KWAME NKRUMA UNIVERSITY OF SCIENCE AND TECHNOLOGY

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DEPARTMENT OF ACCOUNTING AND FINANCE

BOARD GENDER DIVERSITY AND FIRM PERFORMANCE OF LISTED FIRMS IN GHANA

BY

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DECLARATION

I hereby declare that this submission is my own work. To the best of my knowledge, it contains no materials previously published by myself or another person except where due acknowledgement has been made in the text.

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ABSTRACT

This study examines the relationship between board gender diversity and firm financial performance of firms in Ghana. The sample consists of 31 listed firms on the GSE over the period 2003-2014 which yields an unbalanced panel data of 290 firms. The objectives of the study is to determine gender composition of listed firms on Ghana Stock Exchange, to examine the effect of female presence on boards on firm performance, to investigate the impact of female presence on audit committee on firm performance and to assess the impact of female executive members of the board on firm performance. After controlling for firm size, board size, industrial dummies, ownership and other corporate governance measures using the pooled OLS and the generalized least squares estimation methods, the study finds a mixed result. Specifically, the study finds a positive and significant relationship between gender diversity as measured by proportion of women on board and firm performance measured by gross profit margin, net profit margin and return on capital employed. The study, however, reports a negative and significant relationship between gender diversity (proportion of women on board) and Tobin"s Q but finds no significant relationship between proportion of female on board and return on equity. The study again finds no significant relationship between the diversity measure „female executive board members" and all five firm performance measures. The study further conclude that there exist no significant relationship between percentage of female on audit committee and performance measured by gross profit margin, Tobin"s Q, net profit margin, return on capital employed and return on capital employed. The study also confirms assertion that a firm"s asset size is a good predictor

of firm performance. A major policy recommendation is that firms should include women

on their boards since they contribute positively to the firm"s performance.

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CHAPTER ONE

1.1 Introduction

In recent years, corporate boards have become the most vital internal control mechanism in corporate governance that shareholders employ to control and monitor management in organizations. Prior studies (see Fama and Jensen, 1983; Hermalin and Weisbach, 2003) argue that one of the definitive aims of forming corporate boards is to identify and establish key organizational structures that may align and promote interests of stakeholders with that of management (Rose, 2007). However, the efficacy of the board to monitor the performance as well as put management on their toes (see Rose, 2007) depends upon several factors that may include the board"s diversity, qualifications and experience, involvement in a multiple directorship position, level of share ownership as well as the type of remuneration scheme offered to motivate the participation of the members. However, research and government commissioned reports such as the Higgs (2003), Cadbury (1992) reports in the UK, Sarbanes–Oxley Act of 2002 in the US, and Erhardt, Werbel and Shrader (2003) have explicitly argued out on the importance of board diversity among other factors to the firm. Their empirical findings reveal that to enhance board effectiveness, corporate firms must continually solicit for expertise of gender diverse professional groups where women are better represented. However, the question that comes to mind is, does gender diversity make any difference in the corporate world?

Compbell and Minguez-Vera (2008) note that the presence and participation of women on corporate boards in one way or the other may promote and enhance shareholder value due to their ability to bring additional viewpoints to the board. In light of Fondas" work on corporate boards which significantly reiterates the importance of board of

directors in the corporate world and how these influential actors make strategic directions and decision-making as well as undertake a monitoring role of management; Fondas (2000) asserts that presence of women directors on the board helps in the execution of strategic board function that may be aligned with the firm needs. Notwithstanding, research on the issue of diverse viewpoints among corporate teams advocates that teams with functional heterogeneity in terms of gender composition are more effective at solving problems than homogenous teams and hence may better respond to rapid dynamic changes in the corporate market. However, Erhardt et al. (2003) examine that while diversity within corporate boards may be a highly visible effort to reduce gender discrimination as well as prevent glass ceiling in the firm, it is unclear if gender diversity has substantial impact on organizational performance. Management literature examine that diversity in personality (Burke and Nelson, 2002), ethnicity (Burke, 1995 and Elron, 1996) as well as demography (see Petersen, 2000; Timmerman, 2000) can improve the

efficiency of the board as well as create strong network connections that will facilitate an increase in knowledge base, creativity and innovations in the organization hence firm performance (Bilimoria, 2000; Burke and Nelson, 2002).

Shrader et al. (1997) consequently, examine top management gender diversity and firm financial performance for large firms. They find evidence for the existence of a positive association between the presence of women in management positions and firm financial performance which they attribute to recruitment from a relatively larger talent pool that included females. This finding is confirmed by recent studies (see Davies, 2011; Sealy and Vinnicombe, 2012). Although, gender diversity related research is well captured on developed economies, little evidence exist on developing economies such as Ghana

in terms of how gender diversity in the board room influence firm performance. Medland (2004) reports that firms in Sweden are mandated to voluntarily reserve a minimum of 25 per cent of their board seats for female directors whilst the FTSE companies in the UK similarly require firms listed on their market to have at least 25 per cent of female directors on their board by 2015

(see Sealy and Vinnicombe, 2012). However, the case is not different in Ghana. In 2001 the government of Ghana established the Ministry of Women and Children"s Affairs (MOWAC) to liaise with all relevant stakeholders to ensure that gender is mainstreamed into all senior level positions in government sectors. The Provisional National Defense Council Government in 1997 endorsed the Affirmative Action Plan prepared by a coalition of gender activists groups pledging to support and achieve forty percent female representation on all corporate boards by 2000 (Boohene et al., 2008). Despite efforts to increase the proportion of female representation in top and middle management, women in Ghana, are rarely represented hence the extent to which female participation influence firm performance. This paper therefore, tends to re-examine the effect of board gender diversity and firm performance using data from developing economy such as Ghana.

1.2 Problem of the study

Female representation on boards has become the central focus of corporate governance renovate efforts around the world. Consequently companies are being put under pressure to appoint female directors in their boards. For instance in 2004 Norway implemented a compulsory gender quota law which requires 40% positions in the boards of listed companies to be set aside for females (HKEC 2012). This inventeness encouraged many countries in Europe to follow suite; countries such as Belgium

(2011), Finland (2005) and Spain (2007) are to be mentioned. This initiative has also led to the increase level of board gender diversity in countries in Asia-Pacific region such as Australia (2009), New Zealand (2012) and Singapore (2012).

The theoretical explanation for including more women in the company boards comes from management theories – diversity management. According to this theory more diverse boards may cause improved firm performance. As a result, gender diversity as a corporate governance concept has in recent times caught the interest of policymakers, managers, directors, shareholders and academia (Johansen 2008).

Theoretically, both agency theory and resource dependency theory predict that there will be a positive relationship between board diversity and company financial performance. Agency theorists advocate that the diversity of boards is one of the measures of their independence (Jensen & Meckling, 1976), and independent boards are more effective at their function of managerial monitoring, and thus, may have a positive impact on financial performance (Muth & Donaldson, 1998).

However, whether gender diversity improves governance practices, which in turn can lead to better financial performance is an empirical question. Prior empirical research undertaken predominantly in the developed economies has revealed inconclusive results (Campbell and Minguez-Vera, 2008 and Rose 2007) . Again according to Erhardt et al. (2003) the influences of gender diversity on financial performance remain unclear. Studies conducted by (Cartel et al. 2010; Rose, 2007) provided an evidence of no significant relationship at all. Based on the different stances that have been taken by the various studies that have been undertaken in developed countries, it is necessary that the issue is also investigated in developing countries, since few studies have been

carried out in the developing countries, Ghana being included. Prior studies in Ghana particularly considers board gender composition of listed firms (Amidu and Abor, 2003).The scant literature that exists in Ghana has therefore necessitated the need to investigate the impact of board gender diversity on firm"s performance in Ghana. Notwithstanding the fact that the gender issue is not a major challenge among firms in Ghana, the result of the study could be of importance to the academia, corporate bodies, shareholders and policy makers just to mention a few.

1.3 Objectives of the study

The general objective is to examine the effect of board gender diversity on firm performance in Ghana. The study seeks to address the following specific objective;

1.3.1 Specific objectives

1. To examine the gender composition of corporate boards of listed firms in Ghana

2. To examine the effect of female presence on boards on firm performance

3. To investigate the impact of female presence on audit committee on firm performance

4. To assess the impact of female executive members of the board on firm performance

1.4 Research questions

1. What is the board gender composition of listed firms in Ghana?

2. What is the effect of female presence on boards on firm financial performance in Ghana?

3. To what extent does female presence on audit committee affect firm financial performance?

4. What impact does gender diversity of executive members of the board have on firm performance?

1.5 Justification of the study

The main purpose of the study is to examine the effect of board gender diversity on firm performance in Ghana. Examining the contributions of the women in line with the above firm performance although, does not only help to address the question of whether corporate boards should continue to restructure their board compositions to incorporate female participation but to show how the presence of female on corporate boards may improve firm performance in Ghana. Also the organizations employed in this study will appreciate the benefits associated with having women on their corporate boards in terms of financial performance. Similarly, it will send good signals to firms that are not captured in the sample in the same regard. Again the study will uplift the image of board diversity research in Ghana since it would improve previous studies such as Amidu and Abor (2006) by looking at the impact on performance rather than mere representation. Moreover the study will serve as a guideline to future studies on board gender diversity in developing economies with similar characteristics as Ghana. More so, the study will add to corporate governance literature on board diversity and firm performance globally. Lastly, the result of the study could be of importance to the academia, corporate bodies, shareholders and policy.

1.6 Scope and delimitations of the study

Although, there exist numerous and insightful board diversity variables, gender is chosen because issue of gender diversity is becoming more popular in policy debate, yet there is still relatively little research on gender diversity especially in developing

countries as in the case of Ghana. Again, the sample is drawn from listed corporations on GSE and the results may not generalize all companies in the country (Ghana).

1.7 Organization of the study

The research is organized into five chapters; the rest of the chapters is organized as follows: Chapter two presents the theoretical issues on gender diversity and firm performance. This section also presents the relevant empirical literature for the study. Chapter three discusses the methodology employed in the study. The fourth chapter presents the data analysis and discussions of research findings. Finally, chapter five presents a summary of main research findings, conclusions, recommendations and areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Boards of directors are second to none when it comes to decision making. They are dependable when it comes to strategic decisions, which include: mergers and acquisitions, changes in capital structure, and the most pertinent of all, to employ and dismiss top executives. Extensive research focuses on varying aspects of the boards. Some describe boards as groups of various people who have diverse unfairness and discrimination and whose behaviour is pretentious by social constraint and power relations. On the other hand there are researchers who consider the board as a single entity whereby the directors are independent from managers. In recent times an increasing amount of research on board is found in academic pipelines. One can measure (diversity) on a number of dimensions such as: gender, age, ethnicity, nationality, educational background, industrial experience and organizational membership, among others. This study center of attention is gender, which is undoubtedly the most disputed diversity issue, not only in terms of board diversity, but also in terms of women involvement in economic activities and in the society in general.

2.2 Corporate governance

According to the Cadbury Committee, the first establishment to tackle the subject of corporate governance defined it as a set of rules by which companies are directed and controlled (Cadbury, 1992). Essentially, corporate governance is concerned with solving the agency problem first recognized by Berle and Means (1932), and further developed by Jensen and Meckling in (1976) and various other academics. Corporate governance deals with and designs device that assure that suppliers of finance to

corporations receive a high-quality return on their funds (Shleifer and Vishny, 1997), by reducing the agency divergence view. It is made up of series of mechanisms through which the interests of management, the board of directors, controlling shareholders, minority shareholders and other stakeholders may be associated. These devices can be internal or external to the corporation. Internal governance mechanisms are: ownership structure, the board of directors and creditor monitoring. External governance instruments consist of regulation, need for external capital, competitors and takeover markets (Denis and McConnell, 2003). The corporate governance literature lay emphasis that good corporate governance is one that helps generating long-term value creation for owners and other major stakeholders. It aims to provide incentives for the board and management to pursue the goals that are in the interest of the company and its shareholders. Good corporate governance needs therefore to be the result from the optimal interaction between owners, managers and the board of directors. The board of directors is an important governance instrument, even though the nature of the arrangement between different interest groups is also partly determined by the legal environment (Campbell and Minguez-Vera, 2007).

2.3 Corporate governance code

Corporate governance codes are categorized into three legislative developments in corporate governance literature worldwide. First is the Cadbury Committee report in the UK (1992), which advocates Code of Best Practice. The commendation cover a broad scope of governance practices including the structure and composition of the main board and board committees, and bring attention to the importance of nonexecutive directors. It further institutes the "comply or explain" principle where companies that do not comply with the code should give reasons for their

noncompliance. Throughout the two decades of practical usage, the code, now called

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UK Corporate Governance Code, has been revised and further suggestions have been included. The most recent modification to the Code was added in October 2012. It necessitates companies to publish their policy on boardroom gender diversity and report against it annually (FRC, 2011).

Accounting Industry Reform Act 2002 is the second code to consider, which is also better known as the Sarbanes-Oxley. The Act was signed in 2002 following two major corporate governance scandals in the US, the fall of Enron and WorldCom. Its objective is to protect investors by improving the precision and trustworthiness of corporate disclosures. This reform deal with possible conflict of interest and close working relationships between companies and their auditors. It makes obligatory the independence of external auditors, reinforcing the duties of CEOs and CFOs by imposing stringent penalties for not telling the truth about the financial performance and positions of their companies in annual reports. The Sarbanes-Oxley Act has had a severe impact on corporate governance both within the US and around the world (EIRIS, 2005).

Lastly is the OECD Principles for Corporate Governance from 1996. These ethics are non-binding but represent common corporate governance standards and good practices and they are extensively used as a benchmark for policy makers, corporations and other stakeholders (EIRIS, 2005). OECD believe that as governance codes and standards improve, investors are looking beyond basic compliance to find factors that contribute to the creation of long-term value. Social, environmental and ethical risk management, equality perspectives, and board level responsibility for stakeholders are now considered, to a greater extent, when looking at a company‟s governance framework.

In view of the above explained codes there is a growing agreement in corporate governance literature that argues that board diversity is potentially positively related to firm performance. It has been noted in literature that increased diversity contributes to a more effective board and in recent times gender diversity in the boardroom and in the workforce has become a key corporate governance issue.

2.4 Corporate governance in Ghana

The Ghanaian Code was for the first time introduced in 2003 by the Security and Exchange Commission - Ghana (SECG). Unlike the UK and the South Africa where the formation of independent committees are dominant for the provision of the code of best practices on corporate governance have their codes subjected to a series of revisions to date, the Ghanaian Code on the other hand has not been reviewed.

2.5 Contextual framework of gender diversity

According to ILO (2009), female participation in labour markets worldwide grew substantially during 1970 and 1980s, even though this was not always correspondent to improvements in job quality. In most European countries, the labour force membership rate of women is lower than that of men (Curdova, 2005).

Catalyst, a research and advisory services organization working to increase opportunities for women at work, has monitored the progress of women in U.S. board positions since 1995. In its 2005 Census of Women Board Directors of the Fortune 500, it reported that women held 14.7% of all Fortune 500 Board seats, up from 13.6% in 2003 and 9.6% in 1995 (Catalyst, 2007).

2.6 The business case for greater gender diversity of top management and on corporate boards

Opinions for greater female boardroom representation can be split into two groups: ethical and economic. The former argues that it is decadent for women to be debarred from corporate boards on the grounds of gender and that firms should increase gender diversity to achieve a more equitable outcome for society. Those in favour of economic arguments, on the other hand, are of the view that firms which fail to select the most competent candidates for the board of directors damage their financial performance, (Campbell and Minguez-Vera, 2007). Economic arguments further suggest that firms that select management without any discrimination are able to attract and maintain talent from a wider pool of human capital than those companies that fail to select the most proficient candidates due to some sort of discrimination (especially gender).

Bjarnadóttir (2013) reports that majority of academic literature on women in top management and on corporate boards is basically descriptive and does not plainly develop a theoretical framework. In a comprehensive literature evaluation of 180 published articles, working papers, and book chapters, Terjesen, Sealy and Sigh (2009) identified twenty theory based studies on the subject of women on boards that apply a variety of frameworks at the individual, board, firm and environmental level. The prevailing standpoint at the firm level, which is the most important level as far as this work is concerned, are the resource dependency theory and the agency theory.

2.7 Theoretical foundation

2.7.1 The resource dependency theory

The resource dependency theory, one of the most prominent theories in organizational theory and strategic management, was proposed first by Pfeffer and Salancik in 1978.

The theory views firms as operating in an open system and needing to exchange and acquire certain resources in order to survive, making the firms dependent on external units in their environment. The corporate governance literature argues that firms seek relationship with the most beneficial resources and also structure membership on the corporate board on this basis. Pfeffer and Salancik (1978) suggest that directors bring four merits to organizations: advice and counsel, channels of information, access to resources and legitimacy. Most scholars emphasize the important resources gained from a director" human capital and social capital. Diversity of scholars use the resource dependency theory to argue that today"s increasingly complex and dynamic environment requires leadership from diverse groups of individuals who can provide a broad set of resources that will fit into the new business culture. Stiles (2001) suggests in particular, that board diversity might make easy access to resources vital to the firm, which indicates that diversity, relating to age, gender and nationality, can have a positive impact on performance. A more diverse board can benefit from a greater understanding of its customers (Carter, Simkins and Simpson, 2003) or other stakeholders.

According to estimates, women are responsible for about 70% of global consumer spending. Taking that into consideration, having more women in management positions could provide a more extensive insight into customer needs and choices which could lead to market share gains through innovation of new products and services that better suits consumers' needs and preferences. Increased diversity will also tap more information sources, but sometimes at the expense of less decisiveness (Randöy, Thomsen & Oxelheim, 2006). Resource dependency theory therefore concludes that it is likely the best performing management teams consist of members that represent variety in terms of experience, working background, age, ethnicity, and gender. Lastly,

an underrepresentation of women in top management could be regarded as discrimination, which is both unethical and suboptimal. An unprejudiced selection of management enables companies to attract and retain talent from a wider pool of human capital (Gallego-Álvarez, García-Sánchez and Rodríguez-Dominguez, 2010).

2.7.2 Agency theory

The concept of agency theory emerged from the work of Berle and Means in 1932. Agency theory describes the relationship between one party, the principal (e.g. shareholder), that delegates work to another, the agent (e.g. managers). It explains their variances in behavior or decisions by observing that the two parties often have different goals and, regardless of their respective goals, might have different attitudes towards risk. Jensen and Meckling (1976) further shaped the work of Berle and Means in the context of the risk sharing research in the 1960s and '70s and developed the agency theory as a formal concept. Jensen and Meckling built a school of thought arguing that corporations are structured to minimize the agency cost, or the cost of getting agents to follow the directions and interests of the principals. An accepted assumption within the agency theory is that outside directors will act independently from their inside counterparts and will therefore act as good monitors for shareholders" best interests. A good argument for diversity is therefore greater independence: diversity may lead to an improvement in monitoring management, as a result of greater boardroom independence and a more complex and complete decision-making progress.

Carter et al. (2003) drew on agency theory in their study to explore the link between gender diversity on corporate boards and firm value and found a positive relationship between the percentage of gender diversity on Fortune 1000 boards and firm value. Studies (Franke et al., 1997) show that the quality of corporate governance and ethical

behavior is high in companies with a high proportion of women on boards. Specifically, a study conducted by the Conference Board of Canada (2002), called „Not just the right thing, but the bright thing" found that boards consisting of three or more women showed very different governance practices than all male boards. The boards with more gender diversity were more likely to determine standards to measure strategy, monitor its implementation, follow guidelines about conflict of interests and adhere to a code of conduct. They were also more likely to arrange for better communication and concentrate on non-financial performance measures, such as corporate social responsibility, employee and customer satisfaction and diversity. Lastly, they were more likely to have new director induction programs and better monitoring of board accountability and authority. In a recent study by search consultancy firm Heidrick & Struggles (2009) and conducted by Harvard Business School, researchers revealed a sharp difference between men and women in the boardroom. The study suggests that women directors appear to be more assertive on numerous important governance issues such as evaluating their own board"s performance and greater supervision of boards in general, especially in the area of setting appropriate executive compensation levels. It is the researchers" opinion that this changing dynamic may bring in a new era of strengthened governance.

2.8 Women on boards

According to Campbell and Minguez- Vera (2007), arguments for greater female boardroom representation can be split into two categories: ethical and economical. The former argues that it is immoral for women to be excluded from corporate boards on the grounds of gender and that firms should increase gender diversity to achieve a more equitable outcome for society. Economic arguments, on the other hand, are based on the proposition that firms which fail to select the most able candidates for the board of

directors damage their financial performance.   In their study of UK corporate boards Brammer et al. (2007) find that the highest rates of female directors are associated with sectors with a close proximity to final consumers such as retailing, banking, the media and utilities. While producer-oriented sectors such as resources, engineering and business services (characterized by isolation from final consumers and male-dominated workforces) have significantly fewer female directors. The situation is not different in the U.S as (Vinnicombe, 2000; Davidson and Cooper, 1992; and Singh and Vinnicombe, 2003) observes that women managers tend to occupy particular types of management positions, being more likely to hold support roles in personnel, training, or marketing, rather than performing critical operating or commercial functions.

Numerous studies have explored the relationship between women presence on boards and firm performance. There however exist different arguments which encompass both positive and negative associations between the presence of women on the board of directors and firm value, so the impact of gender diversity cannot be determined a priori.

2.9 Empirical literature of women on board and firm performance

Various studies have explored the effects of board diversity on both stock valuation and profitability. On the whole pattern of findings across the several dozen studies that have been published to date tends to support the view that gender diversity inhibits performance. For instance Judge (2003) highlighted by Ryan et al. (2005, p. 82) concludes that „So much for smashing the glass ceiling and using their unique skills to enhance the performance of Britain‟s biggest companies. The triumphant march of women into the country‟s boardrooms has instead wreaked havoc on companies‟ performance and share prices.‟‟ After using three different econometric methods; the

pooled OLS, GLS and 2SLS on a sample of all 229 non-financial firms listed on the Oslo Stock Exchange (OSE) over the period 1989–2002 yielding an unbalanced panel of 1290, Bøhren and Strøm (2010) find a highly negative significant relationship between gender diversity and performance (measured by Tobin''s Q, return on assets and market return on stock (ROS). They find a plausible reason that heterogenous boards are less effective decision makers. Earley and Mosakowski (2000) suggest that members of homogeneous groups tend to communicate more frequently as they are more likely to share the same opinions. Similarly, Tajfel and Turner (1986) and Williams and O'Reilly (1998) suggest that homogeneous groups are more cooperative and experience fewer emotional conflicts. However, if greater gender diversity among board members generates more opinions and critical questions, and thus more conflicts, decision-making will be more time consuming and less effective (Lau and Murnighan, 1998). Jianakoplos and Bernasek (1998) observed that women are more risk-averse than men, while Cox and Blake (1991) suggest that women increase the costs of the firm as a result of higher turnover and absenteeism.

There are also arguments that greater gender diversity may serve to increase firm performance. The studies that show positive effects use cross-sectional data or observations across very short time periods, and thus are prone to problems of endogeneity. That is, studies cannot rule out the possibility that successful firms appoint women directors. Perhaps the best publicized study linking board diversity to profitability is Catalyst''s comparison of over 500 leading U.S. firms between 2001 and 2004. Catalyst concludes that firms with the greatest proportion of women board members showed significantly higher return on investment (ROI), return on equity (ROE), and return on invested capital than those with the smallest proportion of women.

Similarly, in 2003, Erhardt, Werbel, and Shrader looked at 112 leading firms over 5 years and found a positive relationship between board diversity (gender, race, ethnicity) and both ROI and ROA, but suggested that performance may be inducing diversity rather than vice versa. Carter et al. (2003) looked at the gender and racial composition of Fortune 500 board committees between 1998 and 2002, finding select positive effects of diversity on Tobin"s q.

There however exist studies that tackle the problem of reverse causation. Studies that attempt to rule out reverse causation tend to find no effect of board diversity on profits or stock price, or negative effects. In a survey conducted by Singh et al. (2001) on women directors on top UK boards, they find that even though female representation has increased over the years, the proportion of firms that had at least one female director has dropped by July 2000 from 64% in 1999 to 58%. They confirm that this development had also occurred in the US. They thus find that female directors are more likely in large firms, with many employees and with the highest profits. While Judge (2003) highlighted by Ryan et al. (2005) note emphatically that the triumphant march of women into the country"s (US) boardrooms has instead wreaked havoc on companies" performance and share prices.", Haslam and McGarty (2003) findings oppose that rather than the appointment of women leaders precipitating a drop in company performance, it is equally plausible that a company"s poor performance could be a trigger for the appointment of women to the board.

There however exist studies which give mixed results. Zahra and Pearce (1989) find no effect generally, and some evidence of a negative effect, among large American firms in the 1980s. In another instance of studies, Smith, Smith, and Verner (2006) used panel data on 2500 Danish firms to explore several performance measures. They find that

female outside directors showed negative effects, though female inside directors showed positive effects. In their 2009 study, Adams and Ferreira used panel data between 1996 and 2003 on 1939 large American firms. Theirs is possibly the most sophisticated, and transparent, analysis published to date. While they found that boards with more women do better at monitoring firms, they also found negative effects of women board members on both Tobin"s q and ROA. In particular, they found positive gender diversity effects in OLS models, but two different techniques for handling endogeneity (fixed effects, and fixed effects with instrumental variables) produce negative and significant effects (for profits and stock value) and a third (onestep Arellano and Bond models with lagged dependent variables) produces negative but non-significant effects for both outcomes. Campbell and Minguez-Vera in 2008 finds that having women on board does not significantly affect firm value, but the fraction of women on board positively affect firm value. The causality test result shows that there is no reversed causality (Campbell and Minguez-Vera, 2008).

Notwithstanding, some studies find no significant relationship between gender diversity and firm performance. In page 411 of his article, Rose in 2007 has provided Danish evidence showing that gender in relation to board composition does not influence firm performance. Despite the fact that Denmark has gone very far in the liberalization of women, Danish board rooms are still to a large extent dominated by men. Contrary to a number of other studies, this article does not find any significant link between firm performance as measured by Tobin"s Q and female board representation.

2.10 Conceptual framework

Figure 1 below shows the relationship between board gender diversity, the control variables of the study and its combine effect on firm financial performance as well as

the underlying theories of the study. Board gender diversity is measured by the percentage of women on the board, percentage of women on audit committee and percentage of female executive board members following Carter et al. (2007).

The control variables in figure 1 (board size, firm size, firm age, ownership and industry) are chosen following literature. Board size is total number of directors on a board and it has been suggested to affect board effectiveness by prior studies. Yermack (1996) in particular suggests that bigger boards are associated with lower firm value because of the problems of poor communication and decision-making. Firm age is used to represent the number of years a firm has been in existence. Black and Kim (2012) observe that corporate governance practices of older firms may differ from their younger counterparts which obviously affect performance. Firm size is usually used as a control variable in analysis of financial performance and is shown to be related to market returns by Fama and French (1992), among others.

Prior studies note that there has been no consensus on which firm performance measures are appropriate, (See Dalton et al., 1998; Cochran and Wood, 1984). Notwithstanding, previous studies evaluating the relationship between gender diversity and firm performance have usually used various firm performance measures.

Following literature, the study employs five indicators to measure performance as indicated in figure 1, which include gross profit margin, Tobin"s Q, return on equity, net profit margin and return on capital employed. (see Smith et al., (2006): Yermack, 1996; Carter et al., 2007; Bøhren, & Strøm, 2010; Dobbin & Jung, 2011; Black and Kim 2012: Shrader et al., 1997).

To date, relevant empirical studies employ a number of management theories to explain diversity, but the present study is limited to two of such, namely the agency theory and the resource dependency theory as depicted in figure 1 below.

Figure 1: conceptual framework

Board gender diversity
Proportion of female on board
Percentage of female on audit committee
Percentage of female executive board members

Control variables
Firm age
Assets
Board size
Ownership
Industry

Agency theory
Resource dependency theory

Firm performance

Indicators
Gross profit margin
Net profit margin
Return on equity
Return on capital employed
Tobin's Q

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2.11 Hypothesis

The study examines the impact of board gender diversity on performance of listed firms in Ghana. If women in the boardrooms are underrepresented partly due to discrimination against competent women, then it can be expected that an increase in women representation on the boards will result in increased performance of companies that add more women to their boards. If companies are however, already optimally adjusted regarding gender balance on the boards, forcing them in some way to appoint more women could be expected to reduce firm financial performance. Based on the above argument and the research objectives aforementioned the hypotheses are put forward as follows:

Hypothesis 1

H1o: Women are less represented on boards of firms in Ghana

H1a: Women are not less represented on boards of firms in Ghana

Hypothesis 2

Resource dependence theory does not specifically predict a link between board diversity and the financial performance of the firm but it is highly suggestive of a positive relationship. Agency theory offers the likelihood that diverse boards may be better monitors of management. While agency theory suggests a link between board diversity and firm performance, the nature of the link is not clear. More and tougher monitors may be either positive or negative as suggested by Adams and Ferreira (2009).

The two theories aforementioned provide a solid indication that a link between board diversity and firm financial performance is a realistic possibility. However, the relationship may either be positive or negative based on the theory. Furthermore, the

limited amount of empirical evidence on the relationship does not provide clear support for the direction of the link being either positive or negative.

Presence of female directors on a board (gender diversity) is therefore critical to the effective performance of the board and the overall performance of the firm (Hillman, Cannella, and Harris, 2002 and Hillman and Dalziel, 2003). Several key regulatory and governance reforms including the Sarbanes-Oxley (2002) in the United States of America and the Cadbury's 1992 report and the Higgs Report in the United Kingdom also require significant adjustments to corporate board diversity with peculiar emphasis on gender (Arfken, , Bellar and Helms, 2004). It is a corporate fact that an effective board has a direct effect on firm performance. The author wishes to find out whether the presence of female directors in the boardroom affects board performance and the overall firm performance of Ghanaian listed firms. To test whether the presence of female directors on the board affects firm performance, I hypothesize that;

H2o: The presence of women on board has no impact on firm performance

H2a: The presence of women on board has an impact on firm performance

Hypothesis 3

Bilimoria & Piderit (1994) explain that board committees provide a means and structure for effective governance by facilitating special tasks and addressing important corporate concerns. Jiraporn, Singh and Lee (2009) argue board effectiveness is accomplished through board committees. Kesner (1988) argues the most important decisions of the board are initiated at the committee level. If the above arguments are

correct, the possibility exists that diverse directors may have more influence through board committees than board membership.

Hypothesis 3 is therefore based on the proposition that a well-functioning audit committee improves on the soundness of the financial systems of the entity. Sound financial records enhance firm credibility and bolster investor and public confidence in the firm. Interestingly, women are in a peculiar position to discharge fiduciary duties entrusted in their care. This is so because of the motherly care they generally portray. Adams (2003) in particular finds that board committees of diversified companies devote more effort to monitoring and board committees of growing firms devote more effort to strategic issues. As a result, the researcher deems it fit the inclusion of females on the audit committee can improve the performance of the audit committee and the overall firm performance. To test whether the inclusion of female directors on the audit committee affects firm performance, I hypothesize that;

H3o: The presence of women on audit committee has no impact on firm performance

H3a: The presence of women on committee has an impact on firm performance

Hypothesis 4

The classical case of Salomon versus Salomon established a critical point in corporate management: thusly, ownership is divorced from management. The agency theory builds on this platform and submits that a management team is entrusted with fiduciary care over the resources of shareholders. The executive directors are responsible for the corporate management of an entity. All board policies are communicated down the communication chain through the executive directors. How well a firm performs has a bearing from how effective the executive directors exercise their supervisory powers. Females are naturally more sensitive to several social issues. As a result, their inclusion

on the executive directorship can improve the performance of the executive directors and the overall firm performance. To test whether female executive directors influence firm performance, I hypothesize that;

H4o: The presence of female executive members of the board has no impact on firm performance

H4a: The presence of female executive members of the board has an impact on firm performance

The above hypothesis is accepted at **5%** significance level where **H$_0$** is the null hypothesis and Ha is the alternate hypothesis.
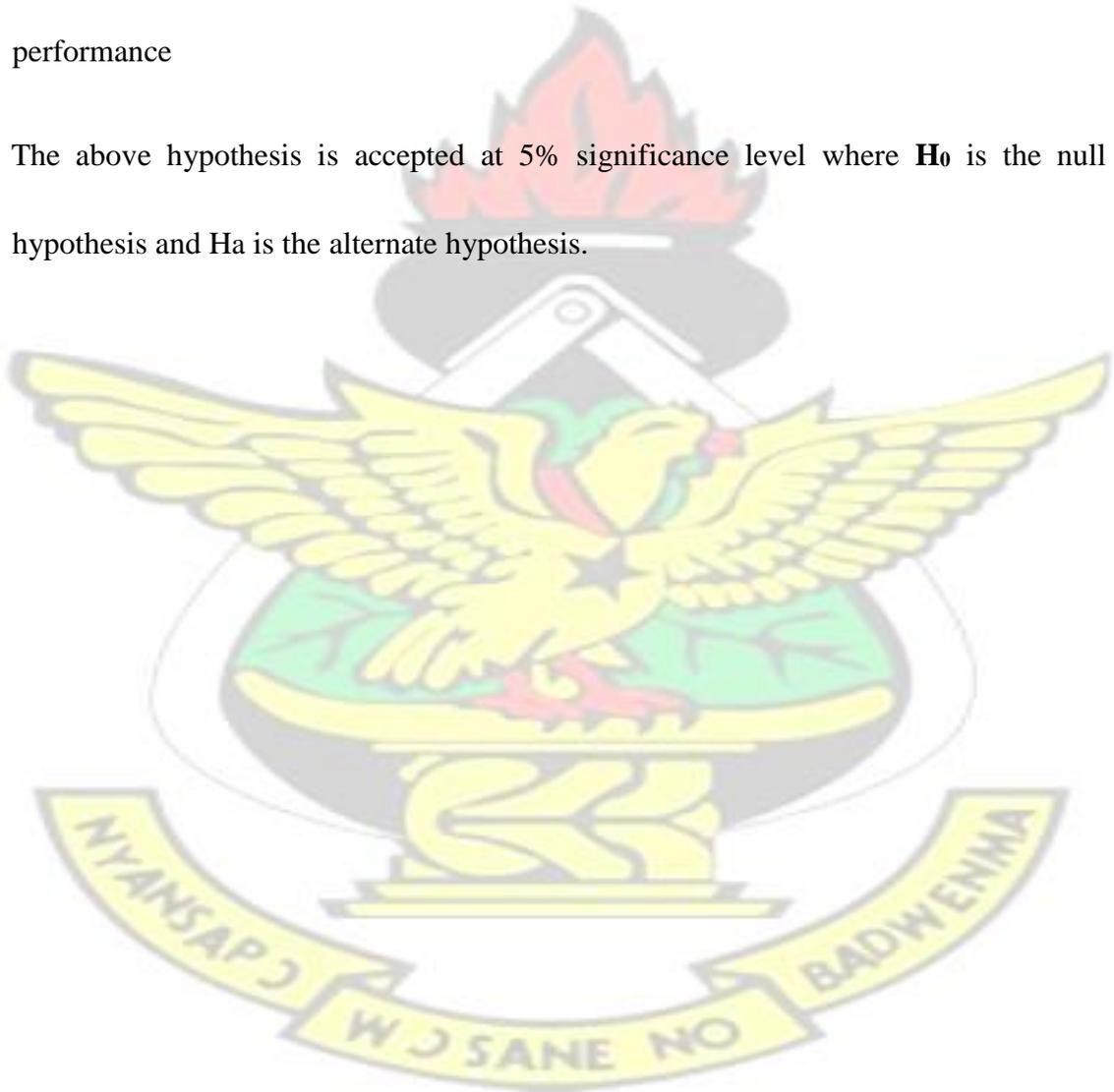
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the research methodology for the study. Mainly the study is directed towards examining the impact of board gender diversity on firm performance of listed firms in Ghana. In particular, the methodology elaborates on the data collection and the estimation technique employed in the study. The reliability of the findings and conclusions extensively depends on the quality of the research design including the population; sample size and sampling techniques, data sources and collections as well as data management and analysis. To obtain the necessary data for the study the researcher employs both qualitative and quantitative approach of studies. Basically the model estimation and specification include: pooled regression model, fixed effect model, random effect model and generalized least square method. This section also deals with the relevance of and profile of the firms listed on the Ghana stock exchange for the study.

3.2 Research design

Panel data is a data set constructed from repeated cross section over time. With a balance panel, the same unit appears on each time period. With an unbalance panel, some units do not appear in each time period often due to attrition (Wooldridge 2006). Unbalance Panel data was used for the study since the data for this study consist of longitudinal dimension coupled with cross-sectional observations where some data do not appear for some of the time period. The use of panel data method makes it possible to obtain more data points. There are various methods of estimating panel data which includes: pooled OLS regression, fixed effect model and random effect model. The

pooled OLS regression deals with the pooling of all the entities together and running the regression model by not taken into consideration the cross-section and time series in nature. The fixed effect model on the other hand allows for heterogeneity among the entities by allowing them to have their intercept value. For random effect model the discrepancy across entities is assumed to be random and uncorrelated with the explanatory variables. The random effect model also allows for heterogeneity among the entities but the entities have a common mean value of the intercept. To investigate the impact of gender diversity on firm financial performance, pooled OLS regression is used. For robustness check, Hausman test is performed to determine whether to use fixed effect or random effect models. The p-values for the

Hausman test are not significant hence the random test is adopted after which the Breusch and Pagan Largrangian multiplier test as well as Wooldridge test are also performed to find out the presence of heteroscedasticity and autocorrelation respectively.

The p-values for the Wooldridge test are insignificant indicating that the data is free from serial and autocorrelation. However the p-values for the Breusch and Pagan Largrangian multiplier test are significant indicating the presence of heteroskedaticity hence the use of generalized least square panel data regression is adopted to achieve the objectives of the study.

3.3 Population

The study is based on listed firms on the Ghana Stock Exchange (GSE). The GSE is chosen primarily because it is the only stock market in the Ghanaian economy facilitating trading activities in securities. Therefore the target population for this study is all listed firms out of which the sample population is drawn.

3.4 Sample size and sampling technique

The information used in this analysis is an unbalanced panel sample of all the firms listed on the GSE with annual financial reports from 2003 to 2014. The years 2003 to 2014 are selected due to the availability of data required to test the hypotheses. The year 2003 is chosen to be the starting point of data collection because, the Ghanaian Code of best practices on corporate governance was for the first time introduced in 2003 by the Security and Exchange Commission Ghana (SECG). Besides, the study is done in 2015 when the latest data available at that time is annual reports in 2014, even with that some of the companies" annual report for 2014 is not available. In view of this, convenience sampling technique is used in the selection of listed firms. Thus firms who do not publish their annual reports are excluded in the analysis. Firms with missing data at the GSE are also excluded. Hence, out of the total population of 37 listed firms, the researcher employs a sample size of 31 firms each with 12 years span of data from 2003 to 2014. The sample is, however, unbalanced which means that some companies in the sample were not observed for some of the years. The firms are classified under eight (8) industrial categories.

3.5 Data Sources and collection method

The data for the study were obtained from the financial statement of thirty one (31) listed firms for the period 2003 to 2014 published by the Ghana stock exchange through the internet.

3.6 Description of variables

Table 1: Description of variables and expected signs

Category	Variable	Expected Sign

Dependent variables		
	Gross Profit Margin (GPM)	
	Tobin''s Q	
	Return on Equity (ROE)	
	Return on Capital Employed (ROCE	
	Net Margin Profit (NPM)	
Independent variables		
	Proportion of female on boards (PROP	Positive
	Percentage of female on audit committee (FAC)	Positive
	Percentage of female executive board members (FEC)	Positive
Control variables		
	Assets	
	Age	Positive Positive
	Boardsize	negative
	downer	Positive
	Industrial dummy	Positive

Table 1 above depicts the expected signs of the independent and control variables of the study. Following the arguments of both the resource dependency theory and the agency theory, the study predicts positive signs for all three diversity variables. The study predicts positive coefficients on all control variables except board size which is expected to yield a negative coefficient following the finding of Yermack (1996) which suggests that bigger boards are associated with lower firm value. Firm size and firm age are obviously expected to be positive.

3.7 Measurement and definition of variables

3.7.1 Dependent variable

The empirical evaluation of the relationship between gender diversity and firm financial performance necessitates the selection of appropriate firm performance measures for objective analysis. However according to prior studies, there has been no consensus on which firm performance measures are appropriate, (See Dalton et al., 1998; Cochran and Wood, 1984). Notwithstanding, previous studies evaluating the relationship between gender diversity and firm performance have usually used various firm performance measures covering: Tobin‟s Q (Yermack, 1996; Carter et al., 2007; Bøhren, & Strøm, 2010; Dobbin & Jung, 2011; Black and Kim, 2012), ROA,(Daily and Dalton, 1993; Shrader et al., 1997; Adams and Ferreira, 2009), ROE (Shrader et al., 1997; Catalyst, 2004:) earning per share (Zahra and Pearce, 1989), just to mention a few.

It is clear from above that measurement of firm value in gender diversity studies varies considerably, but these studies can generally be divided into two groups: those that use mainly accounting measures and those that use stock performance measures (Tobin's Q predominantly), (See Campbell and Minguez-Vera, 2008).

This thesis chooses gross profit margin (GPM) as its dependant variable following, Smith et al. (2006). Gross profit margin is an important performance measure because it reflects the core profitability of a company before overhead costs, and it illustrates the financial success of a product or service. However for robustness check, other performance variables (which are Tobin‟s Q, return on equity (ROE), return on capital employed (ROCE) and net profit margin (NPM)) are used to measure performance. This makes this thesis unique.

Variables defined

Gross profit margin (GPM) is gross profit divided by sales. The higher the gross profit margin of the firm, the better. Tobin"s Q is the ratio of the market value of a firm divided by the replacement cost of its assets. It is often singularly used to measure firm financial performance; particularly in corporate governance research. This is because it believed to reflect the market expectations of future earnings and is thus a good proxy for a firm's competitive advantage (Montgomery and Wernerfelt, 1988). Tobin's Q ratio greater than 1.0 are expected by investors to be able to create more value by using available resources effectively, while those with a Tobin's Q ratio of less than 1.0 are associated with poor utilization of available resources.

Return on equity (ROE) is profit available to ordinary shareholders divided by equity and reserves. This is an accounting measure of firm performance and it widely used by investors. Return on capital employed (ROCE) is net profit before interest and tax divided by capital employed. Net profit margin (NPM) is net profit before interest and tax divided by sales. For all the accounting measures, the higher the better.

3.7.2 Independent variables

The key explanatory variables in this study are variables that measure gender diversity. Proportion of women on board (PROP) refers to the percentage of women on board. The study uses additional measures of diversity based on female membership on a major board committee; the audit committee. The researcher therefore measures diversity by calculating the percentages of women on the audit committee (FAC). The last measure of diversity is percentage of Female executive members (FEC).

3.7.3 Control variables

In order to identify the specific effect of female presence on the board, audit committee and executive committee on firm financial performance, it is necessary to include control variables in order to limit potential omitted variable bias. These control variables are not restricted by corporate governance mechanisms in affecting firm performance. To mitigate for the omitted variable bias, the study employs appropriate control variables that are potential determinants of firm financial performance. The basis for each of these control variables included in the regression models and their measurement is described below.

Board size is total number of directors on a board and indicates the experience and knowledge of its members. Board size is logged (lnboardsize) in order to normalize the data. Board size is controlled because it has been suggested to affect board effectiveness by prior studies. Yermack (1996) suggests that bigger boards are associated with lower firm value because of the problems of poor communication and decision-making. However Coles, Daniel and Naven (2008) suggest that for larger and more complex firms bigger boards do a better monitoring job.

Firm size is represented by natural logarithm of assets (lnassets) of the firm. The value of total assets is logged in order to normalize the data in order to minimize the standard deviation (Baltagi, 2001). Firm size is usually used as a control variable in analysis of financial performance and is shown to be related to market returns by

Fama and French (1992), among others. Many studies show that firm size is related to Tobin‟s Q (Carter et al., 2007).

Firm age is used to represent the number of years a firm has been in existence. Firm age is another significant control variable that needs to be considered in the study.

Black and Kim (2012) observe that corporate governance practices of older firms may differ from their younger counterparts. Additionally, age according to the product life cycle is connected with firm performance, as its profitability is expected to be minimal at its early stages, rise as the firm grows (age) and then fall at the maturity. Firm age is logged (lnage) in order to normalize the data.

Ownership (downer) represents the dummy variable regarding the ownership of a firm. Dummy variable is 1 for a local firm and 0 for a multinational.

Industrial dummy represent the dummy variables with regards to the various industries of firms listed on Ghana Stock Exchange.

3.8 Panel data

Panel data framework is used for this study as a result of its numerous advantages. Thus Panel data, where the same firms (**n**) are observed over number of years (**t**) has the possibility to give a more reliable picture than cross-section analyses that are based on only one year of observation (Smith et al., 2006). Since the increased number of observations based on (**n x t**) as already defined above help to improve the efficiency of the estimators because the larger the sample size the lower the bias found in the estimations. As well, the use of panel data helps to minimize the problem of multicollinearity faced by time series studies. Again panel provides more informative data, more variability, less collinearity among the variables, more degrees of freedom and efficiency (Klevmarken, 1989 and Hsiao, 2003). Moulton (1987) notes that the time series and cross section studies does not control for individual heterogeneity and run the risk of obtaining biased results. In this respect, panel data analytical framework makes a distinction between a residual heterogeneity related to changes over time

(period effects) and across firms (group effects). This permits for a better identification of the issues leading to changes in corporate governance and firm performance.

The basic panel data model is of the form

$$Y_{it} = \alpha + \beta X_{it} + \epsilon_{it} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where α is constant, i represents the firm and t is the time dimension.

X_{it} represents explanatory variable and ϵ_{it} is the error term.

$\epsilon_{it} = u_{it} v_{it}$ where u_i is the firm‟s specific effect and v_{it} is a random term.

The basic model of panel data could be estimated by several methods depending on the behaviour of the error term. It also depends on whether; there is serial correlation and heteroscedasticity in the estimated model in question. Notably some of the methods that can be employed to estimate panel data model includes: Pooled OLS, fixed effects, random effects, generalize least square (GLS) and dynamic panel.

To decide on using either fixed effect or random effect the author conducts Hausman test. The null hypothesis is random effect is apt and the alternate hypothesis is fixed effect is apt. When the p-value is statistically significant fixed effect is used otherwise the use of random effect. To use either pooled OLS regression model or random effect the Bruesch Pegan test is used. The null hypothesis for this test is that pooled regression model is appropriate and the alternative hypothesis is that random effect is appropriate. When the p-value is statistically significant, the random effect model will be used.

3.8.1 The Pooled Regression Model

Pool regression model deals with the pooling of all the observation together and running the regression model by neglecting cross-section and time series in nature where X is not correlated with the error component. The main problem with the pooled regression is that it does not differentiate between the various entities. This is the most restrictive model that specifies constant coefficients, which is the common assumption about cross-section analysis is of the form:

$$Y_{it} \square \square\square \; \square \; \square X_{it} \square_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (2)$$

Where; Y =dependant variable, X=explanatory variable, i = cross section unit t = the time period $\square$ =error term it is assume that the X"s are nonstochastic and that the error term follows the classical assumptions, namely E (it) N(0,) ^{2}

3.8.2 Fixed effect

Fixed effect model allows the individual-specific effects β_{1i} to be correlated with the explanatory variables X. The fixed effect model is as shown below:

$$Y_{it} = \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \dots\dots\dots\dots\dots\dots\dots..\dots\dots\dots\dots\dots \quad (3)$$

Where; Y =dependant variable X=explanatory variable i = cross section unit t = the time period.

Although, in Fixed Effect Model (FEM), intercept may differ across individual firms, each individual intercept does not vary over time; i.e. it is time invariant. FEM assume that the slope coefficients of the regressions do not vary across individuals or over time.

3.8.3 Random effects model (REM)

The rationale behind random effect model is that unlike the fixed effect model, the random effect assumes that the entity's error term is not correlated with the explanatory variables. The fixed effect model is of the form:

$$Y_{it} = \beta_{1i} + \beta_2 X_{2it} + \beta_3 X_{3it} + \mu_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots. (3)$$

Where; Y =dependant variable, X=explanatory variable i = cross section unit t = the time period

Instead of treating β_{1i} as fixed, we assume it is a random variable with a mean value of β_1 (no subscript i). Hence the value for an individual firm can be expressed as;

$$\beta_{1i} = \beta_1 + \varepsilon_i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

Where ε_i is a random error term with a mean value of zero and variance of $_2$. Substituting equation (4) in equation (3) gives the REM

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + W_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots. (5)$$

Where $W_{it} = \varepsilon_i + \mu_{it}$ and ε_i= cross section or individual-specific, error component, and μ_{it} is the combined time series and cross sectional error component.

$$\varepsilon_i \quad N(0, \, _2) \qquad \mu_{it} \quad N(0, \, _2) \qquad E(\varepsilon_i \mu_{it}) = 0 \qquad E(\varepsilon_i \varepsilon_j) = 0 \quad (i \neq j)$$

i.e. the individual error components are not correlated with each other and are not correlated across with cross-section and time series unit. ε_i is not directly observable, it is known as an unobservable, or latent variable. If it is assumed that ε_i and the X's are correlated, FEM may be appropriate where as if ε_i and the X's are not correlated, REM may be appropriate.

3.9 The Rational of choosing the pooled OLS and Generalized Least Square Method of estimation

Since all the variables are stationary at levels with the exception of two control variables; board size and assets and all variables become stationery at first difference (refer to table 2), the pooled OLS estimator will yield unbiased and consistent estimate hence the use of pooled OLS regression model. Pooled OLS method of estimation is used because of its possibility to capture not only the variation of what emerges through time or space, but the variation of those two dimensions simultaneously. This is because instead of testing a cross-section model for all firms under study at one point in time or testing a time series model for one firm using time series data, a pooled model is tested for all firm years through time (see Podestà 2002).

Generalized least square is a technique for estimating the unknown parameters in a linear regression model. The GLS is applied when the variances of the observations are unequal (heteroscedasticity) or when there is a certain degree of correlation between the observations. The estimated fixed and random models shows the presence of heteroscedasticity and this renders the p-values of fixed effects regression and random effects regression insignificant (see appendix 3).

Wooldridge (2006) suggests that GLS method is appropriate to control heteroscedaricity and serial correlation hence the use of GLS for the study.

3.10 Model specification

Following the empirical studies by Bøhren and Strøm (2010); the researcher posits the modified version of the econometric models below:

$$P_{it} = \beta_0 + \beta_1 PROP_{it} + \beta_2 FEC_{it} + \beta_3 FAC_{it} + \beta_4\, lnassets_{it} + \beta_3 lnage_{it} +$$

$$\beta_4\, lnboardsize_{it} + \beta_5 downer_{it} + \beta_6 indusrial\, dummies_{it} +$$

$$\varepsilon_{it}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(6)$$

Where P=performance measurement (first by GPM then by Tobin"s Q, NPM lnROCE and lnROE), $i=$ firms, $t=$ time dimension, PROP= proportion of women on board, FEC=percentage of female executive board members, FAC=percentage of female on audit committee, lnassets= natural logarithm of assets, lanage= natural logarithm of firm age, lnboardsize= natural logarithm of board size, downer= dummy variable for firm ownership, industrial dummies= dummy variable for industry.

3.11 Profile of the Ghana Stock Exchange

The Ghana Stock Exchange was incorporated in July, 1989 as a private company limited by guarantee under Ghana"s Companies Code, 1963 (Act 179). The Exchange was given recognition as an authorized Stock Exchange under the Stock Exchange Act of 1971 (act 384) in October 1990, and trading on the floor of the Exchange commenced in November 1990. In April 1994, it converted into a public company limited by guarantee.

The Exchange is governed by a Council with representation from Licensed Dealing Members, Listed Companies, the banks, Insurance Companies, Money Market and the general public. The Managing Director of the Exchange is an ex-officio member. The council sets the policies of the Exchange and its functions include preventing fraud and malpractices, maintaining good order among members, regulating stock market business and granting listing. GSE Financial Stocks Index is constituted by the

financial stocks of the GSE and it is published by the GSE. CBL All-Share Index is published by CAL Brokers Limited.

The types of securities traded by the GSE include: Ordinary shares, Preference Shares, and Exchange Traded Funds. Trading is carried on the Floor of the Exchange under the Continuous Auction Trading system (CAT). Over the counter trading is however allowed in Ashanti Goldfields Company"s shares.

The Exchange"s Council (Board of Directors) has supervisory roles and its duties include the prevention of fraud or malpractices. The Council also has the power to suspend or expel any member who contravenes any of the regulations of the Exchange. The Council membership includes some of the most distinguished and competent persons in Ghanaian commerce, industry, finance and public service. A fidelity fund is being established to compensate persons who suffer financial loss from any defalcation committed by licensed stock broking firms or their directors, partners or employees in relation to any money or other property entrusted to the member company or firm. The Exchange was set up to provide the facilities and framework to the public for the purchase and sales of bonds, shares and other securities; to control the granting of quotations on the securities market in respect of bonds, shares and other securities of any company, corporation, government, municipality, local authority or other body corporate; to regulate the dealings of members with their clients and other members; to co-ordinate the stock dealing activities of members and facilitate the exchange of information including prices of securities listed for their mutual advantages and for the benefit of their clients; and finally co-operate with associations of stockbrokers and Stock Exchanges in other countries, and to obtain and make available to members information and facilities likely to be useful to them or to their clients.

Firms listed on the Ghana stock exchange are classified under eight (8) industrial categories which are the basic material, consumer goods, industrial, financial, oil and gas, health, technology and the media industry.

CHAPTER FOUR

DISCUSSION AND ANALYSIS

4.1 Introduction

This section presents the results from the regression estimation of all the thirty one (31) firms observed from 2003-2014. The econometric method for the sample firms is pooled OLS and generalized least square (GLS) panel regression. This section also presents the results of panel unit root, descriptive statistics, the demographic characteristics of the firms, the empirical results of the relationship between board gender diversity and financial performance of firms listed on the GSE.

4.2 Panel Unit root

The unit root test result (see table 2) depicts evidence of stationarity of the variable apart from assets and board size at levels. However, all the variables become stationary at first difference. Since not all the variables are nonstationary at levels, the pre-condition for panel cointegration test is violated (see Batagi, 2001 and Narayan et al., 2010). As a result, pooled OLS, fixed, random and GLS estimates were considered.

Table 2: Panel Unit root

		LEVEL		FIRST	DIFFERENCE	
Variable	LLC	PP Fisher	IPS	LLC	PP Fisher	IPS
PROP	-6.492***	61.209*	-1.182	-15.28***	147.5***	-7.16***
FAC	-4.693***	40.205	-0.584	-2.15***	107.4***	-1.47*
FEC	-6.041***	13.546	-1.877**	-10.16***	28.1***	-2.64***

lnage	18.157***	347.104***	-167.573***	-13.39***	379.23***	-172.91***
lnassets	0.254	41.551	3.113	-7.59***	180.2***	-3.00***
lnboardsize	0.254	25.81	3.11	-7.59***	180.42***	-3.00***
NPM	-7.526***	80.531***	-1.589*	-9.66***	215.91***	-3.38***
GPM	-16.173***	105.707***	-2.523***	-12.97***	223.26***	-4.99***
lnROE	-21.371***	57.179***	-0.497	0.17	165.97***	-2.13***
lnROCE	-7.415***	69.801***	-2.452***	-1.82**	113.7***	-2.79***
lnTobinsQ	-1.545*	98.194***	0.731	-12.10***	262.92***	-5.81***

Note ***, **, * denote 1%, 5% and 10% significance levels, respectively.

4.3 Descriptive statistics

Table 3 shows the descriptive statistics of the dependent and explanatory variables for the study. The size of the boards of corporates in the sample is highly isolated with a minimum of three and a maximum of seventeen (17) board members. A standard deviation of 2.05 supports this observation and is consistent with the provision in the corporate governance code in Ghana. The firms for the study have been operating for the past 79 years with a mean age of 36 years. The size of the firms under study is measured by their assets size. With a minimum asset size of 870,941 Ghana Cedis and a maximum of 12 billion Ghana Cedis, the average asset size is however 846 million Ghana Cedis.

The average board in the sample of 290 firm years is comprised of a minimum of zero (0%) and a maximum of 60% female with a mean of 13% .The minimum value of 0%

means that there were firms in which all the board members were men. In contrast, the maximum value of 60% means that there are firms whose women representative on the board is greater than men, but the average of 13% indicates a general underrepresentation of women on boards in Ghana which is consistent with the findings of prior studies. The audit committee of the average board is 12% female. The female representation on this important board depicts underrepresentation of females and this is not drastically different from the overall female representation on the board at 13%. This also presupposes that female participation on boards is minimal. The board executives has an average of 8% female with a maximum of 100% and a minimum zero (0) percent female executives. This again indicates that females are severely underrepresented on the executive seat.

Tobin‟s Q is a market-based financial performance measure. A firm is assumed to have a promising future with a Tobin‟s Q value higher than 1. The minimum and the maximum values are 0.22 and 7.60 respectively indicating wide spread in performance. The mean value of Tobin‟s Q in the study is 1.05 which means that, on average, from 2003 to 2014 the value of Ghanaian listed firms reflected relatively positive signs of developing in the future.

The ROE reflects the profitability of firms based on accounting numbers taken from the financial reports. The ROE is a ratio of net income after tax and equity (ordinary share capital plus reserves) of the firm. On average, from 2003 to 2014, the value of ROE was 13.6%. The maximum value was 83.8% and the minimum was -98.40%. The result shows that there was a large gap in terms of accounting profitability among the firms during those years. This may be due to extraordinary large losses experienced by firms in a particular year. The result also indicates that as some of the firms are doing

extremely well with higher return on equity at 83.8%, whiles others are making abnormal losses at -98.4%.

NPM is another accounting based profitability measure which compares profit after tax to sales of a firm; the higher the NPM the better. The results indicate an average of 14.3% NPM with a maximum of 76.5% and a minimum of -91.7%. This is consistent with the ROE result in a way. The mean value of gross profit margin was 38% with maximum performance of 147% and a minimum decrease of -57%. This result again confirms the existence of tremendous spread in performance of listed firms. The same can be said of ROCE with a minimum of -1215% and a maximum of 99% and a mean of -63.8%.

The normality test which comprise of the skewness, kurtosi, Shapiro-Wilk test and Shapiro- Francia –test show that the variables are not normally distributed as depicted in table 3 and figures in appendix 1 respectively. The author therefore takes natural logarithm of such variables to eliminate the problem of normality.

Table 3: Descriptive Statistics

Variable	N	Mean	S D	Min	Max	Skewness	Kurtosis	Shapiro-Wilk-Test	Shapiro-Francia-Test
TobinsQ	283	1.05	1.14	0.02	7.60	2.4	11	0.73***	0.73***
ROE	280	0.14	0.26	-0.98	0.84	16.88	286.00	0.03***	0.03***
ROCE	190	-63.82	881.97	-12157	0.99	-14.11	200.00	0.04***	0.04***
GPM	273	0.38	0.28	-0.57	1.47	0.41	3.42	0.96***	0.96***
PROP	290	0.13	0.12	0	0.6	0.99	4.19	0.94***	0.96***
NPM	290	0.15	0.24	-0.92	1.16	-0.16	6.3	0.93***	0.93***
FEC	290	0.08	0.19	0	1	2.85	11.67	0.87***	0.93***
FAC	290	0.12	0.19	0	0.25	1.76	6.68	0.92***	0.97***
Assets	288	8.46e+08	2.19e+09	870941	1.27e+10	3.65	15.91	0.42***	0.99
Age	282	36.3	17.53	1	80	0.1	2.5	0.99*	0.42***
Board size	290	8.40	2.05	3	17	0.8	4.28	0.97***	0.97***

Note: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: ROE (Return on equity), ROCE (Return on capital employed), GPM (Gross profit margin), NPM (Net profit margin), PROP (Proportion of women on boards), FEC (% of female executive members of the board), FAC (% of females on the audit committee).
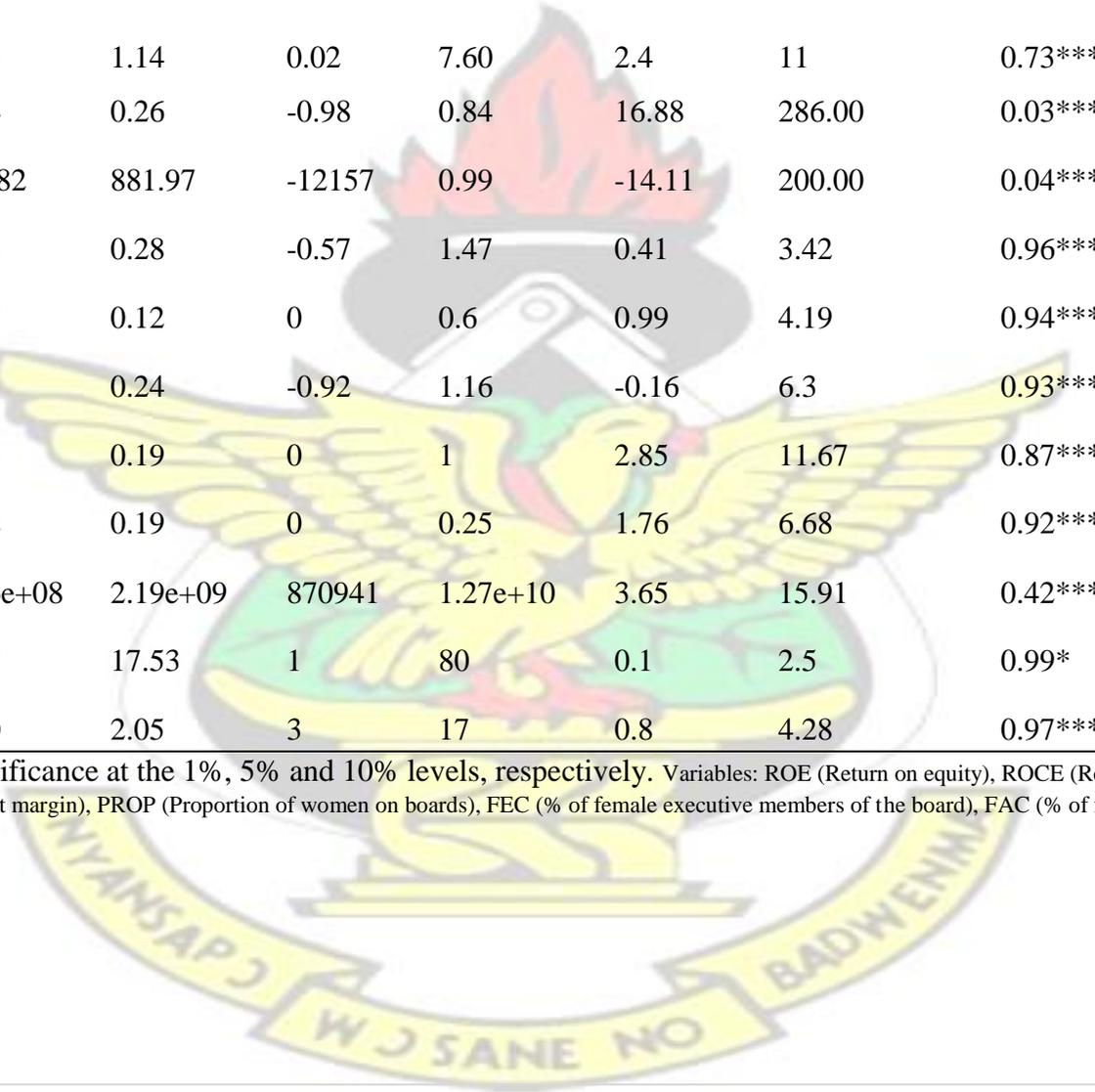
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4.4 Multicollinearity test

This section presents the probable degree of multicollinearity among the explanatory variables. The correlation among the variables may affect the efficacy of the estimated coefficients. Table 4 shows the results of correlation among variables using Pearson''s correlation matrix.

The table depicts that the age of the firm and FEC are positively correlated with Tobin''s Q though the correlation is weak. Similarly PROP, FAC, assets and board size have weak and negative correlation with Tobin''s Q. The results also show that PROP and age have weak and positive relationship with ROE. FEC, FAC, assets and board size on the other hand have negative and weak correlation with ROE. There is positive relationship among FEC, FAC, age, assets, board size with ROCE, even though the correlation is weak. The study reveals weak and negative association between PROP and ROCE. The explanatory variables PROP, FEC, FAC, assets and board size are positively related with GPM and NPM though the correlation is weak. There is however, weak and negative relationship between age and GPM and NPM.

All the results show that the independent variables are not suffering from the problem of multicollinearity. The relationship among the variables reported in Table (4) shows that all the independent variables are less than 0.5 which clearly indicates that multicollinearity is not a problem. Again referring to appendix 2 (results of VIF), since all the values of the VIF of independent variables are less than 2 which is well below the accepted threshold of 10 is a clear indication that the explanatory variables are not suffering from the problem of multicollinearity.

Table 4: Pearson's Correlation for the dependents and independent Variables for the Study

		1	2	3	4	5	6	7	8	9	10	11
1	TobinsQ	1										
2	ROE	-0.0405	1									
3	ROCE	0.0631	0.0.0082	1								
4	GPM	-0.1305	0.1157	0.1000	1							
5	NPM	-0.0786	0.0187	0.0771	0.6639	1						
6	PROP	-0.0183	0.0040	-0.0188	0.1501	0.0489	1					
7	FEC	0.0177	-0.0244	0.0286	0.0777	0.0654	0.5157	1				
8	FAC	-0.0286	-0.0383	0.0387	0.1306	0.1518	0.5786	0.3800	1			
9	Age	0.1738	0.0602	0.0233	-0.0713	-0.0087	0.0165	0.0396	-0.1106	1		
10	Assets	-0.0894	-0.0168	0.0201	0.0642	0.0386	-0.0533	-0.0737	0.1630	-0.3597	1	
11	Board size	-0.0222	-0.0404	0.0699	0.0912	0.1817	-0.1544	-0.0773	0.1329	0.0057	0.4206	1

Variables: ROE (Return on equity), ROCE (Return on capital employed), GPM (Gross profit margin), NPM (Net profit margin), PROP (Proportion of women on boards), FEC (% of female executive members of the board), FAC (% of females on the audit committee)

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4.5 Demographic characteristics with respect to gender composition

Table 5 below shows the demographic characteristics of gender composition. Out of a total of 2435 members, 2117 representing 87 percent were men while 318 representing 13 percent were women. The result suggests that women are insignificantly represented on corporate boards. Compared to the findings of Amidu and Abor in 2006, there has been an improvement of female representation on boards from 7% to 13%.

In relation to type of director, the study reveals that out of a total of 100 percent, 91 percent are male executive directors while 9 percent are female executive. This result suggests that very few women are represented on the executive seat. This is consistent with investigations of many prior studies which conclude that women are less represented in the executive division of corporate boards across the globe, (see Singh et al., 2008; Hillman et al., 2002 and Sealy et al., 2007). The study also reports that 85 percent of independent directors are male while 15 percent are female.

With respect to ownership of the listed firms on the GSE, the study reports that out of the 31 listed firms on the GSE, 89 percent men and 11 percent women are employed on the boards of multinational firms while 85 percent and 15 percent men and women respectively are appointed by local firms to serve on their boards. The results indicate that local firms tend to appoint more females in their boardroom than multinational corporations; this is consistent with the findings of Amidu and Abor (2006).

In relation to industry, the table shows the type of industry that is relevant in determining the gender composition of corporate boards. The media industry tends to appoint more women (22%). Health is second (18%) in terms of women board members. Technology is third (17%) with respect to women board members. Industry has 16% of women in their boardrooms. Interestingly financial industry tends fifth in

terms of women board member constituting 14% of the population. Consumer goods and basic material follows with 11% each while oil and gas appoints only 7% of women on their boards. The result supports the conclusion of most prior studies that the highest rates of female directors are associated with sectors with a close proximity to final consumers such as retailing, banking, the media and utilities while produceroriented sectors such as resources, engineering and business services are characterized male-dominated workforces, (See Brammer et al., 2007).

The results also depicts that older firms (55-88 years old) turn to appoint more female on their boards (14%) whiles younger firms (less than or equal to 54 years old) appoint fewer females. This is contrary to the findings of Amidu and Abor (2006) which suggest exactly the opposite that younger firm s tend to appoint more females on their boards.

Table 5: Gender composition of listed firms on the GSE

	Male (%)	Female (%)
Gender	87	13
Type of director:		
Executive directors	91	9
Independent directors	85	15
Ownership:		
Multinational	89	11
Local	85	15

Industry:

Financial	86	14
Industry	84	16
Consumer Goods	89	11
Basic Material	89	11
Oil & Gas	93	7
Health	82	18
Technology	83	17
Media	78	22

Age:

Less than or equal to 54 years	87	13
55-88 years	86	14

4.6 Empirical results

4.6.1 Female on boards and firm financial performance

Table 6: Panel data analysis of the relationship between board gender diversity and GPM using pooled OLS

GPM	Coefficient	Standard Error	t-statistics	P>|z|
PROP	0.5742***	0.176	3.26	0.001
FEC	-0.1436	0.092	-1.56	0.120
FAC	-0.0512	0.104	-0.49	0.622
lnassets	0.0219**	0.009	2.56	0.011
lnage	0.0070	0.024	0.30	0.768
lnboardsize	-0.0659	0.073	-0.91	0.366
downer	-0.0448	0.037	-1.21	0.227
bmat	-0.3741***	0.053	-7.03	0.000
Cgoods	-0.2350***	0.039	-5.98	0.000
indust	-0.2354***	0.049	-4.78	0.000
Const	0.1954	0.203	0.96	0.335
Obs=273	R-sq=31.89	Prob>F=0.000		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material

industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials) .

The result from table 6 indicates a positive and significant relationship between PROP (proportion of female on the board) and GPM (gross profit margin) at 1% significance level. This means that the higher the number of women on the board of listed firms in Ghana, the higher the gross profit margins of such firms. However, the control variable that seems to influence gross profit margin is asset. Asset is positively related to GPM at 5% significance level. It also means that firms with larger asset base are likely to have higher proportion of gross profit. For robustness check, the researcher employs a different estimation method (GLS) to test for the relationship between proportion of women on board and firm financial performance (see table 7). The result in table 8 confirms the significant relationship between proportion of women on board and firm financial performance at 1% significance level. The result also confirms a positive and highly significant relationship between assets of the firm and gross profit margin at 1 % significance level. In a similar study, Smith et al. (2006) finds a mixed result for the relationship between gross profit margin and proportion of female on the board. Specifically, they find a positive and significant relationship between gross profit margin and proportion of females on boards at 10% significance level using the pooled OLS estimations; which confirms the findings of this study. They however find no significant relationship using the firm fixed effect method estimation.

Table 7: Panel data analysis of the relationship between board gender diversity and GPM using GLS

GPM	Coefficient	Standard Error	z-statistics	P>|z|
PROP	0.5743***	0.173	3.33	0.001
FEC	-0.1436	0.090	-1.59	0.111
FAC	-0.0512	0.102	-0.50	0.615
lnassets	0.0219***	0.008	2.61	0.009
lnage	0.0070	0.023	0.30	0.763
lnboardsize	-0.0659	0.071	-0.92	0.355
downer	-0.0448	0.036	-1.24	0.217
bmat	-0.3740***	0.052	-7.18	0.000

Cgoods		-0.2350***	0.038	-6.11	0.000
indust		-0.2354***	0.048	-4.88	0.000
Const		0.1954	0.198	0.99	0.325
Obs	=273	Wald chi2(5)=127.84	Prob>chi2	=0.000	

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm   and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

In another instance, when performance is measured by Tobin"s Q (thus when Tobin"s Q is used as the dependent variable), using OLS (see table 8), the result presents a negative and significant relationship between proportion of women on board and firm financial performance at 10% significance level. A further test using GLS estimation method confirms the negative relationship between percentage of female on board and Tobin"s Q at 10% significance level. Interestingly, the result in both table 8 and 9 shows a negative and significant relationship between firm assets and Tobin"s Q at 10% significance level. The result is consistent with the findings of most prior studies among which are Bøhren, & Strøm, (2010), who finds a highly negative significant relationship between gender diversity and performance measured by Tobin"s Q, return on assets and market return on stock (ROS); Dobbin & Jung, (2011) also finds a significantly negative effect between female presence on board and firm performance measured by Tobin"s Q. However there exist other studies that find a positive relationship between PROP and Tobin"s Q among which are Carter et al. (2007); their results of three-stage least-squares estimation support the conclusion that board diversity has a positive effect on financial performance as measured by Tobin"s Q.

Table 8: Panel data analysis of the relationship between board gender diversity and Tobin's Q using pooled OLS

TOBIN'S Q	Coefficient	Standard Error	t-statistics	P>|z|
PROP	-1.1278*	0.626	-1.80	0.073
FEC	-0.2060	0.317	-0.65	0.516
FAC	0.3204	0.355	0.90	0.368
lnassets	-0.1906***	0.030	-6.25	0.000
lnage	-0.0472	0.080	-0.59	0.557
lnboardsize	0.4041	0.261	1.55	0.122
downer	-0.8322***	0.131	-6.31	0.000
bmat	-0.0350	0.194	-0.18	0.857
Cgoods	0.3115**	0.139	2.23	0.027
indust	0.2579	0.176	1.46	0.144
Const	2.8806***	0.723	3.99	0.000
Obs=283	R-sq=29.64	Prob>F=0.000		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

Table 9: Panel data analysis of the relationship between board gender diversity and lnTobinsQ using GLS

lnTobinsQ	Coefficient	Standard Error	z-statistics	P>|z|
PROP	-1.1278*	0.614	-1.84	0.066
FEC	-0.2060	0.311	-0.66	0.507
FAC	0.3204	0.348	0.92	0.357
lnassets	-0.1906***	0.029	-6.38	0.000
lnage	-0.0473	0.079	-0.60	0.549
lnboardsize	0.4041	0.256	1.58	0.114
downer	-0.8321***	0.129	-6.43	0.000
bmat	-0.0350	0.190	-0.18	0.854
Cgoods	0.3115**	0.137	2.27	0.023
indust	0.2579	0.173	1.49	0.135
Const	2.8806***	0.708	4.07	0.000
Obs =283	Wald chi2(5)=119.19	Prob>chi2 =0.000		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

The researcher again finds the relationship between proportion of women on board and firm financial performance measured by ROCE (return on capital employed). Table 10 depicts the result using OLS. According to the result, there exist positive and significant relationship between proportion of women on board and return on capital employed at 5% significance level. Firm age seems to be the only control variable that predicts firm performance positively at 10% significance level. For further test, the GLS method is used to estimate the relationship between proportion of female on board and ROCE, with the result depicted in table 11. It confirms the positive and significant relationship reported by the OLS estimation method. Again firm age predicts ROCE at 10% level of significance confirming the result generated when the OLS method is used. The result is consistent with the suggestion of Carter and Wagner in Catalyst (2011) who finds that companies with the most women

consistently outperform those with the least in terms of performance measures such as return on invested capital (ROIC) even by 45% ; and the findings of Virtcom

Consulting¨s white paper released in 2009 also suggest that companies with more diverse boards, especially gender based diversification, have higher performance on key financial metrics such as: Return on Sales and Return on Invested Capital.

Table 10: Panel data analysis of the relationship between board gender diversity and lnROCE using pooled OLS

lnROCE	Coefficient	Standard Error	t-statistics	P>|z|
PROP	2.2938**	1.061	2.16	0.32
FEC	0.3056	0.556	0.55	0.583
FAC	-0.1963	0.579	-0.34	0.735
lnassets	0.0267	0.061	0.44	0.662
lnage	0.3543*	0.195	1.81	0.072
lnboardsize	0.4017	0.434	0.93	0.356
downer	-0.2490	0.254	-0.98	0.328
bmat	-1.2752***	0.425	-3.00	0.003
Cgoods	-0.3501	0.218	-1.61	0.110
indust	-0.1105	0.291	-0.38	0.705
Const	-4.1559***	1.557	-2.67	0.008
Obs=162	R-sq=20.13	Prob>F=0.000		

Table 11: Panel data analysis of the relationship between board gender diversity and lnROCE using GLS

lnROCE	Coefficient	Standard Error	z-statistics	P>|z|
PROP	2.2938**	1.024	2.24	0.025
FEC	0.3056	0.537	0.57	0.569
FAC	-0.1963	0.559	-0.35	0.725
lnassets	0.0267	0.059	0.45	0.650
lnage	0.3543*	0.189	1.88	0.060
lnboardsize	0.4017	0.419	0.96	0.337
downer	-0.2490	0.245	-1.02	0.309
bmat	-1.2752***	0.411	-3.10	0.002
Cgoods	-0.3501	0.210	-1.67	0.096
indust	-0.1105	0.281	-0.39	0.695
Const	-4.1559***	1.504	-2.76	0.006

Obs	=162	Wald chi2(5)=40.83	Prob>chi2	=0.000

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

Results in table 12 and 14 depict no significant relationship between PROP and ROE (return on equity) and PROP and NPM (net profit margin) respectively using the pooled OLS method. The GLS estimation method in a further test reports a significant positive relationship between PROP and NPM at 10% significance level. (See table 13). It however reports no significant relationship between PROP and ROE. (Refer to table 15).

Table 12: Panel data analysis of the relationship between board gender diversity and NPM using pooled OLS

NPM	Coefficient	Standard Error	t-statistics	P>|z|
PROP	0.2448	0.150	1.63	0.104
FEC	-0.0534	0.075	-0.71	0.479
FAC	0.0282	0.085	0.33	0.740
lnassets	0.0334***	0.007	4.54	0.000
lnage	0.0167	0.019	0.87	0.388
lnboardsize	-0.0380	0.063	-0.61	0.545
downer	-0.0359	0.032	-1.13	0.258

bmat	-0.3070***	0.046	-6.66	0.000
Cgoods	-0.1321***	0.034	-3.91	0.000
indust	-0.1616***	0.042	-3.83	0.000
Const	-0.3656**	0.174	-2.10	0.036
Obs=288	R-sq=30.83	Prob>F=0.000		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

Table 13: Panel data analysis of the relationship between board gender diversity and NPM using GLS

NPM	Coefficient	Standard Error	z-statistics	P>|z|
PROP	0.2448*	0.147	1.66	0.096
FEC	-0.0534	0.074	-0.72	0.470
FAC	0.0282	0.083	0.34	0.734
lnassets	0.0167***	0.007	4.62	0.000
lnage	0.0167	0.019	0.88	0.378
lnboardsize	-0.0380	0.061	-0.62	0.536
downer	-0.0359	0.031	-1.16	0.248
bmat	-0.3070***	0.045	-6.79	0.000
Cgoods	-0.1321***	0.033	-3.99	0.000
indust	-0.1616***	0.041	-3.91	0.000
Const	-0.3656**	0.171	-2.14	0.032
Obs =288	Wald chi2(5)=128.37	Prob>chi2 =0.000		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

Table 14: Panel data analysis of the relationship between board gender diversity and lnROE using pooled OLS

lnROE	Coefficient	Standard Error	t-statistics	P>|z|
PROP	1.7232	1.135	1.52	0.130
FEC	0.0740	0.560	0.13	0.895
FAC	-0.4319	0.635	-0.68	0.497
lnassets	0.0769	0.053	1.45	0.150
lnage	0.1596	0.136	1.17	0.242
lnboardsize	-0.2569	0.457	-0.56	0.574
downer	-0.3310	0.215	-1.54	0.125
bmat	-0.8402	0.523	-1.61	0.110

Cgoods	-0.3017	0.232	-1.30	0.195
indust	0.2338	0.365	0.64	0.523
Const	-2.9394**	1.239	-2.37	0.019
Obs=230	R-sq=6.9	Prob>F=0.100		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials).

Table 15: Panel data analysis of the relationship between board gender diversity and lnROE using GLS

lnROE	Coefficient	Standard Error	z-statistics	P>|z|
PROP	1.7232	1.107	1.56	0.120
FEC	0.0740	0.547	0.14	0.892
FAC	-0.4319	0.619	-0.70	0.486
lnassets	0.0769	0.052	1.48	0.138
lnage	0.1596	0.133	1.20	0.230
lnboardsize	-0.2569	0.446	-0.58	0.564
downer	-0.3310	0.209	-1.58	0.115
bmat	-0.8402	0.510	-1.65	0.100
Cgoods	-0.3017	0.226	-1.33	0.183
indust	0.2337	0.356	0.66	0.512
Const	-2.9394***	1.209	-2.43	0.015
Obs =230	Wald chi2(5)=17.08	Prob>chi2 =0.073		

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm), lnboardsize (logarithm of the the board of directors of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry) and indust (Dummy variable equals 1 if company is in the industrials)

The mixed result generated for the relationship between female presence on board and firm performance implies that depending on the performance measure used at a time, either confirms or reject the resource dependency and the agency theory. Considering the main dependent variable of the study, gross profit margin, the result suggests proportion of women on board to posit a positive and significant influence on it. This means that women offer significant contribution on the firm''s performance.

As predicted by the resource dependency theory, it is estimated that women are responsible for about 70% of global consumer spending. Taking that into consideration, having more women in management positions could provide a more extensive insight into customer needs and choices which could lead to market share gains through innovation of new products and services that better suits consumers' needs and preferences, hence higher sales and higher gross profit margins. This confirms further arguments by (Carter, Simkins & Simpson, 2003; Stiles 2001 and Pfeffer and Salancik 1978) in favour of resource dependency theory that a more diverse board can benefit a firm in so many ways including access to resources critical to the firm, getting a greater understanding of its customers and other stakeholders among others.

Because gender diversity is positively related to profitability measures of this study, it seems the finding is also consistent with the agency theory as far as gross profit margin, net profit margin and return on capital employed are concerned.

4.6.2 Female executive board members and firm financial performance

The investigations of many prior studies conclude that women are less represented in the executive division of corporate boards across the globe. Specifically, Singh et al. (2008) suggest that men are somewhat more likely to have experience in CEO and MD roles and women are significantly less likely to be executive directors (EDs) (3.6 per cent), but no less likely to be business experts. Moreover, Hillman et al. (2002), cautions that as the number of women in executive business positions is limited, companies will select as directors women who have specialized skills that complement the executive experience of business experts. Corporate women are therefore advised to seek specialized skills. Sealy et al. (2007) notes that there has been improvement in women executive representation, specifically, they find that the percentage of female

executive committee members has increased. According to their findings, 60 companies now have women in their top team, totaling 16% of senior executive roles. Nelson and Levesque (2007) on the other hand report that women in high-growth, high-potential firms achieve executive roles at a younger age than women in Fortune 500, but so do men. The situation is not different in Ghana. The descriptive statistics suggest that only 9% of the executive seats are occupied by women. It is therefore not surprising that the result in tables 6 to 15 does not show any significant relationship between female executive board members (FEC) and all the dependent (performance) variables using both pooled OLS and GLS estimation methods.

4.6.3 Female on audit committee and firm financial performance

With regards to female presence on audit committee and firm financial performance, it is evident from tables 6, 8, 10, 12 and 14 using the pooled OLS method of estimation that there exist no significant relationship between percentage of female on audit committee and firm performance measured by GPM, Tobin"s Q, NPM, lnROCE and lnROE. For robustness check, a different estimation method (GLS) is used to test the relationship. The evidence in tables 7, 9, 11, 13 and 15 supports the findings above that there exists no significant relationship between FAC and performance.

This result is consistence with the findings of Law Chapple, Kent, & Routledge, (2012) who admit that the existence of an audit committee ensures transparency in a companies" reporting, however, they do not find the relation strengthened by the existence of a female audit committee member. However, the agency theory argues out that diversity may lead to an improvement in monitoring management (especially through the audit committee), as a result of greater boardroom independence and a more complex and complete decision-making progress which eventually affect financial

performance positively, but the result of the present study seems inconsistent with this argument of the agency theory which predicts a positive relationship. On the contrary, Carter et al. (2007) finds a significant positive relationship between percentage of female on the audit committee and firm performance measured by

Tobin"s Q.

In an attempt to find out whether the ownership status of a firm affects performance, the author controls for ownership (downer). The result reveals a mixed result depending on the dependent variable being used at a time. Ownership (either multinational or local firm) has no significant relationship with GPM, ROCE, NPM and ROE. However ownership (either multinational or local firm) affects Tobin"s Q, at 1% significance level (see table 8 and 9) using the OLS estimation method. A further test using the GLS method generates same results.

With respect to industrial dummies, it came to light that some industries have a significant influence on performance. Firms in the basic material industry (bmat) demonstrate an inverse and significant impact on GPM, NPM and ROCE at 1% significance level. Again, firms in the consumer goods industry (cgoods) impacts performance measured by GPM, NPM and Tobin"s Q at 1%, 1% and 5% level of significance respectively. The industrial industry has an impact on GPM and NPM but no significant impact the other performance measures in the study. The age of the firm is statistically significant at 5% level with ROCE.

The study highlights no significant relationship between board size and firm performance using both OLS and GLS estimation methods. Firm age also seems to have no significant impact on firm performance except ROCE which relates to the age of the firm positively at 10% significance level.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOOMEDATION

5.1 Introduction

This chapter presents the main findings, conclusions, recommendations and areas for further research. The main objective for this study is to determine the impact of board gender diversity on listed firms" performance in Ghana. The specific objectives of the study is to assess the impact of proportion of females on boards and firm performance; to investigate the percentage of female on the audit committee and firm performance; and finally to access the proportion of female executive members on firm performance. The main findings of the study are summarized along with these specific objectives for the study.

5.2 Summary of main findings

The study revealed that women are insignificantly represented when we consider corporate board members of firms listed on the Ghana Stock Exchange. Women are less embodied in the executive division of corporate boards of firms listed on the Ghana Stock Exchange. The study reported that local firms appoint more female in their boardroom than multinational firms. The study again reveals that the media industry appoints most women (22%) on their boards while the oil and gas industry appoints the least of women (7%) on their boards. It also came to light that younger firms on the Ghana Stock Exchange appoint less female as compared to older firms.

The study finds a mixed result with regards to the relationship between female and firm performance in the sense that gender diversity variables (PROP, FAC and FEC) finds different associations or no association at all with performance depending on the dependent variable used at a time.

The study reports that the gross profit margin, the main predicting variable of a firm will increase when women on their boards increase. This means that women offer significant contribution on the firm''s performance. As predicted by the resource dependency theory, it is estimated that women are responsible for about 70% of global consumer spending. Taking that into consideration, having more women in management positions could provide a more extensive insight into customer needs and choices which could lead to market share gains through innovation of new products and services that better suits consumers' needs and preferences, hence higher sales and higher gross profit margins.

In a further test for robustness check, the study employs other performance measures to test this relationship and finds that net profit margin and return on capital employed of listed firms will also increase when women on their board room is increased. Because gender diversity is positively related to these profitability measures, it seems the finding is also consistent with the agency theory as far as gross profit margin, net profit margin and return on capital employed are concerned.

The study however finds no significant relationship between proportion of women on board and return on equity, but reveals that as the proportion of women on the board increases, Tobin''s Q decreases and vice versa. This means that since investor bias might exist, the contribution that women board members may have for the firms is still viewed negatively by the investors that make the firm value (through Tobin''s Q) decrease when women are on the boards.

It also came to light that females on audit committees have no significant influence on firms'' financial performance. It again reveals that percentage of female executive board members (FEC) had no impact on all firm variables.

5.3 Conclusion of the study

The relationship between firm‟s performance and gender diversity has been extensively researched in advance countries. However from the literature very few studies have been conducted in developing countries especially in Ghana. The current study attempt to find out the gender composition of corporate boards as well as the association between gender diversity and firm‟s performance in Ghana. The study concludes that women are less represented on corporate boards of firms listed on the Ghana stock exchange. The null hypothesis that women are less represented on board is accepted at significant level of 5%.This result is consistent with the findings of many prior studies (See Amidu and Abor, 2006; Catalyst, 2007;Adams and Ferreira 2009).

The empirical results indicate that PROP had positive impact on gross profit margin, net profit margin and return on capital employed This could be attributed to the fact that firms who have women on their boards may reap benefits in terms of having a competitive workforce and serving diverse needs. PROP on the other hand is negatively related to the stock performance measure which is Tobin‟s Q despite the positive effect with respect to the other profitability measures. On that score, it seems the prejudice of shareholders with respect to female appointment on the board has not disappeared. The majority of the shareholders seem to still hold the thought that having a few women firm leaders is better to enable the boardroom to remain on track, to control the management or the agent to work in the best interest of the shareholders or the principal. Therefore the female appointment of board members sends bad signal on the stock market which affect share prices negatively hence the negative effect on Tobin‟s Q. The study therefore accept the alternative hypothesis that the presence of women on board has impact on firms performance and reject the null hypothesis that the presence of women on board has no impact on firms performance at 5% significant level.

It can be concluded that female on the audit committee has no impact on performance. The null hypothesis that female on audit committee has no impact on the firms performance is therefore accepted, while the alternate hypothesis is rejected. This finding therefore rejects the business case argument in favour of gender diverse boards to be a good monitor of management performance especially through the audit committee (See Carter et al., 2007).

The study revealed that female executive board members had no impact on the firm‟s performance. The null hypothesis that female executive has no impact on board performance is accepted at 5% level of significance. This finding is in line with many prior studies which suggest that females are least appointed to the executive to the executive seats of the board hence their impact are not felt with respect to performance.

The study also concludes that as the assets of the firms is a good predictor of firm performance, specifically, it increases as GPM and NPM also increases and vice versa while it inversely relates to Tobin‟s Q.

5.4 Recommendations for the study

Based on the findings of the study the following recommendations are suggested:

Firms should include women on their corporate boards as it is evident in the findings of this thesis that women presence on board positively affects the profitability of the firm.

Proportion of women on the selected firms had negative impact on stock performance measure which is Tobin‟s Q regardless of the positive impact with respect to the other profitability measures. The study therefore recommends women should undergo

relevant seminars and training .This will help them to contribute positively to the improvement of the stock performance of the firms they represent.

Since the executive division of the board are more likely to have experience in CEO and MD roles, the study notes that as the number of women on the board as a whole is insignificant, women who have specialized skills that complement the executive experience of business experts are more likely to be appointed in the executive seats. Corporate women are therefore advised to seek specialized skills to make them versatile for appointment in the executive role in order for their impacts to be felt as such.

GSE should make it a requirement for all listed firms to disclose corporate governance issues (including; important board committees such as audit, nomination and compensation, its constituents especially the gender composition of such committees: meeting attendance of the board members and number of times the board met in the year among others) in their annual report.

5.5 Limitation of the study

There are crucial limitations in this study that need to be addressed. To begin with; the credibility of the findings of every research may depend on the quality of information as well as data employed in the study. Even though the financial reports of the companies under review have been audited, the credibility of the audited report cannot be verified. The analysis is limited to gender composition of firms and the extent of participation of women on boards in the Ghanaian context and the impact of board gender diversity on listed firms" performance. Thus, the findings cannot be generalized beyond Ghana due to fundamental cultural differences in gender issues across developing economies. For true representation of the study in Ghana it would have

been perfect to use data from all listed firms and unlisted firms but due to data unavailability few firms may be capture in this study.

Specifically, availability of data was a much challenge to the researcher as data was not readily available on the Ghana Stock Exchange library (where the researcher found most of her information). The reason is that the officials at the GSE library could not provide most of the annual reports of the listed firms because they were missing. This practically led to reducing the firms to 31 instead of the total number of 37. Again this also led to the unbalanced data of 290 firm year observations. This clearly indicates that the librarians at the GSE library do not take good care of the materials under their custody.

Another challenge was poor reporting or disclosure of corporate governance issues of the firms listed on the Ghana stock exchanged. This made the author a little bit handicapped with the selection of corporate governance variables. Such appalling instances include the firms" failure to disclose important board committees such as audit, nomination and compensation and constituents especially the gender composition of such committees.

5.6 Areas for further studies

Further research is required using data from both listed and unlisted firms in Ghana to give a true representation of Ghana. More theoretical and empirical work is needed to fully flesh out the specific means if any by which board diversity impact corporate performance. Research regarding investor behaviour in response to the existence or the appointment of female board members is suggested. This is because in the stock market, behaviour is shaped partly by psychological and sociological factors that some prominent theories disregard. Again the effects of the presence of women board

members on firm performance should be explored further because there is a possibility that shareholders behaviour may change in relation to the gender bias due to the acknowledgement that gender diversity of board members is needed to maintain the going concern of the business.

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APPENDICES

Appendix 1. Plots of Normality and Non-Normality Distributed of Predictive

Variables
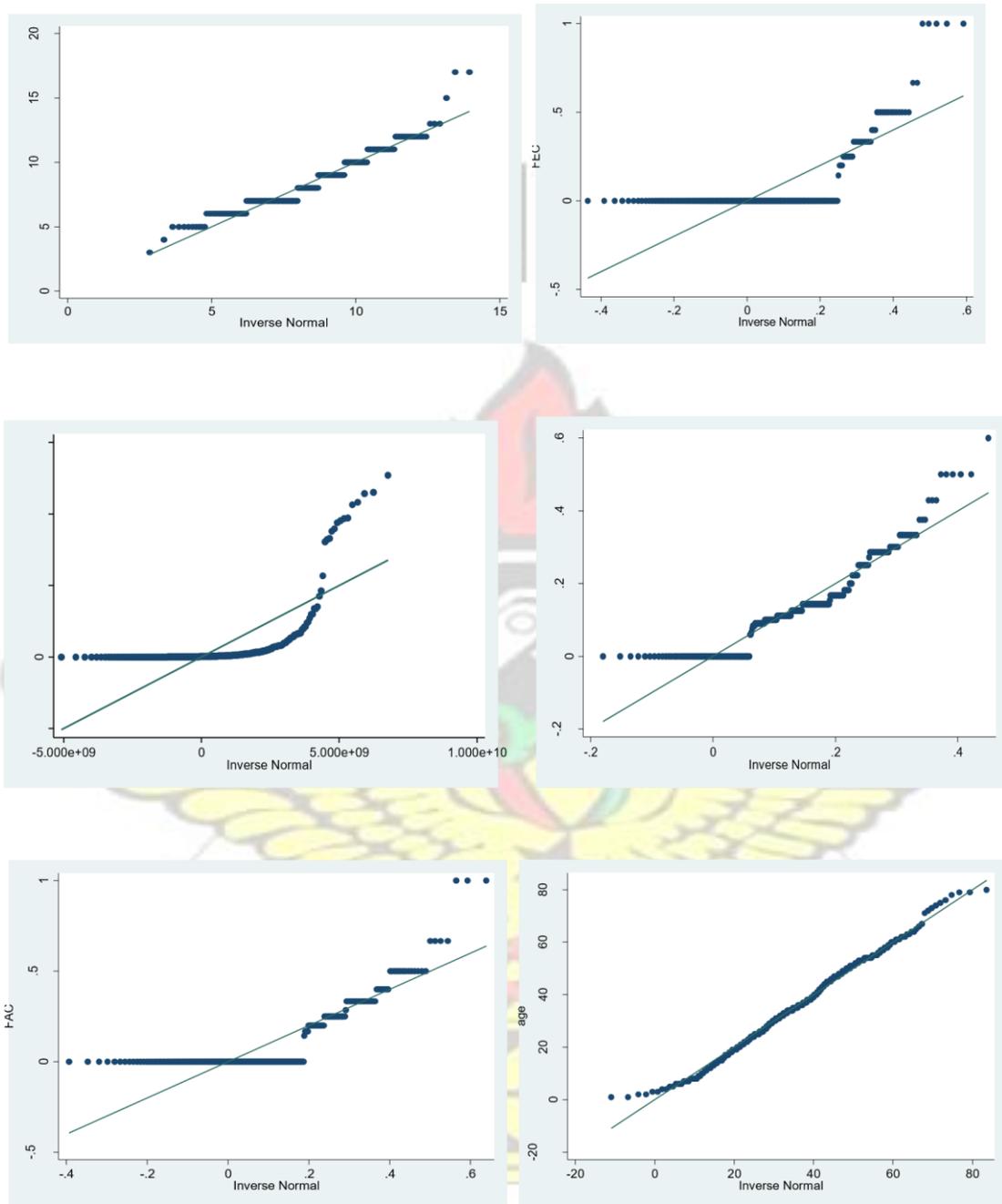
Appendix 2 Result of Variance Inflation Factor (VIF)

Tobin's Q	VIF	1/VIF	GPM	VIF	1/VIF

PROP	1.87	0.53
FAC	1.67	0.59
Assets	1.44	0.69
FEC	1.38	0.72
Board size	1.31	0.77
Age	1.16	0.86
Mean VIF	1.47	

PROP	1.94	0.52
FAC	1.81	0.55
Assets	1.46	0.69
FEC	1.44	0.69
Board size	1.34	0.74
Age	1.20	0.84
Mean VIF	1.53	

NPM	VIF	1/VIF
PROP	1.91	0.52
FAC	1.69	0.59
Assets	1.44	0.69
FEC	1.39	0.71
Board size	1.31	0.76
Age	1.16	0.86
Mean VIF	1.48	

ROCE	VIF	1/VIF
PROP	2.04	0.49
FAC	1.93	0.52
Assets	1.72	0.57
FEC	1.49	0.66
Board size	1.41	0.71
Age	1.36	0.73
Mean VIF	1.66	

ROE	VIF	1/VIF
PROP	1.91	0.52
FAC	1.69	0.59
Assets	1.44	0.69
FEC	1.39	0.72
Board size	1.31	0.76
Age	1.16	0.86
Mean VIF	1.48	

Appendix 3a: Panel data analysis of the relationship between board gender diversity and performance using fixed effect model estimation

Variable	GPM	NPM	TobinsQ	lnROE	lnROCE
PROP	0.0465	-0.1608	-0.1452	0.5065	1.5592
	(0.176)	(0.174)	(0.602)	(1.427)	(1.294)
FEC	-0.0568	0.0105	-0.0909	0.0892	-0.1177
	(0.085)	(0.078)	(0.273)	(0.691)	(0.667)
FAC	-0.0407	0.0443	0.0267	-0.7254	-0.0782

	(0.086)	(0.083)	(0.288)	(0.796)	(0.637)
lnassets	-0.0268	0.0218	-0.2799***	0.1675	0.0349
	(0.017)	(0.015)	(0.052)	(0.120)	(0.144)
lnage	0.0696	-0.0074	-0.0561	0.2038	1.0586
	(0.054)	(0.038)	(0.130)	(0.279)	(0.515)
lnboardsize	0.0911	0.0906	0.0346	-0.0639	0.0451
	(0.072)	(0.072)	(0.248)	(0.652)	(0.576)
Cons	0.4404	-0.4009	4.8184	-5.2518**	-6.3747**
	(0.313)	(0.302)	(1.065)	(2.499)	(2.944)
Observation	273	288	283	230	162
R-sq	2.81	9.21	6.36	2.03	9.90
Prob > F	0.574	0.588	0.000***	0.668	0.249

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Values in brackets are standard errors of the estimated parameters. Variables: PROP (Proportion of women on boards), FEC (% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), lnage (logarithm of the age of the firm).

Appendix 3b: Panel data analysis of the relationship between board gender diversity and performance using random effect model estimation

Variable	GPM	NPM	lnTobinsQ	lnROE	lnROCE
PROP	0.0915	-0.0756	-0.4952	1.3977	1.8383*
	(0.167)	(0.158)	(0.570)	(1.183)	(1.099)
FEC	-0.0622	0.0094	-0.0922	0.1553	0.2859
	(0.083)	(0.075)	(0.267)	(0.589)	(0.579)
FAC	-0.0359	0.4122	0.0547	-0.5247	-0.0884
	(0.085)	(0.079)	(0.282)	(0.659)	(0.584)
lnassets	-0.0071	0.0213**	-0.2290***	0.0759	0.0384
	(0.012)	(0.010)	(0.042)	(0.061)	(0.069)
lnage	0.0326	0.0094	-0.0936	0.1767	0.4479**
	(0.038)	(0.029)	(0.111)	(0.164)	(0.226)
lnboardsize	0.0812	0.0704	0.1177	-0.2411	0.2079
	(0.069)	(0.066)	(0.237)	(0.505)	(0.470)
downer	-0.0645	-0.0162	-1.0374***	-0.3134	-0.1536
	(0.089)	(0.069)	(0.341)	(0.295)	(0.344)

bmat	-0.3687***	-0.3026***	-0.1536	-0.7595	-1.1721**
	(0.131)	(0.102)	(0.508)	(0.589)	(0.496)
cgoods	-0.3345***	-0.1477*	0.0661	-0.2328	-0..3846
	(0.099)	(0.077)	(0.375)	(0.317)	(0.314)
indust	-0.2663**	-0.1561*	0.1574	0.2839	-0.1211
	(0.118)	(0.092)	(0.457)	(0.443)	(0.381)
Cons	0.4176	-0.3342	4.5177***	-3.0047**	-4.3112**
	(0.291)	(0.257)	(1.032)	(1.499)	(1.829)
Observation	273	288	283	230	162
R-sq	26.19	28.17	27.26	6.74	19.68
Wald chi2(5)	20.79	24.80	43.75	9.19	24.31
Prob > chi2	0.023**	0.006***	0.000***	0.514	0.007***
Heteroskedaticity	0.000***	0.000***	0.000***	0.058*	0.014**

Notes: ***, **, * Denote significance at the 1%, 5% and 10% levels, respectively. Values in brackets are standard errors of the estimated parameters. Variables: PROP (Proportion of women on boards), FEC(% of female executive members of the board), FAC (% of females on the audit committee), lnassets (logarithm of the book value of the total assets of the firm), downer (dummy variable for ownership where 1=local firm and 0=multinational firm), bmat (Dummy variable equals 1 if company is in the basic material industry), cgoods (Dummy variable equals 1 if company is in the consumer goods industry), indust (Dummy variable equals 1 if company is in the industrials) and lnage(logarithm of the age of the firm).