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Board Gender Diversity and Its Impact on Financial Performance and Risk-Taking: A Study of Listed North American Companies

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Abstract

In today's globalized world, gender diversity is increasingly recognized as vital for companies, yet women remain underrepresented in leadership positions. The lack of representation of women in leadership roles and their possible impact on business performance have led to a greater awareness of gender diversity on corporate boards in recent years. However, men dominate in some fields and the representation of women in decision-making levels is very low and it is unclear whether gender diversity brings any benefits to the company in terms of financial performance and risk-taking. Therefore, the study examines the impact of gender diversity on financial performance and risk-taking among 1,874 North American listed firms, panel data regression is utilized using the Pooled OLS model. The paper also introduces two macro-economic variables, namely; GDP Per Capita Growth and Inflation Rate as control variables in addition to Firm Size and Asset Turnover. Our findings reveal that gender diversity on corporate boards has a positive and significant effect on Return on Assets (ROA). However, the impact on Tobin's Q, representing corporate value (market value of a company divided by its assets' replacement cost.), is positive but statistically insignificant. Moreover, gender diversity has a negative and insignificant influence on the risk-taking behavior of the listed North American firms. This research contributes to the ongoing dialogue on gender diversity's impact on corporate performance and risk-taking. As companies navigate an evolving landscape, understanding the dynamics of gender representation remains critical for sustainable growth and resilience. Meanwhile, based on the findings of the study, practical implications are also provided in the present study.

Keywords: *Gender Diversity, Financial Performance, Risk-Taking, Corporate governance practices, North American Market*

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1. Introduction

For many years, men dominated the workplace, but as more women join paid work, the numbers are increasingly becoming even. However, women are still underrepresented at the board or in senior management positions. A growing amount of evidence shows that gender diversity is good for the financial performance of companies and reduces risk-taking. The inclusion or participation of female directors on boards is referred to as board gender diversity in the context of corporate governance and gender diversity on boards is becoming more and more important to modern firms' corporate governance and organizational strategy (Wagana & Nzulwa, 2017). Positive features of gender diversity in board composition were presented by a number of writers. Adesua and Adedoyin (2012) assert that a diverse board, comprising individuals from varying backgrounds, races, ethnicities, skills, and experiences, enhances organizational value and performance by offering fresh insights and perspectives, fostering creativity and innovation, and fostering effective problem-solving skills. Diverse viewpoints on the board increase the likelihood that past beliefs will be questioned, making the board more proactive. Adesua and Adedoyin (2012) also argue that a more diverse board enhances a company's performance and reputation. Erhardt et al.'s 2003 study revealed that board diversity had a favorable effect on return on assets and return on investment.

The Global Gender Gap Report 2023 highlights significant disparities in the workforce, particularly concerning gender representation. Between 2019 and 2020, the global women's labor-force participation rate declined by 3.4%, compared to 2.4% for men. While women have re-entered the workforce at slightly higher rates than men, the recovery remains unfinished. Parity in the labor-force participation rate increased from 63% to 64% between the 2022 and 2023 editions of the report, but it is still significantly below its peak in 2009 (Sharma et. al. 2021).

According to the Women in the Workplace 2023 Report, men hold 60% of manager-level positions in average organizations, while women occupy 40%, as a result of gender discrepancies in early promotions. Women's access to economic possibilities is impacted by unequal representation. Women are underrepresented on boards even though they outnumber men in both the general population and the business sector (Conyon & He, 2017). It is crucial to remember that board diversity serves as evidence of the corporate governance mechanism's efficacy (Melón-Izco et al., 2020). Board of directors can readily advise and supervise management successfully if it is the proper size and makeup. This can easily be related to banks, where the makeup of the board plays a crucial role in establishing their performance (Nkundabanyanga et al., 2014).

The lack of representation of women in leadership roles and their possible impact on business performance have led to a greater awareness of gender diversity on corporate boards in recent years. According to research by Hanaysha (2019), female directors significantly improve decision-making processes by bringing their distinct experiences and strengthening governance roles. Although greater independence is frequently the result of board diversity, diverse boards provide better managerial supervision. In addition, promoting gender diversity also help deconstruct cultural beliefs that degrade women and remove the necessity for women to take on masculine characteristics in order to be successful in traditionally leadership positions (Nadeem et al., 2020). The female workforce continues to be underutilized even though there are more qualified women working in all areas (ADB, 2015). Higher company performance and lower risk-taking decisions have been linked to the presence of women on boards. Recently, a number of countries have passed laws requiring corporations to include more women as board of directors. These regulatory actions attempt to remove the social and labour injustices that women have historically experienced, which have forced them into lower-paying employment. Women's participation at the top of corporate

organizations continue to be below the expected levels, despite the emphasis on women's representation in the workplace in terms of opportunity and advancement (Nielsen & Huse, 2010; Alvarado et al., 2017). There has been a global trend in recent years towards more gender diversity in the workplace. Many have emphasized the benefits of board gender diversity (BGD) in enhancing corporate governance and reducing excessive risk-taking (Jizi and Nehme, 2017). According to earlier studies, female directors are more conscientious, rigorous, and involved in monitoring activities than male directors (Adams and Ferreira, 2009); they also make more cautious decisions (Levi et al., 2014); and they take fewer risks with their firms (Bernile et al., 2018; Sila et al., 2016). There are general gender-based differences in attitudes about risk that also hold true for the management and business domains, according to Baixauli-Soler et al. (2015). Previous studies have shown that women are less willing to take risks than males when it comes to starting their own businesses, and evidence from management positions also suggests that women prefer to take fewer risks than men.

Gender diversity encourages firms to invest in activities that support the environment (Xie et al., 2018). In addition, good governance increases efficiency especially if the same companies report their activities in annual books of account. Moreover, the study by Xie et al. (2018) further indicates that ESG does not negatively affect financial performance. In other words, investing in sustainability does not mean that companies suffer financially. On the contrary, they benefit because those activities improve governance, which produces efficiency and results in better financial performance.

In addition to sustainability, other dimensions of performance are financial, business practices, chances of engagement in misconduct, financial markets, and risk-taking. Financial performance refers to profitability and it is possible to compare the relative performance of different companies

using Tobin's Q or ROA (Gordini & Rancati, 2017). Financial performance is important because it determines the shareholder's return and ability to attract new investments. Companies doing relatively well financially can give shareholders higher returns as well as support other stakeholders, such as the community through greater investment in CSR. Suppliers and employees also benefit from the stability that good financial performance brings. Therefore, although there is a clear legal and moral justification for including more women on boards, if financial performance worsens, the implications would not be good for the stakeholders.

Business practices also have implications for the overall performance of the firm. Those practices include sustainability, ethical conduct, and fair treatment of workers, among others. The application of those practices increases the chances of improved performance (Glass & Cook, 2017). If gender diversity encourages companies to engage in better business practices and avoid general misconduct, it would mean that diversity is improving overall financial performance. However, women and men tend to exhibit different risk-taking behaviors and decision-making and both have implications for overall performance. Greater presence of women in the boards of corporations discouraged them from engaging in tax avoidance or aggression (Lanis et al., 2015). It also reduced misconduct such as corporate corruption (Wahid, 2018). In addition, almost all studies found evidence that gender diversity encourages firms to engage in sustainability activities (see Jizi, 2017; Li et al. 2016; Haque, 2017; Zaid et al. 2020; Cucari et al. 2017; Velte, 2018; Zahid et al. 2020). Sustainability is related to corporate performance between sustainable firms that are likely to continue operating in the future. Currently, the world is facing serious issues relating to climate change due to global warming and pollution. Moreover, resources are dwindling. As such, there is a renewed focus on sustainability, with companies investing more in green energy, reducing their overall carbon footprint, and engaging in ethical sourcing, among other activities,

standing a better chance of succeeding in the future. Therefore, sustainability is a key dimension in the financials of companies, especially from a long-term perspective. Moreover, governments have established mandates that require companies to comply with specific sustainability measures at the risk of facing fines. Thus, sustainability is no longer a choice but an imperative for many companies. Diversity reduces earnings management (Zalata et al. 2018 and Gull et al. 2018). It increases profitability (Abdullah & Ku Ismail, 2017 and Gordini & Rancati, 2017). Research carried out in developed economies produces inconsistent findings regarding the correlation between gender diversity and firm performance (Post and Byron, 2015). Some also discovered no evidence on the influence of board gender diversity on both firm financial performance and risk-taking behaviour (see for example, Marinova et. al. 2010; Dobbin & Jung, 2011; Ekadah & Mboya, 2012; Haslam et. al. 2010). Even though an increasing number of researches have indicated that gender-diverse leadership teams may have a positive impact on financial performance, more research is needed to fully understand the precise mechanisms, industry-specific dynamics, and contextual factors (Hanaysha et al. 2019; Arvanitis, Varouchas, & Agiomirgianakis, 2022; Schrand, Ascherl. & Schaefer, 2018).

Determining if gender diversity does, in fact, impact financial and risk taking and whether this relationship holds true for different industries and organizational contexts is crucial. Most previous studies have focused on either the financial performance or risk-taking, but this study investigates the effect of gender diversity on both aspects, providing a more comprehensive understanding of its impact on corporate outcomes (see for example Iren, 2016 and Hamilton, 2021). The size and scope of the sample, covering a significant number of listed companies in North America, adds to the robustness and generalizability of the findings. The use of advanced econometric techniques, such as panel data regression and the Pooled OLS model, allows for more rigorous analysis and

helps to address potential endogeneity issues that may arise in studies examining the relationship between gender diversity and firm performance. By concentrating on North American listed firms, the study provides insights specific to this region and market, which may differ from findings in other contexts. The inclusion of both GDP per capita growth and inflation rate as control variables helps to account for the potential impact of broader economic conditions on the financial performance and risk-taking behavior of the listed companies.

The goal of this study is to provide light on the complex relationships that exist between risk management techniques, financial outcomes, and gender diversity by analyzing data from a wide range of industries and organizational environments. In the end, this study's conclusions will be very helpful to academics, organizational leaders, and legislators who are trying to advance gender diversity and create more welcoming and productive work environments. This research intends to inform methods for encouraging diversity and improving organizational performance in the business sector by identifying the possible benefits of gender diversity and the processes by which they function.

The study holds extreme significance because it explores the intricate connection between risk-taking, financial performance, and gender diversity in organizations. In addition to being a problem of equality, gender diversity is crucial for developing inclusive leadership and for supporting international initiatives to diversify corporate environments. Considering the economic consequences, it is essential to comprehend how diversity affects financial results and risk taking. The results from the study could redefine business models and market competitiveness and have an impact on corporate strategies, investment choices, and resource allocation. In addition, this study's examination of how gender diversity affects risk-taking behaviours is essential for efficient risk management since it helps businesses to balance cautiousness and creativity. The findings are

applicable in the real world and can help businesses that want to increase the diversity of their leadership and increase their bottom line. The research's findings can also be used by advocacy organizations, regulatory agencies, and legislators to support programs that encourage gender diversity in leadership positions. This could result in new laws or modifications to corporate governance procedures. The results of this study will be beneficial in theory and practice. The study theoretically contributes to the Agency Theory, Cognitive Diversity Theory and Stakeholder Approach by providing a deeper understanding of the impact of gender diversity on the performance of North American listed companies, specifically with regard to the representation of women in board rooms.

2. Literature Review

2.1 Importance of Gender Diversity

The attention towards women representation on the board level has drastically risen over the years as it is argued that women are still under-represented in the boardroom (Perera et al., 2021; Al Arkoubi & Tahari, 2023; Lunawat et al., 2021). The appointment of females on corporate boards has the potential to facilitate better access to a wider pool of human capital while also drawing implications for a firm's performance and competition. The organization has come under intense pressure to improve gender diversity, especially after the corporate governance frauds at WorldCom and Enron along with other fraudulent bankruptcies (Brahma et al., 2021). The study by Hanaysha (2019) highlights that the inclusion of female directors on the corporate board can contribute to the enhancement of the decision-making process by drawing unique experiences and enhancing the governance function. A diversified board can help in better monitoring of management as board diversity leads to enhancing independence.

Improving gender diversity in the workplace would reduce the threat to social identity which suggest that women in society are devalued or negatively stereotyped. Hence, from the perspective of the threat, gender diversity has the potential to improve the position of women in society and organization while also eliminating the need to adopt masculine representation for typical traits (Nadeem et al., 2020). Scholars are paying significant interest to the topic of gender diversity from various perspectives such as sustainability (Birindelli et al., 2019), performance (Chijoke-Mgbame et al., 2020), risk-taking (Hurley & Choudhary, 2020), and others as the study of Galletta et al. (2022) has indicated that the characteristics of the board of directors play an important role towards the adoption of environmental practices. The presence of women on board can influence the environmental performance of the organization. Female directors and managers are strongly involved with the social dimensions of the business along with engaging stakeholders.

Interest in the connection between board gender diversity and firm's financial performance and risk-taking behaviour grew with the onset of the unequal representation of women on corporate boards. Few of these empirical studies are on group of industries; the majority concentrate on industry-specific. Moreover, relatively little research has been done on group of industries and the results inconclusive. Furthermore, some research examined gender diversity and risk taking and that of firm's financial performance. Some studies found positive correlations, some negative correlations, and some have discovered no discernible connection between them. The following is a review of some of these earlier studies:

2.2.1 Impact of Gender Diversity on firm's financial performance

Abundant number of studies related to the influence of gender diversity on financial performance are conducted and are available in variuos literature. Khan & Abdul Subhan (2019) conducted a study to examine the influence of audit and board diversity on a firm's performance by examining

the listed companies of Pakistan. The determinants that were used for measuring the firm's performance were ROE and ROA while the proxy used for gender diversity was the proportion of female directors. The findings of research suggested that gender diversity positively contributed to the firm's financial performance while the number of female members were found to be insignificant. Brahma et al. (2020) researched to examine the interconnection of gender diversity, female attributes, and the performance of firms that are listed on the FTSE-100. Determinants for measuring the financial performance were return on assets (ROA), Tobin's Q, and change of both ROA and Tobin's Q. Gender diversity was based on the number of woman directors in which the dummy variable was used for measuring the female directors along with a dummy variable of female executive. The attributes of gender diversity were age, education, multiple directorships, and prominence. Findings from the research suggested that female directors who are 3 or more on the board of directors would positively influence performance. Other aspects of females that have a positive influence are age, education, and executive position.

Song et al. (2020) identified that there are limited studies from the perspective of the lodging industry in the area of gender diversity. Hence, the research was conducted among the lodging companies that are listed in the North American Stock market. Data for gender diversity and age diversity was gathered from DEF14A (other definitive proxy statements). Specifically, Blau Index was used for measuring gender diversity while age diversity was measured through the standard deviation of the board of director's age. Measurements used for representing financial performance was the Tobin's Q. Panel regression was applied on the dataset where the results of the study revealed that gender diversity has a positive influence on performance whereas age diversity was identified to have insignificant influence. Chijoke-Mgbame et al. (2020) conducted a study examining gender diversity on financial performance while drawing evidence from Nigeria.

Gender diversity was measured through the percentage of women on board while the dependent variables in the study were ROA and Tobin's Q. The control variables involved in the study were leverage, firm size, CEO gender, firm age, and board size. Panel data regression was applied which includes a random and fixed effect model in which the results revealed the positive influence of gender diversity on the firm's performance. In their study, Mohsni et al. (2021) looked at how culture influences the relationship between corporate risk-taking, gender diversity on the board, and firm level performance in 27 developing nations. They discovered that while gender diversity on the board is positively correlated with firm performance, it is negatively correlated with operating and financial risk. They also show how culture has a moderating effect on the association between risk-taking and gender diversity on the board. They contend that culture weakens the risk-reduction benefits of gender diversity on boards and that nations with high levels of individualism, masculinity, and long-term orientation are more likely to take on greater risks.

Scholars have employed diverse theoretical frameworks and analytical instruments to assess the correlation between gender diversity on the board and the financial performance of the company over time. However, the results have remained largely inconclusive, possibly as a result of the gender diversity of the board's function being examined independently from other board and company characteristics. In order to tackle this problem, Pandey et al. (2023) used qualitative comparative analysis (QCA) to analyse the association between board gender diversity and business financial performance utilizing the complexity theory theoretical framework. 204 non-financial companies that are listed on the Bombay Stock Exchange (BSE) make up their sample. They discover that, in conjunction with other board and firm characteristics, board gender diversity has an impact on firm financial performance rather than acting alone. It is connected to both improved firm financial performance and poorer firm financial performance in certain

combinations. Additionally, they discover that a more gender diverse board helps to lessen the detrimental consequences of CEO duality on the financial success of the company.

Furthermore, Kabir et al.'s (2023) research expands on the existing body of literature by demonstrating how, however subject to several cultural influences, women's representation on boards can improve a company's financial performance in the setting of European nations. The study looked at 19 nations in Europe between 2010 and 2020. They found that either the individual fixed-effect models or the time-invariant models are applied. The influence of board gender diversity on business performance is undermined by significant power distance and masculinity, according to their findings. The power distance index moderates the statistically significant detrimental impact of the gender-diverse board on returns on equity (ROE) and returns on asset (ROA). Not just in Germany, but worldwide, there is a lot of discussion about the underrepresentation of women on boards. Based on the critical mass hypothesis, Joecks et al. (2013) investigated if there is a U-shaped relationship between gender diversity and business performance using a hand-picked panel data set of 151 listed German companies over the years 2000–2005. When reversed causality is taken into account, they discover evidence that gender diversity initially has a negative impact on business performance and only becomes positively correlated with higher company performance than boards made up entirely of men until a "critical mass" of roughly 30 percent of the membership is reached. The critical mass of 30% women, given their sample firms, translates into an absolute number of approximately three women on the board, supporting recent research on a matching “magic number” of women in the boardroom.

Zhang (2020) also looked at data from 24 industries and 35 countries to see how gender diversity and business performance relate to one another. Zhang (2020) notes that prior research presents contradictory findings: while some find that gender-diverse organizations perform better, others

discover the opposite. However, the majority of research to date has not taken into consideration potential variance among social contexts and has instead concentrated on a particular nation or industry. The article presents an institutional framework and predicts that the relationship between gender diversity and performance depends on the institutional environment as a whole, both normatively and legally. Zhang (2020) discovered that the connection between gender diversity and company performance varies greatly between nations and industries due to changes in institutional context. Zhang used a unique longitudinal sample of 1,069 prominent public enterprises worldwide. He argues that enterprises with a higher percentage of gender diversity have higher market valuations and higher income streams in nations or industries where gender diversity has been more normatively accepted. These results highlight how crucial the larger social context is to understanding how gender diversity and company performance are related.

Using a sample of 186 listed firms (102 Dutch and 84 Danish), Marinova et al. (2010) used a two-stage least-squares estimation to explore the influence of board gender diversity on firm performance based on evidence from the Netherlands and Denmark. He discovered no connection between gender diversity on the board and company performance. Dobbin and Jung (2011) used cross-sectional time-series models from 1996 to 2007 to examine if the profitability and stock performance of the biggest US companies are impacted by the number of female directors on the board. According to their findings, businesses that have a higher proportion of female board members do not see a change in their profitability. Using a sample of 32 commercial banks from 1998 to 2009, Ekadah & Mboya (2012) investigated the impact of gender diversity on the board on the performance of commercial banks in Kenya. They proved, through stepwise regression, that there was no direct correlation between board diversity and Kenyan banks' performance. Similarly, Haslam et al. (2010) in the UK discovered no connection between the number of women on boards

and performance metrics related to finances. Financial indicators, such as return on equity and return on assets, were used in the study to gauge performance.

2.2.2 Impact of Gender Diversity on Risk-taking

The role of gender diversity is being explored from different perspectives which also includes the risk-taking of the corporation. Risk-taking behaviour can affect the performance and position of the company drastically whereas the growth of shareholder value can benefit the growth of the company through risk-taking. The level of risk allows the company to develop economic value but also can cause negative effects as a result of excessive risk (Hock-Doepgen et al., 2021). As a part of the governance of a firm, the board of directors play an important part in the decision-making process where it allows for monitoring the management, protecting the interest of shareholders, and managing strategy. The innovation and creativity of the firm can be strengthened due to the difference between the female and male risk behaviour and attitude. Female directors are found to be better in firm monitoring and thus are considered to be more risk-averse in contrast to men (Kasasbeh, 2019; Hoang et al., 2019). Jane Lenard et al. (2014) researched to understand the role of gender diversity on corporate risk where data was collected from the Compustat and CRSP database. The proxy representing the corporate risk was the standard deviation of the monthly stock return for each period while gender was measured by computing the proportion of females on board. Data was gathered from 2005 – 2011 while the technique applied was the panel data regression. The findings from the research indicated that gender diversity among the board influences firm risk by lowering the variability/dispersion of stock market return.

Achour (2021) has similarly adopted the same method as Jane Lenard et al. (2014) by examining corporate risk by the deviation of the returns of monthly stock values. The study was conducted

among the listed companies of French companies in which the data was gathered from 2011 to 2018. The finding of the research illustrated a negative connection between the percentages of female directors and the standard deviation of monthly stock which suggests that the appointment of women as board members can support enhancing the financial stability of the company. Hurley & Choudhary (2020) carried the research to evaluate the role of gender diversity on the risk-taking of 58 US companies. The data was gathered from 58 companies that are listed in the S&P 500 for the period 2012 – 2016. Three proxies were used for measuring the risk-taking which included debt-to-equity and property, plant and equipment (PPE). However, the study highlighted that these may not be suitable for some industries. Hence, the same proxy as Achour (2021); and Jane Lenard et al. (2014) was used which is the standard deviation of stock return. The findings illustrated that the inclusion of females has reduced risk-taking behaviour and led to financial stability. The basic question posed by Teodósio et al. (2021) is addressed as follows: "What do the authors know about gender effects in corporate risk-taking and how should we proceed?". The writers chose articles from journals that are concurrently ranked by the Journal Citation Reports (JCR, 2018) and the Chartered Association of Business Schools (ABS, 2018) with an emphasis on the Board of Directors (BoD) and Top Management Teams (TMT) in order to guarantee the caliber and objectivity of the literature review. The assessment of the literature indicates that the presence of women on the BoD and TMT has varying effects on corporate risk-taking. Their study allows the existing findings to be categorized into two main groups based on firm type, country of origin, and gender measures: Women have two types of effects on a firm: (1) universal effects, wherein they reduce the risk of litigation, failure, and operational risks; on the other hand, they have no discernible impact on insolvency risk; and (2) contingent effects, wherein women have an impact on financial risk, manipulation risk, total risk, idiosyncratic risk, and systematic risk.

Furthermore, in a developing market, Loukil and Yousfi (2016) investigate how business risk-taking is affected by gender diversity on the board. From 1997 to 2010, a sample of thirty Tunisian-listed companies was used for their analysis. Firstly, it was shown that women perceive danger differently than men, which causes them to behave in a way that minimizes risk. The presence of female directors, even in cases where there is just one, is favorably correlated with the cash ratio. Secondly, no statistically significant correlation was observed between the gender diversity of the board and the inclination to undertake financial or strategic risk-taking. Third, cash holding and investment prospects are positively impacted by the presence of state officers, bureaucrats, and/or politically connected women. Lastly, they discovered that international investors avoid companies with boards that are diverse in terms of gender. Abou-El-Sood (2021) also asserts that the inclusion of female board members broadens the decision-making process by introducing fresh viewpoints and ethical/societal issues. But there isn't enough data to say whether it reduces banks' excessive risk-taking, which is why Abou-El-Sood (2021) tackles this issue. According to Abou-El-Sood, it integrates approach/inhibition theory of power from social psychology with agency theory to enhance the normative corporate governance literature. According to Abou-El-Sood (2021), for a sample of 195 U.S. commercial banks from 2002 to 2018, the findings show that banks invest in riskier assets when female directors see the benefits of taking on risk (in banks with higher regulatory capital ratios and/or well-capitalized banks) and when power is transferred because the CEO owns equity in the bank. Conversely, when female directors understand the costs associated with making a riskier investment during a financial crisis, institutions take on less hazardous positions. Menicucci and Paolucci (2022) examine the connection between the risk profile of Italian banks from 2015 to 2019 and gender diversity. Their research investigates whether bank risk-taking is significantly impacted by the presence of female top executives or

board directors. The authors examined a sample of 387 Italian banks in order to investigate the impact of women on bank risk-taking. They then created an econometric model using unbalanced panel data that included firm fixed effects and annual controls. To confirm the impact of gender diversity, the scientists took into account five risk factors inside a multivariate regression model. According to their findings, there is a negative correlation between gender diversity and risk-taking, with female board directors and executives being significantly more risk averse and less overconfident than their male counterparts. The findings show that because female-led banks report greater equity to asset and capital adequacy ratios, they are less hazardous. They contend that because credit risk is correlated with higher risk aversion among female directors and top managers, increased capital sufficiency does not result from inferior asset quality in banks run by women.

Additionally, gender diversity is examined by Sudarsanam and Huang (2007) along with how it affects acquirer performance and risk-taking in mergers and acquisitions. Based on a sample of 2527 US acquisitions made between January 1, 1993, and December 31, 2004, their findings show that the presence of female CEOs is linked to a rise in acquisition-related risk change over the course of the three years after the acquisition. They also discover that the market reacts more favorably to M&A agreements led by female CEOs than to those led by their male counterparts in terms of acquisition-related performance. On the other hand, this discrepancy reverses over time. Empirically, their study suggests that risky business acquisitions done by female CEOs destroy shareholder's long-term worth. According to Sudarsanam and Huang's (2007) research on the relationship between gender and managerial incentives, female CEOs are more receptive to the risk incentive in compensation than their male counterparts. Furthermore, the relationship between risk management and company performance as determined by the volatility of stock market return

is examined by Jane Lenard et al. (2014) in their study on gender diversity on the board of directors. Companies from the RiskMetrics database between 2007 and 2011 make up the sample. On the other hand, their database includes details about the corporate board of directors. From 2007 to 2011, financial statistics were gathered from the CRSP and Compustat databases. The authors then use Cheng's (2008) model, which gauges stock market return variability, to calculate the impact of gender diversity on corporate performance in terms of company risk. Their research demonstrates how a more gender diverse board of directors reduces stock market return volatility, which in turn affects company risk. The more female directors there are on the board, the less variable business performance is. To continue with, concentrated industrial structure, strict regulatory scrutiny, and conservative banking policies are some of the reasons why Canadian banks fared better during the 2008 Financial Crisis than their counterparts in North America, according to a wealth of evidence cited by Gottschalk (2019). But when Lehman Brothers collapsed in 2008, the head of the International Monetary Fund (IMF) proposed that the industry as a whole might become less risk-taking by having more women on executive boards of financial firms. According to Gottschalk's (2019) analysis, there was a consistent increase in the proportion of female to male board members during the sample period. However, this increase was frequently accompanied by an upsurge in risk-taking behavior in both countries, especially in the investment banking industry. His findings add to the expanding body of research demonstrating that while risk-aversion may be typical of average women, it is not always the case for those who decide to work in dangerous, male-dominated fields and rise to leadership positions there.

Moreover, the goal of Muhammad et al.'s (2023) study is to investigate how board gender diversity (BGD) influences the relationship between business risk-taking and corporate governance practices. They evaluated the moderating impact of BGD and tested the suggested research

hypotheses using a sample of 192 non-financial publicly traded Italian companies from 2014 to 2018. Their findings demonstrated a substantial association between corporate governance structures and business risk-taking, which is greatly mitigated by BGD. They did this by drawing on agency theory and resource dependence theory. BGD reduces the beneficial impact of CEO duality on firm unsystematic risk while highlighting the detrimental effects of board size, independent directors, CEO gender, and CEO duality on firm systematic risk. Their findings hold up well when other measures of company risk-taking are used, and they are in line with the risk-reduction effect of BGD. Using a dynamic data analysis model on a Kenyan sample of 53 insurers, Nduati Kariuki (2023) empirically investigated the relationship between board gender diversity (BGD), efficiency, and risk-taking behavior (RTB) of insurers in Kenya over an 8-year period from 2013 to 2020. The results validate a noteworthy inverse correlation between RTB and BGD. Though the study does demonstrate that insurers are generally inefficient technically, it also finds a negligible negative correlation with taking risks. According to the study, boards with comparatively higher percentages of women tend to have less members who are willing to take risks. Nduati Kariuki (2023) claims that the results have ramifications for the shareholders about the possible advantages of having women on board in terms of lowering the inclination for risk-taking among insurers. Regarding the findings' regulatory and policy implications, they bolster the case for gender quota policies and regulations in both public and private insurance companies. The goal of Li et al. (2022) is to determine the global trend regarding the connection between business risk and board gender diversity. Furthermore, their article explores the impact of national factors on the association between business risk and board gender diversity. Their analysis covers the years 2002–2018 and makes use of a sizable sample of businesses across 45 nations. Firm fixed effects and ordinary least square regression are employed as a baseline methodology. To more

effectively reduce endogeneity, two-stage least squares regression (instrumental variables approach), change-on-change regression, and difference-in-differences regression are used. According to their research, gender diversity on boards is linked to decreased business risk globally. Furthermore, the detrimental impact of gender diversity on boards on company risk is more noticeable for companies that have an easier time luring female director, as well as for nations where individualism is more valued and power distance is less. Baixauli-Soler et al. (2015) seek to clarify the impact of executive stock options (ESOs) awarded to the top management team (TMT) on the firm's risk-taking behavior, utilizing agency theory and the behavioral agency model (BAM). They also take into account how gender diversity in the TMT affects the connection between taking risks and ESOs. Their results, which account for potential endogeneity problems, indicate that risk-taking and the wealth generated by ESOs for TMT members have an inverted U-shaped relationship. Additionally, they show that TMTs with a higher percentage of female members behave more conservatively than TMTs without a gender diversity. The data demonstrates that agency and BAM views, with their emphasis on future and present riches, respectively, are combined to form the basis of business risk taking.

2.3 Determinants for measuring risk-taking and financial performance

Identifying the determinants for measuring the main variables of the research is critical when the literature is explored to justify the use of specific variables. Given gender diversity, the majority of the studies have considered using the proportion of female directors on a firm's board (Hurley & Choudhary, 2020; Jane Lenard et al., 2014; Khan & Abdul Subhan, 2019). Based on the evaluation of empirical evidence, it was noted that almost every study has utilized ROA and Tobin's Q for measuring the firm's performance (Brahma et al., 2020; Chijoke-Mgbame et al.,

2020; Song et al., 2020). Henceforth, Tobin's Q and ROA reflect a favorable variable for measuring financial performance. Lastly, the variable risk-taking has a different perspective in terms of using a proxy. Whereas the study conducted by Mohsni et al. (2021) has used leverage as a proxy for measuring risk-taking various studies have used the standard deviation of stock return in measuring risk-taking from the perspective of gender diversity (Akhtar et al. 2022; Achour, 2021; Jane Lenard et al., 2014; Hurley & Choudhary, 2020).

2.4 Conceptual Framework

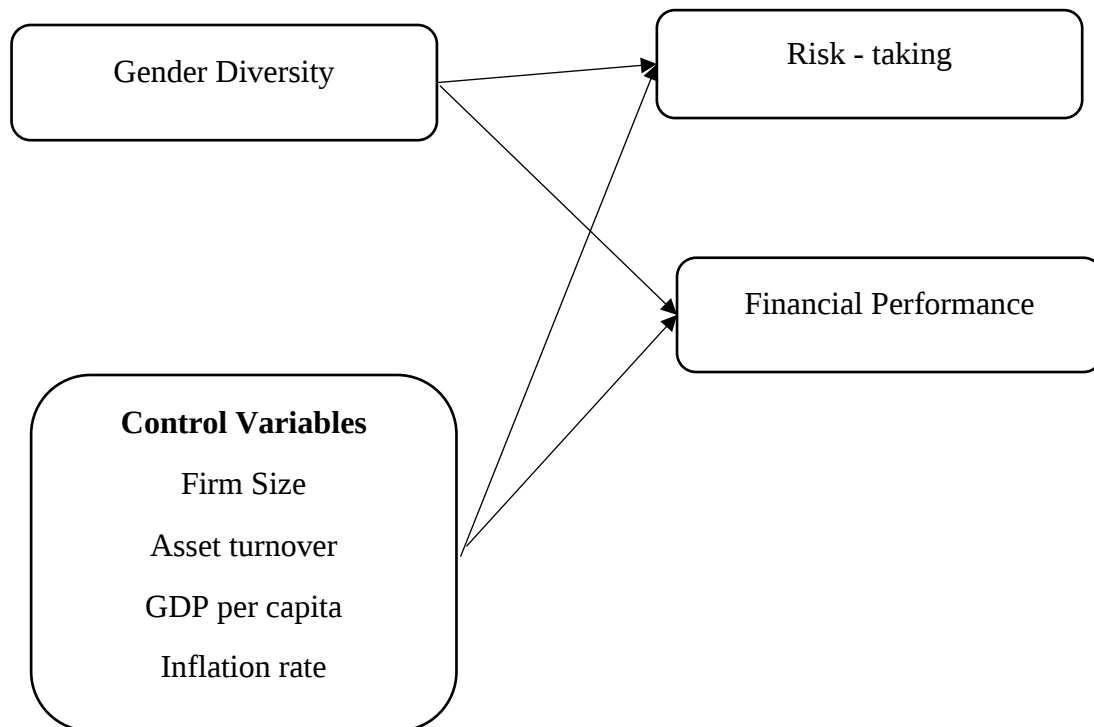


Figure 1: Conceptual Framework

With the support of objectives, empirical evidence, and literature, the conceptual framework (Figure 1) is developed which comprises three types of variables which are independent and

dependent. Gender diversity represents the independent variable of the study while the dependent variables comprise financial performance and risk-taking. Thus, the main goal of the study is to examine the role of gender diversity on financial performance and risk-taking from the perspective of North American Listed companies. Besides this, a few control variables are also included in the research which comprises Firm Size, Asset Turnover, GDP per Capita Growth and Inflation Rate. The inclusion of the control variables is supported by the study of Chijoke-Mgbame et al. (2020). Further descriptions of variables regarding its sources and measurement are presented in the third segment.

2.5 Theoretical Framework

2.5.1 Cognitive Diversity Theory

The Cognitive Diversity Theory emphasizes the importance of diverse cognitive styles and perspectives in decision-making processes. This theory suggests that having different genders, individuals with different ways of thinking, problem-solving approaches, and knowledge backgrounds on a board or team can lead to better decision-making and improved organizational performance (Hambrick et al., 1996). The key premise of Cognitive Diversity Theory is that cognitive diversity, which includes differences in functional expertise, educational background, and problem-solving styles, can enhance the quality of group decisions. When individuals with diverse cognitive styles work together, they bring unique perspectives, ideas, and knowledge to the table. This diversity can lead to more thorough analysis, consideration of alternative viewpoints, and innovative solutions to complex problems. The theory, according to Hambrick et al. (1996) argues that cognitive diversity complements other forms of diversity, such as demographic diversity (e.g., gender, race, age). While demographic diversity can bring different experiences and social perspectives, cognitive diversity focuses on the differences in how

individuals process information and approach tasks. Cognitive Diversity Theory has been applied in various contexts, including corporate boards, top management teams, and project teams. Studies have found that cognitively diverse teams tend to outperform homogeneous teams in tasks that require creativity, problem-solving, and decision-making under uncertainty. However, the theory also acknowledges that managing cognitive diversity can be challenging, as it may lead to communication barriers, conflicts, and coordination issues if not properly managed.

2.5.2 Agency Theory

The agency theory was established by Berle and Means (1932) which describes the conflict between the interest of the principal (shareholders) and agents (managers) of an organization. As per the study of Bosse and Phillips (2016), the theory postulates that managers can use various mechanisms that can help in striking a balance for maximizing shareholder value and also managing uncertainties and risks. Concerning gender diversity, Arvanitis et al. (2022) highlight that the inclusion of gender diversity can support mitigating the agency conflicts that arise from the separation of management and ownership. Diversified board members lead to a better monitoring function that can lead to increasing the independence of the board. Board diversity acts as the function of governance that can support enterprises dealing with weak governance. Women directors are concerned with ethical issues and thus will focus on the benefits of shareholders which can lead to a better firm value.

2.5.3 Stakeholder Approach

According to the stakeholder approach, treating all stakeholders properly improves financial performance (Yoon & Chung, 2018). Although the shareholder is pre-eminent, the others are equally important. In the era of climate change, sustainability cannot be separated from the concept of stakeholder when thinking about the long-term prospects of a firm. Balancing the competing

needs of different stakeholders determines the future success of a company. Moreover, fostering greater diversity is part of pursuing sustainability.

2.6 Hypothesis Development

The financial performance of companies can be measured using either Tobin's Q or ROA. The two describe how well the management is using existing resources to generate results for shareholders and investors. Tobin's q measures the performance of an organization from the perspective of an investor. This research explores the hypothesis that companies with greater gender diversity should score higher on performance metrics than companies with less gender diversity. Therefore, hypothesis (1) there is a positive and significant relationship between gender diversity and financial performance as measured by Tobin's q and ROA. In this hypothesis, the study will explore the link, if any, between gender diversity and higher financial performance. It is expected that gender-diverse companies should score higher by examining financial metrics.

Risk-taking is important in any organization but also increases the chances of losses. Excessive risk-taking by big corporations has caused financial crises in the world. Therefore, hypothesis (2) is there is a negative and significant relationship between gender diversity and risk-taking. Risk-taking is measured by standard deviation of stock returns.

3. Data Sources and Methodology

3.1 Data Sources

To investigate the relationship between gender diversity and its impact on financial performance and risk-taking, secondary data was obtained and econometric methods were for the analysis. It is noteworthy that almost all the reviewed integrates quantitative research whiles exploring the role of gender diversity on firm performance and risk-taking (Akhtar et al., 2022; Achour, 2021; Jane Lenard et al., 2014; Hurley & Choudhary, 2020).

Data on Gender Diversity was obtained Executive Compensation (EXECUMP). Financial data on firms was obtained from COMPUSTAT. Data on monthly stock which comprise of publicly listed companies on NYSE and NASDAQ common stocks are obtained from CRSP. Finally, data on macroeconomic variables that are capable of influencing firm performance and risk-taking decisions are obtained from the World Bank’s Online Database. Data is collected for 1,873 North American listed companies. The data is collected for 11 years period which ranges from 2012 – 2022. The data is identified to be panel as the data comprises different companies for a specified time frame.

Using Stata 18 as the main analytical software in this study, a series of diagnostic tests to investigate the potential connection between gender diversity and firm level performance and risk taking were carried out. These diagnostic tests include an examination of individual firm heterogeneity, a scrutiny of whether the differences in coefficients are systematic, and a review of summary statistics. Following the work of Mohsni et al., (2021), and in order to account for the unobserved heterogeneity among the listed firms in North America this study employs a panel data estimation technique to investigate the impact of gender diversity on firm’s financial performance and risk-taking behaviour within these firms.

3.1.1 Variables Description and Sources

The table below represents the variable of the study along with the sources and a brief description:

Table 1: Variable Description and Source

Variable	Description	Measurement	Source
Independent Variable			

Gender Diversity	Gender diversity represents the total proportion of females on the board of directors.	Total number of Females / Total number of board members	Executive Compensation
Dependent Variable			
Risk-taking	Measured through the volatility of the firm value specifically the stock returns of the company	The standard deviation of stock return	CRSP Database
Tobin's Q	This financial indicator measures whether the market value of the company is related to the total assets.	The market value of the firm / Total Book value of assets	COMPUSTAT
ROA	The financial indicator assesses the net income generated through the use of assets.	Net Profit / Total Assets	COMPUSTAT
Control Variable			
Firm Size (Firm Characteristics)	Firm Size provides insight into the scale of operations and the relative magnitude of a company within its industry or market.	Natural log of total assets	COMPUSTAT
Assets Turnover (Firm Characteristics)	Assets Turnover represents the efficiency of firm in utilising assets to generate revenues.	Total assets divided by Revenues	COMPUSTAT
GDP Per Capita Growth (Country Characteristics)	Higher GDP per Capita can benefit firms by creating larger markets for their products or services,	GDP per capita is a measure of the economic output of a country per person, typically	World Bank's WDI Online Database

	potentially leading to increased sales and revenue.	calculated by dividing the country's gross domestic product (GDP) by its population.	
Inflation Rate (Country Characteristics)	Inflation uncertainty can affect firms' investment decisions, leading to a reluctance to commit to long-term projects or investments.	Inflation rate measures the rate at which the general level of prices for goods and services is rising within an economy.	World Bank's WDI Online Database

Note: The inclusion of both GDP per capita growth and inflation rate as control variables helps to account for the potential impact of broader economic conditions on the financial performance and risk-taking behavior of the listed companies. This is important because economic growth and inflation rate can influence the financial performance and risk-taking behavior of these companies, and controlling for it ensures that any observed relationship between board gender diversity, financial performance, and risk-taking is not simply a reflection of broader economic trends (see for example Mohsni et al. 2021).

3.1.2 Empirical Model Specification

The techniques that are applied for investigating the data are descriptive statistics, correlation, and regression. Reflecting on the dependent variables, three regression equation models are involved in the study which are the following:

$$ROA_{it} = \beta_0 + \beta_1 GD_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 GDP_{it} + \beta_5 IF_{it} + u_{it} \quad (1)$$

$$TQ_{it} = \beta_0 + \beta_1 GD_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 GDP_{it} + \beta_5 IF_{it} + u_{it} \quad (2)$$

$$RT_{it} = \beta_0 + \beta_1 GD_{it} + \beta_2 AT_{it} + \beta_3 FS_{it} + \beta_4 GDP_{it} + \beta_5 IF_{it} + u_{it} \quad (3)$$

Where;

i = a particular firm

β_0 = y-intercept (constant term)

u = the error term of the model (residuals).

t = time period

ROA = Return on Assets

TQ = Tobin's Q

RT = Standard deviation of monthly return (Risk-taking)

GD = Gender diversity

FS = Firm Size

IF = Inflation Rate

FS = Firm Size

GDP = GDP Per Capita growth

3.1.3 Limitations of the study

Referring to the approach adopted integrated in the study related to data collection and testing, a few limitations are identified which are further discussed below:

- The research is focused on the publicly listed financial companies of the North American market which leads to restricting the results. Meaning that the results may not apply to non-listed firms.
- The sample size of the study represents only 11 years' time frame where the inclusion of a larger time frame would have improved the validity of the study.
- Research only focuses on quantitative design whereas the integration of the qualitative was also possible.
- The quantitative data may not be able to capture other qualitative aspects of gender diversity such as social, cultural, or organizational factors.

4. Results and Discussion

4.1 Diagnostic Tests

To verify that the data meets the assumptions and requirements of our selected model, we applied the following tests: test for time effect, test for individual heterogeneity, Hausman test, and test for heteroskedasticity. As a result, the findings and interpretation of the diagnostic tests are presented in the Appendices below. In addition, estimation for pairwise correlation and descriptive statistics to get a general overview of our data are also presented.

4.2 Descriptive Statistics

4.2.1 Summary Statistics

Table 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Return on Asset (ROA)	18859	.024	.556	-10.373	61.163
Tobin's Q (TQ)	17682	2.373	5.435	.138	250.183
Risk-Taking (RT)	19988	.117	.115	0	4.898
Firm Size (FS)	18376	7.004	2.462	-6.908	15.136
Asset Turnover (AT)	18313	.814	.813	0	19.456
GDP Per Capita (GDP)	25,630	1.423	2.082	-3.892	5.662
Inflation Rate (IF)	25,630	2.295	1.826	.622	7.403
Gender Diversity (GD)	18956	.116	.15	0	1

Source: Author's computation using Stata 18

Note: Obs, Std. dev, Min, Max, ROA, TQ, RT, GD, AT, GDP, IF, and FS stands for observation, standard deviation, the minimum, maximum, Return on Asset, Tobin's Q, Risk-Taking, Gender Diversity, Asset Turnover, GDP Per Capita, Inflation Rate, and Firm Size respectively.

The profitability of the organizations in the dataset is shown by the ROA variable, which calculates the return on assets. With a mean return on assets (ROA) of .024, businesses appear to produce an average of 2.4% on their assets with values ranging from -10.37 to 61.16. The standard deviation

of 0.556 suggests a somewhat significant degree of variance in ROA throughout the sample. The Assets Turnover variable measures the efficiency of a company in generating revenue from its assets. The mean value of 0.814 suggests that, on average, companies generate revenue that is 81.4% of their total assets. The standard deviation of 0.813 indicates moderate variation across the dataset, with values ranging from 0 to 19.456.

Tobin's Q is a measure of a company's market value relative to its book value. The mean Tobin's Q of 2.373 suggests that, on average, companies have a market value that is approximately two times their book value. The standard deviation of 5.435 indicates considerable variation across the dataset, with values ranging from 0.138 to 250.18. The percentage of women on corporate boards is represented by the Gender Diversity variable. With a mean value of 0.116, the dataset's average proportion of female board members is 11.6%. With values ranging from 0% to 100%, the standard deviation of 0.15 indicates some variety in gender diversity.

The degree of risk-taking behavior inside businesses is measured by the risk-taking variable. The average mean score of 0.117 suggests that organizations take lower risks overall. The dataset exhibits significant heterogeneity in risk-taking behavior, as seen by a low standard deviation of 0.115, which ranges from 0.000 to 4.898. The listed firms in North America has an average firm size, of 7.004 and a standard deviation of 2.462, demonstrates considerable variation across observations, spanning from -6.908 to 15.136. Moving to GDP Per Capita, we observe a mean of 1.423 and a standard deviation of 2.082. The range spans from -3.892 to 5.662, indicating substantial diversity across observations. Similarly, the Inflation Rate, with a mean of 2.295 and a standard deviation of 1.826, exhibits notable variation from 0.622 to 7.403. Consequently, it can be concluded that each variable's range of values, variability, and primary trends are all shown by the descriptive analysis of these variables. These variables clearly show a broad range of values

and dispersion, which is crucial for comprehending the dataset's properties and carrying out additional statistical studies.

4.2.2 Pairwise Correlation

Table 3: Pairwise Correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Return on Asset	1.000							
(2) Tobin's Q	-0.105***	1.000						
(3) Risk-taking	-0.180***	0.124***	1.000					
(4) Firm Size	0.203***	-0.190***	-0.337***	1.000				
(5) Asset Turnover	0.130***	0.067***	-0.017**	-0.153***	1.000			
(6) GDP Per Capita	0.018**	-0.002	-0.124***	0.008	0.013*	1.000		
(7) Inflation Rate	0.003	-0.018**	0.025***	0.082***	-0.031***	0.356***	1.000	
(8) Gender Diversity	0.008	-0.004	0.001	-0.009	-0.013*	0.003	0.002	1.000

*** p<0.01, ** p<0.05, * p<0.

The correlation analysis, is a basic statistical method to investigate the correlations between variables, as shown in Table 3. The current study has computed and reported the correlation coefficients between eight major variables, which are Return on Assets (ROA), Assets Turnover (AT), Tobin's Q (TQ), Gender Diversity (GD), Risk-Taking (RT), Firm Size (FS), GDP Per Capital Growth (GDP), and Inflation Rate (IF), in a correlation matrix.

According to Gogtay and Thatte (2017), ROA shows a weak positive connection with assets turnover (0.130***), indicating a positive and significant association between a company's capacity to generate revenue from its assets and its return on assets. This result is consistent with the literature, which frequently emphasizes how crucial efficient asset usage is to enhancing

financial success. However, there is only a little negative association (-0.105^{***}) between ROA and Tobin's Q, also revealing a significant relationship between the two. This implies that the return on assets tends to decline when the market value compared to the book value (Tobin's Q) rises (Chicco et al., 2021; Renaud & Victoria-Feser, 2010). This observation may be due to varying financial strategies and the allocation of resources, which the literature has previously examined regarding the impact of market value on firm performance. Meanwhile, gender diversity has a very weak positive and insignificant relationship of 0.008 with ROA. Indicating that there is no significant linear relationship between the proportion of women on corporate boards and a company's return on assets. However, between risk-taking and ROA, there is a weak negative but highly significant relationship between them. Also indicating that there is a significant linear relationship between risk-taking behavior of a firm and the company's return on asset.

In addition, Assets Turnover demonstrates a very weak positive but highly significant correlation with Tobin's Q (0.067^{***}), implying that there is a slight positive relationship between a company's ability to generate revenue from its assets and its market value relative to the book value. This finding is consistent with the idea that efficient asset utilization can contribute to market value and aligns with previous literature emphasizing the importance of asset turnover (Pandey, 2020). Meanwhile, assets turnover has a very weak negative correlation with gender diversity (-0.013^*) and also a negative correlation with risk-taking (-0.017^{**}), suggesting that there is a weak linear association between the efficiency of asset utilization and the proportion of women on corporate boards. However, the efficiency of asset utilization and risk-taking behavior of a company tend to exhibit a negative significant relationship.

Furthermore, referring to Tobin's Q, exhibits a weak and insignificant negative correlation with Gender Diversity (-0.004), indicating that there is a minimal negative relationship between market

value relative to book value and the proportion of women on corporate boards. This observation might be relevant in the context of market perceptions of gender diversity and its implications, which the literature has examined regarding the influence of diversity on firm performance and valuation (Gogtay, Deshpande and Thatte, 2017). Tobin's Q also has a weak but highly significant positive correlation with risk-taking (0.124***), suggesting that there is a negligible positive relationship between market value relative to book value and a company's risk-taking behavior. This aligns with the literature that explores how market perceptions and valuation can influence a company's risk-taking strategies. Furthermore, gender diversity and risk-taking have a very weak and insignificant positive correlation of 0.001, indicating that there is no evidence of a positive relationship existing between the proportion of women on corporate boards and a company's risk-taking behaviour. This finding is inconsistent with most of the literature, which often discusses the impact of board gender diversity on corporate risk-taking strategies to be negative and significant. Firm size also exhibits moderate and highly significant positive correlation with return on assets (ROA) but a significant negative correlation with asset turnover, (0.203*** and -0.153*** respectively) and indicating that larger firms tend to generate higher returns. Conversely, it shows a negative and highly significant correlation with Tobin's Q (-0.190***), suggesting that as firm size increases, market valuation relative to assets may decrease. Although GDP per capita shows a weak and insignificant negative correlation with Tobin's Q and a slight positive correlation with asset turnover, it also demonstrates weak positive correlations with firm size and gender diversity. Inflation rate on the other hand, has a weak but significant positive relationship with firm size, suggesting that high inflation rate tends to encourage larger firms. Similarly, greater gender diversity within companies has an insignificant positive relationship with inflation rate (see, Table

3 above). These correlations highlight the complex dynamics that exist between the variables employed in this study.

4.3 Discussion of Estimation Results

4.3.1 Impact of Gender Diversity on Firm Financial Performance

Table 4: Regression Estimations (Return on Assets and Tobin's Q)

Equation Variable	Return on Assets (ROA)			Tobin's Q (TQ)		
	OLS (1)	REM (2)	FEM (3)	OLS (4)	REM (5)	FEM (6)
Gender Diversity	0.027** (0.014)	0.013 (0.028)	0.014 (0.037)	0.446 (0.455)	-0.051 (0.100)	-0.051 (0.100)
Asset Turnover	0.099*** (0.006)	0.108*** (0.020)	0.111*** (0.033)	-0.244 (0.392)	0.628*** (0.238)	0.633*** (0.239)
Firm Size	0.043*** (0.002)	0.056*** (0.004)	0.075*** (0.008)	-0.485 (0.313)	-0.489*** (0.123)	-0.480*** (0.123)
GDP Per Capita	0.004*** (0.001)	0.003*** (0.0004)	0.003*** (0.0005)	0.149*** (0.018)	0.162*** (0.018)	0.161*** (0.018)
Inflation Rate	-0.019*** (.0092)	-0.001 (.0008)	-0.012* (0.007)	0.076*** (0.018)	0.062*** (0.019)	0.062*** (0.019)
Constant	-0.198*** (0.029)	-0.456*** (0.042)	-0.491*** (0.107)	5.010* (2.581)	6.195*** (2.071)	4.573*** (0.832)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observation	15,513	15,513	15,513	15,110	15,110	15,110
Adjusted R-squared	0.049			0.0014		
Overall R-squared		0.048	0.046		0.001	0.001
Within R-squared		0.006	0.007		0.027	0.027
Between R-squared		0.120	0.116		0.003	0.003
F-test (p-value)	89.89 (0.00)			22.51(0.00)		
Number of firms		1,874	1,874		1,874	1,874

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Robust standard error is applied to address any potential issues of heteroskedasticity and autocorrelation that are capable of affecting the regression results. The minimal gender diversity in our sample means that there is limited variability in the data. This can make it difficult to detect the significant effects of gender diversity on firms' financial performance. Also, different countries and industries have

unique cultural, economic, and regulatory contexts that can influence the relationship between gender diversity and firms' financial performance. By pooling data from diverse contexts, the effects of gender diversity might be diluted or obscured, leading to insignificant results. Firm-fixed effects, also known as entity-fixed effects, aim to capture the time-invariant characteristics specific to each firm. These effects account for any unobservable, firm-specific factors that do not change over time but may influence the dependent variable. For example, a firm's management style, corporate culture, or location can be considered time-invariant factors that might impact its financial performance. By including firm fixed effects, the model controls for these individual differences, ensuring that the estimated coefficients are based on within-firm variations rather than differences between firms. Year-fixed effects, also known as time-fixed effects, capture the common shocks or trends that affect all firms in the same year. These effects account for any macroeconomic or industry-wide factors that change over time but are common to all firms. For instance, economic downturns, changes in regulatory policies, or shifts in global market conditions can be considered time-varying factors that impact all firms similarly. By including year-fixed effects, the model controls for these common time trends, ensuring that the estimated coefficients are not biased by these external factors.

Return on Assets (ROA):

Equation (1), Table 4 above thus aims to investigate the impact of gender diversity on the return on assets for the North American listed companies. The static panel model is employed using the Pooled Ordinary Least Square (OLS) estimation to ascertain the independent influence of gender diversity on the firm's Return on Assets among the North American listed companies. The Pooled OLS assumes that the error term has a constant variance across all observations and is uncorrelated with the independent variables. Thus, the discussion of our results, which involves the relationship between gender diversity and Return on Asset would be based on the Pooled Ordinary Least Square (OLS) estimation. The static panel model is again employed using the Pooled Ordinary Least Square (OLS) to ascertain the independent influence of gender diversity on the Return on Assets for these listed companies. Thus, the discussion of our results, which involves the relationship between gender diversity and the return on assets for these listed firms would be based on the Pooled Ordinary Least Square (OLS) estimation. For comparison purposes, estimations

based on the random effects model (REM) and the fixed effects model (FEM) are also reported (refer to Table 4).

The F-test statistics, however, attest to the model's statistical significance at conventional levels, further supporting the model's importance (Chicco, et al., 2021). The fact that all of the independent variables together have a statistically significant impact on firm's Return on Assets lends support to the model's explanatory capacity. The relevance of the independent variables in evaluating firm performance is reinforced by the F-test, which highlights the significance of taking into account the combined influence of several factors in explaining differences in Return on Assets.

The coefficient of gender diversity is 0.027**. This indicates that Return on Assets increases by 0.027 units for every unit increase in gender diversity, or the percentage of women on company boards, holding other factors constant. This is statistically significant at a 5% conventional level. This suggests that Gender diversity has a significant impact on the listed North American company's financial performance. The finding, however, is consistent with the literature (see for example, Gogtay, et al., 2017). The coefficient of asset turnover is 0.099***. This suggests that a one-unit increase in asset turnover is associated with a 0.099 unit increase in Return on Assets for these listed companies, holding other variables constant. According to the regression results, Assets Turnover has a statistically significant positive influence on Return on Assets, meaning that the return on assets tends to grow as asset revenue generation efficiency rises. This result is consistent with the literature, which frequently highlights the role that effective asset utilization plays in increasing return on assets. The coefficient of firm size is 0.043***. This indicates that a one-unit increase in the firm size is associated with a 0.043 unit increase in Return on Assets, holding other variables constant. This, however, is statistically significant at 1% conventional

level. The coefficient of GDP Per Capita is 0.004***. This suggests that a one-unit increase in GDP per capita is associated with a 0.004 unit increase in Return on Assets for these firms, holding other variables constant. This is also statistically significant at 1% conventional level. For inflation rate which also has a macroeconomic effect just like the GDP per Capita growth on the performance of these listed firms has a coefficient of -0.019***. The coefficient of -0.019 indicates that a unit increase in the inflation rate would cause a -0.019 decrease in the firm's Return on Assets, thus negatively affecting its performance. The intercept term of -0.198*** represents the expected value of Return on assets when all independent variables are zero. This is statistically significant at all conventional levels. Overall, the regression results point to a limited explanatory ability of the model as indicated in Return on assets prediction.

Tobin's Q (TQ):

Equation (1), Table 4 above thus aims to investigate the impact of gender diversity on Tobin's Q in North American listed companies. The static panel model is employed using the Pooled Ordinary Least Square (OLS) estimation to ascertain the independent influence of gender diversity on the firm's market value represented by Tobin's Q among the North American listed companies. The Pooled OLS assumes that the error term has a constant variance across all observations and is uncorrelated with the independent variables. Thus, the discussion of our results, which involves the relationship between gender diversity and Tobin's Q would be based on the Pooled Ordinary Least Square (OLS) estimation. For comparison purposes, estimations based on the random effects model (REM) and the fixed effects model (FEM) are also reported (refer to Table 4). Overall, the regression results suggest that the model, as specified, has limited explanatory power in predicting Tobin's Q (Gogtay, et al., 2017). The F-test statistic suggests that the overall model is statistically

significant at conventional significance levels. This indicates that the joint effect of all the independent variables on Tobin's Q is significant (Chicco et al., 2021).

The coefficient of Assets Turnover is -0.244. This suggests that a one-unit increase in asset turnover corresponds to a decrease in Tobin's Q of roughly -0.244 units, holding other factors constant. This means that market value relative to book value, or Tobin's Q, tends to rise when revenue generation efficiency from assets decreases. This, however, is not significant at any conventional level. The coefficient of Firm Size is -0.485. This indicates that holding other factors constant, a one-unit increase in company size corresponds to a roughly -0.485 unit decrease in Tobin's Q. This is, however, statistically, insignificant. The coefficient of GDP per Capita, which represents a country-level characteristic is 0.149***. This, however, indicates that holding other variables constant, a one-unit increase in GDP per Capita is associated with an increase of approximately 0.149 units in Tobin's Q. This coefficient is statistically significant at a 1% conventional level. The coefficient of the inflation rate is 0.076***. This suggests that a one-unit increase in inflation rate is correlated with a roughly 0.076 unit increase in Tobin's Q. This is statistically significant. The coefficient of gender diversity is 0.446. This, however, shows that an increase in the gender diversity of one unit, that is an increase in the number of females on board positions in North American listed firms is correlated with an increase in Tobin's Q of roughly 0.446 units, holding other factors constant. This is, however, statistically insignificant at all the conventional levels. Though not significant, this reveals that an increase in the number of women on corporate boards encourages a firm's market value in comparison to book value (Tobin's Q). The model's high relevance raises the possibility that market value may be more significantly impacted by factors other than those in the model than by book value. The intercept term of 5.010* represents the expected value of Tobin's Q when all independent variables are zero. This is

statistically significant at 10% conventional level. Overall, the regression results point to a limited explanatory ability of the model as indicated in Tobin's Q prediction. Gender diversity, Assets turnover, and Firm size do not seem to have a substantial impact on Tobin's Q except for Inflation rate and GDP Per Capita.

4.3.2 Impact of Gender Diversity on Risk-Taking Behaviour of the Firms

Table 5: Regression Estimations (Risk-Taking)

	Risk-Taking (RT)		
Equation Variable	OLS (1)	REM (2)	FEM (3)
Gender Diversity	-0.000250 (0.00719)	0.00531 (0.00697)	0.00861 (0.00697)
Asset Turnover	-0.00769*** (0.00103)	-0.00943*** (0.00212)	-0.00963** (0.00421)
Firm Size	-0.0143*** (0.000449)	-0.0145*** (0.000620)	-0.00267 (0.00237)
GDP Per Capital	-0.00919*** (0.000597)	-0.00892*** (0.000525)	-0.00848*** (0.000528)
Inflation	0.00674*** (0.000310)	0.00586*** (0.000252)	0.00409*** (0.000320)
Constant	0.218*** (0.00389)	0.224*** (0.00576)	0.138*** (0.0176)
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	15,512	15,513	15,513
Adjusted R-squared	0.1439 0.1442		
Overall R-squared		0.1435	0.0727
Within R-squared		0.0455	0.0486
Between R-squared		0.3254	0.1889
F-test (p-value)	522.35(0.00)		98.29(0.00)
Number of firms		1,874	1,874

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Note: Robust standard error is applied to address any potential issues of heteroskedasticity and autocorrelation that are capable of affecting the regression results. The minimal gender diversity in our sample means that there is limited variability in the data. This can make it difficult to detect the significant effects of gender diversity on firms' risk-taking behavior. Also, different countries and industries have unique cultural, economic, and regulatory contexts that can influence the relationship between gender diversity and firms' risk-taking. By pooling data from diverse contexts, the effects of gender diversity might be diluted or obscured, leading to insignificant results. Firm-fixed effects, also known as entity-fixed effects, aim to capture the time-invariant characteristics specific to each firm. These effects account for any unobservable, firm-specific factors that do not change over time but may influence the dependent variable. For example, a firm's management style, corporate culture, or location can be considered time-invariant factors that might impact its risk-taking behavior. By including firm fixed effects, the model controls for these individual differences, ensuring that the estimated coefficients are based on within-firm variations rather than differences between firms. Year-fixed effects, also known as time-fixed effects, capture the common shocks or trends that affect all firms in the same year. These effects account for any macroeconomic or industry-wide factors that change over time but are common to all firms. For instance, economic downturns, changes in regulatory policies, or shifts in global market conditions can be considered time-varying factors that impact all firms similarly. By including year-fixed effects, the model controls for these common time trends, ensuring that the estimated coefficients are not biased by these external factors.

Equation (1), Table 5 above aims to investigate the impact of gender diversity on risk-taking in North American listed companies. The static panel model is employed using the Pooled Ordinary Least Square (OLS) estimation to ascertain the independent influence of gender diversity on risk-taking among the North American listed companies. The Pooled OLS assumes that the error term has a constant variance across all observations and is uncorrelated with the independent variables. Thus, the discussion of our results, which involves the relationship between gender diversity and the risk-taking in the firms would be based on the Pooled OLS estimation. For comparison purposes, estimations based on the random effects model (REM) and the fixed effects model (FEM) are also reported (refer to Table 5). Based on the regression estimate provided above (see, Table 5, equation 1 above), the F-test statistic suggests that the overall model is statistically significant at conventional significance levels. This indicates that there is a joint effect of the independent variables on the dependent variable. Based on the OLS estimation in Table 5, the

coefficient for gender diversity is -0.000250. This means that for every one-unit increase in gender diversity (proportion of women on corporate boards), the risk-taking decreases by -0.0002 units holding other factors constant. This impact, however, is not statistically significant at all the conventional levels. Therefore, there is no evidence of a negative impact of board gender diversity on the risk-taking behavior of these firms in North America. Though not significant, the finding is consistent with most of the findings on board gender diversity and risk-taking relationship (see for example, Hoang et al. 2019; Hurley & Choudhary, 2020; Joubert, 2024) The coefficient for assets turnover is -0.00769*** and this is statistically significant at 1% conventional level indicating a very strong impact of asset turnover on risk-taking. This means that for every one-unit increase in assets turnover (efficiency in generating revenue from assets), the risk-taking decreases by -0.00769 units holding other factors constant. The coefficient of firm size is -0.0143***. This indicates that a unit increase in firm size, holding other factors constant would lead to a -0.0143 decrease in risk-taking in the listed North American Firms. This reveals a very high statistically significant impact on risk-taking. Also, the coefficient of GDP Per Capital Growth is -0.00919***, which indicates that, holding other factors constant a percentage increase in GDP Per Capital Growth in North America would lead to a -0.00919 decrease in Risk-Taking in these listed firms. This is also statistically significant at a 1% conventional level. For the inflation rate, the coefficient is 0.00674***. This indicates that a percentage increase in the inflation rate would lead to a 0.00674 increase in Risk-Taking in these listed firms. The p-value for the inflation rate is also highly significant at a 1% conventional level. While not conclusive, it suggests that the inflation rate may have a strong impact on risk-taking. The constant term, 0.218***, represents the estimated risk-taking when all independent variables; gender diversity, firm size, GDP Per Capita,

inflation rate, and assets turnover, are zero. The constant term is statistically significant at a 1% conventional level.

Based on the findings of the regression analysis, it can be concluded that there is no evidence of board gender diversity's negative influence on risk-taking behavior in North American listed companies. However, the intercept is significant, and all of the individual variables except gender diversity show a strong statistical significance in explaining risk-taking. Therefore, further study needs to be carried out to explore the impact of other factors together with gender diversity on risk-taking in these listed North American firms.

4.4 Discussion of Objectives

4.4.1 Further Robustness Checks

For robustness checks, I employed both the random effects model and the fixed effects model in Tables 3 and 4 alongside the Pooled OLS estimation (see Tables 3 and 4 above). However, the static panel model is employed using the Pooled Ordinary Least Square (OLS) estimation to ascertain the independent influence of gender diversity on the firm's Return on Assets, Tobin's Q, and Risk-Taking among the North American listed companies. The Pooled OLS assumes that the error term has a constant variance across all observations and is uncorrelated with the independent variables. The F-test statistics, however, attest to all three model's statistical significance at conventional levels, further supporting the model's importance (Chicco, et al., 2021). The fact that all of the independent variables together have a statistically significant impact on these dependent variables lends support to the model's explanatory capacity. The relevance of the independent variables in evaluating these variables (Return on Asset, Tobin's Q, and Risk-Taking) is reinforced by the F-test, which highlights the significance of taking into account the combined influence of several factors in explaining differences in our dependent variables.

Thus, the discussion of our results, which involves the relationship between gender diversity and the three dependent variables is based on the Pooled Ordinary Least Square (OLS) estimation. The econometric outcome reveals the lack of statistical significance for board gender diversity in establishing its relationship with Risk-Taking and Tobin's Q except for that of the firm's Return on Asset. Hence, the findings are in line with (Khan & Abdul Subhan, 2019; Song et. al. 2020; Chijoke-Mgbame et al. 2020; Zhang, 2020), that there is a variance in the ROA of companies with women on corporate boards. Further, Ionascu et al. (2018) on the other hand indicated that women on the board of directors have no contribution to driving the company's performance as measured by ROA. Chauhan and Dey (2017) also in their study claim that female directors are only seen as a token to satisfy traditional expectations. Also, from a cultural standpoint, the US exhibits a high level of masculinity (Hofstede et al. 2010), therefore the presence of female directors has little effect on the performance of the company (Martín-Ugedo et al. 2019). All these studies oppose the current finding that Gender Diversity has a significant impact on the firm's financial performance represented by Return on Assets. However, no evidence has been established on Gender Diversity's influence on the firm's market value (Tobin's Q and Risk-Taking).

4.4.2 Objective 1: To examine the impact of Gender Diversity on firm performance.

The literature study emphasizes how important gender diversity is for corporate boards and how it may affect how well a company performs as indicated by Khan & Abdul Subhan (2019). Gender diversity is important, according to several studies including Brahma et al. (2020); Song et al. (2020); Chijoke-Mgbame et al. (2020) that point out that there is still a gender gap in corporate boardroom representation. It has been observed that having more women on boards can improve a company's competitiveness, governance functions, and access to a broad pool of human resources. Moreover, research has indicated that gender diversity has become more important in

corporate governance, especially after fraudulent bankruptcies and corporate scandals. Research has underscored the distinct experiences and viewpoints that female directors may contribute to the process of making decisions (Khan & Abdul Subhan, 2019). It is believed that more independence and improved managerial oversight are made possible by a diverse board. Gender diversity has been found to have a favorable effect on risk-taking, company performance, and sustainability. Better environmental performance and stakeholder involvement are linked to the inclusion of women on boards.

Empirical research looked at the effect of gender diversity on ROA (Return on Assets), a metric used to quantify company performance, in light of the study's main findings. The findings show that there is a statistically significant relationship between gender diversity and ROA. This implies that the percentage of women on corporate boards has a discernible impact on a company's return on assets within the parameters of this specific model and dataset. The finding, however, is in agreement with the literature (see for example, Khan & Abdul Subhan, 2019; Song et. al. 2020; Chijoke-Mgbame et al. 2020; Zhang, 2020). The study's conclusions, however, highlight the complexity of the link between gender diversity and company success and raise significant questions (Khan & Abdul Subhan, 2019). Although the literature study emphasized the potential benefits of gender diversity for governance and decision-making processes, it is crucial to recognize that these benefits could not apply to all businesses and sectors. Furthermore, it is important to also understand that a variety of factors, such as market circumstances, industry-specific dynamics, and corporate strategy, may impact a firm's performance, making it difficult to determine the impact of a single variable (Hock-Doepgen et al., 2021). In corporate governance, promoting diversity, fairness, and inclusion is still important for social and ethical reasons in addition to any financial gains.

4.4.3 Objective 2: To investigate the influence of Gender diversity on Risk-taking.

Corporate governance has received wider attention for its positive influences on businesses which is linked to better decision-making, effective formulation of strategies, and driver of long-term growth and prosperity for the organization. Gender diversity is part of corporate governance practices that emphasize the promotion of women on board as various studies have found that women on the board reduce the level of risk or riskiness of the firm to make decisions but rather decision-making improves in terms of risk-taking and this is how the study of Kasasbeh (2019) found that gender diversity affects the risk management strategy of the company positively. Hence, if the portion of women on the board is increased then the risk-taking of the organization reduces (Hoang et al. 2019). However, there are some studies (see for example, Berger et. al., 2014) that found out that a higher proportion of female board members significantly increases risk-taking.

Meanwhile, the findings of the present study have no evidence that risk-taking is affected by gender diversity negatively. This means that having a larger portion of women on the board has no significant effect on the risk-taking behavior of the firms in North America. The non-significant outcome of the study may be explained by several factors, such as the large dataset covering different industrial settings, organizational cultures, and the country effects, or the existence of other unexplained variables that might affect the risk-taking behavior of these pools of firms in North America. Generally, female directors are frequently related to more conservative risk-taking and improved company vision for the future. Therefore, the representation of women on boards can be considered as a means of bringing diverse viewpoints and experiences that might assist in thorough risk assessments and cautious decision-making (Jane Lenard et al. 2014).

However, it is critical to take into account this finding's wider implications, though. It is evident that some could be taking more risks in order to gain more financial benefit as it is a well-known

theory that higher risk carries higher return. In contrast, taking unnecessary and unmeasured levels of risk could be too risky and can have negative effects on businesses, shareholders, and stakeholders of the organization. Therefore, gender diversity on board could be a mitigation strategy for the firm to ensure no unnecessary risk and unmeasured level of risk taken while making financial decisions which is also supported by Hurley & Choudhary (2020). Therefore, while deciding on risk management methods, firms may benefit greatly from the insights provided by the study's conclusions about the gender composition of their boards. The study's findings suggest that gender diversity on boards has no significant influence on the risk-taking behavior of these listed firms. Thus, further research may be required to fully understand the subtleties of this connection in various corporate situations (Achour, 2021).

5. Conclusion and Recommendations

5.1 Summary of Key Findings and Contributions

While many studies have examined gender diversity in a global or broader context, the paper specifically targets listed North American firms. This regional specificity allows for a more detailed analysis of gender diversity dynamics within a particular geographical area, providing insights that may not be captured in studies with a broader scope. The study incorporated country effect variables such as GDP per capita and inflation rate, which can provide additional insights into how macroeconomic factors influence the relationship between gender diversity, risk-taking, and financial performance in the listed firms. This adds a macroeconomic perspective to the analysis, which was not explicitly mentioned in the literature review. The study also relies on board diversity data from 2012 to 2022, which captured the dynamic nature of board compositions over time. Also, by utilizing the Cognitive Diversity Theory by Hambrick et al., 1996, the Agency Theory by Berle and Means (1932), and Stakeholder Approach (Yoon & Chung, 2018) as the basis for the study, the study employed a unique theoretical perspective to the analysis of gender diversity and its impact on financial performance and risk-taking. This theoretical framework sets the study apart from studies that may not explicitly incorporate these theories.

Therefore, the study's exploration of Gender Diversity's impact on firm performance, as measured by Return on Assets (ROA), yielded intriguing insights. The analysis indicated that Gender Diversity does have a statistically significant impact on ROA but insignificant influence on Tobin's Q within the scope of the study. This result, while not supporting a significant relationship with Tobin's Q, does not negate the broader relevance of gender diversity in corporate governance.

The literature review emphasized the potential positive influences of diversity, and prior research has reported varying effects across different industries and contexts. Therefore, the non-significant result on the firm's market value represented by Tobin's Q suggests that the relationship may not be universal but influenced by other unaccounted variables or contextual factors. Nonetheless, the study does contribute to the nuanced discussion on the role of gender diversity in firm market value.

The examination of the influence of Gender Diversity on risk-taking behavior, however, revealed a statistically insignificant effect. The study found that there is no evidence of an influence of Gender Diversity on Risk-Taking within North American listed companies. This finding is inconsistent with the literature's suggestion that women directors are often more risk-averse. It emphasizes how important gender diversity is to maintaining balance and reining in risk-taking on corporate boards.

5.2 Recommendations and Future Implications

The practical ramifications of the study's conclusions for firms and politicians are noteworthy. Encouraging gender diversity on corporate boards can be seen as a way to improve risk management procedures while striking a balance with risk-taking tendencies. The study's findings do not negate the larger social and moral imperatives connected to gender diversity on corporate boards, even if they did not uncover a statistically significant influence on firms' Risk-Taking attitudes.

It is critical to understand the intricate and nuanced link that exists between risk-taking, the company's market value, and gender diversity. The study's conclusions highlight the possible impact of contextual and industry-specific subtleties. Depending on the nature of the sector, its

unique possibilities and constraints, and the techniques employed, the influence of gender diversity may differ. Therefore, to give a more thorough explanation of these relationships, future studies should keep examining these subtleties and take into account other variables. More comprehensive datasets, industry-specific dynamics, and a wider range of factors should be taken into account in future research in this area to offer a more profound knowledge of the influence of gender diversity on corporate decision-making. In addition, it would be helpful to investigate the long-term impacts of gender diversity on risk-taking and a firm's market value to provide insights into changing dynamics and trends.

5.3 Future Research and the Study's Limitations

A dataset covering all North American Companies between 2012 and 2022 was used to examine the interplay of risk-taking, financial performance, and gender diversity in North American listed corporations. It is important to understand the limitations of the study, though. First, a significant obstacle was the insufficient data on gender diversity for most of these companies in the region. As a result, the sample size was lowered which might have an impact on how broadly applicable the findings are. Second, it's possible that the study's 2012–2022-time span did not fully represent the long-term effects of how gender diversity affects the firm's financial performance and risk-taking behavior in the region. Furthermore, the study only used a static panel regression model, which may have overlooked how the link between gender diversity, firm financial performance, and risk-taking behavior of these firms have changed over time since the study only covered a 10-year period which is too short for such a test. A test of causality would need at least 30 years of data. As a result, the study was unable to thoroughly explore the connection between the region's board gender diversity and corporate performance.

Therefore, future research could address these limitations by extending the study period, applying dynamic panel regression models, and examining causality between board gender diversity and corporate performance. Additionally, future research could also include other corporate governance variables in analyzing and to deepen the understanding between board gender diversity and corporate performance.

References

- Abou-El-Sood, H. (2021). Board gender diversity, power, and bank risk taking. *International Review of Financial Analysis*, 75, 101733.
- Abdullah, S. N., & Ku Ismail, K. N. I. (2017, April 10). *Gender, ethnic, and age diversity of the boards of large Malaysian firms and performance*. SSRN. Retrieved July 25, 2022, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2944876
- Achour, Z. (2021). Board gender diversity and firm risk. *Corporate Governance-Recent Advances and Perspectives*.
- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics*, 94(2), 291-309.
- ADB. (2015). Where are the women: Inclusive boardrooms in Africa's top listed companies? Retrieved from. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Where_are_the_%0AWomen_Inclusive_Boardrooms_in_Africa's_top-listed_companies.pdf
- Adesua Lincoln, A., & Adedoyin, O. (2012). Corporate governance and gender diversity in Nigerian boardrooms. *Corporate Governance and Gender Diversity in Nigerian Boardrooms (September 30, 2012)*. *World Academy of Science, Engineering and Technology*, 71, 1853.
- Akhtar, F., O'Sullivan, D., Veeraraghavan, M., & Zolotoy, L. (2022). Board Gender Diversity and Firm Value in Times of Crisis: Evidence from the COVID-19 Pandemic. *Available at SSRN 3869585*.
- Al Arkoubi, K., & Tahari, F. (2023). BRIDGING THE GENDER GAP IN MOROCCO'S CORPORATE BOARDROOMS. *New Outlooks for the Scholarly Research in Corporate Governance*, 9.
- Alobaid, A.M., Gosling, C., McKenna, L. & Williams, B., (2020). Gendered organizational theory and glass ceiling: application to female Saudi paramedics in the workplace. *Saudi Journal for Health Sciences*, 9(3), pp.177-182.

- Alvarado, R., Iñiguez, M., & Ponce, P. (2017). Foreign direct investment and economic growth in Latin America. *Economic Analysis and Policy*, 56, 176-187.
- Ararat, M., & Yurtoglu, B. B. (2021). Female directors, board committees, and firm performance: Time-series evidence from Turkey. *Emerging Markets Review*, 48, 100768.
- Arvanitis, S. E., Varouchas, E. G., & Agiomirgianakis, G. M. (2022). Does board gender diversity really improve firm performance? Evidence from Greek listed firms. *Journal of Risk and Financial Management*, 15(7), 306.
- Baixauli-Soler, J. S., Belda-Ruiz, M., & Sanchez-Marin, G. (2015). Executive stock options, gender diversity in the top management team, and firm risk taking. *Journal of Business Research*, 68(2), 451-463.
- Berle, Adolf, and Gardiner Means. (1932). *The Modern Corporation and Private Property*. New York: Commerce Clearing House.
- Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of financial economics*, 127(3), 588-612.
- Birindelli, G., Iannuzzi, A. P., & Savioli, M. (2019). The impact of women leaders on environmental performance: Evidence on gender diversity in banks. *Corporate Social Responsibility and Environmental Management*, 26(6), 1485-1499.
- Bosse, D. A., & Phillips, R. A. (2016). Agency theory and bounded self-interest. *Academy of management review*, 41(2), 276-297.
- Brahma, S., Nwafor, C., & Boateng, A. (2021). Board gender diversity and firm performance: The UK evidence. *International Journal of Finance & Economics*, 26(4), 5704-5719.
- Chauhan, Y., & Dey, D. K. (2017). Do female directors really add value in Indian firms?. *Journal of Multinational Financial Management*, 42, 24-36.
- Che-Ha, N., Mavondo, F.T. & Mohd-Said, S., (2014). Performance or learning goal orientation: Implications for business performance. *Journal of Business Research*, 67(1), pp.2811-2820.

- Chicco, D., Warrens, M.J. and Jurman, G., 2021. The coefficient of determination R-squared is more informative than SMAPE, MAE, MAPE, MSE and RMSE in regression analysis evaluation. *PeerJ Computer Science*, 7, p.e623.
- Chijoke-Mgbame, A. M., Boateng, A., & Mgbame, C. O. (2020, July). Board gender diversity, audit committee and financial performance: evidence from Nigeria. In *Accounting Forum* (Vol. 44, No. 3, pp. 262-286). Routledge
- Conyon, M. J., & He, L. (2017). Firm performance and boardroom gender diversity: A quantile regression approach. *Journal of Business Research*, 79, 198–211.
<https://doi.org/10.1016/j.jbusres.2017.02.006>
- Cucari, N., Esposito De Falco, S., & Orlando, B. (2017). Diversity of Board of Directors and Environmental Social Governance: Evidence from Italian listed companies. *Corporate Social Responsibility and Environmental Management*, 25(3), 250–266.
<https://doi.org/10.1002/csr.1452>
- Dobbin, F., & Jung, J. (2010). Corporate board gender diversity and stock performance: The competence gap or institutional investor bias. *NCL Rev.*, 89, 809.
- Dutta, P., & Bose, S. (2007). Gender diversity in the boardroom and financial performance of commercial banks: Evidence from Bangladesh.
- Ekadah, J. W., & Mboya, J. K. (2015). Effect of board gender diversity on the performance of commercial banks in Kenya.
- Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate governance: An international review*, 11(2), 102-111.
- Galletta, S., Mazzù, S., Naciti, V., & Vermiglio, C. (2022). Gender diversity and sustainability performance in the banking industry. *Corporate Social Responsibility and Environmental Management*, 29(1), 161-174.

- Glass, C., & Cook, A. (2017). Do women leaders promote positive change? analyzing the effect of gender on business practices and Diversity Initiatives. *Human Resource Management*, 57(4), 823–837. <https://doi.org/10.1002/hrm.21838>
- Gordini, N., & Rancati, E. (2017). Gender diversity in the Italian boardroom and firm financial performance. *Management Research Review*, 40(1), 75–94. <https://doi.org/10.1108/mrr-02-2016-0039>
- Gogtay, N.J. and Thatte, U.M., 2017. Principles of correlation analysis. *Journal of the Association of Physicians of India*, 65(3), pp.78-81.
- Gogtay, N.J., Deshpande, S.P. and Thatte, U.M., 2017. Principles of regression analysis. *J. Assoc. Physicians India*, 65(48), pp.48-52.
- Gottschalk, S. (2019). The Impact of Executive Board Gender Diversity on Risk-Taking in Canadian and US Banks. *Available at SSRN 3485543*.
- Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T. (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review*, 50(3), 255–274. <https://doi.org/10.1016/j.bar.2017.09.001>
- Hanaysha, J. R. (2019). The impact of board gender diversity on firm value: Evidence from Kuwait. *International Journal of Applied Science and Research*, 2(1).
- Haque, F. (2017). The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms. *The British Accounting Review*, 49(3), 347–364. <https://doi.org/10.1016/j.bar.2017.01.001>
- Haslam, S. A., Ryan, M. K., Kulich, C., Trojanowski, G., & Atkins, C. (2010). Investing with prejudice: The relationship between women's presence on company boards and objective and subjective measures of company performance. *British Journal of Management*, 21(2), 484-497.

- Hoang, T. T., Nguyen, C. V., & Van Tran, H. T. (2019). Are female CEOs more risk averse than male counterparts? Evidence from Vietnam. *Economic Analysis and Policy*, 63, 57-74
- Hock-Doepgen, M., Clauss, T., Kraus, S., & Cheng, C. F. (2021). Knowledge management capabilities and organizational risk-taking for business model innovation in SMEs. *Journal of Business Research*, 130, 683-697.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2005). *Cultures and organizations: Software of the mind* (Vol. 2). New York: McGraw-hill.
- <https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace>
- Hurley, D., & Choudhary, A. (2020). Role of gender and corporate risk taking. *Corporate Governance: The International Journal of Business in Society*, 20(3), 383-399
- Hurley, D., & Choudhary, A. (2020). Role of gender and corporate risk taking. *Corporate Governance: The International Journal of Business in Society*, 20(3), 383-399.
- Ionascu, M., Ionascu, I., Sacarin, M., & Minu, M. (2018). Women on boards and financial performance: Evidence from a European emerging market. *Sustainability*, 10(5), 1644.
- Jane Lenard, M., Yu, B., Anne York, E., & Wu, S. (2014). Impact of board gender diversity on firm risk. *Managerial Finance*, 40(8), 787-803.
- Jane Lenard, M., Yu, B., Anne York, E., & Wu, S. (2014). Impact of board gender diversity on firm risk. *Managerial Finance*, 40(8), 787-803.
- Jizi, M. I., & Nehme, R. (2017). Board gender diversity and firms' equity risk. *Equality, Diversity and Inclusion: An International Journal*, 36(7), 590-606.
- 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.
- Johnston, M. P. (2014). Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, 3(3), 619-626.
- Joubert, H. (2024). Boardroom gender diversity and risk-taking in the insurance industry: do organizational form and ownership structure matter?. *Corporate Governance: The International Journal of Business in Society*, 24(2), 278-302.

- Kabir, A., Ikra, S. S., Saona, P., & Azad, M. A. K. (2023). Board gender diversity and firm performance: New evidence from cultural diversity in the boardroom. *LBS Journal of Management & Research*, 21(1), 1-12.
- Kasasbeh, F. (2019). Role of gender diversity in corporate risk taking in Jordan. *International Review of Management and Business Research*, 8(1), 121-136.
- Khan, A. W., & Abdul Subhan, Q. (2019). Impact of board diversity and audit on firm performance. *Cogent Business & Management*, 6(1), 1611719
- Lanis, R., Richardson, G., & Taylor, G. (2015). Board of director gender and corporate tax aggressiveness: An empirical analysis. *Journal of Business Ethics*, 144(3), 577–596.
<https://doi.org/10.1007/s10551-015-2815-x>
- Levi, M., Li, K., & Zhang, F. (2014). Director gender and mergers and acquisitions. *Journal of Corporate Finance*, 28, 185-200.
- Li, Z., Jia, J., & Chapple, L. (2022). Board gender diversity and firm risk: international evidence. *Managerial Auditing Journal*, 37(4), 438-463.
- Li, J., Zhao, F., Chen, S., Jiang, W., Liu, T., & Shi, S. (2016). Gender diversity on boards and firms' environmental policy. *Business Strategy and the Environment*, 26(3), 306–315.
<https://doi.org/10.1002/bse.1918>
- Loukil, N., & Yousfi, O. (2016). Does gender diversity on corporate boards increase risk-taking?. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 33(1), 66-81.
- Lunawat, D., Pradhan, A. K., & Lunawat, A. (2021). Women in the Board Room: A Mandate-Intent and Compliance by Companies. *SCMS Journal of Indian Management*, 18(3), 16-27.
- Maarouf, H. (2019). Pragmatism as a supportive paradigm for the mixed research approach: Conceptualizing the ontological, epistemological, and axiological stances of pragmatism. *International Business Research*, 12(9), 1-12.

- Marinova, J., Plantenga, J., & Remery, C. (2016). Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms. *The International Journal of Human Resource Management*, 27(15), 1777-1790.
- Marsonet, M. (2019). Philosophy and logical positivism. *Academicus International Scientific Journal*, 10(19), 32-36.
- Martín-Ugedo, J. F., Mínguez-Vera, A., & Rossi, F. (2019). Female directors and firm performance in Italian and Spanish listed firms: Does masculinity matter?. *Academia Revista Latinoamericana de Administración*, 32(3), 411-436.
- Mehrad, A., & Zangeneh, M. H. T. (2019). Comparison between qualitative and quantitative research approaches: Social sciences. *International Journal For Research In Educational Studies, Iran*, 5(7), 1-7.
- Melón-Izco, Á. Ruiz-Cabestre, F. J., Ruiz-Olalla, M. C. (2020). Diversity in the board of directors and good governance practices. *Economics and Business Letters*.
- Menicucci, E., & Paolucci, G. (2022). Gender diversity and bank risk-taking: an empirical investigation in Italy. *Corporate Governance: The International Journal of Business in Society*, 22(2), 317-339.
- Mezmir, E. A. (2020). Qualitative data analysis: An overview of data reduction, data display, and interpretation. *Research on humanities and social sciences*, 10(21), 15-27.
- Mohsni, S., Otchere, I., & Shahriar, S. (2021). Board gender diversity, firm performance and risk-taking in developing countries: The moderating effect of culture. *Journal of International Financial Markets, Institutions and Money*, 73, 101360.
- Morrison, A.M., White, R.P. & Velsor, E.V. (1994) Breaking the glass ceiling: Can women reach the top of America's largest corporations? Reading, MA: Addison-Wesley Pub. Co.
- Muhammad, H., Migliori, S., & Mohsni, S. (2023). Corporate governance and firm risk-taking: the moderating role of board gender diversity. *Meditari Accountancy Research*, 31(3), 706-728.

- Nadeem, M., Bahadar, S., Gull, A. A., & Iqbal, U. (2020). Are women eco-friendly? Board gender diversity and environmental innovation. *Business Strategy and the Environment*, 29(8), 3146-3161.
- Nduati Kariuki, S. (2023). Board gender diversity, efficiency and risk-taking behavior: Empirical evidence from insurance firms in Kenya. *Cogent Business & Management*, 10(2), 2226426.
- Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate governance: An international review*, 18(2), 136-148.
- Nkundabanyanga, S. K., Ntayi, J.M., Ahiauzu, A., & Sejjaaka, S. K. (2014). Intellectual capital in Ugandan service firms as mediator of board governance and firm performance. *African journal of economic and management studies*, 5(3), 300-340.
- Pandey, N., Kumar, S., Post, C., Goodell, J. W., & García-Ramos, R. (2023). Board gender diversity and firm performance: A complexity theory perspective. *Asia Pacific Journal of Management*, 40(3), 1289-1320.
- Pandey, S., 2020. Principles of correlation and regression analysis. *Journal of the practice of cardiovascular sciences*, 6(1), pp.7-11.
- Perera, I. S., Ganeshan, J., & Belitski, M. (2021). Underrepresentation of women managers in the boardroom: evidence from the Sri Lankan financial sector.
- Renaud, O. and Victoria-Feser, M.P., 2010. A robust coefficient of determination for regression. *Journal of Statistical Planning and Inference*, 140(7), pp.1852-1862.
- Schrand, L., Ascherl, C., & Schaeffers, W. (2018). Gender diversity and financial performance: evidence from US REITs. *Journal of Property Research*, 35(4), 296-320.
- Sharma, R. R., Chawla, S., & Karam, C. M. (2021). Global gender gap index: world economic forum perspective. In *Handbook on diversity and inclusion indices* (pp. 150-163). Edward Elgar Publishing.
- Sila, V., Gonzalez, A., & Hagendorff, J. (2016). Women on board: Does boardroom gender diversity affect firm risk?. *Journal of Corporate Finance*, 36, 26-53.

- Song, H. J., Yoon, Y. N., & Kang, K. H. (2020). The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization. *International Journal of Hospitality Management*, 86, 102461.
- Sudarsanam, S., & Huang, J. (2007). Gender Diversity in US Top Management: Impact on Risk-Taking and Acquirer Performance. available at EFMA: <http://www.efmaefm.org>.
- Teodósio, J., Vieira, E., & Madaleno, M. (2021). Gender diversity and corporate risk-taking: a literature review. *Managerial Finance*, 47(7), 1038-1073.
- Velte, P. (2018). Does gender diversity in the audit committee influence key audit matters' readability in the audit report? UK evidence. *Corporate Social Responsibility and Environmental Management*, 25(5), 748–755. <https://doi.org/10.1002/csr.1491>
- Wahid, A. S. (2018). The effects and the mechanisms of board gender diversity: Evidence from financial manipulation. *Journal of Business Ethics*, 159(3), 705–725. <https://doi.org/10.1007/s10551-018-3785-6>
- Wagana, D. M., & Nzulwa, J. D. (2017). Corporate governance, board gender diversity and corporate performance: A critical review of literature.
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2018). Do environmental, social, and Governance Activities Improve Corporate Financial Performance? *Business Strategy and the Environment*, 28(2), 286–300. <https://doi.org/10.1002/bse.2224>
- Zahid, M., Rahman, H. U., Ali, W., Khan, M., Alharthi, M., Imran Qureshi, M., & Jan, A. (2020). Boardroom gender diversity: Implications for corporate sustainability disclosures in Malaysia. *Journal of Cleaner Production*, 244, 118683. <https://doi.org/10.1016/j.jclepro.2019.118683>
- Zalata, A. M., Taurigana, V., & Tingbani, I. (2018). Audit Committee Financial Expertise, gender, and earnings management: Does the gender of the financial expert matter?

International Review of Financial Analysis, 55, 170–183.

<https://doi.org/10.1016/j.irfa.2017.11.002>

Zhang, L. (2020). An institutional approach to gender diversity and firm performance. *Organization Science*, 31(2), 439-457.

<https://smarter-together.org/why-cognitive-diversity-is-the-key-to-smarter-teams-and-how-to-foster-it/>

Hambrick, D. C., Cho, T. S., & Chen, M. J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative science quarterly*, 659-684.