borgatti, S. P., & Everett, M. G. (1997). Network analysis of 2-mode data. *Social Networks*, 19(3): 243-269.
- Borgatti, S. P., Everett, M. G. & Freeman, L. C. (2002). *Ucinet for Windows: Software for Social Network Analysis*. Harvard, MA: Analytic Technologies
- Borgatti, S. P. & Foster, P. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*. 29(6): 991-1013
- Borgatti, P. (2005). Centrality and network flow. *Social Networks* 27, 55–71.
- Borgatti, P. & Everett, G. (2006). A graph-theoretic perspective on centrality. *Social Networks* 28,466–484.
- Borgatti, S. P. & Halgin, D. S. (2011). On Network Theory. *Organization Science*. 22(5):1168-1181.

- Borgatti, S. P. & Halgin, D. (2011). In press. "Analyzing Affiliation Networks". In Carrington, P. and Scott, J. (eds) *The Sage Handbook of Social Network Analysis*. Sage Publications.
- Bourdieu, P. (1986). The forms of capital. In J.G. Richardson (Ed.). *Handbook of theory and research for the sociology of education* (241-258). New York: Greenwood Press.
- Bourdieu, P. & Wacquant, L. (1992). *Invitation to reflexive sociology*. Chicago: University of Chicago Press.
- Boyd, B. (1990). Corporate linkages and organizational environment: a test of the resource dependence model. *Strategic Management Journal*, 11 (6), 419-430.
- Brass, D. J., Butterfield, K. D. & Skaggs, B. C. (1998). Relationships and unethical behavior: A social network perspective. *Acad. Management Rev.* 23(1) 14–31.
- Brown, L. D. & Caylor, M. L. (2009). Corporate Governance and Firm Operating Performance. *Review of Quantitative Finance and Accounting*, 32, 129–44.
- Byrne, D. (1971). *The Attraction Paradigm*. New York, NY: Academic Press
- Burt, R. S. (1982). *Toward a Structural Theory of Action*. New York: Academic Press.
- Burt, R. (1983). *Corporate Profits and Cooptation*. Academic Press, New York, NY.
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Burt, R.S. (2004). Structural Holes and good ideas. *American journal of sociology*, 110, 2, 349–399.
- Canella, D. S., Levy, R. B., Martins A. P. B., Claro, R. M., Moubarac J. C. & Baraldi, L. G. (2008). Ultra-Processed Food Products and Obesity in Brazilian Households . *PLoS ONE* 9(3): e92752. doi:10.1371/journal.pone.0092752
- Carpenter, M. & Westphal, J. (2001). The strategic context of external network ties: examining the impact of board appointments on board involvement in strategic decision making. *Academy of Management Journal*, 4 (4), 639-660.

- Carrington, P. (1981). "Horizontal co-optation through corporate interlocks", PhD dissertation, University of Toronto, Toronto.
- Caves, R. E. (1980). A historical comparison of resource based theory and five schools of thought within industrial organization economics: Do we have a new theory of the firm? *Journal of Management*, 17, 121-154.
- Christensen, J., Kent, P. & Stewart, J. (2010). Corporate governance and company performance in Australia. *Australian Accounting Review*, 20(55).
- Cohn, B. S. & Marriott. M. (1958). Networks and centres of integration in Indian civilization. *Journal of Social Research* I, 1 -9.
- Coleman, J. S. (1988). Social capital in the creation of human capital, supplement: organization and intuitions: sociological and economic approaches to the analysis of social structure. *American Journal of Sociology* 94, S95 – S120.
- Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Belknap Press.
- Core, J., Holthausen, R. & Larcker, D. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51,371–406.
- Core, J., Guay, W. & Rusticus, T., (2006). Does weak governance cause weak stock returns? An examination of firm operating performance and investors 'expectations. *Journal of Finance* 61, 655–687.
- Croci, E. & Grassi, R. (2013). The economic effect of interlocking directorates in Italy: new evidence using centrality measure. Springer Science Business Media New York.
- Crosnoe, R., Kenneth F., Ana S. & Mueller A. S. (2008). Gender, Body Size and Social Relations in American High Schools. *Social Forces*, 86:1, 189-1216.
- Czepiel, J. A. (1974). Word of mouth processes in the diffusion of a major technological innovation. *Journal of Marketing Research* 11, 172-180.
- Dalton, D. R., Daily, C. M., Certo, S. T. & Roengpitya, R. (2003). Meta-analyses of financial performance and equity. Fusion or confusion? *Academy of Management Journal* 1, (1-64).

- Dalton, D. R., Hitt, M. A., Certo, S. T. & Daily C. M. R. (2007). The fundamental agency problem and its mitigation. In J.F. Walsh & A.P. Brief (Eds.), *Academy of Management Annals*, 46, 13-26.
- Davis, A., Gardner, B. & Gardner, R. (1941). *Deep South*. Chicago: University of Chicago Press
- Davis, G. F. & Greve, H. (1997). Corporate elite networks and governance changes in the 1980s. *American Journal of Sociology*, 103, 1–37.
- Davis, G. F. (1991). Agents without principles? The spread of the poison pill through the intercorporate network. *Administrative Science Quarterly*, 36, 583–613.
- Davies, M. & Prince, M. (2010). Advertising agency compensation, client evaluation and switching costs: An extension of agency theory. *Journal of Current Issues and Research in Advertising*, 32(1), 13-31.
- Dekker D., Krackhardt D. & Snijders T. A. B. (2007). Sensitivity of MRQAP tests to collinearity and autocorrelation conditions. *Psychometrika*, 72, 563-581.
- Domhoff, G. W. (1967). *Who rules America?* Englewood Cliffs, NJ: Prentice-Hall.
- Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, 14, 57-74.
- Ellis, R. S. & Johnson, L. W. (1993). Observations: Agency theory as a framework for advertising agency compensation decisions. *Journal of Advertising Research*, 33, 75-80.
- Elsayed, K. (2007). Does CEO Duality Really affect Corporate Performance? *Corporate Governance: An International Review*, 15, 1203–14.
- Engelberg, J., Gao, P. & Parsons, C. (2012). Friends with money. *Journal of Financial Economics* 103, 169–188.
- Fahlenbrach R., Low A. & Stulz R. M. (2010). Why do firms appoint CEOs as outside directors? *Journal Finance and Economics*, 97(1) 12-32.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of law and Economics*, 26, 301-325.

- Faust, K., Willber, K., Rowlee, D. & Skvortz, J. (2002). Scaling and statistical models for affiliation networks: Patterns of participation among Soviet politicians during the Brezhnev era. *Social Networks*, 24: 231-259.
- Fern, X. Z. & Brodley C. E. (2003). Random Projection for High Dimensional Data Clustering: A Cluster Ensemble Approach. Proceedings of the Twentieth International Conference on Machine Learning, Washington DC.
- Fich, E. & Shivdasani, A., (2006). Are busy boards effective monitors? *Journal of Finance* 61,689
- Fich, E. & White, L. (2001). Why do CEOs reciprocally sit on each other's boards? *New York University Center for Law and Business Working Paper #CLB-01-002*.
- Field, L., Lowry, M. & Mkrtyan, A. (2013). Are busy boards detrimental? *Journal of Financial Economics* 109 (2013) 63–82.
- Fligstein, N. & Brantley, P. (1992). Bank control, owner control, or organizational dynamics: Who controls the large modern corporation? *American Journal of Sociology*, 98 (2), 280-307.
- Francisco, A. F., Pedrosa, M. A., Silva, M. & Lana, M. (2009). Trypanosoma cruzi: Genetic diversity influences the profile of immunoglobulins during experimental infection. *Experimental Parasitology*, 121,8-14.
- Freeman L. C. (1977). A set of measures of centrality based on betweenness. *Sociometry* 40, 35-41.
- Friedkin, Noah E. (1991). Theoretical foundations for centrality measures. *American Journal of Sociology* (in press).
- Fulkerson, G. M. & Thompson, G. H. (2008). The evolution of a contested concept: A meta-analysis of social capital definitions and trends (1988-2006). *Sociological Inquiry*, 78, 536-557.
- Galaskiewicz, J. (1985). Social Organization of an Urban Grants Economy. *Academic Press*, Orlando, FL.
- Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Review*, 4, 75-91.

- Goerzen, A., & Beamish, P. W. (2005). The effect of alliance network diversity on multinational enterprise performance. *Strategic Management Journal*, 26,333–354.
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360-1380
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91, 481-510.
- Gregory, H. J. & Simms, M. E. (1999). ‘Corporate Governance: What it is and Why it Matters,’ The 9th International Anti-Corruption Conference (Kuala Lumpur).
- Gulati, R., Nohria, N. & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21, 203–215.
- Gulati, R., Lavie, D. & Madhavan, R. (2011). How do networks matter? The performance effects of interorganizational networks. *Research in Organizational Behavior*, 31, 207-224.
- Hagedoorn, J. (1993). Understanding the rationale of strategic technology partnering: interorganizational modes of cooperation and sectoral differences. *Strategic Management Journal* 14, 371–385.
- Hanifan, L. J. (1916). The rural school community center, *Annals of the American Academy of Political and Social Science*, 67, 130-138.
- Haniffa, R. & Hudaib, M. (2006). Corporate Governance Structure and Performance of Malaysian Listed Companies. *Journal of Business Finance and Accounting*, 33(7–8), 1034–1062.
- Hanneman, R. & Riddle, M. (2005). *Introduction to Social Network Methods*. Riverside: University of California
- Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13, 232-248.
- Hermalin, B. E. & Weisbach, M. S. (2001). Board of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature. *National Bureau of Economic Research*, w8161.

- Hillman, A. J. & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*, 28, 383–396.
- Ho S.S., Lam K. C. & Sami H. (2004). The investment opportunity set, director ownership, and corporate policies: evidence from an emerging market. *J Corp Finance* 10, 383–408.
- Holmstrom, B. (1979). Moral Hazard and observability. *Bell Journal of Economics*, 10, 74-91.
- Hoopes, D. G., Madsen, T. I. & Walker, G. (2003). Guest editor’s introduction to the special issue: Why is there a resource-based view? Toward a theory of competitive heterogeneity, *Strategic Management Journal*, 24, 889-902.
- Hutchinson, M. & Gul, F. A. (2004). Investment Opportunity Set, Corporate Governance Practices and Firm Performance. *Journal of Corporate Finance*, 10, 595–614.
- Inkpen, A. C., & Tsang, E. W. K. (2005). Social Capital, networks and knowledge transfer. *Academy of Management Review*, 30, 146-165.
- Ibarra H. (1997). Paving an alternative route: gender differences in managerial networks. *Social Psychology Q.*, 60, 91–102.
- Intintoli, V. J., Kahle, M. K. & Zhao, W. (2015). Board connectedness and Effectiveness. Research Gate.net.
- Jacobs, J. (1965). *The death and life of great American cities*. London: Penguin Books.
- Jensen, M.C. & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency cost, and ownership structure. *Journal of Financial Economics*, 3, 305-360.
- Joh, S. W. (2003). Corporate Governance and Firm Profitability: Evidence from Korea before the Economic Crisis. *Journal of Financial Economics*, 68, 287–322.
- John, K. & Senbet, L. W. (1998). Corporate governance and board effectiveness. *Journal of Banking & Finance*, 22, 371-403.
- Johnson, S., Schnatterly, K., Bolton, J. F. & Tuggle, C. (2011). Antecedents of new director social capital. *Journal of Management Studies*, 48 (8), 1782-1803.

- Katz, L. (1953). A new status index derived from sociometric analysis. *Psychometrika* 18: 39-43.
- Knoke, D. & Wood, J. (1981). *Organized for action: Commitment in voluntary associations*. New Brunswick, NJ: Rutgers University Press.
- Knoke D. & Kuklinski J. (1982). *Network analysis*, Beverly Hills, CA: Sage.
- Krackhardt, D. & Porter, L. W. (1986). The snowball effect: Turnover embedded in communication networks. *Applied Psychology*, 71, 50–55.
- Krackhardt D. (1987). Predicting with networks-Nonparametric multiple-regression analysis dyadic data. *Social Networks*, 10, 359-381.
- Lazersfeld, P. F. & Merton, R. K. (1954). *Friendship as Social Process: A Substantive and Methodological Analysis in Freedom and Control in Modern Society*. Edited by M. Berger. 18-66. New York, NY.
- Leavitt, H. J. (1951). Some effects of communication patterns on group performance. *Journal of Abnormal and Social Psychology* 46, 38-50.
- Lincoln, J., Gerlach, M. & Ahmadjian, C. (1996). Keiretsu networks and corporate performance in Japan. *American Sociological Review*, Vol. 61 No. 1, pp. 67-88.
- Loury, G. C. (1977). A dynamic theory of racial income differences. In P.A. Wallace & A. M. LaMonde (Eds.), *Women minorities and employment discrimination* (pp. 153-186). Lexington, MA: Lexington Books.
- Keister, L. (1998). Engineering growth: business group structure and firm performance in China's transition economy. *American Journal of Sociology*, 104 (2), 404-440.
- Kiel, G. C. & Nicholson, G. J. (2003). Board Composition and Corporate Performance: How the Australian Experience Informs Contrasting Theories of Corporate Governance. *Corporate Governance: An International Review*, 11, 189–205.
- Kim, Y. & Cannella, A. A., Jr. (2008). Toward a social capital theory of director selection. *Corporate Governance: An International Review*, 16, 282–293.
- Kiser, E. (1999). Comparing varieties of agency theory in economics, political science, and sociology: An illustration from state policy implementation. *Sociology Theory*, 17, 146-170.

- Kor, Y. & Sundaramurthy, C. (2009). Experience-based human capital and social capital of outside directors. *Journal of Management*, 35, 981–1006.
- Krackhardt, D. & Martin K. (1999). Whether Close or Far: Perceptions of Balance in Friendship Networks in Organizations. *Journal of Personality and Social Psychology*, 76, 770-782.
- Krackhardt, D, & Lyman W. P. (1986). The Snowball Effect: Turnover Embedded in Communication Networks. *Journal of Applied Psychology*, 71, 50-55.
- Krackhardt D. (1987). Predicting with networks-Nonparametric multiple-regression analysis of dyadic data. *Social Networks*, 10, 359-381.
- Larcker D.F., So E. C. & Wang C. C. (2011). Boardroom centrality and firm performance. Working paper No 84, Rock Center for Corporate Governance at Stanford University.
- Larcker, D. F., So E. C. & Wang, C. C. (2013). Boardroom centrality and firm performance. *Journal of Accounting and Economics*, 55, 225-250.
- David Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabási, A., Brewer, D., Christakis, N., Contractor, N., Fowler, J., Gutmann, M., Jebara, T., King, G., Macy, M., Roy, D. & Alstynne M. V. (2009). Computational Social Science. *Science* 323, 5915, 721-723.
- Lin, N. (2001). *Social capital: a theory of social structure and action*. Cambridge: Cambridge University Press.
- Mascia, D., Vincenzo, F. D., Iacopino, V., Fantini, M. P. & Cicchetti, A. (2015). Unfolding similarity in interphysician networks: the impact of institutional and professional homophily *BMC Health Services Research*. DOI 10.1186/s12913-015-0748-9.
- McPherson, J. (1982). Hypernetwork sampling: Duality and differentiation among voluntary organizations. *Social Networks*, 3:225-249.
- McPherson, M. & Smith-Lovin L. (1987). Homophily in voluntary organizations: status distance and the composition of Face-to-Face groups. *American Sociology Review*, 52,370–9.

- McPherson, M., Smith-Lovin L. & Cook J. M. (2001). Birds of feather: homophily in social networks. *Annual Review Sociology*, 27, 415–44.
- Meeusen, W. & Cuyvers, L. (1985). The interaction between interlocking directorships and the economic behavior of companies in Stockman, F., Ziegler, R. and Scott, J (Eds). *Networks of Corporate Power, Polity, Cambridge*, 45-72.
- Miles, J. A. (2002). Management and Organization Theory: *The Jossey Bass Business and Management Series*.
- Mitchell, J. C. (1969). The concept and use of social networks. In J.C. Mitchell (Ed.), *Social networks in urban situations* (pp. 1-50). Manchester, England: University of Manchester Press.
- Mizruchi, M. S., Peter M., Michael S. & Beth M. (1986). Techniques for disaggregating centrality scores in social networks. N. B. Tuma (ed.). *Sociological Methodology*, 1986. San Francisco: Josey-Bass.
- Mizruchi, M. (1990). What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. *Annual Review of Sociology* 8, 16–32.
- Mizruchi, M. & Galaskiewicz, J. (1994). Networks of interorganizational relations: in Wasserman, J. and Galaskiewicz, J. (Eds), *Advances in Social Network Analysis*, Sage, Thousand Oaks, CA, pp. 230-253.
- Mizruchi, M. S. (1996). What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. *Annual Review of Sociology*, 22: 271–298.
- Mol, M. (2001). Creating wealth through working with others: interorganizational relationships. *Academy of Management Executive* 15,150–152.
- Muth, M. M. & Donaldson, L. (1998). Stewardship Theory and Board Structure: A Contingency Approach. *Corporate Governance: An International Review*, 6, 5–28.
- Nahapiet, J. & Ghoshal, S. (1998). Social capital, intellectual capital and the organization advance. *Academy of Management Review*, 23, 242–266.
- Nicholson, G., Alexander, M. & Kiel, G. (2004). Defining the social capital of the board of directors: an exploratory study. *Journal of Management and Organization* 10, 54–72.

- Nooteboom, B. (1992). Towards a dynamic theory of transactions. *Journal of Evolutionary Economics* 2, 281–299.
- Obstfeld, D. (2005). Social networks, the tertius iungens orientation, and involvement innovation. *Administrative Science Quarterly*, 50, 100-130.
- Ortiz, N., Aragón, J., Delgado, J. & Ferrón, V. (2012). The effect of director interlocks on firms' adoption of proactive environmental strategies. *Corporate Governance: An International Review*, 164–178.
- Owen-Smith, J. & Powell, W. W. (2004). Knowledge networks as channels and conduits: the effects of spillovers in the Boston biotechnology community. *Organization Science* 15, 5–21.
- Peng, B., & Filatotchev. (2003). Do outside directors and new managers help to improve firm performance? An exploratory study in Russian privatization. *Journal of World Business*, 38, 346-360.
- Peng, M. W., Mutlu, C. C., Sauerwald, S., Au, K.Y. & Wang D. Y. (2015). Board interlocks and corporate performance among firms listed abroad. *Journal of Management History*, 21, 2, 257-282.
- Penning's, J. (1980). *Interlocking Directorates*. Jossey-Bass Publishers, San Francisco, CA.
- Peteraf, M. A. & Barney, M. E. (2003). Scanning dynamic competitive landscapes: A market-based and resource framework. *Strategic Management Journal*, 24, 1027-1041.
- Petersen, T. (1993). The economics of organizations: The principal-agent relationship. *Acta Sociologica*, 36, 27-293.
- Pettigrew, A. (1992). On studying managerial elites. *Strategic Management Journal*, 13 (2), 163-182.
- Pfeffer, J. & Salancik, G. R. (1978). The external control of organizations: are source dependence perspective. In: Rees, Albert and G. Shultz, 1970. *Workers and Wages in an Urban Labor*.

- Piccardi C., Calatroni L. & Bertoni F. (2010). Communities in Italian corporate networks. *Physica A* 389, 5247–5258.
- Pitts, F. R. (1965). A graph theoretic approach to historical geography”, *The Professional Geographer* 17, 15-20.
- Podolny, J. (1994). Market uncertainty and the social character of economic exchange. *Administrative Science Quarterly*, Vol. 39 No. 3, pp. 458-483.
- Podolny, J. M. & Page, K. L. (1998). Network forms of organization. *Annual Review of Sociology*, 24: 57–76.
- Portes, A. (1998). Social Capital: Its origin and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24).
- Portes, A., & Landolt, P. (1996). The downside of social capital. *American Prospect*, 26, 19-22.
- Portes, A. & Landolt, P. (2000). Social Capital: Promise and pitfalls of its role development. *Journal of Latin American studies*, 32, 529-547.
- Portes, A. & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of sociology*, 98, 1320-1350.
- Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. *Research on Organizational Behavior*, 12: 295–336.
- Powell, W. W., Kaput, K. W. & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1): 116–145.
- Puni, A., Osei, A. B. & Ofei, S.B. (2014). The Effect of Board Composition on Corporate Financial Performance: Evidence from Listed Firms in Ghana. *International Journal of Business and Management*, 9,8.
- Putnam, R. (2000). *Bowing alone: the collapse and revival of American community*. New York: Simon & Schuster.
- Putnam, R., Leonardi, R. & Nanetti, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.

- Renoust, B., Melançon, G. & Munzner, T. (2015). Detangler: Visual Analytics for Multiplex Networks. *Computer Graphics Forum* Vol. 34, 3,321-330.
- Richardson, R. (1987). Director interlocks and corporate profitability, *Administrative Science Quarterly*, 32 (3), 367-386.
- Rogers, E. M. & Phillip K. Bhomik. (1970). Homophily-Heterophily: Relational Concepts for Communication Research. *Public Opinion Quarterly* 34:523-38.
- Rogers, E. M. (1995). Diffusion of innovations (4th ed.). New York: *The Free Press*.
- Rowley, T., Behrens, D. & Krackhardt, D. (2000). "Redundant governance structures: an analysis of structural and relational embeddedness in the steel and semiconductor industries".*Strategic Management Journal*, 21, (3), 369-386.
- Rumelt, P. R. (1974). Strategy, Structure and Economic Performance. Harvard University Press. ISBN- 10: 0875841090.
- Sánchez, L. P. & Barroso-Castro, C. (2015). It is useful to consider the interlocks according to the type of board member (executive or non-executive) who possesses them? Their effect on firm performance. *Revista Europea de Dirección y Economía de la Empresa*.
- Schaefer, D. R. (2012). Homophily Through Nonreciprocity: Results of an Experiment. *Social Forces*. 90, (4), 1271-1295. Oxford University Press.
- Schoorman, F. D., Bazerman, M. H. & Atkin, R. S. (1981). Interlocking directorates: a strategy for reducing environmental uncertainty. *Academy of Management Review* 6, 243–251.
- Scott, J. (1997). Corporate Business and Capitalist Classes. OUP Oxford, ISBN 0191588830, 9780191588839,382.
- Shaw, M. E. (1954). Group structure and the behavior of individuals in small groups. *Journal of Psychology* 38, 139-149.
- Shleifer, A. & Robert W. V. (1986). Large shareholders and corporate control. *Journal of Political Economy* 94(3): 461-488.
- Shropshire, C. (2010). The role of the interlocking director and board receptivity in the diffusion of practices. *Academy of Management Review*, 35, 246–264.

- Sijtsema, J. J., Ojane, T., Veenstra, R., Siegwart L., Hawley, P. H. & Little, T. D. (2010). Forms and Functions of Aggression in Adolescent Friendship Selection and Influence: A Longitudinal Social Network Analysis. *Social Development*, 19,515-34.
- Smith, A. (1952). An inquiry into te nature and causes of wealth of nations (1776). In R. M. Hutchins (Ed.), *Great books of the Western world 39*, (291-376). Chicago: Encyclopedia Britannica (Originally published 1776).
- Sparrowe, R., Liden, R., Wayne, S. & Kraimer, M. (2001). Social Networks and the Performance of Individuals and Groups. *Academy of Management Journal*, 44(2), 316-325.
- Steinfeld, C., Nicole, B. & Lampe, C. (2008). Social Capital, Self-Esteem and Use of Online Social Network Sites: A Longitudinal Analysis. *Journal of Applied Developmental Psychology* 29, (6), 434-445.
- Tichy, N. M., Tusman, M. L. & Fombrum, C. (1979). Social network analysis for organizations. *Academy of Management Review*, 4, 507-519.
- Tuschke, A., Sanders, W. G. & Hernandez, E. (2014). Whose experience matters in the boardroom? The effects of experiential and vicarious learning on emerging market entry. *Strategic Management Journal*, 35 (3), 398-418.
- Vafeas, N. (1999). Board Meeting Frequency and Firm Performance. *Journal of Financial Economics*, 53, 113–42.
- Walster, E., Aronson, V., Abrahams, D. & Rottman, L. (1966). Importance of Physical Attractiveness in Dating Behavior. *Journal of Personality and Social Psychology*, 5,508 16.
- Wellman, B. (1983). Network Analysis: Some Basic Principles. In R. Collins (Ed.), *Sociology Theory*, 1, 155-200. San Francisco: Jossey-Bass.
- Wernefelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5. 171 180.

Wincent, J., Anokhin, S. & Boter, H. (2009). Network board continuity and effectiveness of open innovation in Swedish strategic small-firm networks. *R&D Management*, 39, 55–67.

Wintoki, M. B., Linck, J. S. & Netter, J. M. (2010). Endogeneity and the Dynamics of Internal Corporate Governance. Working paper April 2010.

Zajac, E. & Westphal, J. (1996). Director reputation, CEO-board power, and the dynamics of board interlocks. *Administrative Science Quarterly*, 41 (3), 507-529.



**APPENDIX****LISTED COMPANIES BETWEEN THE PERIOD OF 2005 TO 2009**

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Accra Brewery Ltd	Dr Charles Mensah	Gregory Metcalf	manufacturing	Male
Accra Brewery Ltd	Brian Richard Hirsch	R.K Edzeame	manufacturing	Male
Accra Brewery Ltd	Gregory Metcalf	Adjoba Kyiamah	manufacturing	Male
Accra Brewery Ltd	Abraham T.D. Okine	Ben Q. Afakey	manufacturing	Male
Accra Brewery Ltd		Urvesh Desai	manufacturing	Male
Accra Brewery Ltd		Michael Effah	manufacturing	Male
Accra Brewery Ltd		Chris-wulff Ceasar	manufacturing	Male
Accra Brewery Ltd		Akature Ania	manufacturing	Male
African Champion Industries Ltd	Elkin Pianim	F. Andoh	manufacturing	Male
African Champion Industries Ltd	Francis Andoh	Moses Arthur Baido	manufacturing	Male
African Champion Industries Ltd	Dr Patrick Ata	E.K. Ackom	manufacturing	Male
African Champion Industries Ltd	Samira Ibrahim Abu	Jeni Enyo Akar	manufacturing	Male
African Champion Industries Ltd	Comfort Yamoah	J.K Omari	manufacturing	Male
African Champion Industries Ltd	S.K. Anatui		manufacturing	Male
AngloGold Ashanti Ltd	M. Cutifani		manufacturing	Male
AngloGold Ashanti Ltd	S.Venkata Krishnan		manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
AngloGold Ashanti Ltd	R.P. Edey		manufacturing	Male
AngloGold Ashanti Ltd	Dr.T.J. Motlatsi		manufacturing	Male
AngloGold Ashanti Ltd	F.B. Arisman		manufacturing	Male
AngloGold Ashanti Ltd	Sipho Mila Pityana		manufacturing	Male
AngloGold Ashanti Ltd	W.A.N. Nairn		manufacturing	Male
AngloGold Ashanti Ltd	Prof. L.W. Nkuhlu		manufacturing	Male
AngloGold Ashanti Ltd	Fred Ohene- Kena		manufacturing	Male
Aluworks Ltd	William Ekroo Inkumsah	Ernest Kwasi Okoh	manufacturing	Male
Aluworks Ltd	Ernest Kwasi Okoh	Ruthvan David Adzogble	manufacturing	Male
Aluworks Ltd	Kwadwo Kwarteng	Francis M. Agboada	manufacturing	Male
Aluworks Ltd	Benjamin Akwete Gogo	Samuel A. Asare	manufacturing	Male
Aluworks Ltd	Napoleon Kpoh	Emaanuel M. Sarkodie	manufacturing	Male
Aluworks Ltd	Anthony Fofie	K. Agyapong-Manu	manufacturing	Male
Aluworks Ltd	Togbe Afede XIV	Wallace Dankwah	manufacturing	Male
Aluworks Ltd		C. Opere Larbi	manufacturing	Male
Aluworks Ltd		Karbo Odame	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Richard Adu Poku	Sam Adjepong	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Sam Adjepong	Efua Gyimah	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Linda Sangari	Angel Osei Ansah	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Belinda Opoku	Belinda Opoku	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Frances J. Adjepong	Daniel Antwi Appiah	Manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Ayrton Drug Manufacturing Ltd	Yaw Adu Gyamfi	F.Asante Binkorang	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Frank A. Boateng	Joseph Teye	manufacturing	Male
Ayrton Drug Manufacturing Ltd	Opoku Amponsah	S. Martey Carboo	manufacturing	Male
Ayrton Drug Manufacturing Ltd		Joseph Aboah	manufacturing	Male
Ayrton Drug Manufacturing Ltd		Daniel O. Aboagye	manufacturing	Male
Ayrton Drug Manufacturing Ltd		Ernest T. Aholu	manufacturing	Male
Benso Oil Palm Plantation Ltd	Ishmael Evans Yamson	Neneyo A. Mate-Kole	manufacturing	Female
Benso Oil Palm Plantation Ltd	Neneyo A. Mate-Kole	Hamison Adu Agyei	manufacturing	Female
Benso Oil Palm Plantation Ltd	Issah Adam	Akwasi Adu Boahen	manufacturing	Female
Benso Oil Palm Plantation Ltd	K. Amoasi-Andoh	Samuel Avaala	manufacturing	Female
Benso Oil Palm Plantation Ltd	F.S.O. Koranteng		manufacturing	Female
Benso Oil Palm Plantation Ltd	Dr. J.A. Poku		manufacturing	Female
Benso Oil Palm Plantation Ltd	C.A. Cofie		manufacturing	Female
Benso Oil Palm Plantation Ltd	Stephanie Achio		manufacturing	Female
Benso Oil Palm Plantation Ltd	Victoria Kiggundu		manufacturing	Female
Cal Bank Ltd	Paarock Van Percy	Frank Braku Adu Jnr.	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Cal Bank Ltd	Frank Braku Adu Jnr.	Kwasi N. Tumi	Service	Male
Cal Bank Ltd	Leonora Awua Kyeremanten	Philip Owiredu	Service	Male
Cal Bank Ltd	Malcolm Darmott Pryor	Thomas Boansi-sarpong	Service	Male
Cal Bank Ltd	Dr. Kobina Quansah	Kofi Ntow Agyemang	Service	Male
Cal Bank Ltd	James C. Brenner	Jacqueline Benyah	Service	Male
Cal Bank Ltd	Kwasi N. Tumi	Joan Essel-Appiah	Service	Male
Cal Bank Ltd		Anastacia Ako Hayford	Service	Male
Cal Bank Ltd		Philip Fynn	Service	Male
Cal Bank Ltd		Samuel Boafo	Service	Male
Cal Bank Ltd		Dzifa Amegashie	Service	Male
Camelot Ltd	Dr. Sam Mensah	John Collin Villars	Manufacturing	Male
Camelot Ltd	John Collin Villars	Isaac Gasonoo	Manufacturing	Male
Camelot Ltd	Elizabeth Joyce Villars	Adjoa Van Vicker	Manufacturing	Male
Camelot Ltd	Caroline Andah	Bismark Adom Dankwa	Manufacturing	Male
Camelot Ltd	Suganthan Allotey		Manufacturing	Male
Camelot Ltd	Dzifa Amegashie		Manufacturing	Male
Camelot Ltd	S.S Sarpong		Manufacturing	Male
CFAO (Ghana) Ltd	Thomas Pelletier	Thomas Pelletier	Service	Male
CFAO (Ghana) Ltd	Pascal Laffargue	Herve Bijonneau	Service	Male
CFAO (Ghana) Ltd	Felix Adu Amoah	Anita Arthur	Service	Male
CFAO (Ghana) Ltd	E.K. Akyea-Djamson		Service	Male
CFAO (Ghana) Ltd	Jacques Zymelman		Service	Male
CFAO (Ghana) Ltd	Alhaji Asma Banda		Service	Male
CFAO (Ghana) Ltd	Herve Bijonneau		Service	Male
Clydestone (Ghana) Ltd	George Prah	Paul Jacquaye	Service	Male

<b>COMPAN Y</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMEN T</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Clydestone (Ghana) Ltd	Paul Jacquaye	Kojo Ayeboaho	Service	Male
Clydestone (Ghana) Ltd	Nana Bonyin Hutchful	Jonathan Sam	Service	Male
Clydestone (Ghana) Ltd	Prof Ellis Badu		Service	Male
Clydestone (Ghana) Ltd	Robert Alloh		Service	Male
Cocoa Processing Co.	Hon. Jacob S. Arthur	Richard Amarh-Tetteh	Manufacturing	Male
Cocoa Processing Co.	Richard Amarh-Tetteh	Cahrles D. Asante	Manufacturing	Male
Cocoa Processing Co.	Prof. Joshua Abor	T.G. Essandoh	Manufacturing	Male
Cocoa Processing Co.	Dr. Rose Emma Mamaa Entsua-Mensah	James A.Darko	Manufacturing	Male
Cocoa Processing Co.	Dr. Yao Asamoah	Genevieve Pawar	Manufacturing	Male
Cocoa Processing Co.	Samuel Danquah Arkhurst	Peter K.Sintim	Manufacturing	Male
Cocoa Processing Co.	John Kofi Mensah	James E.S. Rhule	Manufacturing	Male
Cocoa Processing Co.	Nana Kojo Toku	J.M. Sackey	Manufacturing	Male
Cocoa Processing Co.	Brigadier Gen. Charles Harrison Mankatah	Alex Dwamena	Manufacturing	Male
Cocoa Processing Co.	Anthony Fofie	Kwabena Frimpong	Manufacturing	Male
Cocoa Processing Co.	Nana Oduro Owusu	FrankAdu Asante	Manufacturing	Male
Cocoa Processing Co.	Darlington Afari Dwamena	Stephen Ofori Adjei	Manufacturing	Male
Ecobank Ghana Ltd	Tei Mensah Mante	Samuel Ashitey Adjei	Service	Male
Ecobank Ghana Ltd	Samuel Ashitey Adjei	Ernest D. Asare	Service	Male
Ecobank Ghana Ltd	Kofi Ansah	Josephine Anan-Ankoma	Service	Male
Ecobank Ghana Ltd	Albert Kobina Essien	Albert Bartlet-Mingle	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Ecobank Ghana Ltd	Mariam Gabala Dao	Edward Botchway	Service	Male
Ecobank Ghana Ltd	A.O. Adenkule	Joana Adaku mensah	Service	Male
Ecobank Ghana Ltd	Frances Adu Mante	Enoch Osei Safo	Service	Male
Ecobank Ghana Ltd		Awuraa Abena Asafo Boakye	Service	Male
Ecobank Ghana Ltd		George Mensah Asante	Service	Male
Ecobank Ghana Ltd		Johnson Oware	Service	Male
Ecobank Ghana Ltd		Regina Pepra-Omari	Service	Male
Ecobank Ghana Ltd		Morgan Fianko Asiedu	Service	Male
Enterprise Insurance Company Ltd	TrevorTrefgarme	George Otoo	Service	Male
Enterprise Insurance Company Ltd	George Otoo	Daniel Seddoh	Service	Male
Enterprise Insurance Company Ltd	Ken Ofori-Atta	Kwame Ofori	Service	Male
Enterprise Insurance Company Ltd	Hon Margaret Clarke-Kwesie	Nii O. Ankrah	Service	Male
Enterprise Insurance Company Ltd	Charles P. Odei	Ernestina Abeh	Service	Male
Enterprise Insurance Company Ltd	Keli Gadzekpo	Maurice Nyarko-Mensah	Service	Male
Enterprise Insurance Company Ltd	Martin Eson Benjamin		Service	Male
Ecobank Transnational incorporated	Kolapo A. Lawson	Arnold Ekpe	Service	Male
Ecobank Transnational incorporated	Christian N. Adovelande	Evelyn Tall	Service	Male
Ecobank Transnational incorporated	Arnold Ekpe	Albert Kobina Essien	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Ecobank Transnational incorporated	Andre Siaka	Offong Ambah	Service	Male
Ecobank Transnational incorporated	Paulo Gones	Kassimou A. Kabasi	Service	Male
Ecobank Transnational incorporated	Oba A. Otudeko	C. Jocktane-Lawson	Service	Male
Ecobank Transnational incorporated	Offong Ambah	Cheik Ndaiye	Service	Male
Ecobank Transnational incorporated	Albert Kobina Essien	Antoine K. Nzongola	Service	Male
Ecobank Transnational incorporated	Evelyn Tall	Sani Yaya	Service	Male
Ecobank Transnational incorporated	Kwasi Boatın	Laurence do Rego	Service	Male
Ecobank Transnational incorporated	Patrick Akinwuntan	Ronke Wilson	Service	Male
Ecobank Transnational incorporated	Sipho G. Mseleku	Samuel Ayim	Service	Male
Ecobank Transnational incorporated	Isyaku Umar	Yves C. Quam-Dessou	Service	Male
Ecobank Transnational incorporated	Laurence do Rego	Iyane Dia	Service	Male
Ecobank Transnational incorporated		Segun Ogun Sanya	Service	Male
Ecobank Transnational incorporated		Richard Uku	Service	Male
Ecobank Transnational incorporated		Steve Wiliams	Service	Male
Fanmilk Ltd	Charles Mensah	Jesper B. Jeppesen	Manufacturing	Male
Fanmilk Ltd	Jesper B. Jeppesen	Jonathan A. Ocansey	Manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Fanmilk Ltd	Peace P. Ayisi-Okyere	George Tutu Yeboah	Manufacturing	Male
Fanmilk Ltd	Kojo B. Aziagbe	Samuel K. Asante	Manufacturing	Male
Fanmilk Ltd	Einar M. Christensen	Jonathan Kwesi Attuah	Manufacturing	Male
Fanmilk Ltd	Jens Jorgen Kollerup	Nathan Dennis	Manufacturing	Male
Fanmilk Ltd	George H.O. Thompson	Joshua N.A. Armah	Manufacturing	Male
Fanmilk Ltd		Charles Ekem Smith	Manufacturing	Male
Fanmilk Ltd		Angela Nelson	Manufacturing	Male
Ghana Commercial Bank Ltd	P. Kojo Thompson	Simon Dornu	Service	Male
Ghana Commercial Bank Ltd	Simon Dornu	Samuel Sarpong	Service	Male
Ghana Commercial Bank Ltd	Samuel Sarpong	Samuel Amankwah	Service	Male
Ghana Commercial Bank Ltd	Samuel Amankwah		Service	Male
Ghana Commercial Bank Ltd	Dr. A. Fritz Gockel		Service	Male
Ghana Commercial Bank Ltd	Fii Fiavi Kwetey		Service	Male
Ghana Commercial Bank Ltd	Charlotte Osei		Service	Male
Ghana Commercial Bank Ltd	Alhaji Abulkari Sumani		Service	Male
Ghana Commercial Bank Ltd	Lovelace Prempeh		Service	Male
Ghana Commercial Bank Ltd	Joshua K.K. Peprah		Service	Male
Ghana Commercial Bank Ltd	Adelaide M. Benneh		Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Ghana Commercial Bank Ltd	Elliot Gordor		Service	Male
Ghana Commercial Bank Ltd	Laurette Vivian Lamptey		Service	Male
Guinness Ghana Ltd	David Harlock	Ekwunife Okoli	Manufacturing	Male
Guinness Ghana Ltd	Ekwunife Okoli	Andy Jones	Manufacturing	Male
Guinness Ghana Ltd	E.M. Boye	Edwin Baffour	Manufacturing	Male
Guinness Ghana Ltd	J.W.Acheampong	Robert Pilkington	Manufacturing	Male
Guinness Ghana Ltd	Kwame Donkor Fordwor	Jojo Bonney	Manufacturing	Male
Guinness Ghana Ltd	ThomasArie De Man		Manufacturing	Male
Guinness Ghana Ltd	Kwaku Sarfo-Mensah		Manufacturing	Male
Guinness Ghana Ltd	Robert Pilkington		Manufacturing	Male
Guinness Ghana Ltd	P.V.Obeng		Manufacturing	Male
Guinness Ghana Ltd	Jojo Bonney		Manufacturing	Male
Guinness Ghana Ltd	John Lloyd		Manufacturing	Male
Ghana Oil Company Ltd	Prof. W.A. Asomaning	Yaw Agyeman-Duah	Service	Male
Ghana Oil Company Ltd	Kojo Bonsu	Charles K. Darko	Service	Male
Ghana Oil Company Ltd	Hon. Nii Laryea Afortey Agbo	Erasmus Ofori- Sarkwa	Service	Male
Ghana Oil Company Ltd	Kwesi Yankah	Patrick Akpe Kwame Akorli	Service	Male
Ghana Oil Company Ltd	Eugene Akoto-Bamfo	Stephen Yaw Gyaben	Service	Male
Ghana Oil Company Ltd	Chris Ackumey	Paul Ohene-Tagoe	Service	Male
Ghana Oil Company Ltd	Thomas Kofi Manu	Anthony Twumasi	Service	Male
Ghana Oil Company Ltd	Faustina Nelson	Joseph Brian A. Ansah	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Ghana Oil Company Ltd	Yaw Agyeman-Duah	Alex Josiah Adzew	Service	Male
Golden Star Resources Ltd	Ian Mac Gregor	Tom Mair	Manufacturing	Male
Golden Star Resources Ltd	James Askew	D. Scott Barr	Manufacturing	Male
Golden Star Resources Ltd	Tom Mair	John Labate	Manufacturing	Male
Golden Star Resources Ltd	David Fagiri	Peter Bourke	Manufacturing	Male
Golden Star Resources Ltd	Dr. Micheal Martineau	S. Mitch Wasel	Manufacturing	Male
Golden Star Resources Ltd	Micheal Terrell	Nigel Tamlyn	Manufacturing	Male
Golden Star Resources Ltd	Lars Eric Johansson	Micheal Mracek	Manufacturing	Male
Golden Star Resources Ltd	Christian M.T. Thompson	Bruce Higson-Smith	Manufacturing	Male
Golden Star Resources Ltd	Robert E. Doyle	Daniel Owiredu	Manufacturing	Male
Golden Star Resources Ltd		Roger Palmer	Manufacturing	Male
Golden Star Resources Ltd		Dr. Mark Thorpe	Manufacturing	Male
Golden Web Company Ltd	Nana Serwa Amponsah	Thomas Wabi Bello	Manufacturing	Male
Golden Web Company Ltd	Thomas Wabi Bello	Karikari Adu Gyamfi	Manufacturing	Male
Golden Web Company Ltd	Mark Ofosu Ampadu	Francis Tulasi	Manufacturing	Male
Golden Web Company Ltd	Ebenezer Ato Barnes	Amy Alima Bello	Manufacturing	Male
Golden Web Company Ltd	Amy Prah	Toni Mensah-Poku	Manufacturing	Male
Golden Web Company Ltd	David Owusu Anokye		Manufacturing	Male
Golden Web Company Ltd	Egblogbe Anagate		Manufacturing	Male
HFC Bank (Ghana)	Nana Agyei Duku		Service	Male
HFC Bank (Ghana)	Asare Akuffo		Service	Male
HFC Bank (Ghana)	Stephanie Baeta Ansah		Service	Male
HFC Bank (Ghana)	Akwete Akita		Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
HFC Bank (Ghana)	Francis Hengry Anglow		Service	Male
HFC Bank (Ghana)	John Kusi-Mensah		Service	Male
HFC Bank (Ghana)	Olufunke Iyabo Osibodu		Service	Male
HFC Bank (Ghana)	John Sey		Service	Male
HFC Bank (Ghana)	Olatubosum Thomas		Service	Male
Mechanical Llyod Co. Ltd	C.B.K. Zwennes		Service	Male
Mechanical Llyod Co. Ltd	T.R. Darko		Service	Male
Mechanical Llyod Co. Ltd	C.S. Aidoo		Service	Male
Mechanical Llyod Co. Ltd	N.K. Bulley		Service	Male
Mechanical Llyod Co. Ltd	A. Lawson		Service	Male
Mechanical Llyod Co. Ltd	Yaw Assah-Sam		Service	Male
Mechanical Llyod Co. Ltd	Johanna Kukua Awotwi		Service	Male
Pioneer Kitchenware Ltd	Togbe Afede XIV	Safo Amankwah	Manufacturing	Male
Pioneer Kitchenware Ltd	Alhaji Abdul Rahman Isaka	Bright Kumah	Manufacturing	Male
Pioneer Kitchenware Ltd	Dr Kobina Quansah	Abraham Afotey	Manufacturing	Male
Pioneer Kitchenware Ltd	Raymond Ackah	Stephen Arko	Manufacturing	Male
Pioneer Kitchenware Ltd	K.Venkataramana		Manufacturing	Male
Pioneer Kitchenware Ltd	Bella Korkoe Ahu		Manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Pioneer Kitchenware Ltd	Felix Biga		Manufacturing	Male
Pioneer Kitchenware Ltd	Wilson A. Krofah		Manufacturing	Male
Produce Buying Co. Ltd	Dr. John Abu	Kojo Atta-Krah	Service	Male
Produce Buying Co. Ltd	Kojo Atta-Krah	Joseph Osei Manu	Service	Male
Produce Buying Co. Ltd	Alhaji Yabuku Ziblim	George K. Boateng	Service	Male
Produce Buying Co. Ltd	Hon. Kofi Yankah		Service	Male
Produce Buying Co. Ltd	Cecelia Nyann		Service	Male
Produce Buying Co. Ltd	Teye Quartey		Service	Male
Produce Buying Co. Ltd	Mabel Oseiwaa Quakyi		Service	Male
Produce Buying Co. Ltd	Nana Kwame Nkrumah I		Service	Male
Produce Buying Co. Ltd	Kofi Graham		Service	Male
Produce Buying Co. Ltd	J.M.K. Apiaw		Service	Male
Produce Buying Co. Ltd	Yaw Sarpong		Service	Male
PZ Cussons Ghana Ltd	P.K. Pepera	James B. Judson	Manufacturing	Male
PZ Cussons Ghana Ltd	James B. Judson	John Males	Manufacturing	Male
PZ Cussons Ghana Ltd	P.W. Davies	A. Tekyi	Manufacturing	Male
PZ Cussons Ghana Ltd	F.S. Quarchey	C.B. Janney	Manufacturing	Male
PZ Cussons Ghana Ltd	Christopher Davies	Richard Hollings	Manufacturing	Male
PZ Cussons Ghana Ltd	C.B. Janney		Manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Sam- Woode Ltd	Kwesi Sam-Woode	Nana Abaahoma Woode	Manufacturing	Male
Sam- Woode Ltd	Richard K.Oguaa	Pamela Aba Woode	Manufacturing	Male
Sam- Woode Ltd	Jacob Kholi	Patience Stiles	Manufacturing	Male
Sam- Woode Ltd	Nana Erhuma Kpanyiri VI	Benedine Azanu	Manufacturing	Male
Sam- Woode Ltd	Collins Sam Acquah	George Lord Ackerson	Manufacturing	Male
Sam- Woode Ltd	R.E.N.A. Okine		Manufacturing	Male
Sam- Woode Ltd	Pamela Aba Woode		Manufacturing	Male
Sam- Woode Ltd	Nana Abaahoma Woode		Manufacturing	Male
SG-SSB Ltd	Bernard David	Alain Bellissard	Service	Male
SG-SSB Ltd	Alain Bellissard	Giles Lourel	Service	Male
SG-SSB Ltd	Gilles Lourel	Serge Le Quentrec	Service	Male
SG-SSB Ltd	Michel Miarille	Joel Favriaud	Service	Male
SG-SSB Ltd	Patrick Le Buffe	Alfred Akotia	Service	Male
SG-SSB Ltd	Kofi Ampim	Irene Owiredu-Akrofi	Service	Male
SG-SSB Ltd	Pierre Wolmarans	Ben Berko	Service	Male
SG-SSB Ltd	Kwaku Osafo	Edmund Wiredu Brobbey	Service	Male
SG-SSB Ltd	Teresa Ntim	Maame Kessewa Eshun	Service	Male
SG-SSB Ltd	Ambassador Fritz Kwabena Poku	Lawrence Ribero	Service	Male
SG-SSB Ltd	Serge Le Quentrec	Kwame Ofori-Gyan	Service	Male
SG-SSB Ltd		Angela Nanasaa Bonsu	Service	Male
SIC Insurance Co. Ltd	Max Cobbina	Benjamin Acolatse	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
SIC Insurance Co. Ltd	Benjamin Acolatse	F.O. Asafo-Adjei	Service	Male
SIC Insurance Co. Ltd	Yvonne Osei-Tutu	Isaac Tettey	Service	Male
SIC Insurance Co. Ltd	Kingsley Awuah-Darko	Alfred Ofori-Kuragu	Service	Male
SIC Insurance Co. Ltd	Dr. Vitus Anaab-Bisi	John Kusi Mensah	Service	Male
SIC Insurance Co. Ltd	Akwasi Osei	Romeo Buagyei	Service	Male
SIC Insurance Co. Ltd	Dr. Kwaku Osafo	Kwei Mensah Ashidam	Service	Male
SIC Insurance Co. Ltd	Dr kofi Kodua Sarpong	Dr F. Kofi Asiedu	Service	Male
SIC Insurance Co. Ltd	Dr. Kofi Amoah	Patience Opoku	Service	Male
SIC Insurance Co. Ltd		P.E.K. Mawuvenu	Service	Male
Standard Chartered Bank Gh. Ltd	Ishmael Evans Yamson		Service	Male
Standard Chartered Bank Gh. Ltd	Kweku Bedu-Addo		Service	Male
Standard Chartered Bank Gh. Ltd	Sanjay Rughani		Service	Male
Standard Chartered Bank Gh. Ltd	Samuel Daisie		Service	Male
Standard Chartered Bank Gh. Ltd	Fred William Lee		Service	Male
Standard Chartered Bank Gh. Ltd	Herbert A. Morrison		Service	Male
Standard Chartered Bank Gh. Ltd	Felicia S. Gbesemete		Service	Male
Starwin Products Ltd	Rev Mensah Otabil	Kwasi Yirenkyi	manufacturing	Male
Starwin Products Ltd	Dr. Albert Gyan Boohene	Kwame Asante	manufacturing	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Starwin Products Ltd	Michael Addo	Patrick Asante Boadu	manufacturing	Male
Starwin Products Ltd	Dr.Esther Offei Aboagye	Samuel Frempong	manufacturing	Male
Starwin Products Ltd	Barbara Oteng Gyasi	W.A. Sakyamah	manufacturing	Male
Starwin Products Ltd	Kwasi Yirenyki	Mark Otibo	manufacturing	Male
Total Petroleum Ghana Ltd	Stanilas Mittleman	Jonathan Molapo	Service	Male
Total Petroleum Ghana Ltd	Jonathan Molapo	Jean Manuel Navarro-Laurence	Service	Male
Total Petroleum Ghana Ltd	Alain Champeaux	Alexi Thelemaque	Service	Male
Total Petroleum Ghana Ltd	Rexford Adomako-Bonsu	E.Menya-Hughes	Service	Male
Total Petroleum Ghana Ltd	E.P.L. Gyampoh	Samuel Asare-Bediako	Service	Male
Total Petroleum Ghana Ltd	John Sackah Addo	Mercy Samson	Service	Male
Total Petroleum Ghana Ltd	Kwadwo Owusu-Tweneboa	Kwabena Agyei Boahene	Service	Male
Total Petroleum Ghana Ltd	Kofi Ampim	Richard Debrah	Service	Male
Total Petroleum Ghana Ltd	Ronan Bescond		Service	Male
Total Petroleum Ghana Ltd	C. Joret des Closieres		Service	Male
Transaction Solutions (Ghana) Ltd	Paul Jacquaye	Frank Kofi Opata	Service	Male
Transaction Solutions (Ghana) Ltd	George Prah	Catherine Geyi	Service	Male
Transaction Solutions (Ghana) Ltd	Raziel Obeng-Okon	Clara Arthur	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Transaction Solutions (Ghana) Ltd	Gaylord Sedofia Kemevor	Edward Abbey	Service	Male
Transaction Solutions (Ghana) Ltd	Eric Abeku Cofie		Service	Male
Transaction Solutions (Ghana) Ltd	Fouad Chalabi		Service	Male
Transaction Solutions (Ghana) Ltd	Jonathan Sam		Service	Male
Transaction Solutions (Ghana) Ltd	Romeo Bugyei		Service	Male
Trust Bank Ltd (The Gambia)	Ken Ofori-Atta	Pa Macoumba M. Njie	Service	Male
Trust Bank Ltd (The Gambia)	Pa Macoumba M. Njie	Oreme Joiner	Service	Male
Trust Bank Ltd (The Gambia)	Saibatou B. Faal	Isha Roche	Service	Male
Trust Bank Ltd (The Gambia)	Momar Samba	Ibrahim Salla	Service	Male
Trust Bank Ltd (The Gambia)	Bai Matr Drammeh	Ndambou Touray	Service	Male
Trust Bank Ltd (The Gambia)	Edward Graham	Momodou L. Bojang	Service	Male
Trust Bank Ltd (The Gambia)	Mustapha Njie	Njilan Senghore Njie	Service	Male
Trust Bank Ltd (The Gambia)	Angela Andrews-Njie	Fatou Faye	Service	Male
Trust Bank Ltd (The Gambia)	Franklin Hayford	Felix Ceesay	Service	Male

<b>COMPANY</b>	<b>BOARD MEMBERS</b>	<b>MANAGEMENT</b>	<b>INDUSTRY</b>	<b>GENDER OF CEO</b>
Trust Bank Ltd (The Gambia)		Yaya Corr	Service	Male
Trust Bank Ltd (The Gambia)		Momodou Conteh	Service	Male
Trust Bank Ltd (The Gambia)		Kebba Darboe	Service	Male
Trust Bank Ltd (The Gambia)		Omar Mboob	Service	Male
Unilever Ghana Ltd	Ishmael Evans Yamson	Charles Cofie	Manufacturing	Male
Unilever Ghana Ltd	Charles A. Cofie	S. Achio	Manufacturing	Male
Unilever Ghana Ltd	S. Achio	Kwaku O. Boateng	Manufacturing	Male
Unilever Ghana Ltd	Joseph N-A. Hyde	Sampson Aaron Dontoh	Manufacturing	Male
Unilever Ghana Ltd	Franklyn A. Manu		Manufacturing	Male
Unilever Ghana Ltd	Kwaku O. Boateng		Manufacturing	Male
Unilever Ghana Ltd	Aurore Lokko		Manufacturing	Male
Unilever Ghana Ltd	Sampson Aaron Dontoh		Manufacturing	Male
UT Bank Ltd	Joseph Nsonamoah	Joseph Nsonamoah	Service	Male
UT Bank Ltd	Cpt.Prince Kofi Amoabeng (RTD)	Cpt. Prince Kofi Amoabeng (RTD)	Service	Male
UT Bank Ltd	M. Atiboly	Cpt. Budu Koomson(RTD)	Service	Male
UT Bank Ltd	Dato Dr Jaafar Ahmad	Pearl Esua- Mensah	Service	Male
UT Bank Ltd	Cpt. Budu Koomson(RTD)	Edward Adu-Ntiamoah	Service	Male
UT Bank Ltd	Pearl Esua- Mensah	Rosemary Sahnoon	Service	Male
UT Bank Ltd	T. Munusamy	Adjoa Halm-Quagraine	Service	Male
UT Bank Ltd	M.N. Abdullah	Bernard Acquah	Service	Male
UT Bank Ltd		Edem Yankson	Service	Male
UT Bank Ltd		John Ackon	Service	Male
UT Bank Ltd		Safoa Awuku-Asabre	Service	Male