# BOARD DIVERSITY AND FIRM PERFORMANCE: A QUANTILE REGRESSION APPROACH

**Dipankar Jana[1] & Prof. Abhijit Sinha[2]**

1. SACT, Garhbeta College, Garhbeta, West Bengal & Research Scholar, Department of Commerce, Vidyasagar University, Email: iamdipankar94@gmail.com
2. Professor of Commerce, Vidyasagar University, West Bengal Email: abhijitsinha_091279@mail.vidyasagar.ac.in

**Abstract**

The research explores how structural and gender diversity affects firm performance. The study covers ninety companies by considering sample from Indian large-cap and mid-cap companies. The secondary data for the period 2013-2021 is analyzed to investigate how structural and gender diversity affect firm performance which is denoted using return on asset (ROA). The quantile regression result across all the three quartiles of ROA highlights the significant and positive effect of Board size and sales growth on performance in contrast to the negative impact of firm size. However, in the third quartile of ROA, the additional effect of Board independence is observed. The research finds that there is insignificant effect of female presence in the Board in any of the quartiles.

***Keywords:*** *Board Diversity, ROA, Quantile regression*



# BOARD DIVERSITY AND FIRM PERFORMANCE: A QUANTILE REGRESSION APPROACH

## Introduction

In India, there is huge contribution of the corporate sector to its economic progress and employment generation. In this regard, it is important to mention that the Board has very important functions in the governance of companies because right decisions help to propel the firm in the right direction so that owners' interests are protected. The gaining popularity of corporate governance has introduced several mechanisms to counter the tendency among agents to protect their self-interest and not that of the owners. The corporate governance arena is multipronged with different dimensions in its ambit which has caught the attention of researchers and academicians alike. One of the important areas in corporate governance is Board diversity which covers different characteristics of individual members in respect of decision-making (Walt & Ingley, 2003). The reason behind deliberating on the issue is the multiple effects arising from the variety in the constitution of members. Some of the positive effects include improved quality of decisions (Khidmat et al., 2020), close monitoring with inclusion of varied perceptions (Tawfik et al., 2022) and escalated firm performance (Tanikawa & Jung, 2016). The negative effect is reflected in increased conflict (Devi, 2018), reduced cooperation and escalated incongruence (Giannetti & Zhao, 2019).

The issue of diversity in corporate Boards is an imperative issue for researchers in present day literature (EmadEldeen et al., 2021). This points to the changing rules in corporate governance due to shifting business dynamics in this small but connected global landscape which increases responsibility of the Board (Bennouri et al., 2018). Two key important research areas include Board structural diversity and Gender diversity (Ararat & Yurtoglu, 2021). Among the several diversities, gender diversity and structural diversity have got emphasis in research in the Western countries mainly because of a rising concern from

low female presence in corporate Boards. Though, the concept of gender diversity is gaining importance as evident from mandatory regulations in few countries, still there are research evidences that show low encouragement to women for occupying key managerial positions in corporates. In a country like India, the situation is changing slowly with increasing women participation all various sectors in the India including corporate. However, the picture has not changed much in respect of their presence in the Board. There are contrasting views with regard to the role of female presence on profitability. There is a lack of congruence in findings from extant literature. Positive impact of operational performance is observed in recent studies (Woschkowiak, 2018). On the contrary, negative effect is seen in Adusei et al. (2017) and Adams and Ferreira (2009).

In a similar tune, the issue of structural diversity has gained momentum giving emphasis on the increasing importance of independent directors in the decisions of the Board. With corporate frauds in the news, the government is undermining the corporate governance issue in order to boost governance mechanisms and uphold governance standards (Lin & Guan, 2024). In governance literature, it is observed that independence of Boards is a vital mechanism to ensure unbiasedness in decision-making and transparency in functioning (Peng & Chen, 2024). It is vital to understand that independence affects firm performance by taking strategies which are in alignment with corporate interest in the long-run. The present investigation delves into how diversity in the Board impacts firms which is necessary to device better procedures for bringing transparent operational mechanism by the Board. Thus, there is immense scope to unveil the effect of Board diversity on performance in an emerging economy like India which is covered in this study. Though many research evidences are available, there are inconclusive findings which justify this research. It is important as the inclusion of structural and gender diversity inculcates an environment which is expected to lead towards

shareholders' wealth maximization. Thus, the impetus is to find how the control mechanism operates with Board diversity in decision-making.

The contribution of this study over majority of the extant literature is the application of quantile regression which is considered to give a more detailed technique about the possible relationship between the explained and several explanatory variables at different points of the response factor (Koenker & Hallock, 2001). The findings of the study can lay the groundwork to understand how the 'diversity' mechanism operates in corporates that affect their operational performance which in this study is measured using the accounting-based ratio.

**Literature review**

The study of extant literature shows diverse findings in the area of diversity and performance. Tariah (2019) examines the connection between Board gender diversity and performance (measured using ROA) which shows positive relationship. The issue of demographic diversity is covered in Woschkowiak (2018) which shows a positive connection, though age diversity reflects no significant impact. In a similar study by Devi (2018) insignificant effect is established between diversity and performance. The research by Razali et. al (2018) finds a positive but no significant effect of gender diversity on accounting ratios (ROA and ROE). On the contrary, Kilic (2015) reported negative effect of female directors' and foreign directors' presence on performance. The study by Garba and Abubakar (2014) gives mixed effects about the relationship. Though gender diversity in respect of the number of female directors and foreign directors show a positive effect on performance, the increased percentage of outside directors reduces firm performance. The UK-based study by Pasaribu (2017) depicts little evidence of positive effect due to female directors' presence. In a different note, the research by Gupta et al. (2015) showed more effectiveness of Boards which are gender and ethnically

more diversed. No statistically significant effect of diversity was observed on performance in the Nairobian-based study by Letting et al. (2012). The research outcomes of the work by Fraga and Silva (2012) show negative impact of Board independence on market-based performance. In the study by Wellalage and Locke (2013), dynamic panel regression finds significant negative impact of women representation on firm value based on the study on non-financial firms in Colombian stock exchange. The findings of Luckerath-Rovers (2010) corroborates with the notion that women diversity creates better-performing companies in contrast to the opposite conclusion drawn by Carter et al. (2003). As per the review of literature, certain research gaps have been identified. The findings with respect to the issue under consideration show an inconclusive result. Though the number of studies is substantially high in the Western and EU countries, the number of research evidences is quite low in emerging economies that includes India. Moreover, the past studies show application of panel regression to find the average impact of explanatory variables on the explained variable without exploring whether it is the same at all levels of the dependent variable.

**Objectives and hypotheses of the study**

On the basis of extant literature, to address the gaps existing in extant literature, the following objectives and hypotheses are set.

The objectives are:

a. To assess the effect of structural diversity on firm performance, and
b. To assess the effect of gender diversity on firm performance.

Accordingly, the following are the hypotheses:

H01: Structural diversity has no significant effect on firm performance.

H02: Gender diversity has no significant effect on firm performance.

**Research design**

The empirical study explores the effect of two forms of Board diversity on firm performance. For the purpose, performance is measured using accounting ratio which is considered to be a better measure than the market-based measure

because in the latter, value is vulnerable to changes in the business environment. The research is done on ninety firms comprising of large and mid-sized companies chosen on the basis of market capitalization drawn from the CMIE Prowess and ACE Equity databases for which longitudinal data is collected for the period 2013 to 2021. The researchers apply the quantile regression methodology on the dependent variable which is ROA in this study. This ratio allows inter-firm comparison in an industry (Marquez-Cardenas et. al., 2022). This study computes quantile functions at the 25$^{th}$ percentile, 50$^{th}$ percentile and 75$^{th}$ percentile which is consistent with the approach followed by Conyon and He (2017). The quantile regression method considers structural diversity and gender diversity as the main independent variables representing diversity in the Board. The independent variables in the regression model include firm size, firm age and sales growth. The application of quantile regression method adds novelty to the research in this field of corporate governance. Thus, the diversity-performance relationship can be tested at varied levels of firm performance.

The motivation to apply this methodology arises from the findings in Conyon and He (2017), Maji and Saha (2021) and Charles et al. (2018) which discuss how the effectiveness of female directors' presence varies across the distribution of firm performance. The researchers consider the threat-rigidity theory popular in psychology (Gladstein and Reilly, 1985) and the job sorting and matching theory used in economics (Wheeler, 2001). Hence, the research method deviates from the general assumption that the gender effect on an average remains uniform throughout the performance distribution. In other words, the study assumes varying effect of female presence at different levels of performance. The research, therefore, makes a methodological improvement by unrevealing the true effect of presence of female directors on corporate performance.

The table below presents the description of variables.

**Table 1: Description of variables**

| Variables | Notation | Reference of past studies |
|---|---|---|
| Return on Assets | ROA | Tariah, 2019; Ujunwa, 2012 |
| Board independence | PRC_ID | Ahmad et. al., 2018 |
| Gender diversity | PRC_WD | AuYong and Tan, 2018 |
| Board Size | BOD_SZ | Razali et. al., 2018 |
| Firm Size | FIRM_SZ | Ciavarella, 2017 |
| Sales growth | SALES_GR | Mohsni and Shata, 2021 |
| Firm age | FIRM_AGE | Miller and Triana, 2009 |

**Source: Conceptualized by researchers**

## Findings and analysis

The model that is estimated is presented in the equation below:

$$FIRM\_PER_{it} = \alpha + \beta_1 . PRC\_ID_{it} + \beta_2 . PRC\_WD_{it} + \beta_3 BOD\_SZ_{it} + \beta_3 . FIRM\_SZ_{it} + \beta_5 SALES\_GR_{it} + \beta_6 FIRM\_AGE_{it},$$

where i denotes firm; t denotes time dimension; α is the intercept and $\beta_1$ to $\beta_6$ are coefficients. Firm performance is depicted using Return on assets (ROA).

The characteristics of the variables are given in the table below.

**Table 2: Descriptive Statistics**

| Variable | Mean | Median | SD | Minimum | Maximum |
|---|---|---|---|---|---|
| BOD_SZ | 10.56 | 10.00 | 2.80 | 2.00 | 22.00 |
| PRC_ID | 51.13 | 50.00 | 12.63 | 0.00 | 88.89 |
| PRC_WD | 14.18 | 12.50 | 7.95 | 0.00 | 42.86 |
| FIRM_SZ | 9.33 | 9.15 | 1.35 | 6.16 | 13.79 |
| SALES_GR | 9.56 | 8.50 | 20.83 | -95.61 | 169.42 |
| FIRM_AGE | 3.64 | 3.61 | 0.54 | 1.79 | 4.71 |
| ROA | 10.87 | 9.57 | 9.23 | -53.14 | 97.09 |

**Source: Computed by researchers**

Table 2 contains descriptive mean, standard deviation, minimum and maximum values for all the variables. The average ROA for the sample companies during 2013 to 2021 is 10.56%, with a wide range from -53.13% to 97.09%. Thus, the sample comprises of companies that is a mix of good-performing and poor-performing companies. The standard deviation of 9.23% also shows a reasonable dispersion in ROA. The average percentage of independent directors in the Board is 51.13% with a range from nil to 88.88%. The minimum number is nil which shows that few companies did not have women directors. In respect of firm size, the natural log value of total assets is given. The absolute values showed that there is a wide variation in the total asset of firms that are considered. In respect of age of firms, the same observation is made. The other independent variable is sales growth which shows that on an average, the sample experiences year-on-year sales growth of 9.5% with wide variation as observed from the minimum and maximum values.

**Multicollinearity and Heteroscedasticity**

Before the discussion of regression results, diagnostic tests are applied before finalizing the model. The results of multicollinearity are presented below.

**Table 3: Result of Multicollinearity**

| Variables | VIF |
|---|---|
| BOD_SZ | 1.07 |
| FIRM_SZ | 1.06 |
| FIRM_AGE | 1.03 |
| PRC_WD | 1.03 |
| SALES_GR | 1.69 |
| LN_AGE | 1.56 |
| VIF Mean | 1.04 |

Source: Computed by researchers

Next, the researchers present the result of the test for heterocedasticity using the Breusch-Pagan / Cook-Weisberg test. The value of $x^2$ test statistic is 0.08 with p-value of 0.7809. Thus, null hypothesis is accepted which implies non-existence of heteroscedasticity issue.

**Result of regression: Using Quantile regression**

The regression applied helps to understand the effect of the independent variables at different levels of the response variable. For the purpose, the regression results are deciphered for different levels of ROA which are at 25%, 50% and 75%. The results give useful insights as they depict whether the explanatory variables behave similarly on an average or have unique effect at different performance levels. The results of regression are presented in the tables below.

**Table 4: Result of Quantile regression at 25% quartile**

| ROA | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| BOD_SZ | 2.9293 | 0.9396 | 3.1200 | 0.0020 | 1.0851 | 4.7736 |
| PRC_IDS | -0.0155 | 0.0194 | -0.8000 | 0.4230 | -0.0535 | 0.0225 |
| PRC_WD | -0.0155 | 0.0335 | -0.4600 | 0.6440 | -0.0812 | 0.0502 |
| FIRM_SZ | -2.1545 | 0.1958 | -11.0000 | 0.0000 | -2.5389 | -1.7701 |
| SALES_GR | 0.0355 | 0.0157 | 2.2700 | 0.0240 | 0.0048 | 0.0662 |
| LN_AGE | 1.5577 | 0.4738 | 3.2900 | 0.0010 | 0.6277 | 2.4878 |
| _CONS | 14.1469 | 3.4404 | 4.1100 | 0.0000 | 7.3937 | 20.9002 |

Source: Computed by researchers

In the above regression result, it can be seen that Board size, firm size and firm age affect ROA in the 25% quartile level significantly at 1% level. Sales growth, affects ROA positively at 5% significance level. Interestingly, all these explanatory variables affect ROA positively excepting firm size. Thus, managers need to see that for poor-performing organizations which includes those which are positioned towards the lower end of the ROA continuum, increasing the number of members in the Board and improving year-on-year sales growth will contribute positively towards profitability.

In the next table, the effect of Board-level and other variables on the explained variable is presented for the 50% quartile level.

**Table 5: Result of Median Quantile regression**

| ROA | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| BOD_SZ | 3.3367 | 1.0998 | 3.0300 | 0.0020 | 1.1779 | 5.4955 |
| PRC_IDS | 0.0163 | 0.0241 | 0.6800 | 0.4990 | -0.0311 | 0.0637 |
| PRC_WD | -0.0420 | 0.0382 | -1.1000 | 0.2720 | -0.1169 | 0.0330 |
| FIRM_SZ | -2.0414 | 0.2305 | -8.8500 | 0.0000 | -2.4939 | -1.5889 |
| SALES_GR | 0.0515 | 0.0142 | 3.6200 | 0.0000 | 0.0236 | 0.0794 |
| LN_AGE | 1.4372 | 0.5592 | 2.5700 | 0.0100 | 0.3396 | 2.5349 |
| _CONS | 14.6337 | 3.6552 | 4.0000 | 0.0000 | 7.4589 | 21.8086 |

Source: Computed by researchers

The above table result shows similarity with that seen in 25% quartile. The significant variables that affect ROA in this part of the profitability continuum in order of the significance level include Board size (β = 3.336, t-value = 3.03, p-value = 0.002), firm size (β = - 2.041, t-value = - 8.85, p-value = 0.000), sales growth (β = 0.051, t-value = 3.62, p-value = 0.000) and firm age (β = 1.437, t-value = 4.00, p-value = 0.000). The other variables are found to be statistically insignificant. Therefore, because of the similarity in the findings, the conclusions are similar. It can be said that for mid-performing firms, increasing the Board size and sales growth are likely to enhance profitability of the medium-level performing enterprises. Independent directors' presence and women directors are found to play an insignificant effect on the accounting-based profitability measure.

In the following paragraphs, the discussion helps to understand the dependent-independent variable relationship. It is observed that in the third quartile of the dependent variable, the effect of independent directors which was insignificant in the previous two cases is found to have significant impact. The effect of the other variables remains unchanged. Thus, the role of independent variables becomes very prominent in high-performing firms. Board size, size of the firm, growth rate in sales and firm age are considered to be important variables that affect profitability.

**Table 6: Result of Quantile regression at 75% quartile**

| ROA | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| BOD_SZ | 3.9238 | 1.7044 | 2.3000 | 0.0220 | 0.5782 | 7.2694 |
| PRC_IDS | 0.1014 | 0.0387 | 2.6200 | 0.0090 | 0.0254 | 0.1774 |
| PRC_WD | -0.0379 | 0.0552 | -0.6900 | 0.4930 | -0.1462 | 0.0705 |
| FIRM_SZ | -2.5695 | 0.3524 | -7.2900 | 0.0000 | -3.2611 | -1.8778 |
| SALES_GR | 0.0953 | 0.0166 | 5.7500 | 0.0000 | 0.0628 | 0.1278 |
| LN_AGE | 1.5503 | 0.8257 | 1.8800 | 0.0610 | -0.0706 | 3.1711 |
| _CONS | 18.9818 | 5.2471 | 3.6200 | 0.0000 | 8.6821 | 29.2814 |

Source: Computed by researchers

Thus, the study shows that though in the case of most of the explanatory variables, the nature and sign of effect remains the same, the importance of outside directors becomes very important for the high-level performing firms. The positive impact due to their presence as a Board member is evident from the quantile regression estimates. The finding with regard to the insignificant effect of gender diversity is something that can surprise many. But there are several research findings which discuss about the insignificant or negative role of presence of female directors on the Board (Ramadhani & Adhariani, 2017).

In the last part of the analysis, to make comparison in the result, the researchers apply panel regression to find the mean effect of the independent variables on ROA.

**Table 7: Panel regression result showing mean effect**

| ROA | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| BOD_SZ | 0.2872 | 0.1128 | 2.5500 | 0.0110 | 0.0657 | 0.5087 |
| PRC_IDS | 0.0769 | 0.0243 | 3.1700 | 0.0020 | 0.0292 | 0.1245 |
| PRC_WD | -0.0086 | 0.0385 | -0.2200 | 0.8230 | -0.0841 | 0.0669 |
| FIRM_SZ | -2.4062 | 0.2342 | -10.2800 | 0.0000 | -2.8659 | -1.9466 |
| SALES_GR | 0.0500 | 0.0145 | 3.4600 | 0.0010 | 0.0216 | 0.0783 |
| LN_AGE | 1.6630 | 0.5638 | 2.9500 | 0.0030 | 0.5563 | 2.7697 |
| _CONS | 19.9377 | 3.2406 | 6.1500 | 0.0000 | 13.5767 | 26.2988 |

Source: Computed by researchers

The F-statistic value of 26.29 with p-value of less than 1% shows the fitness of the estimated model. The estimates show that Board size, Board independence, sales growth and firm age have positive and significant effect of firm performance measured using ROA. However, the gender diversity is still found to have no significant effect on the accounting ratio. Thus, it can be said that the female factor does not show any influential role in improving the performance of corporates in the Indian context. It however, does not nullify the fact that it does not affect the firm value since image of firms gets a boost up with more female directors on the Board. The issue of Board independence is very relevant as evident from the results of both quantile regression and panel regression.

**Conclusions and suggestions**

This study looks in-depth into the connection between structural and gender aspects of Board diversity and firm performance. The findings based on ninety large-cap and mid-cap firms shows that female presence in the Board fails to bolster firm performance through better insights. One of the possible reasons is that among Indian corporates, in majority of the Boards, the female directors' presence is quite low due to which their say and opinions seems to get subtly rejected by the other members. Thus, the idea of boosting performance through diverse representation in respect of gender is something to be thought in the Indian context. Thus, the findings do not align themselves with the resource dependency theory. However, it is highly likely that significant effect can be observed if there is a reasonably good number of women directors. In respect of Board independence, the better contribution of independent directors is prominent in good-performing firms. Thus, the effectiveness of structural diversity is accentuated in the research in the higher quartile of the accounting-based performance measure. Another noticeable observation is that Board size and increase in sales boosts performance, Firm size, however, as a deteriorating effect on profitability. Thus, it can be said that with the need to

have more number of female directors, inclusive governance policies should be in practiced in the Indian firms so that their rich perspectives and insights get due importance in the meetings of the Board and other discussion platforms.

**Limitations of the study**

The sample size for such a study can also include small-cap companies apart from the large cap and mid-cap companies for getting better insights. The researchers focused only on the number of women and independent directors without looking at their qualitative characteristics. These can be plugged in the future studies.

**Scope of future studies**

The study focuses only on structural and gender diversity to decipher the effect of Board heterogeneity on performance. The future researches can delve into demographic diversity and index measures to evaluate their effect on performance. Cross-country research can also be done to bring new perspectives on how cultural differences at the country level can affect the relationship.

**References**

Adams R. B., Ferreira D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Adusei, M., Akomea, S. Y., & Poku, K. (2017). Board and management gender diversity and financial performance of microfinance institutions. *Cogent Business & Management*, *4*(1), 1360030. https://doi.org/10.1080/23311975.2017.1360030.

Ahmad, N., Naveed, A., & Fazal, A. (2018). An empirical analysis of boardroom diversity on firm performance. *Review of Economics and Finance*, *13*(3), 62-76.

AuYong, H. N., & Tan, B. S. S. (2018). The role of women directors on corporate boards and firm financial performance in Malaysia. *A Journal from Economics, Finance and Statistics, 2*(1), 17-23. doi.org/10.26480/icefs.01.2018.17.23.

Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: what really matters?. *Journal of Banking & Finance*, *88*, 267-291. https://doi.org/10.1016/j.jbankfin.2017.12.010.

Bin Khidmat, W., Ayub Khan, M., & Ullah, H. (2020). The effect of board diversity on firm performance: Evidence from Chinese Listed companies. *Indian Journal of Corporate Governance*, *13*(1), 9-33. https://journals.sagepub.com/doi/full/10.1177/0974686220923793.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *The Financial Review*, *38*(1), 33–53. doi:10.1111/1540-6288.00034.

Ciavarella, A. (2017). Board diversity and firm performance across Europe. CONSOB Working Papers No.85. Available at SSRN: https://ssrn.com/abstract=3084114or http://dx.doi.org/10.2139/ssrn.3084114.

Charles, A., Dang, R., & Redor, E. (2018). Board gender diversity and firm financial performance: A quantile regression analysis. In *International corporate governance and regulation* (15-55). Emerald Publishing Limited. https://doi.org/10.1108/S1569-373220180000020002.

Conyon, M. J., & He, L. (2017). Firm performance and boardroom gender diversity: A quantile regression approach. *Journal of Business Research*, *79*, 198-211. https://doi.org/10.1016/j.jbusres.2017.02.006.

Devi, N. (2018). Asia's board diversity: does director diversity on board affect firm performance? *Russian Journal of Agricultural and Socio-Economic Sciences*, *79*(7), 14-20. doi:10.18551/rjoas.2018-07.02.

EmadEldeen, R., Elbayoumi, A. F., Basuony, M. A., & Mohamed, E. K. (2021). The effect of the board diversity on firm performance: An empirical study on

the UK. *Corporate Ownership & Control*, *18*(3), 337-347. https://doi.org/10.22495/COCV18I3SIART8

Fraga, J. B., & Silva, V. A. B. (2012). Board diversity and firm performance: An empirical investigation in the Brazilian market. *Brazilian Business Review*, *9*(Special Ed), 55-77. http://dx.doi.org/10.15728/bbrconf.2012.3.

Garba, T. & Abubakar, A.B. (2014). Corporate board diversity and financial performance of insurance companies in nigeria: an application of panel data approach. *Asian Economic and Financial Review*, *4*(2):257-277

Giannetti, M., & Zhao, M. (2019). Board Ancestral Diversity and Firm-Performance Volatility. *Journal of Financial and Quantitative Analysis*, *54*(3), 1117–1155. doi:10.1017/s0022109018001035.

Gladstein, D. L., & Reilly, N. P. (1985). Group decision making under threat: The tycoon game. *Academy of Management journal*, *28*(3), 613-627. https://doi.org/10.5465/256117.

Gupta, P.P., Lam, K.C. K., Sami, H., & Zhou, H. (2015). Board Diversity and Its Effect on Firm Financial and Non-Financial Performance. *SSRN Electronic Journal*. Doi:10.2139/ssrn.2531212.

Jurkus, A. F., Park, J. C., & Woodard, L. S. (2011). Women in top management and agency costs. *Journal of business research*, *64*(2), 180-186. https://doi.org/10.1016/j.jbusres.2009.12.010.

Kilic, M. (2015). The Effect of Board Diversity on the Performance of Banks: Evidence from Turkey. *International Journal of Business and Management*, *10*(9). doi:10.5539/ijbm.v10n9p182.

Koenker, R., & Hallock, K. F. (2001). Quantile regression. *Journal of economic perspectives*, *15*(4), 143-156. doi: 10.1257/jep.15.4.143.

Letting, D. N. K., Aosa, E., & Machuki, V. (2012). Board diversity and performance of companies listed in Nairobi Stock Exchange. *International Journal of Humanities and Social Science*, *2*(11), 172-182.

Lin, O., & Guan, J. (2024). The impact of media attention, board independence on CEO power, and ESG in state-owned enterprises. *Finance Research Letters*, *62*, 105180. https://doi.org/10.1016/j.frl.2024.105180.

Luckerath-Rovers, M. (2010). Women on Board and Firm Performance. *SSRN Electronic Journa*l. doi:10.2139/ssrn.1586832.

Maji, S. G., & Saha, R. (2021). Gender diversity and financial performance in an emerging economy: empirical evidencefrom India. *Management Research Review*, *44*(12), 1660-1683. https://doi.org/10.1108/MRR-08-2020-0525.

Marquez-Cardenas, V., Gonzalez-Ruiz, J. D., & Duque-Grisales, E. (2022). Board gender diversity and firm performance: Evidence from Latin America. *Journal of Sustainable Finance & Investment*, *12*(3), 785-808. https://doi.org/10.1080/20430795.2021.2017256.

Miller, T., & Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship. *Journal of Management studies*, *46*(5), 755-786.

Mohsni, S., & Shata, A. (2021). Board gender diversity and firm performance: The role of firm size. *Hillsdale Investment Management–CFA Societ.*

Pasaribu, P. (2017). Female Directors and Firm Performance: Evidence from UK Listed Firms. *Gadjah Mada International Journal of Business, 19*(2), 145. doi:10.22146/gamaijb.15619.

Peng, C., & Chen, Y. (2024). Informal board hierarchy and corporate ESG performance. *Corporate Social Responsibility and Environmental Management*, *31*(5), 4783-4795. https://doi.org/10.1002/csr.2834.

Razali, M. W. (2018). The Board Diversity and Firm Performance: Malaysia Context. *UNIMAS Review of Accounting and Finance*, *1*(1). doi:10.33736/uraf.1207.2018.

Tanikawa, T., & Jung, Y. (2016). Top management team (TMT) tenure diversity and firm performance: Examining the moderating effect of TMT average age. *International Journal of Organizational Analysis*, *24*(3), 454-470. https://doi.org/10.1108/IJOA-02-2014-0739.

Tariah, I. (2019). Board Diversity, Composition and Firm Performance: Do Gender and Ethnic Diversity influence Firm Performance? *SSRN Electronic Journal*. doi:10.2139/ssrn.3378395.

Tawfik, O. I., Alsmady, A. A., Rahman, R. A., & Alsayegh, M. F. (2022). Corporate governance mechanisms, royal family ownership and corporate performance: evidence in gulf cooperation council (GCC) market. *Heliyon*, *8*(12). https://doi.org/10.1016/j.heliyon.2022.e12389.

Van der Walt, N., & Ingley, C. (2003). Board dynamics and the influence of professional background, gender and ethnic diversity of directors. *Corporate governance: An International Review*, *11*(3), 218-234. https://doi.org/10.1111/1467-8683.00320.

Wellalage, N. H., & Locke, S. (2013). Corporate governance, board diversity and firm financial performance: new evidence from Sri Lanka. *International Journal of Business Governance and Ethics*, *8*(2), 116-136. https://doi.org/10.1504/IJBGE.2013.054416.

Wheeler, D. (2001). Racing to the bottom? Foreign investment and air pollution in developing countries. *The Journal of Environment & Development*, *10*(3), 225-245. https://doi.org/10.1177/10704965-0101003-02.

Woschkowiak, A. (2018). Board Diversity and Firm Financial Performance:Gender-, Nationality-and Age Diversity in European Boardrooms. (Master Thesis in International Economics & Business Master Thesis), Nijmegen School of Management, Nijmegen.