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Female Board Representation on the Eva of Agricultural Firms Listed on the Nairobi Securities Exchange in Kenya

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ABSTRACT
This study conceptually analysed the effect of female board representation on the value of agricultural firms listed on the Nairobi Securities Exchange (NSE) in Kenya, addressing the problem of limited understanding regarding how gender diversity at the board level impacts firm performance in the agriculture sector. This study primarily focused on examining the effect of corporate governance on EVA of publicly listed agricultural companies on Kenya's NSE. The focus group survey included all six (6) agricultural listed firms that have been registered on the NSE over the last ten years. This research employed agency theory and stakeholder theory to explore the relationships. Data were gathered from yearly financial reports published from 2015 to 2024, employing organized data collection techniques to acquire pertinent information. The research utilized panel data analysis to examine relationships. Diagnostic evaluations were conducted to reduce the chances of acquiring skewed or incorrect regression outcomes. The study validated the null hypothesis concerning the link between female board representation and EVA, revealing a P-value of 0.258, suggesting a 25.8% probability that the association is simply due to chance. The main beneficiaries are investors, both institutional and individual, aiming to make informed investment decisions in Kenya's agricultural industry.
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1. Introduction

The role of corporate governance in firm performance has garnered significant attention globally, with a particular focus on board diversity. This paper investigates the effect of female board representation on the value of agricultural firms listed on the Nairobi Securities Exchange (NSE) in Kenya. The conceptual framework draws upon agency theory, which posits that diverse boards can mitigate agency problems by enhancing monitoring and decision-making processes, thereby increasing firm value (Jensen & Meckling, 1976). In the context of agricultural firms, which often face unique challenges such as climate change, market volatility, and supply chain disruptions, diverse perspectives on the board could lead to more robust strategic decisions and improved resilience (World Bank, 2023). This study aimed to contribute to the ongoing debate on board diversity by providing empirical evidence from a developing economy, specifically focusing on a sector vital to its economic growth.

The contextual examination of this research is based on Kenya's distinct socio-economic environment and the particular traits of its agricultural industry. Kenya's Vision 2030 highlights agriculture as a vital engine for economic growth, making the success of agricultural enterprises essential for national well-being (Government of Kenya, 2007). Even with growing demands for gender equality in leadership, the presence of women on corporate boards in Kenya, especially in traditionally male-oriented fields such as agriculture, is still quite limited (Kenya National Bureau of Statistics, 2022). This study paper presents two key variables: women's representation on boards, quantified as the percentage of female directors, and company value, defined through financial indicators referred to as Economic Value Added. This study aimed to provide important insights for policymakers, investors, and business leaders regarding the advantages of fostering gender diversity in corporate governance by analysing these variables in the Kenyan agricultural context

The worldwide distribution of female board members and independent directors varies by region, industry, and organization (Terjesen et al., 2016). Affluent countries such as the US, UK, Norway, and Sweden have vigorously sought to implement corporate governance standards, practices, and reforms across their industries. As a result, these countries are currently enjoying the benefits of following these guidelines. Managers may have individual goals and ambitions that conflict with the organization's main objectives, focusing on their own interests rather than those of the shareholders. The transfer of control from owners to agents can create a

knowledge disparity between the administrators, or owners, and the agents, or overseers, leading to an agency problem (Taufik et al., 2018).

Value creation, an essential component of corporate achievement, extends beyond simple financial measures and encompasses a comprehensive approach that takes into account economic, environmental, social, and governance factors. Researchers like Kazakova and Lee (2022), together with Salvioni and Gennari (2020), have highlighted the complex nature of value that surpasses limited shareholder concerns. In this detailed framework, governance appears as an essential factor influencing the sustainable development path of organisations. Governance is essential in directing organisations towards enduring success by focusing on value generation and risk reduction. Enforcing policies that prioritize integrated social responsibility principles, as proposed by Mähönen (2020), enhances the governance framework's ability to encourage sustainable practices. Christensen et al. (2010) and Fama & Jensen (1983) argue that an independent board of governors is anticipated to improve the oversight of management actions.

The results of publicly listed agricultural firms in Kenya from 2015 to 2024 were unfavourable. Several less-than-favourable factors during this period include challenges from market fluctuations, unpredictable weather impacting crop yields, limited access to capital, regulatory hurdles hindering agricultural practices, constrained use of technology reducing efficiency and production, and the measures taken by the government in the quarter to curb the Covid-19 spread. These difficulties, coupled with possible shifts in consumer demand due to increased taxes and competition from imports, collectively impeded the growth and viability of publicly traded agricultural firms during the specified timeframe. Moreover, economic instability, trade disruptions, and global health crises posed additional obstacles for the agricultural industry and recorded agricultural firms in Kenya during the specified period, underscoring the complexities and uncertainties characteristic of the sector (CMA Quarterly Report, 2024). The aforementioned perspective offered investors a chance to engage in different financial activities, such as speculation, trading for investment, and pursuing protection (CMA Report, 2024)

2. Statement of the Problem

The agricultural sector is vital to Kenya's economy, significantly impacting its GDP and employment. Agricultural firms listed on the Nairobi Securities Exchange (NSE) face ongoing challenges such as fluctuating commodity prices, the effects of climate change, and limited access to finance, which affect their valuation and sustainability. Although there is growing awareness of the advantages of diverse corporate boards—including better financial performance and governance—the representation of women on the boards of these agricultural firms remains low. This is alarming considering the essential role women have in agricultural production and value chains in Kenya. Their lack of representation in top corporate decision-making raises concerns about the potential negative impact on innovation, adaptability to market changes, and overall firm value, suggesting that the absence of diverse perspectives might have worsened the economic vulnerabilities these firms encounter.

This study investigated the impact of female board representation on the valuation of agricultural firms listed on the Nairobi Securities Exchange (NSE) in Kenya from 2015 to 2024. During this period, these firms faced significant economic challenges including erratic weather patterns causing droughts and floods that adversely affected crop yields and livestock production. Additionally, global price volatility of crucial exports such as tea and coffee strained revenues and profitability. High interest rates and limited access to affordable credit hindered expansion and modernization attempts, while competition from imports further eroded profit margins. The hypothesis posits that increased female representation on boards may have led to enhanced risk management strategies, greater product innovation, and improved corporate governance, potentially alleviating some economic pressures and positively influencing firm value. Can the absence of sufficient female representation on boards make these firms miss opportunities for strategic insights and diverse problem-solving that could have fortified their resilience and competitiveness amid economic challenges?

3. Research Objective

To evaluate the effect of female board representation on the value of agricultural firms listed on the Nairobi Securities Exchange in Kenya.

Research hypotheses

Ho1: The presence of female board members does not meaningfully affect the value of firms in the agriculture industry that are listed on the Nairobi Securities Exchange, Kenya.

4. LITERATURE REVIEW

Theoretical Review

Agency theory provides a robust framework for analyzing the relationship between principals (shareholders) and agents (management, including board members) within agricultural firms listed on the Nairobi Securities Exchange (NSE). In the context of the topic, agency theory helps explain how female board representation might mitigate agency problems and enhance firm performance. The core tenet of agency theory posits that a divergence of interests between principals and agents can lead to agency costs, such as shirking, opportunistic behavior, and suboptimal decision-making, ultimately impacting firm value (Jensen, & Meckling, 1976). Female board representation can be theorized to reduce these agency costs through several mechanisms. For instance, diverse boards, including women, are often associated with improved monitoring capabilities, leading to more effective oversight of management and a reduction in managerial opportunism (Adams & Ferreira, 2009). This enhanced monitoring can ensure that management decisions align more closely with shareholder wealth maximization, thereby positively influencing Economic Value Added (EVA). Furthermore, female directors may bring different perspectives, experiences, and ethical considerations to board discussions, potentially leading to more rigorous strategic planning and risk management, which are crucial for the long-term sustainability and profitability of agricultural firms (Carter, Simkins, & Simpson, 2003). The presence of female directors can also signal a commitment to good governance practices, attracting more ethical and performance-driven management, further reducing agency costs (Bear, Rahman, & Post, 2010).

The agency theory was linked to main variables, in a way that female board representation (the independent variable) acted as a governance mechanism with the intention to reduce agency costs, thereby positively impacting EVA (the dependent variable). Specifically, the presence of female directors is hypothesized to improve board independence and effectiveness, leading to better oversight of executive decisions and a reduction in information asymmetry between management and shareholders (Fama, & Jensen, 1983). This improved governance, driven by female representation, is expected to translate into more efficient resource allocation, reduced wasteful expenditures, and a greater focus on value-creating activities within agricultural firms. For example, female directors can advocate for more sustainable agricultural practices or innovative market strategies that, while potentially having a longer payback period, ultimately enhance the firm's long-term EVA (Campbell & Mínguez-Vera, 2008). The research empirically tested whether a higher proportion of female directors on the boards of agricultural firms listed on the NSE correlated with higher EVA, controlling for other firm-specific and macroeconomic factors. This would demonstrate how the reduction in agency costs, facilitated by female board representation, directly contributes to improved financial performance as measured by EVA (Daily, & Dalton, 2003).

5. Empirical Literature Review

Laique et al. (2023) examined the relationship between board gender diversity and financial outcomes by reviewing existing empirical research to identify patterns, inconsistencies, and areas requiring further investigation. Their review highlighted variations in the reported relationship between gender diversity and financial performance, which were partly attributable to differences in research methods, measures of gender diversity, financial performance indicators, and institutional contexts. The review showed that the relationship between female board representation and financial outcomes may not be uniform across firms and economies. However, the review did not establish the direct relationship between gender diversity and Economic Value Added (EVA) among publicly listed agricultural firms in Kenya. The study is relevant to the current study because it justifies investigating gender diversity in a specific industrial and institutional context, rather than generalizing findings from other countries and sectors. Furthermore, it supports the need to employ EVA as a performance measure that accounts for the cost of capital. The current study addresses the identified contextual and measurement gaps by examining the relationship between gender diversity and EVA among publicly listed agricultural firms in Kenya.

Chatterjee and Nag (2023) examined the relationship between female board representation and financial performance among Indian companies using panel data covering 364 firms and 1,820 firm-year observations for the period 2017–2021. The researchers employed system generalized method of moments estimation to investigate the relationship between female board representation and corporate financial performance. Their findings suggested that the mere presence of a female director did not necessarily improve financial performance, while the extent of female representation and active participation in corporate governance were important considerations. The study therefore suggested that the contribution of gender diversity to financial performance depended on more than the appointment of a female director. Nevertheless, the research was conducted in India and did not specifically investigate agricultural firms listed on the Nairobi Securities Exchange (NSE). It also did not establish the direct relationship between gender diversity and EVA among

Kenyan firms. The study is relevant to the current investigation because it highlights the importance of examining gender diversity as a measurable corporate governance characteristic rather than assuming that the presence of female directors automatically enhances performance. The current study extends this line of inquiry by examining whether gender diversity is associated with EVA among publicly listed agricultural firms in Kenya.

Makhija et al. (2025) investigated the moderating role of board gender diversity in the relationship between environmental, social, and governance (ESG) performance and EVA among companies listed in India. The researchers employed panel-data analysis to establish whether gender diversity influenced the relationship between ESG performance and economic value creation. Their reported findings indicated that the moderating effect of gender diversity varied across industries, suggesting that the contribution of female board representation to economic value creation may depend on sectoral characteristics and the relationship being investigated. However, the study examined gender diversity primarily as a moderator of the ESG–EVA relationship rather than focusing on its direct relationship with EVA. In addition, its geographical and industrial setting differed from that of publicly listed agricultural firms in Kenya. The study is particularly relevant to the current investigation because it employed EVA, the same dependent variable adopted in the present study. It also demonstrates the value of investigating economic value creation rather than relying exclusively on conventional accounting or market-based measures. The current study extends the existing evidence by examining the direct relationship between gender diversity and EVA among publicly listed agricultural firms in Kenya.

Lawrence and Raithatha (2023) investigated the relationship between board gender diversity and firm value in India by exploiting a regulatory requirement for companies to appoint at least one female director. Their study examined how market responses to female director appointments varied according to the characteristics of the appointed directors. The findings suggested that investors responded more positively to appointments involving qualified female directors who were not related to the firms' promoters. The study highlighted the importance of director qualifications and independence in explaining the financial implications of board gender diversity. Nevertheless, the study focused on market-based firm value and the consequences of a regulatory intervention rather than EVA. It also did not specifically investigate agricultural firms listed in Kenya. The study is relevant to the current research because it suggests that the contribution of female directors may depend on the quality of their participation in corporate governance rather than representation alone. Furthermore, it illustrates the distinction between market valuation and economic value creation. The current study addresses this measurement and contextual gap by examining whether gender diversity is associated with EVA among publicly listed agricultural firms in Kenya.

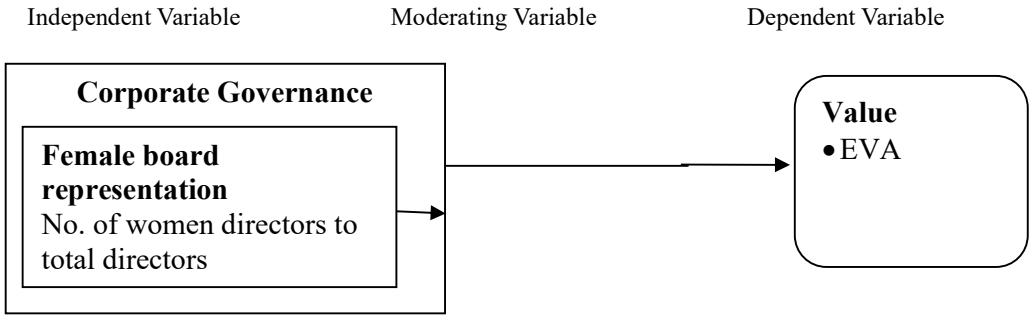
Safiullah et al. (2022) examined board gender diversity, firm performance, and corporate risk-taking among firms in Spain. The study investigated the relationship between female board representation, financial performance, and corporate risk-taking in an institutional environment influenced by gender-equality policies. The research was relevant because corporate risk-taking can affect investment decisions, financing arrangements, and the returns generated from firms' assets and capital. However, the study was conducted in Spain and did not specifically focus on agricultural enterprises or the direct relationship between gender diversity and EVA. Consequently, its findings could not automatically be generalized to Kenya's listed agricultural sector, where firms may face distinctive production, commodity-price, and financing risks. The study is relevant to the current investigation because it provides a basis for considering how board gender diversity may relate to corporate decisions that influence economic value creation. The current study addresses the geographical and sectoral gaps by examining gender diversity and EVA among publicly listed agricultural firms in Kenya, without presuming that gender diversity necessarily reduces risk or improves performance.

Hosny and Elgharbawy (2022) examined board diversity and financial performance among companies listed on the FTSE 350 in the United Kingdom. Their study investigated several dimensions of board diversity, including gender, skills, tenure, education, and professional networks, to determine how these characteristics related to financial performance. The findings indicated that the relationship with financial performance differed across the diversity characteristics examined, suggesting that board diversity should not be treated as a single, uniform construct. However, the study was conducted in a developed economy and did not specifically investigate the relationship between gender diversity and EVA among agricultural firms in Kenya. The study is relevant to the current research because it supports the examination of gender diversity as a distinct explanatory variable rather than combining it with other board characteristics. It also provides a comparative basis for assessing whether relationships observed in developed economies apply to an emerging-market context. The current study addresses this gap by focusing specifically on gender diversity and EVA among publicly listed agricultural firms in Kenya.

Buluma et al. (2022) investigated the moderating effect of the external environment on the relationship between corporate governance and the value of non-financial firms listed on the NSE. The study examined whether macroeconomic conditions influenced the relationship between corporate governance and firm value, thereby providing evidence from Kenya's capital market. The reported findings indicated that the external environment significantly moderated the relationship under investigation. The study contributed to the understanding of corporate governance and firm value in the Kenyan context. However, it examined corporate governance broadly, used firm value rather than EVA as the outcome measure, and covered non-financial firms without concentrating exclusively on agricultural enterprises. It therefore did not establish the direct relationship between gender diversity and EVA among publicly listed agricultural firms in Kenya. The study is relevant to the current research because it provides local empirical context and demonstrates the importance of considering the circumstances in which corporate governance characteristics operate. The current study addresses the identified gap by isolating gender diversity as the explanatory variable, employing EVA as the dependent variable, and focusing on publicly listed agricultural firms in Kenya.

Overall, the reviewed studies demonstrate that gender diversity may be associated with financial performance and firm value, although the nature and strength of the relationship may vary across countries, industries, and performance measures. The studies also reveal three important gaps. The measurement gap arises because several studies used accounting-based or market-based measures rather than EVA, which accounts for the cost of capital. The contextual gap arises because most of the studies were conducted outside Kenya, while the Kenyan evidence provided by Buluma et al. (2022) examined corporate governance broadly rather than gender diversity specifically. The sectoral gap arises because the reviewed research did not establish the direct relationship between gender diversity and EVA among publicly listed agricultural firms in Kenya. The current study addresses these gaps by examining gender diversity and EVA in this specific setting. It seeks to establish empirically whether gender diversity is associated with economic value creation among publicly listed agricultural firms in Kenya, rather than assuming that increased female board representation necessarily leads to improved financial performance.

Conceptual Framework



Source: Author 2026

The conceptual framework posits a direct relationship between female board representation and the Economic Value Added (EVA) of agricultural firms listed on the Nairobi Securities Exchange (NSE). Female board representation, as the independent variable, refers to the proportion of women serving on the board of directors within these agricultural firms. This variable is hypothesized to influence firm performance through various mechanisms, including enhanced corporate governance, improved decision-making due to diverse perspectives, better risk management, and a stronger alignment with stakeholder interests, ultimately leading to superior financial outcomes. EVA, the dependent variable, measured a company's financial performance based on residual wealth, calculated by subtracting the cost of capital from its net operating profit after tax (NOPAT). A positive EVA indicates that the company is creating value for its shareholders, while a negative EVA suggests value destruction.

6. Methodology

The study employed a quantitative research design, specifically a panel data regression analysis. This approach was suitable for examining the relationship between variables over time and across multiple firms, allowing for robust statistical inference and control for unobserved heterogeneity among firms.

The study adopted a longitudinal, quantitative research design utilizing secondary data. This design was appropriate for analyzing changes in variables over an extended period and for establishing causal relationships between female board representation and firm performance as measured by EVA. The ten-year period (2015-2024) provided a sufficient timeframe to observe trends and the potential lagged effects of female board representation on financial outcome.

The target population comprised all the six agricultural firms listed on the Nairobi Securities Exchange (NSE) during the study period (2015-2024). The sample included all agricultural firms that were consistently listed on the NSE throughout the entire ten-year period and for which complete data on all relevant variables were available. This approach minimized survivorship bias and ensures a consistent panel for analysis. Data was collected from annual reports, financial statements, and corporate governance disclosures of these firms.

Data on the number of female directors and total board members was extracted from annual reports and corporate governance statements of the sampled firms. This was used to calculate the percentage of female board representation. Economic Value Added (EVA): Financial data necessary to calculate EVA was obtained from the audited financial statements (income statements and statements of financial position) of the firms. This included the calculation of Net Operating Profit After Tax (NOPAT), Invested Capital, and the Weighted Average Cost of Capital (WACC), The diagnostic procedures, the normality, heteroscedasticity, linearity, and multicollinearity of the variables were assessed to ensure the variables met the criteria for being the Best Linear Unbiased Estimators (Chan, Leow, Bea, Cheng, Phoong, Hong, & Chen, 2022).

7. Findings

The hypothesis: H_0: Female board representation does not significantly affect the value of companies in the agriculture sector listed at the Nairobi Securities Exchange, Kenya.

Table 1: Regression on Female board representation

EVA	**Comstant**	**Coefficient.**	**Std. Err.**	**z**	**P>|z|**	**rho**
Female Representation	5.131021	.3573691	.3158237	1.13	0.258	.673320
Wald chi2(1)	1.28					
sigma_u	.8718032					
sigma_e	.6061815					
R-sq: within	0.0241					
R-sq: between	0.4838					
R-sq: overall	0.1480					

Source: Author, 2026

The regression analysis examined the relationship between female board representation and economic value added among agricultural firms listed on the Nairobi Securities Exchange (NSE). The analytical process focused on estimating the regression coefficient, evaluating its statistical significance using the z-statistic and p-value, assessing the Wald chi-square statistic, examining the variance components, and interpreting the within, between, and overall coefficients of determination. These statistical measures were used to determine the direction and magnitude of the estimated relationship, the reliability of the regression estimate, the explanatory power of the model, and the extent to which variations in economic value added were associated with differences within and between firms.

The estimated regression coefficient for female board representation was 0.3573691, indicating a positive relationship with economic value added. Holding other explanatory variables constant, a one-unit increase in female board representation was associated with an estimated 0.3573691-unit increase in economic value added. The positive coefficient suggests that greater female representation on corporate boards may be associated with improved economic value creation among agricultural firms. From a corporate governance perspective, female

directors may contribute diverse experiences, alternative perspectives, stronger deliberations, and broader approaches to risk oversight and strategic resource allocation. These contributions could potentially support decisions that improve the efficient utilization of organizational resources and the creation of economic value. Nevertheless, the estimated coefficient represents an association rather than proof of causation. Its practical meaning also depends on how female board representation and economic value added were measured. For example, if female representation was measured as a proportion, the interpretation of a one-unit increase would differ from that of an additional female director.

The statistical reliability of the estimated coefficient was evaluated using its standard error of 0.3158237. The standard error measures the sampling uncertainty associated with the coefficient estimate; a smaller standard error relative to the coefficient generally provides stronger evidence that the estimated relationship differs from zero. In this analysis, dividing the coefficient of 0.3573691 by its standard error of 0.3158237 produces a z-statistic of approximately 1.13. The positive z-statistic indicates that the estimated coefficient is above zero, but its magnitude does not provide sufficient evidence of a statistically significant relationship at the conventional 5% significance level. The approximate 95% confidence interval, calculated as the coefficient plus or minus 1.96 times its standard error, ranges from -0.2618 to 0.9765. Because this interval includes zero, the analysis cannot rule out the possibility that the population relationship is either negative, negligible, or positive. This finding demonstrates why the direction of a regression coefficient should be distinguished from its statistical significance.

The reported p-value of 0.258 provides further evidence regarding the statistical significance of the regression coefficient. Since the p-value exceeds the predetermined significance level of 0.05, the null hypothesis that female board representation has no statistically significant relationship with economic value added cannot be rejected. The p-value indicates that, assuming the null hypothesis and the statistical model's assumptions hold, a test statistic at least as extreme as the observed one would occur with a probability of approximately 25.8%. It does not mean that there is a 25.8% probability that the observed relationship is due to chance or that the null hypothesis has a 25.8% probability of being true. The appropriate conclusion is that the estimated positive relationship is statistically insignificant. Therefore, although the regression coefficient points towards a potentially beneficial association between female representation and economic value creation, the evidence is insufficient to establish that this association is statistically distinguishable from zero in the population represented by the study.

The Wald chi-square statistic of 1.28 was used to evaluate the statistical significance of the restriction tested by the regression model. Where the Wald test concerns a single regression coefficient, its statistic is approximately the square of the corresponding z-statistic. Thus, the reported Wald chi-square value is consistent with the z-statistic of approximately 1.13 because (1.13^2 is approximately 1.28). For a one-degree-of-freedom test, the corresponding p-value is approximately 0.258, confirming that the coefficient is not statistically significant at the 5% level. The Wald statistic therefore does not provide sufficient evidence to reject the null hypothesis. It is important to distinguish the Wald statistic from the magnitude of the relationship: the positive direction is established by the coefficient, while the Wald statistic and its associated p-value indicate whether the evidence is sufficiently strong to reject the specified null hypothesis. If the reported Wald statistic was intended to test the joint significance of several regressors rather than a single coefficient, its degrees of freedom and associated p-value should be verified against the original statistical output.

The regression analysis also examined the variance components to understand the distribution of unexplained variation in the panel data. The estimated standard deviation of the firm-specific effect, sigma_u, was 0.8718032, while the standard deviation of the idiosyncratic error, sigma_e, was 0.6061815. The firm-specific component captures unobserved characteristics that distinguish one firm from another and may persist over time, whereas the idiosyncratic component represents firm-period-specific variation not captured by the model. Examples of persistent firm-specific characteristics may include organizational culture, established management practices, production efficiency, governance structures, and long-term resource endowments. Firm-period-specific disturbances may include unexpected changes in input costs, production conditions, market demand, or other events affecting a particular firm in a particular period. The larger value of sigma_u indicates greater estimated standard-deviation variation in the firm-specific component than in the idiosyncratic component. However, these statistics are standard deviations rather than percentages of total variation. Consequently, they should not be interpreted as showing that 87.18% and 60.62% of the variation in economic value added is attributable to unobserved factors. Under a conventional random-effects specification, the corresponding variance components can be squared to assess their relative contributions to the composite error variance. This distinction is important

because persistent differences among firms may affect the estimated relationship between board composition and economic value added if they are not appropriately accommodated by the regression model.

The explanatory power of the regression was further assessed using the reported within, between, and overall R-squared statistics. The within R-squared of 0.0241 indicates that the model explains approximately 2.41% of the variation in economic value added occurring within individual firms over time. This relatively low value suggests that changes in the explanatory variables included in the model account for only a small proportion of the observed temporal changes in economic value added. Other time-varying determinants, such as fluctuations in agricultural commodity prices, production costs, financing conditions, operational efficiency, and changes in management strategy, may also contribute to variations in economic value creation. The between R-squared of 0.4838 indicates that the model explains approximately 48.38% of the variation in average economic value added across firms. This suggests that the included explanatory variables account for a considerably larger share of cross-firm differences than of changes within individual firms over time. The overall R-squared of 0.1480 indicates that the model explains approximately 14.80% of the overall variation in economic value added, according to the software's reported measure. Taken together, these statistics indicate that the model has greater explanatory capacity for differences between firms than for changes within firms over time. However, R-squared measures do not establish whether an individual explanatory variable is statistically significant, and the relatively low within R-squared does not, by itself, invalidate the regression coefficient or establish that the model is incorrectly specified.

The reported constant of 5.131021 represents the regression intercept, subject to the specification of the model. It estimates the expected value of economic value added when female board representation and the other explanatory variables are zero. Its practical interpretation depends on whether these zero values are meaningful and fall within the relevant range of the observed data. The constant must not be interpreted as a 5.131021% increase in economic value added resulting from additional female board representation. Instead, the estimated coefficient of 0.3573691 represents the specific marginal association between female board representation and economic value added, holding other included regressors constant. Furthermore, the intercept does not independently demonstrate the effect of female directors on corporate performance. The direction and statistical significance of that relationship must be assessed using the coefficient, standard error, test statistic, and p-value for female board representation.

Overall, the regression results reveal a positive but statistically insignificant estimated relationship between female board representation and economic value added among agricultural firms listed on the NSE. The coefficient of 0.3573691 suggests a potentially favourable association, but the z-statistic of 1.13, p-value of 0.258, and Wald chi-square statistic of 1.28 do not provide sufficient evidence to reject the null hypothesis at the 5% significance level. The within, between, and overall R-squared values further indicate that the model explains different proportions of variation across the panel-data dimensions, with greater explanatory power for differences between firms than for changes within individual firms over time. The findings therefore do not establish that female board representation significantly influences economic value added, although they leave open the possibility of a positive relationship that warrants further investigation. Additional analysis incorporating relevant firm characteristics, appropriate panel-data specifications, and a sufficiently informative sample may help clarify whether female board representation contributes to economic value creation in the agricultural sector. Any conclusion about causality should remain cautious unless the research design and estimation strategy adequately address potential confounding factors and endogeneity. Consequently, it is reasonable to claim that the presence of women on boards has a limited effect on the economic value generated by companies, consistent with the findings of Buluma et al. (2022), Nyamute and Gekara (2021), Zheng (2021), and Jaber (2020). The results were in opposition to those of Khan et al. (2023), Rossi (2023), and Chen (2023).

8. Conclusion

The study investigated the relationship between female board representation and Economic Value Added (EVA) among agricultural firms listed on the Nairobi Securities Exchange (NSE) in Kenya. The regression results revealed a positive coefficient of 0.3573691, suggesting that increased female board representation was associated with higher EVA. However, the relationship was statistically insignificant ($z = 1.13$, $p = 0.258$), indicating insufficient evidence to reject the null hypothesis of no statistically significant effect at the 5% significance level. The overall R-squared of 0.1480 showed that the model explained 14.80% of the overall variation in EVA, while the within R-squared of 0.0241 indicated limited explanatory power for changes within firms over time.

The study concludes that although female board representation may be positively associated with economic value creation, its statistically significant effect on EVA was not established. The findings do not imply that female directors lack economic value; rather, their contribution may depend on other governance, financial, operational, and market conditions. Consequently, gender diversity remains a relevant corporate governance consideration, but numerical representation alone cannot be assumed to guarantee improved financial performance. The study therefore concludes that the evidence was insufficient to establish a statistically significant effect of female board representation on EVA among agricultural firms listed on the NSE during the study period.

The findings have implications for corporate governance policy, board appointments and strategic management among agricultural firms listed on the NSE. First, corporate governance regulators and policymakers should continue to promote gender diversity on corporate boards while recognising that board composition alone may not automatically translate into improved economic value creation. Policies should encourage meaningful participation of female directors in strategic decision-making, financial oversight, risk management and performance monitoring rather than focusing exclusively on numerical representation.

Second, the management of agricultural firms should adopt board appointment practices that consider directors' qualifications, professional experience, independence, industry knowledge and strategic competencies. Female representation should be accompanied by opportunities for substantive participation in board deliberations and key committees, including audit, risk and investment committees. Such arrangements may enable boards to benefit more effectively from the knowledge, perspectives and oversight capabilities of diverse members.

Third, agricultural firms should strengthen the broader governance and financial management systems that support sustainable economic value creation. These may include effective capital allocation, cost management, investment appraisal, risk assessment and performance evaluation. Given the statistically insignificant regression coefficient, managers should avoid assuming that increasing female board representation alone will improve EVA. Instead, they should assess board diversity alongside other firm-specific and external factors that influence financial performance, including operating efficiency, financing costs, agricultural commodity prices, weather variability and market conditions.

Finally, investors and other stakeholders should interpret board diversity indicators alongside financial and non-financial performance measures. The positive but statistically insignificant coefficient suggests a favourable estimated relationship, but it does not establish a statistically significant independent effect on EVA. Corporate governance assessments should therefore consider the effectiveness of board oversight, the quality of strategic decisions and the firm's capacity to generate returns above its cost of capital.

The study was subject to limitations relating to data availability, sample size, variable measurement, and the generalizability of its findings. First, the relatively small number of agricultural firms listed on the NSE may have constrained the sample size and statistical power of the analysis. This limitation may have reduced the study's ability to detect a statistically significant relationship between female board representation and EVA. Although board composition information is generally available in annual reports, differences in disclosure practices may affect the consistency and precision of the data collected across firms and years.
Second, calculating EVA requires reliable information on net operating profit after tax, invested capital, and the cost of capital. Inconsistent financial disclosures and difficulties in estimating the cost of equity and debt in an emerging market may affect the accuracy and comparability of EVA measurements. Future studies should therefore use consistent measurement procedures, verify financial data against audited annual reports and undertake sensitivity analyses using alternative assumptions for the cost of capital.

Third, the operationalisation of female board representation may not fully capture the quality and influence of female directors. Measuring representation as a proportion or number of female directors does not necessarily reflect their expertise, independence, committee responsibilities or participation in strategic decisions. Future research should distinguish between executive and non-executive female directors, examine the representation of independent female directors, and consider whether women occupying key board leadership positions have different relationships with economic value creation.

Fourth, the findings may not be generalisable beyond agricultural firms listed on the NSE because the sector has distinctive characteristics, including exposure to weather variability, commodity price fluctuations, production risks and sector-specific regulations. Future studies could compare agricultural firms with firms in

manufacturing, banking, insurance and other sectors to establish whether the relationship between female board representation and economic value creation differs across industries and institutional contexts.

Further research should also investigate potential moderating and mediating variables. Firm size, firm age, board independence, ownership structure, and corporate governance quality could be examined as moderators or explanatory mechanisms. Such studies could establish whether the relationship between female board representation and EVA varies according to organisational characteristics or the effectiveness of governance systems. Researchers may also disaggregate the agricultural sector into subsectors such as tea, coffee, horticulture and livestock to determine whether differences in operational conditions influence the relationship.
Finally, future studies should consider alternative measures of financial performance and economic value creation, including return on assets, return on equity, Tobin's Q and market-based measures, alongside EVA. Where the available data permit, researchers could employ alternative econometric specifications, robust standard errors, additional control variables, and sensitivity tests to assess the stability of the estimates. Comparative studies covering a wider range of firms and longer periods could provide stronger evidence on the circumstances under which female board representation contributes to sustainable economic value creation in Kenya and other emerging markets.

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