Examining the Impact of Capital Structure and Board Diversity on Firm Performance: Evidence from Pakistan Stock Exchange

Rabia Afzal[1] and Aisha Riaz[2]

https://doi.org/10.62345/jads.2024.13.2.69

Abstract

This study aims to investigate the relationship between capital structure, board diversity, and firm performance among KSE-100 index firms listed on the Pakistan Stock Exchange. We use a panel data approach and STATA MP-14 to analyze the impact of two capital structure measures (debt-to-equity ratio and debt-to-total assets) and three board diversity measures (female representation, female executive presence, and male executive presence) on three financial performance indicators (firm size, firm age, and return on equity). Our findings reveal a significant positive association between debt financing and female board representation, as well as a positive relationship between capital structure and female executive presence. However, we find an insignificant and negative relationship between capital structure and managerial ownership. This study contributes to the existing literature on corporate governance and capital structure by highlighting the importance of board diversity in emerging markets. Future studies can build on our findings by exploring the relationship between capital structure and board diversity in other developing countries and comparing the results to identify potential variations.

Keyword: Capital Structure, ROE, Firm Size, PSX

Introduction

In the wake of Maxwell, Enron, and Worldcom, as well as the demise of Lehman Brothers, investors and other stakeholders have been increasingly concerned about corporations' governance mechanisms, in particular the board of directors' role and the company's capital structure (Abor, 2008). Our understanding of women's contributions to corporate finance has grown thanks to recent studies (Arowolo & Ahmed, 2016). Having women on a board has been shown to improve creativity, innovation, empathy for stakeholders, and ethical decision making, according to certain studies (Haron, 2014, Nguyen et al., 2015; Zaid et al., 2020). Research is mixed on the topic, with some papers arguing that women's risk aversion and less overconfidence contribute to their comparatively poor financial decision-making (Azmat, 2020), while others note no difference between male and female behavior at the highest managerial levels. The study of corporate finance and accounting has placed a strong emphasis on capital structure as an important factor influencing the overall operating level of corporations (Abor and Bikpie, 2007; Huang, 2019; Neves et al., 2020). One goal of capital structure management is to maximize shareholder value by minimizing capital expenditures (Das et al., 2020). Agency issues have long been linked to the practice of corporate governance, which aims to maximize

[1]*MPhil Scholar, Department of Management Sciences, University of Okara, Pakistan.*

[2]*Department of Management Sciences, University of Okara, Pakistan.*

Compliance with ethical standards: There are no conflicts of interest (financial or non-financial). This study did not receive any funding.

shareholder value through the management of organizations. The literature on this topic is extensive (Al-Rahahleh, 2017). Capital structure and business finance decisions appear to be impacted by corporate governance (Akhtar et al., 2017). Strong corporate governance allows businesses to realize their goals, safeguard their shareholders' interests, and stay in accordance with the law (Marimuthu & Kolandaisamy, 2009). Because every company has a unique capital structure, their debt ratios will also be distinct from one another. The company's financial structure was well-balanced, taking into account tax advantages and interest savings to maximize profitability (Kumar et al., 2017). While both high taxes and a high debt ratio lead to bankruptcy, paying more taxes and having a lower debt ratio reduces the likelihood of filing for bankruptcy. When compared to investors and other stakeholders, managers of firms have a more complete understanding of the company's financial operations and their current financial condition. The firm's true performance and future value cannot be seen by outside investors. This issue can be resolved through investing of the retained earnings. If the company finds it necessary to raise capital from outside sources, it will initially issue debt securities to satisfy its capital needs. This indicates that while profits are large, a company doesn't need to raise money from outside sources, but when profits are low, the company must raise money by issuing debt instruments because it has no retain earning to use as collateral (Kajola et al., 2019). When profits are strong, the firm should rely on internal funding, whereas when profits are low, the firm should turn to external finance. A company's capital structure is the mix of equity and debt financing it uses to maintain its assets and run its business. Previous research has shown that capital structure decisions can have a significant impact on an organization's long-term availability and profitability (Abor, 2005; Hasan, 2009). When referring to a company's financing methods, the term "capital structure" refers to the mix of debt and equity that is employed. You can think of a company's capital structure as the mix of its debts and its shareholders' equity. Many factors, such as a company's age, size, profitability, asset structure, growth, and risk profile, have been cited in the literature as being examined and influencing the capital structure. It wasn't until Modigliani and Miller published their seminal 1958 paper that the connection between capital structure and corporate performance began to receive serious attention in the accounting and corporate finance literature (1958). They claimed that under highly limited assumptions of perfect capital markets, capital structure is immaterial in determining business value because of a tax-free economy, investors' homogeneous expectations, and the lack of transactions costs. Subsequently, several academics presented more justification for this argument and its underlying assumptions, indicating that a firm's capital structure impacts both its value and its performance.

Research Gap

Solimene et al. (2021) investigates the influence of board diversity, specifically the role of female formulating a board while making decision have a significant impact furthermore the study suggests the more exploration of phenomenon specifically in south Asian countries like Pakistan, Bangladesh and India. This research aims to investigate gender diversity and its effect on the capital structure of nonfinancial companies. We also analyzed the effect of gender diversity on different performance measures of nonfinancial companies in the 100 indexes. For this panel data of 11 years from 2010 to 2021 were collected from 100 companies or used descriptive analysis, and multiple regression analysis was performed. In the case of Pakistan, the finding remained inconclusive because women's representation on the board is not enough to

have an influencing role in the board. This research identified considering the non-financial capital structure such as equity and debt ratio.

Research Objectives

The main objective of the study was to investigate the relationship between board diversity and capital structure among listed companies in Pakistan 100 index. Specifically, the following aims will lead the study:

To determine the association between board size, number of female executive, number of male executive, number of independent, number of female CEO and capital structure among Pakistan 100-listed companies.

Research Contribution

The contribution of this research, to the best of my knowledge, can be summed up in a few key points, which are as follows:

1. The goal of this study is to investigate and investigate the impact of various firm characteristics on the capital structure of firms listed in the 100 index in both financial and non-financial markets.
2. A surprisingly small number of scholarly publications investigate the effect of board composition on capital structure, particularly the effect of board diversity. This thesis investigates the impact of both executive and non-executive board members on various aspects of board diversity, such as the percentage of female board members, the number of male executive board members, non-executive female board members, and female CEO board members.
3. This has been accomplished by researching how the presence of diverse board members affects the capital structure of a company under two different market conditions: one in which the market is in a high (positive) state and one in which it is in a low (negative) state.

Literature Review

The diversity definition refers to the existence of variations of different characteristics in a group of people. These characteristics could be everything that makes us unique, such as our cognitive skills and personality traits, along with the thing that shapes our identity (e.g. race, age, gender, religion, sexual orientation (and cultural background). There are 4 types of diversity, Internal, External, organization, and worldview diversity. I will discuss gender diversity which includes internal diversity. Gender diversity is usually measurable by the proportion of males and females in companies. In this work gender diversity focuses on the percentage and number of women on the board of big technology companies. In the broadest sense diversity in an organization can be in terms of race, age, or gender.

The ideal capital structure is necessary for maximizing shareholder wealth and lowering the cost of capital. As we increase the amount of debt in our capital structure, agency costs are incurred or rise. Research conducted in China by (Kuen et al., 2017) reports the relation between ownership, corporate governance and financial structure. Moreover, government ownership and the profitability of the company have an adverse influence on the monetary structure of the company. There exists a weak positive correlation among the board size of a corporation and its financial structure as the lower the members of the board, make an efficient decision making which in turns leads to lower borrowing of the debt.

According to Al-Rahahleh (2017), corporate governance quality, board gender diversity, and corporate dividend policy: evidence from Jordan. Corporate governance quality, board gender diversity, women on boards, female directors, corporate dividend policy, logistic regression, and OLS regression were used. The dividend practices of all non-financial enterprises listed on the Amman Stock Exchange (ASE) between 2009 and 2015 are examined, as are the impacts of excellent corporate governance and board gender diversity. The data revealed that when more women were on boards of directors, shareholder support for dividends rose. Women's representation on Jordan's non-financial company boards was likewise found to be low compared to that of other countries. In particular, there is a dearth of legislation in Jordan that governs this issue, and a lack of knowledge of the benefits of gender diversity on boards. Non-financial enterprises in Jordan are urged to improve board efficiency and maintain positive relations with shareholders by increasing their compliance with the corporate governance code and implementing diversity policies. Additionally, Jordan's governing organizations should take action to promote gender parity on boards.

Abobakr and Elgiziry, (2016) reported that does board gender diversity affect financial performance? The Spanish experience and In this regression analysis, we employed the generalized ordinary least-squares (OLS) technique and the variables of corporate governance, economic performance, gender diversity, regulatory intervention, and a code of good governance. Several nations have passed guidelines and/or mandatory regulations in recent years to encourage more women to serve on corporate boards. The goal of these legislative initiatives is to free women from the social and labor discrimination that has historically kept them in lower-paying positions. However, notwithstanding the progress made, the number of women in executive positions is still far lower than desired. With this in mind, it's time to highlight the moral and financial benefits of having women on boards. Spain is an excellent case study for this article's assessment of the relationship between gender diversity on boards and financial performance due to its history of low female labor force participation. Our research of data from 125 non-financial businesses registered on the Madrid Stock Exchange between 2005 and 2009 reveals a statistically significant rise in the number of women serving on corporate boards, from 92% to over 98% throughout the study period. This suggests that required law can help to execute the guidance of Spanish good governance regulations by boosting the number of women on company boards. In addition, we discover that a rise in the proportion of women on boards is associated with improved financial outcomes. Therefore, these findings point to the need to increase women's representation on corporate boards, with quota rules being a crucial component.

Agyapong and Appiah (2009) reported on the impact of ethnic and gender diversity on the financial performance of Malaysian companies Using the variables ROA, ROE, Board of director, and used OLS regressions method. Our goal here is to take a hard look at how demographic diversity on boards of directors actually affects a company's bottom line. Secondary data from non- financial listed firms from 2000 to 2006 are used for analysis in this paper .We tailor-make the relevant ideas, claims, hypotheses, and regulating factors that will serve our purposes. Performance indicators include return on asset (ROA) and return on equity (ROE), whereas demographic diversity is shown by racial and gender diversity (ROE). On top of the cross- sectional data, we also provide several OLS regressions. Attempts to link board member diversity with improved financial results have shown mixed results.

Carter et al., (2010) reported that in Nigerian non-financial listed firms, reported on monitoring procedures, gender, and information system structure. Directorship, gender, information system

structure, internal audits, monitoring procedures, and the application of a regression method are among the variables. Monitoring techniques can be used by businesses to protect the interests of its shareholders, particularly minority owners, from improper board of directors and senior management activities. In Nigerian listed non-financial enterprises, monitoring methods (directorship, internal and external audits), gender, and information system structure are being look over. The study's empirical tests are based on a quantitative analysis strategy, using information gleaned via surveys and annual reports (for information system structure and internal auditing not obtainable from annual reports). The results show that the structure of information systems and gender both have substantial links to monitoring techniques (directorship, internal auditing and external auditing). The research on the causes of organizational characteristics, such as gender and the structure of information systems in relation to monitoring mechanisms, is expanded by this empirical study, which focuses on Sub-Saharan Africa. In the same vein, the results point to policy implications for the board of directors with regards to the right kind of board composition and the right kind of information system structure for a corporation to use in order to limit agency difficulties.

Nguyen et al. (2015) reported that does gender diversity in boardrooms matter? Experiments in an economy in flux, Multivariate regression analysis was used with the variables financial success (a proxy for gender diversity) and interest (a proxy for gender diversity in the form of the percentage of women on corporate boards). In the setting of a transitional economy with a less mature corporate governance framework, this study looks into how gender diversity on boards affects a company's bottom line. We use a dynamic modeling methodology that accounts for possible sources of indigeneity to analyze this correlation using data from a sample of 120 publicly listed companies in Vietnam over a four-year period (2008-2011). There appears to be a correlation between board gender diversity and financial outcomes for companies. This result is compatible with the viewpoints of agency theory and resource dependence theory, and it holds even when different proxies for gender diversity are used. Female board presence may affect business outcomes, and this effect may be magnified as the number of women on the board grows. However, the quantity of women on the board is also important. Furthermore, it is noticed that as the percentage of female directors hits around 20%, the small beneficial performance effect of board gender diversity ends. This result hints at a possible compromise between the advantages and disadvantages of having women on boards. Through providing strong empirical data from a transitional economy in East Asia, our findings considerably contribute to the expanding corpus of non-US based studies.

Solimene (2017) reported that An empirical analysis of Italian listed companies was conducted to examine the effects of gender diversity on corporate boards by looking at factors such as the percentage of women on boards, the influence women have within boardrooms, and the educational backgrounds of board members who identify as women. used a descriptive analytic approach. Although progress has been excruciatingly slow, there is now widespread agreement that more gender diversity in the workplace might boost businesses' bottom lines and social standings. Since 2012, Italian law (Law n. 120/2011) has mandated that boards of corporations include at least 15 women, and beginning in 2015, at least 1/3 women. The major objective of this research was to analyze the number and representation of women on the boards of 60 Italian companies trading on the Milan Stock Exchange between 2009 and 2014. We also analyzed the women who serve on corporate boards to create a representative sample. We checked the boards' make-ups, the percentage of women on the boards, the influence women have, and their educational backgrounds. Our findings corroborate the profound influence of Italian law on the

make-up of company boards. We also discovered that women who hold directorship positions are disproportionately of Italian descent and have advanced degrees (often a master's and sometimes a post- master's).The number of women serving on corporate boards, as well as the percentage of women serving on boards at other companies, have both climbed steadily over the time period in question, suggesting that such individuals are increasingly more likely to be qualified professionals. Our research paints a picture of gender parity in the Italian setting by providing a descriptive study of women in board positions from 2009 to 2014. As far as we're aware, this is the first study to take a comprehensive look at gender equality in Italy's stock exchange-listed companies. In the future, this study could expand to look at how gender disparities in board membership, participation, and leadership style affect business outcomes. This piece was written for an anthology examining the advancement of women in management and industry.

Abobakr et al. (2016) reported that the impact of board make-up and shareholder composition on corporate financial sustainability. The number of board members, gender representation on the board, number of CEOs, percentage of institutional, government, and block possession, size of the firm, return on assets, growth rate, and stability were all taken into account when using multiple regression models. This study aims to investigate the relationship between board composition, ownership structure, and corporate leverage financially in the context of emerging markets, particularly Egypt. In order to accomplish what we set out to do, we leverage data from a subset of the 50 most actively traded Egyptian companies listed on Egyptian Stock Exchange (EGX) between 2007 and 2011. Total debt ratio, long-term debt ratio, and short- term debt ratio are used as measures of business financial leverage. Board size, outside non- executive directors, CEO duality, and board female representation are the company features that serve as explanatory factors. Managerial ownership, institutional ownership, block holder ownership, and government ownership are the indicators of ownership structure. Firm size, profitability, expansion, and tangibility are only few of the control variables that have been factored in and analyzed. The information was examined using several regression models (OLS). The size of the board, the number of women on the board, and the presence of block holders are all highly connected negatively with corporate leverage, while institutional ownership and government ownership are significantly positively related. The empirical data reveal that board characteristics and ownership structure play a crucial role in deciding the Egyptian corporate financial leverage, despite the fact that Egyptian firms still have weak corporate governance systems compared to firms in emerging nations.

Agyapong et al. (2015) reported that "effect of gender diversity on the performance of non-financial listed firms in Ghana,". Applied a multivariate regression model, with firm size, leverage, board size, ROA, and performance as independent variables. Using panel data from 2007 to 2011, this research examines the impact of gender diversity on the bottom line of non-financial listed enterprises in Ghana. This data was analyzed using both the fixed and random effects methods. Our data showed that there was no statistically significant correlation between the number of female board members and the financial performance of publicly traded companies in Ghana. In addition, it was found that women were underrepresented on the boards of publicly traded companies outside of the banking sector. Given women's tremendous positive contribution to society, the findings call policymakers' attention to the status of women in organizations.

Carter et al. (2003) reported that corporate governance, board diversity, and firm value. This research looks at Fortune 1000 companies to determine if there is a correlation between board

diversity and overall company worth. The term "board diversity" refers to the representation of underrepresented groups such as women, people of color, Asians, and Hispanics. This study is significant because it provides the first hard data on whether or not a more diverse board is related with higher financial value. We discover strong positive associations between the percentage of women or minorities on the board and business value, even after accounting for size, industry, and other corporate governance indicators. Our research also shows that the presence of women and underrepresented groups on boards rises in tandem with company and board size but falls in tandem with the presence of insiders.

Das et al. (2020) reported that is corporate governance an approach to creating the most efficient capital structure for businesses? Corporate governance, capital structure, capital plan, operational plan, meeting, director, audit committee plan, debt equity ratio, and other variables were used to gather evidence from manufacturing companies. This article's goal is to analyze the connection between corporate governance as a strategy and the capital structure decisions of leading Indian manufacturing enterprises listed on the Bombay Stock Exchange. In order to evaluate the link and measure the influence of corporate governance on the capital structure mix (debt-equity ratio) of the sample business over a 10-year period (2008-2017), a panel regression analysis is used. The study's findings show that the capital structure variable (debt-equity ratio) of the sample manufacturing enterprises is positively related to the corporate governance components of size, board meetings, independent directors, and audit committee meetings. The sample firm's dependent variable is negatively correlated with the control variables (ROCE and NWTA). According to the data, the capital structure is significantly impacted by corporate governance characteristics as a whole. This essay contributes to the literature by shedding light on a previously unexplored angle: the impact and influence of corporate governance on capital structure decisions. For the private sector to make informed decisions about the optimal capital structure—which in turn affects costs and performance—and for the public sector to improve the efficiency and effectiveness of corporate governance procedures, the study's statistical findings give proof.

Basti et al. (2019), reported that factor affecting capital structure choice: new evidence from Turkish non-financial listed company. The goal of this research is to examine the factors that may influence the capital structure decisions of Turkish non-financial listed companies. We analyze how business leverage is associated with a variety of firm-level characteristics, as well as inflation and GDP growth forecasts. To arrive at our conclusions, we factored in anticipated inflation and GDP growth rates in addition to annual statistics of exchange listed non-financial firms. A panel data set consisting of 292 companies was used to develop panel regression models. We discovered that profitability, growth (MVA/BVA), tangibility, and industry median leverage all play a significant role in determining the capital structures of Turkish listed enterprises. Tangibility and industry median leverage favor the trade off theory, whereas evidence of profitability and expansion promote the pecking order idea. We also reanalyzed our data after grouping the companies into clusters depending on their size and the impact of the financial crisis of 2000-2001. Based on the data, it seems that trade-off theory is a more appropriate framework for explaining the financing patterns of major businesses. The financing practices of Turkish enterprises prior to 2002 appear to be better explained by the pecking order theory, while the capital structure decisions made by these firms following the 2000–2001 financial crisis appear to be better explained by the tradeoff hypothesis.

Abor (2008) reported that the determinant of the capital structure of Ghanaian firm. Publicly traded companies, major unquoted companies, and small and medium sized businesses (SMEs)

in Ghana are all compared in this study's examination of their respective capital structures. The research also analyses the three groups' causes of capital structure decisions using a panel regression model. According to the data, debt ratios are much greater for quoted and large unquoted enterprises compared to SMEs. Findings did not indicate a material distinction between the capital structures of publicly traded and large unquoted enterprises. Across all categories, the statistics show that short-term debt represents a sizeable share of total debt. The regression findings suggest that the age of the firm, firm size, asset structure, profitability, risk, and managerial ownership all play a role in the capital structure decisions made by Ghanaian firms. It was discovered that the gender of the entrepreneur, export status, industry, location, and business type were all significant in explaining the capital structure decision for the SME sample. The report offers helpful suggestions for the management and development of policies pertaining to these businesses.

Hasan (2009) reported that impact of ownership structure and corporate governance on capital structure of Pakistani listed companies. To ascertain how corporate governance and capital structure affect the performance of the market, listed companies in Pakistan's developing stock market are examined. In this work, multivariate regression analysis with a fixed effect model was used to evaluate firm level data for 58 randomly chosen non-financial listed companies from the Karachi Stock Exchange. Board size, board composition, and the Presence of a CEO/duality are all utilized as corporate governance metrics. The role of managerial and institutional holdings on financing decisions has also been studied. Additionally, the effect of regulated variables like business size and profitability on the financing mechanism of firms is examined. The size of the board of directors and the number of shares held by management are considerably inversely connected to the debt-to-equity ratio. Despite the common belief that having a CEO and a Chair share power and influence has a positive effect on a company's financing decisions, research has shown no such correlation. Capital structure is revealed to be significantly influenced by the control variables of business size and return on assets. We find no temporal impacts. Therefore, the findings indicate that corporate governance variables, such as business size, ownership structure, and managerial holdings, have an essential influence in deciding how a company's finances are structured.

Abdullah and Ismail (2013) revealed that gender, ethnic, and age diversity of the boards of large Malaysian firms and performance. Countries with a single board layer, like Malaysia, recognize the importance of a diverse board. Most board appointments are made by the company's major shareholders, who use "the old-boy" network or "people like us" to fill the positions, which means that the board is stacked with white, middle-aged men. The board's decisions will have more breadth and depth if it is diverse. This research aims to shed light on the implications of gender, race, and age diversity on the boards of the top 100 non-financial enterprises in Malaysia. The sample companies' 2007 annual reports are mined for data. That Malaysian boards of directors are not diverse is supported by the available data. Multivariate analyses show an inverse relationship between gender diversity and Tobin's q and return on investment. Results indicate a negative correlation between age diversity and ROA. On the other hand, we discover a positive correlation between ethnic diversity and ROA. Therefore, research results on the correlation between a diverse board and increased profits are contradictory. Nonetheless, the results of this research can help policymakers in Malaysian improve corporate governance in areas like diversity, which can increase the board's efficiency.

Research on capital structure determinants: a review and future direction was the subject of a meta-analysis, according to Khatib et al., (2013). The number of empirical and survey-based

studies exploring the variables influencing the capital structure of businesses in emerging economies has increased. The majority of studies on large firms use secondary data and regression-based models, but there is a scarcity of research on small businesses. The impact of leverage on various markets is still under investigation, the pecking order theory's supremacy in explaining corporate capital structures, both theoretically and statistically.

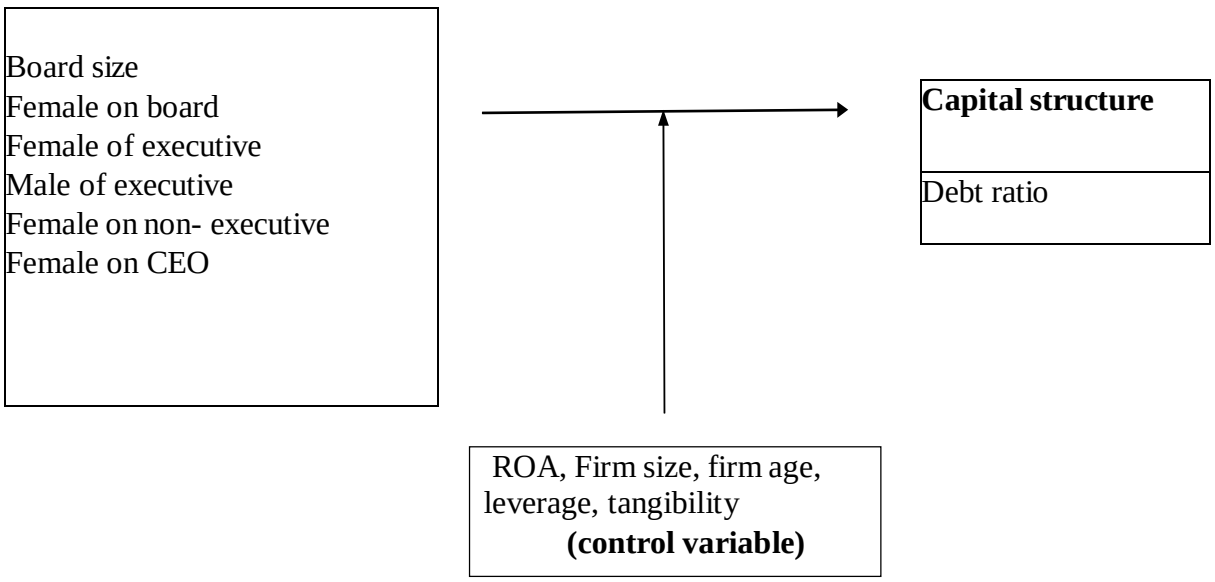
Capital Structure Theory

The capital structure of a company is made up of both the capital that is owned by the company, such as equity, reserves, and retained earnings, and the capital that is borrowed, such as debentures, bonds, and loans. The senior management's number one priority is to increase the wealth of the shareholders as much as possible. To accomplish this goal, the company should work toward achieving the most advantageous capital structure possible for it in order to produce maximum value for the business. To achieve an optimal capital structure, however, is not a simple Endeavour; rather, it calls for planning and processes that are intricate and sophisticated. This is done with the intention of attempting to strike a balance between the expectations of the firm's shareholders and the amount of capital it needs to operate. When preparing for their ideal capital structure one that would maximize the return while reducing the risk managers rely on a variety of theories that may be found in the relevant body of research.

Conceptual Framework

The conceptual frame work for this research incorporates the dependent and independent variables of the study. The independents variables are board size, female on board, female of executive, male of executive, female of non- executive, female of CEO. The controlling variables are ROA, firm age, firms' size and tangibility, liquidity. The dependent variables return on asset

Figure 1: Conceptual framework



Research Methodologies

The population of the study is 100 companies listed on the Pakistan stock exchange but this Study will take the data of KSE-100 index-listed companies as a sample for 11 years from 2010 to 2021. In this study, we used 90 companies out of 100 listed firms, because 10 companies do not show all financial statements relevant to the study period. Therefore, we selected 90 companies (1053 observations) as a sample for the empirical results regarding the impact of capital structure and board diversity on non- financial firm listed in Pakistan. To achieve the purpose of this research, data is collected from the annual reports of firms individually from companies' websites and the remaining is taken from the website of the Pakistan Stock Exchange.

Table 1: Measurement of Variables

Variables	Definition	How to Measurement	Types variable
BS	Board size	Number of board members	Independent
FemBrd	Female on board	Number of females on board	Independent
FemExtv	Female of executive	Number of female executive	Independent
MalExtv	Male of executive	Number of male executive	Independent
FemNoExtv	Female of non-executive	Number of female nonexecutive	Independent
FemCEO	Female of CEO	Number of female independent	Independent
Firmsiz	Firm size	Natural Log of Total Assets	Control
Firm age	Firm age	Firm establish year/total year	Control
Tang	Tangibility	Net fixed asset over total asset	Control
ROA	Profitability	Net Income / total assets	Control
Capital Structure	Debt Ratio	Total debt / Total assets	Dependent

Results and Analysis

This chapter presents a thorough analysis of the research as well as an interpretation of the findings in light of the study's specific aims, which are to look into the influence of "Role of board diversity generating firm capital structure; case study of non- financial listed in Pakistan." The financial accounts of firms listed on the100 index are the subject of secondary data. The analysis was carried out with the help of the STATA. The relationship between board diversity and capital structure was studied using descriptive statistics, correlation matrix, multiple regression analysis, fixed effect and random effect, robust analysis and Housman’s.

Descriptive analysis

Table 2: Descriptive Analysis

Variables	Obs	Mean	Std.deviation	Min	Mix
Debt ratio	1029	.1565012	.5460903	0.4828085	11.96355
Tangibility	1044	.4723918	2.910748	.0001592	66.25151
Board size	1055	8.344076	2.107207	3	15
Female on Board	1055	.4938389	.7274177	0	4
Female Executive	1055	.0274882	.1635785	0	1
Number of male executive	1057	-.9725639	-.1634279	-0	-1
Number of female non –executive	1055	.3232227	.6258058	0	4
Number of female CEO	1055	.1478673	.3907526	0	2

Descriptive analysis show in table 2 allows us to learn about the distribution of different groups by calculating their core tendencies (mean, standard deviation, minimum, and maximum). There are 1055 observations for board size, with a mean of 8.344 and a standard deviation of 2.107, the smallest board size is 3 and the largest is 15. A total of 1055 women were counted on board, with a mean of .4938 and a standard deviation of .727. Zero women were on board, and four women were at the very most. A total of 1055 women hold executive positions, with a mean of .274 and a standard deviation of .163. There must be at least zero female executives and no more than one. Executive men make up 1057 of the sample, with a mean of -.972 and a standard deviation of -.163. Male executives range from zero to one, while female non-executive employees range from zero to four. The mean number of female non-executive employees is .323, while the standard deviation is .625. There are 1055 female CEOs in total, with a mean of .147 and a standard deviation of .390. There must be at least zero female CEOs, and no more than two. Since the mean values of the findings exhibit a minimal difference illustrating the goodness of data, the summarized values are consistent with those of (Sani et al., 2020). The results corroborate the work of Zaid et al. (2020). Solimene (2017) draws on high-quality data to show how gender diversity can affect decision-making and how it can be used to solve problems in corporate cultures when debt is a problem. Additionally relevant is the proportion of women serving on boards of directors, since this would add credence to the claim that, should the presence of women on boards of directors influence business outcomes, a higher proportion of women would have a greater impact. In addition, it is demonstrated that there is a tipping point at which the positive performance effect of board gender diversity, which is typically approximately 20% female directors, no longer exists. This study suggests that the benefits and drawbacks of having women on boards of directors may be mutually exclusive. Our results make important contributions to the expanding field of non-US-based research by providing extensive empirical data from an East Asian transitional economy (Nguyen et al., 2014).

Correlation Analysis

Correlation analysis was used to determine the associations among all variables that are used in the regression model; either there is a strong or weak and positive or negative relationship. The

results are shown below in table 3.

Table 3: Correlation Analysis

Debt ratio	1.0000							
Tangibility	0.0040	1.0000						
Board size	0.2561	0.1534	1.0000					
Female onboard	0.2270	0.0477	0.0185	1.0000				
Number female executive	0.0768	0.0136	0.0006	0.0576	1.0000			
Number of male executive	-0.0468	-0.0126	-0.0004	-0.0623	-0.0146	1.0000		
Number of female nonexecutive	0.2668	0.0097	0.0257	0.0754	0.0259	0.2454	1.0000	
Number female of CEO	0.0188	0.0583	0.0324	0.0736	0.0360	0.0764	0.4472	1.0000

The debt ratio 1%then tangibility will be change 0.0040 that's show positive relation between variable. The debt ratio is 1% then board size will be change 0.2561 that's show positive relationship between variable .The debt ratio 1% then female of board will change 0.2270 that's show positive relationship between variable. The debt ratio is 1% then number of female executive will be change 0.0768 that's show positive relationship between variable The debt ratio is 1% then number of male executive will be change- 0.0468 that's show negative relationship between variable .The debt ratio 1% then number of female non- executive will change 0.2668 that's show positive relationship between variable. The debt ratio 1% then number of female CEO will change 0.0188 that's show positive relationship between both variable. The tangibility is 1% then board size will be change 0.1534 that's show positive relationship between variable .The tangibility 1% then female of board will change 0.0477 that's show positive relationship between variable. The tangibility is 1% then number of female executive will be change 0.0136 that's show positive relationship between variable. The tangibility is 1% then number of male executive will be change -0.0126 that's show negative relationship between variable .The tangibility 1% then number of female non- executive will change 0.0097 that's show positive relationship between variable. The tangibility 1% then number of female CEO will change 0.0583 that's show positive relationship between both variable. The board size 1% than female of board will change 0.0185 that's show positive relationship between variable. The board size is 1% then number of female executive will be change 0.0006 that's show positive relationship between variable. The board size is 1% then number of male executive will be change -0.0004 that's show negative relationship between variable .The board size 1% then number of female non- executive will change 0.257 that's show positive relationship between variable. The board size 1% then number of female CEO will change 0.0324 that's show positive relationship between both variable. The female on board is 1% then number of female executive will be change 0.0576 hat's show positive relationship between variable. The female on board is 1% then number of male executive will be change -0.0623 hat's show negative relationship between variable .The female on board 1% then number of female non- executive will change 0.0754 that's show positive relationship between variable. The female on board 1% then number of female CEO will change 0.0736 that's show positive

relationship between both variable. The number of female executive 1% then number of male non- executive will change -0.0146 that's show negative relationship between variable. The number of female non-executive 1% then number of female CEO will change 0.0360 that's show positive relationship between both variable. The number of male executive 1% then number of female non- executive will change 0.2454 that's show positive relationship between both variable. The number of male executive 1% then number of female CEO will change 0.0764 that's show positive relationship between both variable. The number of female non-executive 1% then number of female CEO will change 0.4472that's show positive relationship between both variable .The number of female CEO 1% that is strong relation.

Comparison of Fixed and Random Effect Model

Table 4: of Comparison of fixed and random effect models

Model 1					**Model 2**			
	Fixed effect		**Random effect**		**Fixed effect**		**Random effect**	
Variable	**Coefficient**	**p>t**	**coefficient**	**p>z**	**coefficient**	**p>t**	**coefficient**	**p>z**
Debt ratio	.02813	0.052	.036774	0.021	.06001	0.169	.06186	0.101
Board size	0.0204	0.0035	.00241	0.031	.00411	0.010	.00467	0.010
Female on board	.00273	0.0158	.02105	0.036	.00102	.0145	.00441	0.010
Female executive	.02543	0.042	.00429	0.044	.01708	0.000	.01675	0.000
Male executive	-.00437	-0.923	-.00679	-0.674	-.02829	-0.381	-.02886	-0.412
Female	0.01714	.027	.00217	0.045	.00265	0.011	.00425	0.010
Female CEO	0.00232	0.004	.00146	0.025	.10103	0.010	.0103	0.012

These correlational results are consistent with those found by Adams and Ferreira (2009), who analyze the influence of female diversity on boards and business performance and similarly discover a favorable association between the two.

These findings are crucial due to the fact that they lend support to the reasons that were presented in the business case for gender diversity. It is possible that differential selection is taking place due to the fact that the connection is different depending on whether it is male-dominated or female-dominated; however, it is also possible that this reflects the business case argument that organizations that retain minority personnel and offer them leadership positions become so much more productive. The value of the squared correlation coefficient for the random effect model is 92.62% within the variables and 71.68% between the variables. The model has an R-square value that is 89.88% overall. This model has a satisfactory fit, as indicated by a Wald Chi2 test value that is significant. Table 3 presents a comparison of fixed and random effect model where model I includes the results of fixed effect and random effect with simple standard errors and model II represents the results of these two models with robust standard errors. In random effect model with robust standard errors maximum number of variables has significant relationship with dependent variable. So, the results of random effect model with robust standard errors are most favorable.

Ahern and Dittmar (2012) investigated the link between business performance and gender composition. They demonstrate that an increase in female participation resulted to a decrease in shareholder value by varying how near to the threshold the firm was before to the reform. The rationale for the rapid change in board membership was that the new female directors had substantially less corporate management experience and were younger than the male directors. Firms are increasingly favoring the business case for gender diversity, but progress in effective diversification and promoting more women to leadership positions has been modest. In this paper, we demonstrated that there is evidence that developing gender diversity is a function of corporate actions, and that greater diversity in leadership roles appears to be positively associated to firm performance results. However, firms are frequently restrained by supply-side factors, such as the availability of suitable female candidates for leadership roles, and we see significant heterogeneity in firm level diversity across sectors and countries, owing to the extents to which the restrictions bind (Antecol et al., 2018).

Model I includes the results of the fixed effect and random effect with simple standard errors, whereas Model II includes the results of these two models with robust standard errors. In earlier table contrasts fixed vs. random effect models. In a random effect model with robust standard errors, the highest number of variables feasible has a meaningful connection with the dependent variable. As a consequence, the random effect model with robust standard errors produces the best results.

Hausman Test

Table 5: Hausman Analysis

Variable	Fixed Effect	Random Effect	Difference
Board size	.01370	.01528	.003899
Female on board	.04478	.02914	.156494
NO of female executive	.03850	.03661	.104686
NO of male executive	-.08509	-.06617	-.10468
NO of female non-executive	.01096	.01814	.00281
NO of female CEO	.04821	.04208	.00613
Chi2=80 and Prob > chi2 = 0.969			

When compared to the values in table 5 show that of R-squares obtained from the fixed effect model, the R-square values obtained from the random effect model are found to be significantly greater. In order to determine whether or not the model is suitable, the Hausman specification test is done. This test determines whether or not a fixed effect model or a random effect model should be employed. It has a value of 80 significant at a level of significance of 96% according to the Ch2 statistics. According to the findings of this research, the application of the random effect model rather than the fixed effect model is the most appropriate choice. The findings of Naseem, Xiaoming, Riaz, and Rehman are in agreement with this discovery (2017). A rise in the proportion of female board directors is associated with an increase in the expenditures associated with monitoring. According to the findings of the study, the requirement for monitoring systems increases proportionally with the number of women serving on a board of directors. As a direct consequence of this, the number of women serving as board directors has an effect on the demand for monitoring tools. According to Gamba and Andrea (2009) “financial indicators shine

where women serve." These findings lend credence to this assertion. The findings of the study also suggest that the expectations that women have for their roles as directors contribute to the efficiency of the board Abdullah & Ismail (2013). Even if some nations mandate gender parity on boards of directors This is in line with the findings of previous research, which found that women are able to maintain more balanced and appropriate behavior than men, even when they are exposed to more sensitive information or when they are in more essential situations. The elimination of type I agency challenges is facilitated by the presence of female board directors due to their inherent ability to aid in the alignment of the interests of management and shareholders. In addition, female board directors are typically autonomous individuals. As a consequence of this, they will probably make certain that the interests of minority shareholders are not expropriated, so putting an end to type II agency difficulties. In a similar vein, they can be a useful tool for assisting in the process of ensuring that the interests of all relevant stakeholders are taken into account whenever decisions are being made.

Conclusion

The purpose of this study is to investigate the effect that board structure, in addition to other firm-specific characteristics, has on the capital structure of companies included in the Pakistan 100 index. This study used a sample size of 100 companies in Pakistan, with a total of 1055 observations gathered from those companies. Of those 100 companies, there are 31 companies operating in the financial market and 69 companies operating in the non-financial sector. When looking at the factors that determine a company's capital structure, it was discovered that the size of the company had a strong and positive link with the amount of leverage the company used in both financial and non-financial markets. As for a company's profitability, the findings indicate a statistically significant inverse association with the amount of debt carried by the business, both in the financial and non-financial markets. In addition, the data demonstrate that there is a positive and significant association between tangibility and the financial market. In addition, the results of this study that are related to liquidity demonstrate that there is a substantial negative association between the liquidity of a firm and the debt ratio of that firm in both markets, the financial market and the non-financial market that make up the Pakistan 100 index. It was discovered that the size of the board had a substantial positive link with the decisions connected to the total amount of debt financing in either the financial or the non- financial market. According to the findings of this study, the independence of the board has a positive impact, either significantly or not significantly, on debt financing in the financial or non-financial sector. In terms of the diversity of the board, having executive women on the board is determined to be substantial and unfavorable for debt financing in either the financial or non- financial market. In terms of the diversity of the board, having executive women on the board is determined to be substantial and unfavorable for debt financing in either the financial or non- financial market. In terms of the diversity of the board, having executive males on the board has been determined to be beneficial and significant to debt financing in the financial or non- financial sector. In terms of the diversity of the board, the presence of non-executive board members was discovered to be significant with a negative sign in either the financial or non- financial sector. In terms of the diversity of the board, having a female CEO on board is seen as both detrimental and significant to the process of obtaining debt financing in the financial or non-financial sector. Over the course of the last decade, academics and the media have focused a significant amount of attention to the connection that exists between female diversity on boards and FP. On the other hand, Vietnam has not conducted any studies on this subject. This is the first study that we

are aware of that investigates the connection between gender diversity and financial performance in publicly traded companies in this country, to the best of our knowledge (Nguyen et al., 2014).

References

- Abdullah, SN, & Ismail, KNIK (2013). Gender, Ethnic and Age Diversity of the Boards of Large Malaysian Firms and Performance. *Jurnal Pengurusan*, 38, *36.*
- Abobakr, M. G., & Elgiziry, K. (2016). The effect of board characteristics and ownership structure on the corporate financial leverage. *Accounting and Finance research*, *5*(1), *32.*
- Abor, J. (2008). Determinants of the capital structure of Ghanaian firms. *AERC.*9966-778-23-*(35).*
- Adam, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2).
- Ahern, K. R., & Dittmar, A. K. (2012). The changing of the boards: the impact on firm valuation of mandated female board representation. *The Quarterly Journal of Economics*, *127*(1), 137–197. http://www.jstor.org/stable/41337208
- Agyapong, D., & Appiah, S. O. (2015). Effect of gender diversity on the performance of non-financial listed firms in Ghana. *British Journal of Economics, Management & Trade*, *8*(1), *32.*
- Akhtar, H., Ming, X., & Usama, A. R. (2017, July) . Impact of corporate social responsibility on the speed of capital structure adjustment: A structural equation modeling approach. In 2016 International Conference on Logistics, *Informatics and Service Sciences (LISS)* (pp. 26).
- Al-Rahahleh, A. S. (2017). Corporate governance quality, board gender diversity and corporate dividend policy: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal*, *11*(2), 86-104.
- Antecol, Heather, Kelly Bedard, and Jenna Stearns. 2018. "Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies?" *American Economic Review*, 108 (9), 2420–41**.**
- Arowolo, O. R., & Che Ahmad, A. (2016) . Monitoring mechanisms, gender, and information system structure in Nigerian non-financial listed companies. *International Journal of Business and Management*, *11*(5), 129-139.
- Basti, E., & Bayyurt, N. (2019). Factors affecting capital structure choice: new evidence from Turkish NON-financial listed companies. *Journal Of Business Economics and Finance*, *8*(1), *34.*
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2010). Corporate governance, board diversity, and firm value. *Financial review,* 38(1), *33.*
- Das, C. P., Agarwall, H., & Swain, R. K. (2020). Is the Concept of Corporate Governance a Strategic Plan for Firms' Optimum Capital Structure? Evidence from Manufacturing Companies. *Journal of Operations and Strategic Planning*, *3*(2).
- Gamba, M., & Goldstein, A. (2009). The gender dimension of business elites: Italian women directors since 1934. *Journal of Modern Italian Studies. 14.* 199-225. 10.1080/13545710902826469.
- Ghazala, A. (2020). Reported that Gender Diversity in Firms, *IZA Policy Paper No.(27)*
- Haron, R. (2014). Capital structure inconclusiveness: evidence from Malaysia, Thailand and Singapore. *International Journal of Managerial Finance*, *37.*

- Hasan, A. (2009). Impact of ownership structure and corporate governance on capital structure of Pakistani listed companies. *International Journal of Business & Management, 4,(36)*.
- Kuen, I. Y. L., Gee, C. S., & Zainudin, R. (2017) reported that gender diversity and firm financial performance in Malaysia. *Asian Academy of Management Journal of Accounting and Finance, 13*,(27).
- Khatib, S. F., Abdullah, D. F., Elamer, A. A., & Abueid, R. (2013). Nudging toward diversity in the boardroom: A systematic literature review of board diversity of financial institutions. *Business Strategy and the Environment, 30*(2).
- Kajola, S. O., Olabisi, J., & Fapetu, O. (2019). Corporate governance mechanism and capital structure decision in Nigeria. *Journal of Varna University of Economics*, *63*(1).
- Kumar, S., Colombage, S., & Rao, P. (2017). Research on capital structure determinants: a review and future directions. *International Journal of Managerial Finance,13(37).*
- Martín, C., & Herrero, B. (2018). Boards of directors: composition and effects on the performance of the firm. *Economic research-Ekonomska istraživanja, 31*(1).
- Marimuthu, M., & Kolandaisamy, I. (2009). Ethnic and gender diversity in boards of directors and their relevance to financial performance of Malaysian companies ,1(33).
- Naseem, M. A., Xiaoming, S., Riaz, S. & Rehman, U. R. (2017). Board Attributes and Financial Performance: The Evidence from an Emerging Economy. *The Journal of Developing Areas, Tennessee State University, College of Business, 51(3),* pages 281-297, July-Sept..
- Nguyen, T., Locke, S., & Reddy, K. (2015). Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics & Finance, 37,* 184.
- Njuguna, C. W., & Obwogi, T. N. (2015). Relationship between board characteristics and capital structure among companies listed in East Africa. *International Journal of Education and Research, 3*(24).
- Reguera-Alvarado, N., De Fuentes, P., & Laffarga, J. (2015). A diretoria da diversidade de gênero influencia o desempenho financeiro? Evidências da Espanha. *Jornal de Ética nos Negócios, 141*(2), 337-350.
- Sani, A. (2020). Managerial ownership and financial performance of the Nigerian listed firms: The moderating role of board independence. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 10(3).
- Solimene, S., Coluccia, D., & Fontana, S. (2017). Gender diversity on corporate boards: an empirical investigation of Italian listed companies. *Palgrave Communications,* 3(31).
- Zaid, M. A., Wang, M., Abuhijleh, S. T., Issa, A., Saleh, M. W., & Ali, F. (2020). Corporate governance practices and capital structure decisions: the moderating effect of gender diversity. Corporate Governance: *The International Journal of Business in Society,* 20*(2).*