

BOARD, GENDER DIVERSITY AND FIRM PERFORMANCE

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Abstract

The article examined Board Gender Diversity and Firm Performance. Covering the 34 listed companies on the Ghana's capital market over the period 2010 to 2014. It observed that women are poorly represented on the corporate boards of listed firms in Ghana. Highest female board representation was the financial services industry with 16%. Trading, Pharmaceuticals and IT industries appointed only 1% female to boards, Automobile industry had none. Age and female board representation relationship depicts a trigonometric function in nature, younger firms tend to appoint more women than firms established forty years ago. Age of listing and female board representation depicts quadratic function in nature, as firms initially enter capital market, female board representation increased and falls overtime. Local firms appointed 38%, while multinationals appointed 62% female boards. Multinationals appointed more women to boards in Ghana. Regression analyses observed that, a unit increase in the ratio of women on a firm's board, return on equity increased proportionately by 21.6. Additionally, a unit increase in female board ratio, net profit margin increased proportionately by 18.2.

Keywords: Board, Gender Diversity, Firm Performance, Ghana Stock Exchange, Quadratic Function, Trigonometric Function

INTRODUCTION

We know that, Fama and Jensen (1983); Hermalin and Weisbach, (2003) argued 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. We also know that, Rose, (2007) had argued that the efficacy of the board to monitor the performance as well as put management on their toes depends upon several factors, the board's diversity, qualifications and experience, involvement in a multiple directorship position, level of share ownership as well as the remuneration scheme offered to motivate the members.

It is furthermore known that government commissioned reports such as the Cadbury (1992) in the UK, Sarbanes–Oxley Act of 2002 in the US, have explicitly argued out on the importance of board diversity among other factors to the firm.

The dearth in literature is the impact these phenomena would have on firm performance given the case of Ghana.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Corporate governance is a set of rules by which companies are directed and controlled, Cadbury, (1992). It is concerned with solving the agency problem as recognized by Berle and Means (1932), and further developed by Jensen and Meckling, (1976). It is made up of series of mechanisms through which the interests of management, the board, majority, minority and other stakeholders may be associated. It devises a means by which suppliers of finance to corporations' interest are aligned to the managers of firms, by reducing the agency divergence view, Shleifer and Vishny, (1997).

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 non-executive directors. 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.

Accounting Industry Reform Act 2002 is the second code to consider, which is also better known as the Sarbanes-Oxley. Its objective was 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).

OECD, (1996) Principles for Corporate Governance, these ethics are non-binding but represent common corporate governance standards and good practices and they are extensively used as a benchmark for policy making.

Catalyst, (2007), 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.

Resource dependency theory, was proposed first by Pfeffer and Salancik, (1978). They posit that, firms operate in an open system and needing to exchange and, or acquire certain resources in order to survive, making the firms dependent on external units in their environment. In view of this, corporate governance must ensure that firms seek relationship with the most beneficial resources and also structure board membership on this basis. Pfeffer and Salancik (1978) noted that directors bring merits to organizations via; advice or counsel, channels of information and access to resources. Increasingly, firms are challenged with complex and volatile macro environment, and this 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. Resource dependency theory therefore concludes that, the best performing management teams should consist of members that represent variety in terms of experience, working background, age, ethnicity, and gender.

Empirical Evidence

Campbell and Minguez-Vera, (2007) observed that, 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 marginalized in corporate boards on the grounds of gender, and that firms should increase gender diversity to achieve a more equitable outcome for society. Those in favor of economic arguments, are of the view that firms which fail to select the most competent candidates for the board of directors damage their financial performance.

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.

The study by Heidrick & Struggles, (2009) noted that women directors appear to be more assertive on numerous important governance issues such as evaluating their own board's

performance, monitoring or supervision of boards activity with respect to setting of executive compensation packages.

Brammer et al. (2007) find that the highest rate of female directors is 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 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) observed 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.

Catalyst, (2007) comparison of over 500 leading U.S. firms between 2001 and 2004, concluded that firms with the greatest proportion of female boards showed significantly higher return than those with the smallest proportion of women.

Smith, Smith, and Verner (2006), using panel data of 2500 Danish firms observed that female outside directors showed negative effects, though female inside directors showed positive effects.

Notwithstanding, Rose, (2007), has also 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.

The above empirical research undertaken predominantly in developed economies have revealed inconclusive results. Whether gender diversity improves governance practices, which in turn can lead to better financial performance is an empirical question. Hence the need to provide further evidence from developing markets.

In Ghana, Amidu and Abor (2006) as authors in gender and the composition of corporate boards, observed that women were insignificantly represented and that younger firms had more women on their boards than firms established four decades ago. In addition, the study found that it is only after the initial listing that companies found it necessary to appoint women directors. As firms expand, they tend to employ fewer women on their corporate boards. Also, women were engaged more in the service and financial sectors than the manufacturing and construction industries. Interestingly, local companies appointed relatively more women as board members than their multinational counterparts.

The key critique of Amidu and Abor, (2006) study was that, the authors clearly noted that, their study attempted to look at the relationship between certain characteristics (like age, years of listing, size, industry, types and ownership) and the composition of the board but

surprisingly there is nowhere in their study one could find where the relationships were empirically tested for inferential analysis. The question that comes to mind is whether the findings as listed above were statistically significant. This study was initiated to bridge this gap by using semi-log multivariate model for its analysis in addition to descriptive statistics as used by Amidu and Abor, (2006). It further espoused the board gender diversity issue by observing their impact on corporate performance. The study had become necessary particular since the Ghana's capital market was automated, the size, volume and number of firms listed have significantly increased. It's been over a decade since the publication of Amidu et al (2006) study. Ghana had become the preferred destination for investors in the Sub Saharan Africa, it is therefore relevant to reflect on Amidu et al (2006) findings and to make known the new observations for policy formulation or directions and to deepen investors' confidence in the era of golden age of business.

The objective of this study was to examine, corporate board gender diversity and the effect of such on performance using return on equity and net profit margin of firms on Ghana's capital market.

METHODOLOGY

The study analyzed companies from the eight different dominant sectors of Ghana's capital market including: Finance, Printing and Publishing, Information Technology, Manufacturing, Mining, Pharmaceutical, Trading, and Automobile from 2010 to 2014. The years 2010 to 2014 were selected due to the availability of data required to test the hypotheses. Even with this, some of the companies' annual report were not available. Convenient sampling technique was used to exclude some listed firms. Thus, firms whose published annual reports were not available at the web site were excluded in the analysis. Firms with missing data at the GSE were also excluded. Hence, out of the total 35 listed firms, the researcher employed a sample size of 34 firms each with five (5) years span of data. The sample is, however, unbalanced which means that some companies in the sample were not observed for some of the years.

Using qualitative approach, a pattern in the data set were ascertained. Gujarati, (2004) every statistic to describe a data usually summarizes the content and display the mean indicators of the variables used in the study.

For quantitative analysis, we assumed and posit firm performance as a function of the ratio of women on corporate board. Since this assumption is true, we adopted the asset pricing model that are used in predicting corporate returns in capital market theory.

This basic simple market regression equation adopted was:

$$y_{it} = \alpha + \beta_1 x_{it} + \varepsilon_{it} \quad (1)$$

Where; α is the constant or alpha, (equals the value of y when the value of x=0) i represents the firm, t is the time dimension, β_1 is Beta, the coefficient of X (the slope of the regression line; how much y changes for each one-unit change in x), x represents explanatory (predictor) variable(s), y is the response variable and, ε is the error term; the error in predicting the value of y, given the value of x, or it's a random disturbance (it is not displayed in most regression equations).

For the purpose of this study, the above model was modified into a semi-log linear multi variate regression as:

$$P_{it} = \alpha + \beta_1 \text{RwBod}_{it} + \beta_2 \text{LnBod}_{it} + \beta_3 \text{LnAgeF}_{it} + \beta_4 \text{LnAgeGse}_{it} + \beta_5 \text{LnAssets}_{it} + \beta_6 \text{RmBod} + \beta_7 \text{Duoship}_{it} + \varepsilon_{it} \quad (2)$$

Where; P=performance measure or response variable, (first by ROE, then by NPM), with RwBod = Ratio of women on board as the regressor. The following control variables were also used to aid in identifying the specific effects of gender diversity on corporate boards with respect to firm performance. LnBod = Log of Board Size, LnAgeF = Log of Age of Firm, LnAgeGse = Log of Age listed on Gse, LnAssets = Log of Assets, RmBod = Ratio of men on board, Duoship = dummy variable for firm ownership (where 1 is for local and 0 is for multinational). Absolute values were logged in order to normalize the data so as to minimize the (standard) deviation as noted by Baltagi, (2001).

Evidence by Yermack, (1996) suggests that bigger boards are associated with lower firm value because of the problems of poor communication and decision-making. Coles, Naveen and Naveen, (2008), also, observed that for larger and more complex firms' bigger boards do a better monitoring job.

Fama and French (1992), showed that the size of a firm is related to its market returns, firm size is used as a control variable in this 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. Duoship represents the dummy variable regarding the ownership of a firm, where 1 is for local and 0 is for multinational.

This study addressed two research questions. The first describes the irrelevancy of board gender diversity and firm performance, i.e. does corporate board and its gender diversity decisions matters in firm's performance? A descriptive method was used to answer this first research question.

The second research question determines the extent to which the increase or decrease in board and gender diversity affect firm's performance, i.e. to what extent does the increase or decrease in board gender diversity affect firm's performance? To answer this second research question, hypothesis was tested. Thus, the hypothesis is stated in the null and alternative forms as follows:

H_0 : There is no significant relationship between a firm's performance with respect to its board, and gender diversity as measured by return on equity and net profit margin after tax but before depreciation and amortization.

H_a : There is a significant relationship between a firm's performance with respect to its board and gender diversity as measured by return on equity and net profit margin after tax but before depreciation and amortization

RESULTS AND DISCUSSIONS

Descriptive statistics

Table 1 shows the descriptive statistics of the dependent and explanatory variables for the study. The firms for the study have been operating for the past 69 years (max) with a mean age of 40 years. The average board in the sample of 169 firm is 8 with a minimum of 4 and a maximum of 15 members. Maximum female board ratio was 30% and a minimum female board ratio was 0% with an average of 13%. This average of 13% indicates a general underrepresentation of women on boards in Ghana which is consistent with the findings of prior studies. The minimum value of 0% means that there were firms in which all the board members were men. In contrast, maximum male board ratio was 100%, a minimum of 70%, with an average of 87%.

The ROE reflects the profitability of firms measured under accounting standard taken from the financial reports. The ROE is a ratio of net earnings after tax to equity. On average, from 2010 to 2014, the value of ROE was -81%. The maximum value was 71% and the minimum was -145.75%. The result shows that there was a large gap in terms of accounting profitability among the firms during the years under study. This may be due to extraordinary large losses experienced by firms in some of the years. The result also indicates that as some of the firms were doing extremely well with higher return on equity at 83.8%, others are making abnormal losses at -145.75%.

NPM is another economic based profitability measure which compares profit after tax plus depreciation and amortization to sales of a firm. The higher the NPM the better. The results indicate an average of 2.61%. NPM with a maximum of 424.51% and a minimum of -6.59%. This is better than the ROE result perhaps due to the reversal of depreciation and amortization.

Table 1: Descriptive Statistics

| | N | Mean | Max | Min |
|---------|-----|-------|--------|---------|
| AgeFirm | 169 | 40 | 69 | 9 |
| AgeGse | 169 | 16 | 28 | 4 |
| Bod | 169 | 8 | 15 | 4 |
| WomBod | 169 | 1 | 4 | 0 |
| RwBod | 169 | 0.13 | 0.3 | 0.00 |
| RmBod | 169 | 0.87 | 1.00 | 0.7 |
| MenBod | 169 | 7 | 13 | 4 |
| Roe | 169 | -0.81 | 71.01 | -145.75 |
| NPM | 169 | 2.61 | 424.51 | -6.59 |

Industry and Board Composition

Table 2 displays industries represented by the firms listed on the GSE. Twelve (representing 35%) were manufacturing firms, three (9%) were in the Mining industry, eleven firms (32%) were in finance and one (3%) in the automobile and trading industries each. Three firms (6%) each were in IT, pharmaceutical and printing industries. Also shown are the board gender compositions with finance industry having majority (16%) of women followed by manufacturing with automobile having no women representing on their boards. This finding agrees with Amidu et al, (2006).

Table 2: Industry and Composition of Board

| | Frequency | % | WBod | MBod |
|-----------------------|-----------|------------|-----------|------------|
| Manufacturing | 13 | 35 | 11 | 87 |
| Mining | 3 | 9 | 4 | 22 |
| Financial | 11 | 32 | 16 | 82 |
| Automobile | 1 | 3 | 0 | 9 |
| IT | 2 | 6 | 1 | 6 |
| Trading | 1 | 3 | 1 | 10 |
| Pharmaceutical | 2 | 6 | 1 | 10 |
| Printing & Publishing | 2 | 6 | 3 | 11 |
| Total | 34 | 100 | 37 | 237 |

Table 3 shows the ownership of the listed company on the GSE. Out of the (average per year) 34 listed firms, 18 (53%) were Ghanaian firms and the remaining 16 (47%) multinational. In terms of board gender diversity, local firms are represented by 38% women and 62% on

multinational firms. This suggested that multinationals are adequately represented with women on their corporate boards in Ghana.

Table 3: Ownership and Composition of board

| Ownership | Average | Board | Men | Women |
|---------------|----------|-------|-----------|----------|
| Local | 18 (53%) | 127 | 113 (48%) | 14 (38%) |
| Multinational | 16 (47%) | 147 | 124 (52%) | 23 (62%) |
| Total | 34 | 274 | 237 | 37 |

Firm Characteristics and Corporate Boards: Age of Firm

Table 4 shows that the age of firms depicts a trigonometric function. In companies established less than 20 years ago, women constituted 16 per cent of the board. Firms between 21 and 30 years of age appointed only 19 per cent of women on their boards. Women accounted for only 8 per cent of boards in companies between 31 and 40 years of age, while those over 40 years old had 13 percent women board members. The results suggest that firms incorporated less than 30 years ago tend to have more women on their boards than those incorporated over 40 years ago. As Amidu et al, (2006) noted younger firms tend to have more women on their boards.

Table 4: Age of Firm and Composition of Board

| Age of Firm | Women | (%) | Men | (%) |
|-------------|-------|-----|-----|-----|
| <20 years | 7 | 16 | 37 | 84 |
| 21-30 years | 9 | 19 | 39 | 81 |
| 31-40 years | 5 | 8 | 55 | 92 |
| >40 years | 16 | 13 | 106 | 87 |
| Total | 37 | | 237 | |

Table 5 also shows how long companies have been listed on the GSE and the effect of this on the composition of the board of directors. Companies listed less than 10 years ago had seven women (15%) on their boards. Those listed between eleven and twenty years ago had seventeen women (37%). Companies listed for over 21 years had only 7 per cent women board members, hence listing age is of quadratic function in nature.

Table 5: Years of Listing and Board Composition

| Year of Listing | Women | (%) | Men | (%) |
|-----------------|-------|-----|-----|-----|
| <10 Years | 7 | 15 | 39 | 87 |

| | | | | | |
|-------------|----|----|-----|----|------------|
| 11-20 Years | 17 | 37 | 29 | 63 | Table 5... |
| >21 Years | 13 | 7 | 169 | 93 | |
| Total | 37 | | 237 | | |

Normality Tests: Unit Root

Table 6 shows the result of the unit root test based on the Augmented Dickey Fuller (ADF). The tests show stationarity at level, first difference and second difference for all variables, which is an important caveat for this analysis.

Table 6: Augmented Dickey-Fuller test statistics

| Variable | Level | 1 st Difference | 2 nd Difference |
|----------|--------|----------------------------|----------------------------|
| LnAgeF | -8.75 | -8.22 | -9.08 |
| LnAgeGse | -10.59 | -7.04 | -8.41 |
| LnBod | -6.44 | -6.75 | -10.98 |
| LnAssets | -6.10 | -7.60 | -8.16 |
| NPM | -12.95 | -8.12 | -6.99 |
| RmBod | -6.20 | -5.40 | -10.72 |
| Roe | -13.00 | -8.13 | -7.19 |
| RwBod | -6.20 | -5.40 | -10.72 |

Significant: 1%, 5%, 10%

Test for multicollinearity

We also provide the estimate of the coefficient variance decomposition to test for multicollinearity. We followed the recommendations of Belsley et al. (2004) to detect collinearity and the sources of the collinearity. We adopted the recommendations of Belsley et al. (2004) as noted in Adom, (2017) who observed that: inspect the condition numbers of the matrix. If a condition number is less than 0.001, it could indicate the presence of collinearity. If there are one or more small condition numbers, check the variance decomposition proportions. Possibility of collinearity exists between two variables if they each have a variance decomposition proportions of more than 0.5.

Table 7 shows that, we have three smaller condition numbers. However, it is evident that no two variables have variance decomposition proportions of more than 0.5. The conclusion therefore is that, there is no multicollinearity problem with the two models estimated; again, suggesting that these models are correctly specified.

Table 7: Coefficient variance Decomposition

| | | | | | | | |
|------------------------------------|-----------------------|----------|----------|----------|----------|----------|----------|
| Eigenvalues | 1244.843 | 661.6077 | 103.6233 | 91.52258 | 25.19079 | 6.077326 | 0.016425 |
| Condition | 1.32E-05 | 2.48E-05 | 0.000159 | 0.000179 | 0.000652 | 0.002703 | 1.000000 |
| Variance Decomposition Proportions | | | | | | | |
| | Associated Eigenvalue | | | | | | |
| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| C | 0.900534 | 0.098373 | 0.000505 | 0.000483 | 5.07E-05 | 5.40E-05 | 3.73E-08 |
| LNBOB | 0.060693 | 0.065823 | 0.175743 | 0.688750 | 0.008395 | 0.000594 | 1.76E-06 |
| RWBOD | 0.285162 | 0.714387 | 0.000131 | 0.000307 | 1.32E-05 | 9.08E-08 | 9.93E-10 |
| LNAGEF | 0.167096 | 0.020784 | 0.500083 | 0.241350 | 0.001555 | 0.069121 | 1.03E-05 |
| LNAGEGSE | 0.002155 | 2.87E-06 | 0.876753 | 0.067225 | 0.026978 | 0.026881 | 4.54E-06 |
| LNASSET | 0.285227 | 0.037316 | 0.075794 | 0.305161 | 0.030861 | 0.254317 | 0.011323 |
| DUO_SHIP | 0.198443 | 0.009905 | 0.032570 | 0.115647 | 0.634756 | 0.008678 | 2.96E-07 |

Table 8: The Pearson Correlation Matrix

| | LNBOB | RWBOD | LNAGEF | LNAGEGSE | LNASSET |
|----------|----------|----------|----------|----------|---------|
| LNBOB | 1 | | | | |
| RWBOD | 0.098295 | 1 | | | |
| LNAGEF | -0.0671 | -0.14556 | 1 | | |
| LNAGEGSE | 0.116251 | -0.08566 | 0.721005 | 1 | |
| LNASSET | 0.513246 | 0.021846 | -0.28264 | -0.11888 | 1 |

Finally, on the preliminary test of data, we provide the correlation matrix for all the variables. Table8shows the results. Particularly, the focus was on the correlation among the set of independent variables. Ratio of women board has a weak positive correlation of 9% with log of Board. Log of age of firm has a weak negative correlation of 6%, weak negative correlation of 14% with log of board and ratio of female board in that order. Log of age listed on GSE has a weak positive correlation of 11%, negative weak correlation of 8% and positive strong correlation of 72% with log of board, ratio of women and age of firm in that order. Finally, log of asset has a positive correlation of 51%, positive weak correlation of 2%, negative weak correlation of 28%, and negative weak correlation of 11% with log of board, ratio of women board, log of age of firm and log of age on listing respectively.

Table 9: Jarque-Bera Normality Test

| | ROE | NPM | LNBOB | LNAGEF | LNAGEGSE | RMBOD | RWBOD |
|--------------|-----------|-----------|-----------|-----------|----------|----------|-----------|
| Mean | -0.813320 | 2.606853 | 2.044692 | 3.558829 | 2.702750 | 0.865543 | 0.134457 |
| Median | 0.176745 | 0.094072 | 2.079442 | 3.713572 | 2.708050 | 0.857143 | 0.142857 |
| Maximum | 71.01362 | 424.5138 | 2.708050 | 4.234107 | 3.218876 | 1.000000 | 0.300000 |
| Minimum | -145.7251 | -6.587557 | 1.098612 | 2.197225 | 1.098612 | 0.700000 | 0.000000 |
| Std. Dev. | 14.05264 | 32.66371 | 0.314694 | 0.543003 | 0.466070 | 0.094489 | 0.094489 |
| Skewness | -6.847763 | 12.86515 | -0.418699 | -1.030440 | -0.8278 | 0.098808 | -0.098808 |
| Kurtosis | 78.06215 | 166.6761 | 3.426030 | 3.315408 | 3.770749 | 1.890071 | 1.890071 |
| Jarque-Bera | 40995.83 | 193307.2 | 6.215931 | 30.60809 | 23.48744 | 8.949917 | 8.949917 |
| Probability | 0.000000 | 0.000000 | 0.044692 | 0.000000 | 0.000008 | 0.011391 | 0.011391 |
| Sum | -137.4510 | 440.5581 | 345.5529 | 601.4422 | 456.7647 | 146.2767 | 22.72325 |
| Sum Sq. Dev. | 33176.08 | 179242.2 | 16.63738 | 49.53510 | 36.49319 | 1.499933 | 1.499933 |
| Observations | 169 | 169 | 169 | 169 | 169 | 169 | 169 |

The Jarque-Bera normality test which comprise of the skewness, kurtosis among others also showed that the variables are normally distributed as depicted in table 9.

Regression Results

The result from the semi-log regression models using ROE and NPM as response variables are displayed as Tables 10.

$$ROE_{it} = \alpha + \beta_1 \text{LnBod}_{it} + \beta_2 \text{RwBod}_{it} + \beta_3 \text{LnAssets}_{it} + \beta_4 \text{LnAgeF}_{it} + \beta_5 \text{LnAgeGse}_{it} + \beta_6 \text{Duoship}_{it} + \varepsilon_{it}$$

$$NPM_{it} = \alpha + \beta_1 \text{LnBod}_{it} + \beta_2 \text{RwBod}_{it} + \beta_3 \text{LnAssets}_{it} + \beta_4 \text{LnAgeF}_{it} + \beta_5 \text{LnAgeGse}_{it} + \beta_6 \text{Duoship}_{it} + \varepsilon_{it}$$

Table 10: Regression Output

| VARIABLE | ROE-MODEL | NPM-MODEL |
|----------|--------------------|------------------|
| C | 14.76 (0.29) | -20.04 (0.54) |
| LNBOB | -10.89** (0.01) | -11.37 (0.25) |
| RWBOD | 21.63* (0.06) | 18.24 (0.50) |
| LNASSET | 0.39 (0.41) | 2.02* (0.08) |
| LNAGEF | 2.44 (0.41) | -2.13 (0.76) |
| LNAGEGSE | -3.49 (0.30) | 3.44 (0.67) |

| | | |
|--------------------|-------------------|----------------|
| DUOSHIP | -5.57** (0.02) | 6.89 (0.24) |
| R-SQ | 0.08 | 0.02 |
| S.E. of Regression | 13.7 | 32.78 |

Notes: ***p<1%, **p<5% and * p<10% respectively. Variables: ROE (return on equity)

LNBOB (Log of Board of directors) RWBOD (Ratio of women on boards), LNASSET (log of asset) LNAGEF (log of age of firm), LNAGEGSE (log of age listed on Ghana stock exchange), DUOSHIP (dummy variable for ownership where 1=local firm and 0=multinational firm).

Using ROE as response variables, the result as displayed in table 10 indicates a positive but significant (at 10%) causality between ROE (return on equity) and RWBOD (ratio of female on the board). This means that for a unit increase in the ratio of women on a firm's board, (holding all the control variables constant) return on equity increased proportionately by 21.6 during the study period. Therefore, the higher the number of women on the board of listed firms in Ghana, the higher the return on equity listed firms experienced. However, the control variable that seemed to have influenced ROE were LNBOB and DUOSHIP. Log of board is significant at 5% but has a negative causality, meaning as the board size increased by a unit, ROE decreased proportionately by 10.8. Additionally, ownership of a firm as to whether local, or multinational had a negative causality but significant at 5% during the study period. Meaning if ownership of a firm was local during the study period, its ROE expected value experienced a downturn by -5.57(1), if multinational, its return expectation was not influenced by ownership (since -5.5(0)=0). Meaning the nature of ownership had no casual effect on their bottom line holding other variables constant. Additionally, LnAssets (positive causality), LnAgeF (positive causality), but LnAgeGse had a negative causality, however none of these control variables were statistically significant at 1%, 5% and 10%.The model also observed an R-square value of 0.08 suggesting that, the explanatory variables accounted for only 8% of the variations in the response variable during the study period. Hence the explanatory power of the regressors are weak in accounting for the variation in ROE, this therefore may suggest that there are other variable(s) that may account for variations in ROE.

In addition, using NPM model, the result of the regression indicates a positive causality between Net profit margin (NPM) and RWBOD (ratio of female on the board), but not statistically significant at 1%, %5 or even 10%. This means that for a unit increase in the ratio of women on a firm's board, (holding all other control variables constant), net profit margin increased proportionately by 18.2 during the study period, but was not statistically significant. Therefore, the higher the number of women on the board of listed firms in Ghana, the higher the

profit margin listed firms experienced but was not statistically significant. However, the control variable that seemed to have influenced NPM was firm size measured by assets. It noted that for a unit increase in firm's asset the NPM proportionately increased by 2.02 and was statistically significant at 10%. The other control variables; LnBod (negative causality), LnAgeF (negative causality), LnAgeGse (positive causality) and Ownership (positive causality) in that order with NPM, but were all not statistically significant at 1%, 5% or 10%. The model also observed an R-square value of 0.02 suggesting that, the explanatory variables accounted for only 2% of the variations in the response variable during the study period. Hence the explanatory power of the regressors are weak in accounting for the variation in NPM, this therefore may suggest that there are other variable(s) that may account for variations in NPM.

CONCLUSION AND RECOMMENDATIONS

The study examined the relationship between Board, Gender Diversity and Firm Performance with evidence from Ghana's capital market. It covered all the 34 listed companies in accordance with the Ghana Stock Exchange (GSE) Fact Book over the period 2010 to 2014. Using descriptive statistics, the average board in the sample of 169 firm was 8 with a minimum of 4 and a maximum of 15 members. Maximum female board ratio was 30% and a minimum female board ratio was 0% with an average of 13%. This average of 13% indicates a general underrepresentation of women on boards in Ghana. It is clear that women are poorly represented on the corporate boards of listed firms in Ghana. The highest representation of female board was the financial services industry with 16%. The IT, Trading and Pharmaceutical industries appointed only 1% female to their boards, while Automobile industry had none. The relationship between age and female board representation depicts a trigonometric function in nature, in that, younger firms tend to appoint more women than firms established forty years ago. The relationship between age of listing and female board representation depicts a quadratic function in nature. Age of listing also showed that as firms initially lists on the capital market, female board representation increased and falls overtime. In terms of ownership and board gender diversity, local firms are represented by 38% women and 62% on multinational firms. This suggested that multinationals are adequately represented with women on their corporate boards in Ghana. The result from the semi-log regression observed a positive but significant causality between return on equity and ratio of female on boards. This means that for a unit increase in the ratio of women on a firm's board, return on equity increased proportionately by 21.6 during the study period. Therefore, the higher the number of women on the board of listed firms in Ghana, the higher the return on equity listed firms experienced. However, the control variable that seemed to have influenced returns were log of board and

nature of firm ownership. The model also observed an R-square value of 0.08 suggesting that, the explanatory variables accounted for only 8% of the variations in the response variable during the study period. Hence the explanatory power of the regressors are weak in accounting for the variation in return, this therefore suggest that there are other variable(s) that may account for variations in returns. In addition, using net profit margin, the result of the regression indicates a positive causality between Net profit margin and ratio of female on boards, but not statistically significant at 1%, %5 or even 10%. This means that for a unit increase in the ratio of women on a firm's board, net profit margin increased proportionately by 18.2 during the study period, but was not statistically significant. Therefore, the higher the number of women on the board of listed firms in Ghana, the higher the profit margin listed firms experienced but was not statistically significant. However, the control variable that seemed to have influenced net profit margin was firm size measured by assets. It is recommended that companies should review their policies with respect to board appointments. If possible a quota system with special tax incentives or reliefs be given to companies that complies with the quota.

LIMITATIONS

The authors limited their analysis to data of companies listed on Ghana's capital market hence, the findings are limited in their application, secondly it cannot be generalized beyond Ghana due to fundamental cultural differences in gender issues across the world. More so, extensive use of firm specific variables was demonstrated, even though behavioral scholars have observed that returns are also influenced by investor behavior. Studies regarding joint sensitivity of investor behavior, board gender diversity and their impact on returns (performance) is suggested.

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