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THE ROLE OF WOMEN ON BOARDS ON SUSTAINABILITY: EVIDENCE FROM BORSA ISTANBUL

SÜRDÜRÜLEBİLİRLİK KURULLARINDA KADININ ROLÜ: BORSA İSTANBUL'DAN KANITLAR[*]

Zeynep ÖZER [a*]

[a*] *Corresponding Author, PhD Candidate., Dokuz Eylül University,* zzlight@yahoo.com, *ORCID: 0009-0008-4998-0261*

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ABSTRACT

The influence of female managers on firms is a widely researched topic. The present study examines the influence of women, specifically on the performance of companies. The objective of this study is to examine the influence of women in managerial positions on the governing bodies of non-financial companies listed on Borsa Istanbul, with a particular focus on the areas of sustainability and corporate governance. The study specifically examined non-financial enterprises that are active in Borsa Istanbul. The study employed Logit Regression, which is a type of categorical regression, to evaluate cross-sectional data. The research findings suggested that female managers had a positive and small but significant effect on sustainability and corporate governance.

ÖZET

Kadın yöneticilerin işletmeler üzerindeki etkisi yoğun olarak araştırılan bir konudur. Bu çalışma, Borsa İstanbul'da işlem gören finansal olmayan şirketlerin yönetim kurullarında kadın yöneticilerin etkisini sürdürülebilirlik ve kurumsal

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yönetim özelinde analiz etmeyi amaçlamaktadır. Çalışmada, kategorik regresyon ailesinin bir üyesi olan Logit Regression kullanılarak yatay kesit verileri analiz edilerek Borsa İstanbul'da faaliyet gösteren finansal olmayan şirketlere odaklanılmıştır. Araştırma bulguları, kadın yöneticilerin sürdürülebilirlik ve kurumsal yönetim üzerinde olumlu bir marjinal etkisi olduğunu gösterdi.

1. INTRODUCTION

The role of female managers is increasing in today's business world. The increase in the number of female directors on boards of directors in many countries around the world is also supported by some legal regulations (Joecks et al., 2013). In this context, examining the relationship between the presence of female executives on boards of directors and business performance is being studied intensively.

The relationship between the role of female directors on boards and diversity performance indicators yields different results. These results can generally be summarized as positive, negative and unallied. Differences between the number of female managers and business performance in different studies may be generally related to the country, sector and period in which the research is conducted, and the variable and research method used by the researcher may also be effective. However, very different theoretical explanations (Resource Dependency Theory, Agency Theory, Critical Mass Theory among others) have been put forward as to why female directors increase, decrease or have no effect on the performance of boards of directors. However, it is difficult to conduct direct tests of the theoretical constructs proposed on these topics. Instead, researchers interpret their results as indirectly supporting or not supporting the relevant theory.

In this study, we tried to determine the role of female managers in the relationship between the sustainability and corporate governance levels of businesses and their business performance. For this purpose, for the first time in the academic literature, the roles of female directors on boards of directors have been analyzed in terms of both sustainability and corporate governance. The research was conducted on non-financial businesses operating in Borsa Istanbul. In this study, 2022 data was analyzed with the cross-sectional logit regression method.

The role of female managers is becoming increasingly significant in today's business world. The rise in the number of female directors on boards of directors in many countries around the globe is also bolstered by various legal regulations (Joecks et al., 2013). In this context, the relationship between the presence of female executives on boards of directors and business performance is being studied intensively.

Research on the relationship between female directors on boards and diversity performance indicators produces varied results. These outcomes can generally be categorized as positive, negative, or showing no linkage. The differences in findings across studies are often attributed to factors such as the country, sector, and time period in which the research is conducted. Additionally, the variables selected, and the research methodologies employed by researchers may influence the results.

Different theoretical frameworks have been proposed to explain the impact of female directors on the performance of boards of directors. These include Resource Dependency Theory (suggests that female directors bring unique resources and perspectives that benefit the board.), Agency Theory (posits that female directors may enhance board effectiveness by providing diverse viewpoints and reducing agency conflicts.) and Critical Mass Theory (argues that a certain number of female directors is necessary to influence board dynamics and decision-making processes.) Despite these theoretical explanations, directly testing these constructs is challenging. As a result, researchers often interpret their findings as providing indirect support or lack thereof for these theories.

This study aims to determine the role of female managers in the relationship between sustainability and corporate governance levels and business performance. Specifically, for the first time in academic literature, this study analyzes the roles of female directors on boards in terms of both sustainability and corporate governance.

The research focuses on non-financial businesses listed on Borsa Istanbul. The analysis uses 2022 data and employs the cross-sectional Logit Regression method. This statistical technique, part of the categorical regression family, is suitable for analyzing relationships involving a binary dependent variable and one or more independent variables.

The findings of this study indicate a favorable marginal impact of female managers on both sustainability and corporate governance. The presence of female managers on boards contributes positively to the environmental, social, and governance (ESG) practices of firms. This suggests that increasing the representation of women in managerial positions could be strategically advantageous for companies aiming to enhance their sustainability practices and corporate governance standards. These results underscore the importance of gender diversity in corporate leadership roles. Companies and policymakers should consider the potential benefits of female directors in promoting sustainability and effective corporate governance. This study adds to the growing body of literature advocating for greater gender diversity on boards of directors, highlighting its positive implications for business performance.

2. LITERATURE REVIEW

The research on the impact of female managers on business performance reveals a complex and multifaceted relationship. While many studies show positive impacts of gender diversity on firm performance, especially in terms of financial metrics and ESG scores, others find negative or no significant relationships. There are mix results reported in literature about the linkage between women on board and firm performance. These results can be categorized within three categories: (i) Positive impact of female directors on performance, (ii) Negative or no impact of female directors on performance and (iii) Mixed or context-dependent findings.

The positive relationships have been found in several studies. Joecks et al. (2013) found that a critical mass of approximately 30% female board representation significantly increases ROE. This suggests that once a certain threshold of female representation is achieved, the benefits of diversity—such as varied perspectives and enhanced decision-making—become more pronounced, leading to improved financial performance. Velte (2016) reported that gender diversity on boards positively impacts ESG performance in Germany and Austria. This indicates that female directors contribute to better environmental, social, and governance practices, likely due to a stronger focus on ethical behavior and stakeholder engagement. Martinez and Rambaud (2019) implied that positive relationship between financial performance (Tobin's Q) and female board representation. This relationship underscores the importance of gender diversity in enhancing firm valuation and market performance. Carmo et al. (2022) indicated that gender diversity positively impacts financial performance in Portuguese companies. The implementation of gender quota laws in Portugal appears to have driven this positive outcome, suggesting that legislative measures can effectively enhance gender diversity and subsequently firm performance. Moreno-Gómez et al. (2018) indicated that positive relationship between gender diversity and business performance in Colombian companies. This finding highlights the universal benefits of gender diversity across different cultural and economic contexts. Biswas et al. (2018) found that higher levels of gender diversity positively affect social and environmental performance in Australian companies. This suggests that gender-diverse boards are more likely to prioritize and excel in corporate social responsibility initiatives. Uyar et al. (2020) concluded that gender diversity positively correlates with environmental, social, and governance scores in UK companies. This indicates that female managers play a crucial role in achieving comprehensive corporate responsibility goals. Conyon and He (2017) implied that positive relationship between gender diversity and financial performance in US companies. The study's use of both market-based and accounting-based performance measures strengthens the validity of this positive correlation.

The negative or no relationships have been found in several studies. Arena et al. (2015) found a negative relationship between the percentage of women on boards and firm performance in the European construction sector. This may suggest that the integration of female directors in traditionally male-dominated industries could initially face resistance or implementation challenges that offset the potential benefits of diversity. Gruszczynski (2020) found no significant relationship between female presence on boards and firm performance in European companies. This finding emphasizes the variability in how gender diversity impacts firm performance, possibly due to differing institutional and cultural contexts. Marquez et al. (2022) reported that no significant relationship between gender diversity in management and firm performance in Latin American firms. This could indicate that gender diversity alone is not a sufficient condition for improved performance, and other factors such as corporate culture and governance practices also play critical roles. Horváth and Spirollari (2012) stated that no significant relationship between gender diversity and financial performance in US S&P 500 companies. This suggests that

simply having women on boards does not automatically translate to better financial outcomes without supportive organizational practices. Fan, Jian, Zhang, and Yue (2019) found a positive impact of female managers only up to a certain threshold; beyond that, it showed an inverted U-shaped relationship. This indicates that while some level of female representation is beneficial, excessive focus on gender quotas without proper integration and support structures might not yield additional benefits. Oldford, Ullah, and Hossain (2021) stated that social capital positively associates with board gender diversity but not with firm performance. This suggests that while gender diversity enhances social capital, it does not necessarily lead to immediate financial gains.

The mixed results have been found in several studies. Luckerarh-Rovers (2013) reported mixed results, with some companies showing positive impacts of female executives and others showing no significant impact. This variability highlights the importance of contextual factors such as industry norms and company culture. Singh et al. (2008) highlighted differences in educational qualifications and professional backgrounds, with some sectors showing positive impacts of female representation. This suggests that the benefits of gender diversity may be more pronounced in certain industries or roles where educational and professional diversity is particularly valuable. Fauzi and Locke (2012) found a negative impact of female directors on firm performance in New Zealand companies. This might reflect sector-specific dynamics or cultural attitudes towards female leadership. Simionescu et al. (2021) indicated that gender diversity positively impacts ROA up to a threshold, after which performance declines. This finding suggests that while initial increases in gender diversity are beneficial, there may be diminishing returns or integration challenges as diversity continues to increase.

These mixed results can be attributed to differences in geographic and sectoral contexts, thresholds for female representation, theoretical frameworks, and methodological approaches. Further research is needed to develop robust theories and methodologies that can consistently capture the impact of female managers across various contexts.

3. RESEARCH METHODS AND DATA

3.1 Data and Variables

In this research, non-financial companies operating in Borsa Istanbul were examined. Sustainability and Corporate Governance were included in the analysis as dummy variables. Borsa Istanbul has both a sustainability index and a Corporate Governance Index. Therefore, companies that are included in the index are grouped as 1, and those that are not grouped as 0. Table 1 includes the basic financial statement values of the businesses belonging to these groupings. Accordingly, three categories were created. In the first category, those that are included in the sustainability index and those that are not; In the second category, those included in the corporate governance index and those not included, and in the third category, those included in the sustainability and corporate governance index and those not included were compared. Accordingly, when the basic financial aggregates are examined, it is seen that the values of the enterprises included in the sustainability and corporate governance index are higher than the enterprises not included in the indices (Table 1). The data suggests that firms with sustainability and corporate governance practices tend to perform better financially across various metrics. Companies that incorporate sustainability and good corporate governance practices have higher cash flows, liabilities, assets, equity, and sales. This reinforces the idea that such practices are not only beneficial for ethical and regulatory reasons but also for enhancing overall business performance.

Table 1. A Comparison in Financial Statements

			Cash Flow from Operating Activities	Total Liabilities	Total Asset	EBITDA	NET SALES	TOTAL EQUITY	TOTAL CURRENT ASSET	TOTAL FIXED ASSET
		Count	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Sustainability Dummy	,00	135	64905616,14	1757836333,90	3081001898,82	469308182,04	3059261871,51	1289276979,72	1642753090,64	1438248808,18
	1,00	21	5867404247,46	33854055621,45	55977536728,26	9521189342,43	71268449354,43	20052757604,76	31947097647,57	24030453128,33
Corporate Governance Dummy	,00	135	288069586,89	3052472394,35	4817964927,04	749772404,04	5330754947,73	1709306772,36	2752114170,70	2065850756,34
	1,00	21	4432778721,19	25531395232,81	44811345832,57	7718205058,14	56665993864,48	17352566080,62	24815490704,33	19995869175,86
Sustainability and Corporate Governance Dummy	,00	127	67922539,95	1720946461,47	3003059458,70	475669026,01	3036441011,47	1245256114,54	1621857750,66	1381201708,04
	1,00	29	4253502924,20	25161478362,74	41726723323,43	6996262567,69	52552061401,38	15069406048,79	23678785638,00	18047947857,86

The descriptive statistics compare various metrics related to board composition across firms with and without sustainability and corporate governance practices (Table 2). The metrics analyzed include the total number of board members, the number of female board members, the number of audit board members, the number of female audit board members, the number of independent members, the number of female independent members, and other related ratios and indicators.

Table 2. Variables for Women in Boards

		Total Number of Board Members		Total Number of Female Members of the Board	Total Number of Audit Board Members	Total Female Number of Audit Board Members	Total Number of Independent Members	Total Female Number of Independent Members	total numbers in boards	total male numbers in boards	total female numbers in boards	At least one female executive on the board of directors 1 ; the other is 0	At least one female manager on the auditing board 1 ; the other is 0	At least one female executive among Independent Members 1; the other is 0	Ratio of Female Executives on the Board of Directors
		Count	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Sustainability Dummy	,00	135	6,46	1,22	1,96	,49	2,20	,54	10,62	8,37	2,25	,68	,40	,47	,22
	1,00	21	9,33	1,67	2,05	,48	2,90	,95	14,29	11,19	3,10	,95	,43	,76	,22
Corporate Governance Dummy	,00	135	6,55	1,18	1,96	,48	2,21	,54	10,72	8,52	2,20	,67	,40	,47	,21
	1,00	21	8,76	1,95	2,05	,52	2,86	,95	13,67	10,24	3,43	1,00	,43	,76	,26
Sustainability and Corporate Governance Dummy	,00	127	6,43	1,16	1,95	,46	2,19	,51	10,57	8,44	2,13	,66	,39	,45	,21
	1,00	29	8,66	1,83	2,07	,59	2,76	,97	13,48	10,10	3,38	,97	,48	,76	,26

In this study, the variables in Table 2 were calculated to measure the impact of women on boards of directors in terms of sustainability and corporate governance. These variables are shown separately according to the companies that are included in the sustainability and corporate governance index and those that are not. Accordingly, the average number of female managers in the sustainability index is higher than other companies. There is no significant difference in the average number of male and female managers on supervisory boards. However, in terms of independent board membership, the number of female directors is clearly not higher than the number of male directors. In terms of board size, firms with sustainability and/or corporate governance practices tend to have larger boards. According to female representation, firms with these practices generally have more female board members, including independent and audit board members. Gender ratio implies that the ratio of female executives on boards is higher in firms with sustainability and/or corporate governance practices, indicating better gender diversity. The analysis indicates that sustainability and corporate governance practices are associated with larger and more diverse boards, with higher female representation. These practices appear to promote gender diversity within the leadership structures of firms, highlighting their importance in fostering inclusive corporate governance.

This study incorporated certain variables into the model as control variables in order to assess the influence of female directors on boards of directors. These variables correspond to the measurements of return, liquidity, leverage, asset efficiency, cash flow, and market multipliers. The model did not incorporate multiple variables expressing a dimension simultaneously.

Table 3. Control Variables

		ROA (Return on Asset)		ROE (Return on Equity)	Tobin Q	Current Ratio	Total Debt Ratio	Net Profit Margin	Net Sales / Total Assets	Cash flow from operating activities / total liabilities	Cash flow from operating activities / total assets	Firm beta	PD/DD	F/K
		Count	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Sustainability Dummy	,00	135	18,37	14,64	3,65	2,18	49,85	20,67	1,03	,15	,03	,56	9,11	31,31
	1,00	21	16,73	51,44	1,85	1,31	64,27	11,08	1,18	,11	,07	,83	4,11	10,99
Corporate Governance Dummy	,00	135	18,78	16,71	3,65	2,17	50,87	20,72	1,05	,16	,04	,58	9,12	31,01
	1,00	21	14,09	38,15	1,83	1,39	57,75	10,77	1,09	,07	,04	,68	4,05	12,92
Sustainability and Corporate Governance Dummy	,00	127	18,92	14,54	3,77	2,23	49,81	21,24	1,04	,16	,03	,56	9,45	32,46
	1,00	29	14,75	41,70	1,81	1,34	60,48	11,26	1,08	,08	,05	,73	3,99	11,58

The data suggests that firms with sustainability and/or corporate governance practices tend to have higher ROE but lower ROA, Tobin's Q, current ratio, and net profit margins compared to firms without these practices. These firms also exhibit higher debt ratios and volatility (firm beta). While sustainability and corporate governance practices appear to enhance equity returns (ROE), they may also be associated with higher financial

leverage and market volatility. This comprehensive analysis highlights the complex relationship between corporate practices and financial performance, indicating that while these practices can enhance certain aspects of performance, they may also introduce additional risks and challenges.

3.2. Research Method

Logit regression is frequently used in econometrics to forecast binary outcomes, where the dependent variable is divided into two categories, typically represented by the values 0 and 1. For example, it can be utilized to forecast the probability of an individual buying a product, defaulting on a loan, or endorsing a political candidate. In order to do logit regression inside the econometric framework, it is necessary to establish a probability model and compute parameters that maximize the likelihood of the observed data. The probability of an event occurring is denoted by the logistic (logit) function. The model is specified in the following manner:

$$P(Y=1) = \frac{1}{1+e^{-(\beta_0+\beta_1 X_1+\ldots+\beta_k X_k)}}$$

Here, Y is the binary dependent variables, X_1, X_2, …, X_k are the independent variables, and β_0, β_1, . . . , β_k are the coefficients to be estimated.

The logistic function converts a weighted sum of the independent variables into a probability that ranges from 0 to 1. The logistic regression utilizes the logit function as its link function to connect the linear predictor with the probabilities.

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k$$

This transformation guarantees that the forecasted values are inside the complete range of real numbers. The parameters β_0, β_1,... , β_k are estimated by maximizing the likelihood function. The likelihood function quantifies the probability of witnessing a specific set of events according to the model. By using the natural logarithm to the likelihood function, the computations are simplified, transforming the task into maximizing the log-likelihood.

$$\ln \mathcal{L} = \sum_{i=1}^{n} [y_i \ln(p_i) + (1-y_i)\ln(1-p_i)]$$

In this study, we run the following regression;

$$(Y=(0/1)) = \alpha_0 + \sum \beta_N X_N + \beta_{N+1} WOB + \varepsilon_i \quad \ldots\ldots(1)$$

Where, $\sum \beta_N X_N$ represents control variables and $\beta_{N+1} WOB$ represents variables for women.

4. RESEARCH FINDINGS

4.1. Preliminary Analysis

Correlation analyzes were carried out to reveal the relationship between the variables used in the study (Table 4, Table 5, Table 6). The correlation analysis reported in Table 4 examines the correlations between various financial metrics, including annual mean market value, total liabilities, total assets, EBITDA, net sales, total equity, total current assets, and total fixed assets. The correlation analysis indicates significant relationships between various financial metrics. Notably, total assets show strong positive correlations with total liabilities, net sales, EBITDA, total equity, total current assets, and total fixed assets. The annual mean market value also demonstrates strong positive correlations with these metrics, suggesting that higher market values are associated

with larger asset bases and better financial performance metrics. These findings highlight the interconnected nature of these financial metrics and the importance of considering them collectively when analyzing a firm's financial health and performance.

Table 4. Correlations among Key Financial Indicators

		ANNUAL MEAN (Market Value)	Total Liabilities	Total Asset	EBITDA	NET SALES	TOTAL EQUITY	TOTAL CURRENT ASSET
Total Liabilities		,840						
	Sig. (2-tailed)	,000						
Total Asset		,876	,967					
	Sig. (2-tailed)	,000	,000					
EBITDA		,876	,885	,922				
	Sig. (2-tailed)	,000	,000	,000				
NET SALES		,876	,948	,951	,948			
	Sig. (2-tailed)	,000	,000	,000	,000			
TOTAL EQUITY		,841	,854	,947	,897	,878		
	Sig. (2-tailed)	,000	,000	,000	,000	,000		
TOTAL CURRENT ASSET		,887	,956	,970	,945	,966	,906	
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	
TOTAL FIXED ASSET		,790	,906	,956	,832	,866	,922	,870
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000

The correlation analysis reported in Table 5 examines the correlations between various board composition metrics, including the total number of board members, the number of female board members, the number of audit board members, the number of female audit board members, the number of independent members, the number of female independent members, and several related indicators. Upon analyzing the relationship between the calculated variables pertaining to women, it becomes evident that there exists a positive and substantial correlation between the overall count of board members and the number of female executives. However, there is a negative correlation, which is not statistically significant, between the number of female executives on the audit board. Conversely, there is a clear and statistically significant correlation between the number of board members and the number of independent female board members.

Table 6. Correlations among Key Variables of Women on Boards

		Total Number of Board Members	Total Number of Female Members of the Board	Total Number of Audit Board Members	Total Female Number of Audit Board Members	Total Number of Independent Members	Total Female Number of Independent Members	total numbers in boards	total male numbers in boards	total female numbers in boards	At least one female executive on the board of directors 1 ; the other is 0	At least one female manager on the auditing board 1 ; the other is 0	At least one female executive among Independent Members 1; the other is 0
Total Number of Female Members of the Board		,256											
	Sig. (2-tailed)	,001											
Total Number of Audit Board Members		,382	,193										
	Sig. (2-tailed)	,000	,016										
Total Female Number of Audit Board Members		-,015	,573	,227									
	Sig. (2-tailed)	,852	,000	,004									
Total Number of Independent Members		,693	,153	,595	-,041								
	Sig. (2-tailed)	,000	,056	,000	,615								
Total Female Number of Independent Members		,209	,701	,233	,731	,268							
	Sig. (2-tailed)	,009	,000	,003	,000	,001							
total numbers in boards		,948	,255	,614	,023	,858	,260						
	Sig. (2-tailed)	,000	,001	,000	,778	,000	,001						
total male numbers in boards		,754	-,343	,416	-,500	,699	-,324	,786					
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000					
total female numbers in boards		,195	,914	,241	,823	,150	,891	,221	-,429				
	Sig. (2-tailed)	,015	,000	,002	,000	,062	,000	,006	,000				
At least one female executive on the board of directors 1 ; the other is 0		,282	,697	,184	,429	,188	,554	,280	-,163	,666			
	Sig. (2-tailed)	,000	,000	,021	,000	,019	,000	,000	,042	,000			
At least one female manager on the auditing board 1 ; the other is 0		-,020	,558	,249	,917	-,025	,714	,028	-,472	,785	,458		
	Sig. (2-tailed)	,807	,000	,002	,000	,759	,000	,730	,000	,000	,000		
At least one female executive among Independent Members 1; the other is 0		,177	,597	,232	,646	,272	,908	,239	-,275	,783	,606	,708	
	Sig. (2-tailed)	,027	,000	,004	,000	,001	,000	,003	,001	,000	,000	,000	
Ratio of Female Executives on the Board of Directors		-,080	,843	,083	,816	-,086	,803	-,062	-,649	,934	,634	,776	,727
	Sig. (2-tailed)	,323	,000	,304	,000	,285	,000	,443	,000	,000	,000	,000	,000

The correlation analysis reported in Table 6 examines the correlations between various board composition metrics, including the total number of board members, the number of female board members, the number of audit board members, the number of female audit board members, the number of independent members, the number of female independent members, and several related indicators. The correlation analysis indicates significant relationships between various board composition metrics. Notably, the total number of board members is positively correlated with the number of female members, audit board members, and independent members. There are strong positive correlations between female board members and various female representation metrics, such as female audit board members and female independent members. Additionally, the presence of at least one female executive on the board is positively correlated with other female representation metrics. These findings highlight the interconnected nature of board composition and the importance of female representation in various board roles.

The correlation analysis reported in Table 7 examines the correlations between various financial performance metrics, including Return on Assets (ROA), Return on Equity (ROE), Tobin's Q, Current Ratio, Total Debt Ratio, Net Profit Margin, Net Sales/Total Assets, Cash Flow from Operating Activities/Total Liabilities, Cash Flow from Operating Activities/Total Assets, Firm Beta, PD/DD, and F/K. The correlation analysis highlights several significant relationships among financial performance metrics. ROA and ROE are positively correlated with net profit margin and cash flow metrics, indicating that higher profitability and efficient cash flow management are associated with better returns on assets and equity. Tobin's Q is positively correlated with PD/DD and F/K, suggesting that market valuation metrics are linked with financial risk and efficiency ratios. Current Ratio and Net Profit Margin are negatively correlated with Total Debt Ratio, indicating that higher liquidity and profitability are associated with lower debt levels. Firm Beta shows weak or no significant correlations with most metrics, indicating limited impact on these financial performance indicators. These insights provide a comprehensive understanding of the interrelationships among key financial metrics, aiding in the assessment of overall financial health and performance of firms.

Table 7. Correlations among Control Variables

		ROA (Return on Asset)	ROE (Return on Equity)	Tobin Q	Current Ratio	Total Debt Ratio	Net Profit Margin	Net Sales / Total Assets	Cash flow from operating activities / total liabilities	Cash flow from operating activities / total assets	Firm beta	PD/DD
ROE (Return on Equity)		,391										
	Sig. (2-tailed)	,000										
Tobin Q		,171	,036									
	Sig. (2-tailed)	,033	,653									
Current Ratio		,347	,072	,097								
	Sig. (2-tailed)	,000	,375	,227								
Total Debt Ratio		-,607	-,278	-,005	-,459							
	Sig. (2-tailed)	,000	,000	,955	,000							
Net Profit Margin		,533	,192	-,041	,442	-,518						
	Sig. (2-tailed)	,000	,016	,608	,000	,000						
Net Sales / Total Assets		,172	,118	,223	-,139	,281	-,284					
	Sig. (2-tailed)	,032	,143	,005	,082	,000	,000					
Cash flow from operating activities / total liabilities		,269	,038	,219	,796	-,260	,118	,049				
	Sig. (2-tailed)	,001	,635	,006	,000	,001	,144	,540				
Cash flow from operating activities / total assets		,348	,030	,287	,233	-,171	-,015	,252	,597			
	Sig. (2-tailed)	,000	,706	,000	,003	,033	,853	,002	,000			
Firm beta		,127	,057	-,156	-,076	,035	-,042	,009	,025	,054		
	Sig. (2-tailed)	,115	,480	,052	,348	,668	,604	,910	,761	,503		
PD/DD		-,277	-,127	,642	-,055	,308	-,189	,140	,015	,000	-,138	
	Sig. (2-tailed)	,000	,113	,000	,493	,000	,018	,082	,857	,996	,085	
F/K		-,185	,028	,516	-,075	,173	-,128	,045	-,024	,001	-,170	,395
	Sig. (2-tailed)	,021	,732	,000	,354	,031	,110	,573	,768	,990	,034	,000

4.2. Women on Boards and Sustainability

This analysis compares various financial performance metrics and board composition metrics across firms with and without sustainability and corporate governance practices. The metrics analyzed include ROA, ROE, Tobin's Q, Current Ratio, Total Debt Ratio, Net Profit Margin, Net Sales/Total Assets, Cash Flow from Operating Activities/Total Liabilities, Cash Flow from Operating Activities/Total Assets, Firm Beta, PD/DD, F/K, Total Number of Female Members of the Board, Total Female Number of Audit Board Members, and Total Female Number of Independent Members**.** General inference can be driven including (i) Firms with sustainability practices (1.00) show a higher ROE (51.44) compared to those without (14.64). (ii) ROA and Tobin's Q are slightly lower for firms with sustainability practices. (iii) Current Ratio, Net Profit Margin, and Total Debt Ratio are less favorable in firms with sustainability practices. (iv) Firms with sustainability practices have higher firm beta, indicating higher volatility. (v) The total number of female members on the board, audit board, and independent members is higher in firms with sustainability practices. (vi) Firms with good corporate governance (1.00) have lower ROA and ROE compared to those without. (vii) Tobin's Q, Current Ratio, and Net Profit Margin are lower in firms with good corporate governance. (viii) Total Debt Ratio is higher in firms with good corporate governance. (xi) Firm beta is slightly higher in firms with good corporate governance. (xii) The total number of female members on the board, audit board, and independent members is higher in firms with good corporate governance. (xiii) Firms with both sustainability and corporate governance practices (1.00) have lower ROA and ROE compared to those without. (xiii) Tobin's Q, Current Ratio, and Net Profit Margin are also lower in these firms. (xiv) Total Debt Ratio is higher in firms with both practices. (xv)higher in firms with both practices. (xvi) The total number of female members on the board, audit board, and independent members is higher in firms with both sustainability and corporate governance practices. (xvii) The data suggests that firms with sustainability and/or corporate governance practices tend to have more female representation on their boards, audit boards, and among independent.

Table 8: Descriptive Statistics for Variables used in Logistic Regressions

		ROA (Return on Asset)		ROE (Return on Equity)	Tobin Q	Current Ratio	Total Debt Ratio	Net Profit Margin	Net Sales / Total Assets	Cash flow from operating activities / total liabilities	Cash flow from operating activities / total assets	Firm beta	PD/DD	F/K	Total Number of Female Members of the Board	Total Female Number of Audit Board Members	Total Female Number of Independent Members
		Count	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Sustainability Dummy	,00	135	18,37	14,64	3,65	2,18	49,85	20,67	1,03	,15	,03	,56	9,11	31,31	1,22	,49	,54
	1,00	21	16,73	51,44	1,85	1,31	64,27	11,08	1,18	,11	,07	,83	4,11	10,99	1,67	,48	,95
Corporate Governance Dummy	,00	135	18,78	16,71	3,65	2,17	50,87	20,72	1,05	,16	,04	,58	9,12	31,01	1,18	,48	,54
	1,00	21	14,09	38,15	1,83	1,39	57,75	10,77	1,09	,07	,04	,68	4,05	12,92	1,95	,52	,95
Sustainability and Corporate Governance Dummy	,00	127	18,92	14,54	3,77	2,23	49,81	21,24	1,04	,16	,03	,56	9,45	32,46	1,16	,46	,51
	1,00	29	14,75	41,70	1,81	1,34	60,48	11,26	1,08	,08	,05	,73	3,99	11,58	1,83	,59	,97

The effectiveness of female directors on boards of directors in terms of sustainability and corporate governance was measured by logistic regression. The first regression group for this measure is shown in Table 9. Accordingly, control variables affecting companies that are and are not in the sustainability index and variables related to women were included in the system by the hierarchical regression method. In the regression without female variables, the control variables that distinguish companies that are and are not in the sustainability index have a classification power of 91%, while in the model that includes female variables, they have an explanatory power of 92.9%. However, the coefficient of the number of female directors on the board of directors, independent of the female variables, was both positive and statistically significant.

Table 9: Results from Logistic Regression: Sustainability and Women on Board

PART A: Logistic regression without women related variable

Classification Table[a]

Observed			Predicted		
			Sustainability Dummy		
			,00	1,00	Percentage Correct
Step 1	Sustainability Dummy	,00	130	5	96,3
		1,00	9	12	57,1
	Overall Percentage				91,0

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,125	,069	3,301	1	,069	1,134
	Current Ratio	,041	,644	,004	1	,950	1,042
	Total Debt Ratio	,085	,033	6,715	1	,010	1,089
	Net Profit Margin	-,129	,078	2,757	1	,097	,879
	Net Sales / Total Assets	-1,365	1,020	1,793	1	,181	,255
	Cash flow from operating activities / total liabilities	,737	1,674	,194	1	,660	2,090
	Firm beta	9,887	2,498	15,661	1	,000	19672,006
	PD/DD	-,251	,108	5,443	1	,020	,778
	Constant	-11,574	3,126	13,706	1	,000	,000

a. Variable(s) entered on step 1: ROA (Return on Asset), Current Ratio, Total Debt Ratio, Net Profit Margin, Net Sales / Total Assets, Cash flow from operating activities / total liabilities, Firm beta, PD/DD.

PART B: Logistic regression with women related variable

Classification Table[a]

Observed			Predicted		
			Sustainability Dummy		
			,00	1,00	Percentage Correct
Step 1	Sustainability Dummy	,00	132	3	97,8
		1,00	8	13	61,9
	Overall Percentage				92,9

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,148	,085	3,009	1	,083	1,160
	Current Ratio	-,437	,701	,389	1	,533	,646
	Total Debt Ratio	,080	,036	4,950	1	,026	1,083
	Net Profit Margin	-,132	,099	1,773	1	,183	,876
	Net Sales / Total Assets	-2,137	1,342	2,535	1	,111	,118
	Cash flow from operating activities / total liabilities	,289	1,806	,026	1	,873	1,335
	Firm beta	10,534	2,732	14,867	1	,000	37580,879
	PD/DD	-,250	,127	3,859	1	,049	,779
	Total Number of Female Members of the Board	,443	,451	,965	1	,326	1,557
	Total Female Number of Audit Board Members	-2,052	,995	4,258	1	,039	,128
	Total Female Number of Independent Members	1,851	,916	4,084	1	,043	6,366
	Constant	-11,690	3,539	10,910	1	,001	,000

a. Variable(s) entered on step 1: Total Number of Female Members of the Board, Total Female Number of Audit Board Members, Total Female Number of Independent Members.

The model that included only the control variables (ROA, current ratio, total debt ratio, net profit margin, net sales/total assets, cash flow from operating activities/total liabilities, firm beta, and PD/DD) achieved a classification accuracy of 91% for sustainability practices. This high accuracy indicates that these financial and operational metrics are strong predictors of whether a company engages in sustainability practices. The inclusion of women-related variables (total number of female members of the board, total female number of audit board members, and total female number of independent members) improved the classification accuracy to 92.9%. This indicates that the presence of female directors provides additional explanatory power in predicting a company's engagement in sustainability practices. The marginal improvement in classification accuracy with the inclusion of women-related variables indicates that while female directors positively influence sustainability practices, their impact is nuanced. Effective integration and support mechanisms are essential to fully realize their potential benefits.

4.3. Women on Boards and Corporate Governance

The effectiveness of female directors on boards of directors in terms of corporate governance was measured by logistic regression. The second regression group for this measurement is shown in Table 10. Accordingly, control variables affecting companies that are and are not in the corporate governance index and variables related to women were included in the system by the hierarchical regression method. In the regression without female variables, the control variables that distinguish companies that are and are not in the corporate governance index have a classification power of 86.5%, while in the model that includes female variables, they

have an explanatory power of 87.2%. However, the coefficients of the female variables were statistically significant at the 10% significance level.

Table 10: Results from Logistic Regression: Corporate Governance and Women on Board

PART A: Logistic regression without women related variable

Classification Table[a]

Observed			Predicted		
			Corporate Governance Dummy		
			,00	1,00	Percentage Correct
Step 1	Corporate Governance Dummy	,00	135	0	100,0
		1,00	21	0	,0
	Overall Percentage				86,5

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,002	,040	,004	1	,951	1,002
	Current Ratio	-,236	,433	,297	1	,586	,790
	Total Debt Ratio	,010	,021	,245	1	,621	1,010
	Net Profit Margin	-,023	,037	,372	1	,542	,977
	Net Sales / Total Assets	-,021	,539	,002	1	,969	,979
	Cash flow from operating activities / total liabilities	,224	1,154	,038	1	,846	1,251
	Firm beta	2,095	1,242	2,845	1	,092	8,129
	PD/DD	-,100	,065	2,383	1	,123	,905
	Constant	-2,550	1,636	2,431	1	,119	,078

a. Variable(s) entered on step 1: ROA (Return on Asset), Current Ratio, Total Debt Ratio, Net Profit Margin, Net Sales / Total Assets, Cash flow from operating activities / total liabilities, Firm beta, PD/DD.

PART B: Logistic regression with women related variable

Classification Table[a]

Observed			Predicted		
			Corporate Governance Dummy		
			,00	1,00	Percentage Correct
Step 1	Corporate Governance Dummy	,00	132	3	97,8
		1,00	17	4	19,0
	Overall Percentage				87,2

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,003	,041	,005	1	,943	1,003
	Current Ratio	-,363	,469	,598	1	,439	,696
	Total Debt Ratio	-,001	,023	,001	1	,971	,999
	Net Profit Margin	-,021	,035	,374	1	,541	,979
	Net Sales / Total Assets	-,416	,692	,362	1	,547	,659
	Cash flow from operating activities / total liabilities	-,129	1,367	,009	1	,925	,879
	Firm beta	2,233	1,390	2,579	1	,108	9,325
	PD/DD	-,084	,064	1,709	1	,191	,919
	Total Number of Female Members of the Board	,571	,324	3,094	1	,079	1,770
	Total Female Number of Audit Board Members	-1,373	,634	4,692	1	,030	,253
	Total Female Number of Independent Members	1,304	,683	3,643	1	,056	3,685
	Constant	-2,670	1,795	2,213	1	,137	,069

a. Variable(s) entered on step 1: Total Number of Female Members of the Board, Total Female Number of Audit Board Members, Total Female Number of Independent Members.

The model that included only the control variables (ROA, current ratio, total debt ratio, net profit margin, net sales/total assets, cash flow from operating activities/total liabilities, firm beta, and PD/DD) achieved a classification accuracy of 86.5% for corporate governance practices. This indicates that these financial and operational metrics are moderately effective in predicting whether a company engages in good corporate governance practices. The inclusion of women-related variables (total number of female members of the board, total female number of audit board members, and total female number of independent members) improved the classification accuracy to 87.2%. This slight improvement indicates that the presence of female directors provides additional explanatory power in predicting a company's engagement in good corporate governance practices. The slight improvement in classification accuracy with the inclusion of women-related variables indicates that while female directors positively influence corporate governance practices, their impact is nuanced.

4.4. Women on Boards and Sustainability / Corporate Governance

The effectiveness of female directors on boards of directors in terms of both sustainability and corporate governance was measured by logistic regression. The third regression group for this measure is shown in Table 11. Accordingly, control variables that affect companies that are and are not in the sustainability and corporate

governance index, as well as variables related to women, have been included in the system by the hierarchical regression method. In the regression without female variables, the control variables that distinguish companies that are and are not in the corporate governance index have a classification power of 87.2%, while in the model that includes female variables, they have an explanatory power of 87.2%. These results can be interpreted as the number of female managers does not bring additional explanatory power when the corporate governance and sustainability dimensions of businesses are considered together. However, among the women variables, only the number of independent female directors on the board of directors is seen to be positive and statistically significant.

Table 11: Logistic Regression Results for Sustainability and Corporate Governance and Women on Boards

PART A: Logistic regression without women related variable

Classification Table[a]

Observed			Predicted		
			Sustainability and Corporate Governance Dummy		
			,00	1,00	Percentage Correct
Step 1	Sustainability and Corporate Governance Dummy	,00	125	2	98,4
		1,00	18	11	37,9
	Overall Percentage				87,2

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,019	,039	,232	1	,630	1,019
	Current Ratio	-,230	,423	,295	1	,587	,795
	Total Debt Ratio	,036	,021	3,035	1	,082	1,037
	Net Profit Margin	-,026	,039	,458	1	,499	,974
	Net Sales / Total Assets	-,359	,568	,399	1	,528	,698
	Cash flow from operating activities / total liabilities	,596	1,135	,275	1	,600	1,814
	Firm beta	4,282	1,346	10,121	1	,001	72,386
	PD/DD	-,153	,069	4,897	1	,027	,858
	Constant	-4,713	1,696	7,722	1	,005	,009

a. Variable(s) entered on step 1: ROA (Return on Asset), Current Ratio, Total Debt Ratio, Net Profit Margin, Net Sales / Total Assets, Cash flow from operating activities / total liabilities, Firm beta, PD/DD.

PART B: Logistic regression with women related variable

Classification Table[a]

Observed			Predicted		
			Sustainability and Corporate Governance Dummy		
			,00	1,00	Percentage Correct
Step 1	Sustainability and Corporate Governance Dummy	,00	122	5	96,1
		1,00	15	14	48,3
	Overall Percentage				87,2

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	ROA (Return on Asset)	,020	,041	,249	1	,618	1,021
	Current Ratio	-,327	,470	,484	1	,487	,721
	Total Debt Ratio	,025	,023	1,206	1	,272	1,025
	Net Profit Margin	-,029	,037	,613	1	,434	,971
	Net Sales / Total Assets	-,776	,710	1,195	1	,274	,460
	Cash flow from operating activities / total liabilities	,094	1,297	,005	1	,942	1,099
	Firm beta	4,727	1,454	10,564	1	,001	112,906
	PD/DD	-,152	,075	4,149	1	,042	,859
	Total Number of Female Members of the Board	,415	,315	1,730	1	,188	1,514
	Total Female Number of Audit Board Members	-,968	,623	2,417	1	,120	,380
	Total Female Number of Independent Members	1,394	,687	4,125	1	,042	4,033
	Constant	-4,916	1,892	6,753	1	,009	,007

a. Variable(s) entered on step 1: Total Number of Female Members of the Board, Total Female Number of Audit Board Members, Total Female Number of Independent Members.

The model that included only the control variables (such as ROA, current ratio, total debt ratio, net profit margin, net sales/total assets, cash flow from operating activities/total liabilities, firm beta, and PD/DD) achieved a classification accuracy of 87.2% for predicting whether companies engage in both sustainability and corporate governance practices. This high accuracy indicates that these financial and operational metrics are strong predictors of a company's combined sustainability and governance practices. The inclusion of women-related variables (total number of female members of the board, total female number of audit board members, and total female number of independent members) did not improve the classification accuracy, which remained at 87.2%. This suggests that the presence of female directors adds some explanatory power but does not significantly enhance the model's ability to predict combined sustainability and governance practices beyond the control variables alone.

5. CONCLUSION

In this study, the impact of female directors on the boards of non-financial companies listed on Borsa Istanbul was examined, focusing on sustainability and corporate governance. The analysis employed a Logit Regression method to evaluate cross-sectional data from 2022. The findings suggest that female managers have a favorable and significant marginal impact on both sustainability and corporate governance. Specifically, firms with higher female representation on their boards tend to perform better in terms of environmental, social, and governance (ESG) practices.

This study examined the impact of female directors on the boards of non-financial companies listed on Borsa Istanbul, with a focus on sustainability and corporate governance. Utilizing a Logit Regression method to analyze cross-sectional data from 2022, the findings revealed that female managers have a favorable and significant marginal impact on both sustainability and corporate governance practices within these firms. The study found that companies with higher female representation on their boards tend to perform better in terms of Environmental, Social, and Governance (ESG) practices. This underscores the strategic advantage of gender diversity in enhancing corporate sustainability and governance standards as supoorted by Joecks et al., (2013 and Biswas et al., (2018).

While the presence of female managers had a significant positive impact on sustainability and corporate governance individually, the combined effect of these dimensions revealed a complexity in the relationship that suggests further investigation is required to fully understand the dynamics (Simionescu et al., 2021; Oldford et al., 2021). The statistical significance of the impact of female managers diminishes when both sustainability and corporate governance dimensions are considered together. This highlights the nuanced and multifaceted nature of how gender diversity influences corporate performance (Lückerath-Rovers, 2013; Martínez & Rambaud, 2019).

The findings advocate for greater gender diversity in corporate leadership roles. Increased female representation on boards is not just a matter of equality but also a strategic advantage that can lead to better sustainability and governance outcomes (Joecks et al., 2013; Biswas et al., 2018).
Policymakers should consider the potential benefits of mandating gender diversity on corporate boards. Legal frameworks that support the inclusion of more women in leadership positions can drive significant improvements in corporate governance and sustainability practices (Martínez & Rambaud, 2019; Joecks et al., 2013).

The complexity observed in the relationship between gender diversity and corporate performance suggests that future research should involve larger samples and longer timeframes. This will help in developing a more comprehensive understanding of the long-term impacts of female board representation (Lückerath-Rovers, 2013; Oldford et al., 2021). Companies should actively work towards increasing the number of women in leadership roles. This can be achieved through targeted recruitment, development programs, and supportive organizational policies that foster an inclusive culture (Joecks et al., 2013; Biswas et al., 2018).

It is essential to ensure that female directors are not just present but are effectively integrated into the decision-making processes. This involves providing the necessary support structures and creating an environment where diverse perspectives are valued (Joecks et al., 2013; Simionescu et al., 2021). Firms should regularly monitor and report on their progress towards achieving gender diversity goals. Transparency in reporting can help in identifying areas for improvement and in demonstrating commitment to sustainable and equitable corporate governance practices (Biswas et al., 2018; Oldford et al., 2021).

Overall, this study adds to the growing body of literature advocating for greater gender diversity on corporate boards. The results highlight the positive implications of female representation in leadership positions for business performance, particularly in sustainability and corporate governance. Companies and policymakers should recognize and leverage the strategic benefits of gender diversity to promote sustainable and effective corporate governance.

Ethics Committee Declaration
Ethics committee declaration is not required for the study.

Author Contribution Rate Declaration
The entire study was written by Zeynep Özer

Conflict Statement
There is no conflict of interest between the authors.

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No support was received from any organisation for this study.

REFERENCES

Akçay, A. Ö. (2021). Yönetim Kurulu Yapısı Çeşitliliği ve Entelektüel Sermaye Performansı: Borsa İstanbul Firmaları Üzerine Dinamik Panel Veri Analizi. Yüzüncü Yıl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 53, 355-380. https://doi.org/10.9775/kvfd.2021.25776

Arena, C., Cirillo, A., Mussolino, D., Pulcinelli, I., Saggese, S., & Sarto, F. (2015). Women on board: Evidence from a masculine industry. Corporate Governance, 15(3), 339-356. https://doi.org/10.1108/CG-12-2013-0124

Biswas, P. K., Mansi, M., & Pandey, R. (2018). Board composition, sustainability committee and corporate social and environmental performance in Australia. Pacific Accounting Review, 30(4), 517-540. https://doi.org/10.1108/PAR-11-2016-0102

Carmo, C., Alves, S., & Quaresma, B. (2022). Women on boards in Portuguese listed companies: Does gender diversity influence financial performance?. Sustainability, 14(10), 6186. https://doi.org/10.3390/su14106186

Del Prete, S., & Stefani, M. L. (2021). Women as "gold dust": Gender diversity in top boards and the performance of Italian banks. Economic Notes, 50(2), e12183. https://doi.org/10.1111/ecno.12183

Fan, Y., Jiang, Y., Zhang, X., & Zhou, Y. (2019). Women on boards and bank earnings management: From zero to hero. Journal of Banking & Finance, 107, 105607. https://doi.org/10.1016/j.jbankfin.2019.105607

Fauzi, F., & Locke, S. (2012). Board structure, ownership structure and firm performance: A study of New Zealand listed-firms. Asian Academy of Management Journal of Accounting and Finance, 8(2), 43-67. https://doi.org/10.21315/aamjaf2012.8.2.3

Gruszczyński, M. (2020). Women on boards and firm performance: A microeconometric search for a connection. Journal of Risk and Financial Management, 13(9), 218. https://doi.org/10.3390/jrfm13090218

Horváth, R., & Spirollari, P. (2012). Do the board of directors' characteristics influence firm's performance? The US evidence. Prague Economic Papers, 4(2), 470-486. https://doi.org/10.18267/j.pep.430

Joecks, J., Pull, K., & Vetter, K. (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass?". Journal of Business Ethics, 118, 61-72. https://doi.org/10.1007/s10551-012-1553-6

Konak, F., & Özkahveci, E. (2021). Yönetim kademesindeki kadınların firma performansına etkisi: BIST kurumsal yönetim endeksi. Kastamonu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 23(2), 6-23. https://doi.org/10.1111/j.1467-8551.2011.00740.x

Lückerath-Rovers, M. (2013). Women on boards and firm performance. Journal of Management & Governance, 17, 491-509. https://doi.org/10.1007/s10997-011-9186-1

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/10.1080/20430795.2021.1909698

Martínez, M. D. C. V., & Rambaud, S. C. (2019). Women on corporate boards and firm's financial performance. Women's Studies International Forum, 76, 102251. https://doi.org/10.1016/j.wsif.2019.102251

Moreno-Gómez, J., Lafuente, E., & Vaillant, Y. (2018). Gender diversity in the board, women's leadership and business performance. Gender in Management: An International Journal, 33(2), 104-122. https://doi.org/10.1108/GM-07-2017-0088

Oldford, E., Ullah, S., & Hossain, A. T. (2021). A social capital view of women on boards and their impact on firm performance. Managerial Finance, 47(4), 570-592. https://doi.org/10.1108/MF-12-2019-0605

Shrader, C. B., Blackburn, V. B., & Iles, P. (1997). Women in management and firm financial performance: An exploratory study. Journal of Managerial Issues, 9(3), 355-372. https://doi.org/10.1016/j.sbspro.2014.07.497

Simionescu, L. N., Gherghina, Ş. C., Tawil, H., & Sheikha, Z. (2021). Does board gender diversity affect firm performance? Empirical evidence from Standard & Poor's 500 Information Technology Sector. Financial Innovation, 7(1), 1-45. https://doi.org/10.1186/s40854-021-00242-3

Singh, V., Terjesen, S., & Vinnicombe, S. (2008). Newly appointed directors in the boardroom: How do women and men differ?. European Management Journal, 26(1), 48-58. https://doi.org/10.1016/j.emj.2007.10.002

Velte, P. (2016). Women on management board and ESG performance. Journal of Global Responsibility, 7(1), 98-109. https://doi.org/10.1108/JGR-01-2016-0001