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ORIGINAL ARTICLE

Women in leadership: impact on liquidity risk and returns in the Chilean stock market

Mujeres en el liderazgo: impacto en el riesgo de liquidez y retornos en el mercado accionario chileno

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ABSTRACT
This study analyzes the relationship between liquidity risk and stock return volatility, focusing on the influence of female participation on boards of directors and in senior management. The sample includes 69 large Chilean companies listed on the Santiago Stock Exchange between January 2020 and March 2023. Using panel data methodology and five multidimensional indicators of liquidity risk (Relative Quoted Spread, Coefficient of Elasticity of Trading, Share Turnover, Amihud Illiquidity, and Market Efficiency Coefficient), the results show that female representation on boards of directors is significantly associated with reduced liquidity costs and greater market efficiency. In contrast, women in executive roles are linked to higher stock return volatility, suggesting differentiated approaches to risk management. These findings highlight the strategic relevance of gender diversity in corporate governance, providing evidence that inclusive leadership can strengthen market performance and investor confidence in emerging economies.

Keywords: Gender diversity; Corporate governance; Liquidity risk; Stock return volatility; Chile.

RESUMEN
Este estudio analiza la relación entre el riesgo de liquidez y la volatilidad de los retornos bursátiles, enfocándose en la influencia de la participación femenina en los directorios y en la alta dirección. La muestra incluye 69 grandes empresas chilenas que cotizan en la Bolsa de Comercio de Santiago entre enero de 2020 y marzo de 2023. Utilizando una metodología de datos de panel y cinco indicadores multidimensionales de riesgo de liquidez (diferencial de cotización relativo, coeficiente de elasticidad del volumen de negociación, rotación de acciones, iliquidez de Amihud y coeficiente de eficiencia del mercado), los resultados muestran que la representación femenina en los directorios se asocia significativamente con una reducción en los costos de liquidez y una mayor eficiencia del mercado. En contraste, la presencia de mujeres en cargos ejecutivos se vincula con una mayor volatilidad en los retornos bursátiles, lo que sugiere enfoques diferenciados en la gestión del riesgo. Estos resultados destacan la relevancia estratégica de la diversidad de género en la gobernanza corporativa, y aportan evidencia de que un liderazgo inclusivo puede fortalecer el desempeño del mercado y la confianza de los inversionistas en economías emergentes.

Palabras clave: Diversidad de género; Gobernanza corporativa; Riesgo de liquidez; Volatilidad del retorno bursátil; Chile.

INTRODUCTION

Within the field of company management, the Vth Report of Gender Indicators in Chilean companies shows that although organizational responsibilities have increased, women's participation in leadership roles has declined. Likewise, it states that from 2020 to 2023 female incorporation in executive positions has had a low increase, with a growth of involvement from 21.5% to 22.5%. In contrast, female inclusion on boards of directors has increased shortly: from 11.1% to 16.5% (Ministro de Hacienda, Fundación ChileMujeres, 2024).

Despite the advances in gender equality and more access to higher education, many competent women still encounter the glass ceiling—a set of invisible structural and cultural barriers that limit their advancement to top management positions, regardless of their qualifications and professional achievements (Gonzales-Bustos, 2022; Grosser et al., 2016).

In addition, impostor syndrome—marked by self-doubt and a fear of being exposed as incompetent—remains especially common among women in leadership, often undermining their confidence and decision-making capacity (Bravata et al., 2020; Sakulku & Alexander, 2011).

Furthermore, the lack of women in top management positions negatively affects the organizational culture, preventing the creation of an inclusive and equitable environment that improves innovation and adaptation to change (Ibarra et al., 2013).

As reported by Terjesen et al.(2015), countries with better well-being levels, with initiatives of gender equality and left-leaning are the ones that have more probability of legislating gender quotas on the companies' boards of directors. However, women's contribution to the boards of directors is not conclusive, and the studies are still in progress.

Since the growing interest in gender equity in corporative management, this research aims to analyze whether the liquidity and stock return risks in the Chilean stock market may be connected to a certain extent with women's participation in top management roles and on boards of directors of Chilean companies trading on the stock exchange.

This study aims to examine whether the presence of women in top management and on boards of directors influences financial risk—specifically, liquidity risk and stock return volatility—in Chilean companies listed on the Santiago Stock Exchange between 2020 and 2023. Building on the growing body of literature linking gender diversity to corporate performance, the research tests two central hypotheses: (i) that higher female representation in executive roles is associated with lower liquidity risk, and (ii) that gender diversity in leadership positions has a measurable impact on the risk profile of stock returns. These hypotheses are designed to explore whether gender-inclusive leadership contributes to more stable and effective financial management in emerging market contexts.

Theoretical framework

Research by Inostroza et al. (2023) points out that CEOs' gender and choice-making styles significantly affect the financial performance of SMEs in Chile. It was found that the avoidant and dependent styles have different effects according to the leader's gender, highlighting the importance of promoting the inclusion of women in top management roles. To complement this, Quiroz-Rojas & Teruel (2021) evidenced that companies led by women show a positive ratio between innovation and sales growth while male managers tend to negatively impact corporate growth.

On the other hand, Arenas-Torres et al. (2021) analyzed the diversity on the boards of directors of Chilean companies between 2015 and 2020, showing low levels of gender diversity, nationality, and age, with positive and significant effects only in fields such as commerce and construction. However, in other areas, the outcome was not conclusive or negative. On a regional level, Arévalo-Alegría et al. (2020), studied the attributes of the corporative governments in Brazil, Chile, and Mexico, finding that, even though factors such as the independence of the board of directors improve the financial performance in some cases, there is no conclusive evidence that the gender diversity consistently contributes with a better performance at present or in future.

The studies that deal with the impact of gender equity in organizations are diverse in their approaches and conclusions. Particularly, those that explore the ratio among gender, top management, corporative government, and stock and liquidity risks usually focus on markets of developed countries, with some exceptions in emerging economies. For example, Maxfield & Wang (2024) collected 193 statistical results of diverse studies on gender diversity on boards of directors, and its ratio with corporative risks, finding a negative association between both factors.

Likewise, Sehrish et al. (2024) analyzed the investment fund liquidity in the United States, and they found that whenever the top executive is a woman, the fund liquidity increases, strengthening the idea of gender's influence on financial decisions. In the American stock market, Shahrour et al. (2024) found that gender diversity in top management and on boards of directors has a positive and sustained impact on stock liquidity throughout different economic cycles. Likewise, in line with the resource dependence theory, the work by Gull et al. (2024) evidences that having female executive directors and financial experts reduces the impact of the stock price fall regarding the informative context.

According to Tashfeen et al. (2023), women on boards of directors perform an essential role in reducing liquidity risk and in creating corporative value which is generally done by implementing financial and investment strategies that help mitigate stock volatility and preventing bankruptcy risks, together with promoting a more proactive risk management.

In developed markets, with data from 944 Australian companies between 2008 and 2013, it was observed that gender diversity on the boards of directors has a positive significance on stock liquidity risk. These findings discard the idea that women's presence on the boards is merely symbolic and also support the critical threshold theory (Ahmed & Ali 2017).

In Asian economies, the Chinese stock market shows evidence in the 2002-2017 period that gender diversity on boards of directors increases stock liquidity significantly (Ye et al., 2021). On the other hand, within the European context, Sarang et al. (2024), for a study of 15 years regarding French companies, found that women's participation on boards of directors improves financial and corporate performance.

Also in the French market, the work of Loukil et al. (2019), considers two stock liquidity risk measures: Amihud illiquidity rate and the trading volume, these authors observed that female internal directors notably reduce Amihud illiquidity rate while female independent directors increase considerably the operations volume. They conclude that the rise of women on boards of directors improves the stock market liquidity by reducing the costs associated with illiquidity and increasing the daily volume of transactions.

The studies in emerging economies are also ongoing and restricted to a few countries. With a sample made up of not financial companies that traded in the Pakistan stock market from 2009 to 2019, the ratio between the corporate governance index -which includes gender diversity - and the stock liquidity was studied, the outcome showed a significant and positive ratio between the variables which indicates that the companies with solid governance practices tend to experience more liquidity in their stocks (Ali et al., 2022).

The research by Nguyen & Muniandy (2021) on the South African stock market found that companies with more women's proportion and black race directors are associated with companies with higher stock liquidity levels. For a sample of stocks of bank companies from Tunisia, for the 1998-2018 period, there is a direct and significant ratio between gender diversity and the stock risk, highlighting that at least one woman on the board of directors affects the liquidity risk (Abidi & Nsaibi 2022).

The work by Haro-Sarango & Naranjo-Cedeño (2022) concludes that men as well as women contribute in a balanced way to the returns (ROA and ROE). However, these authors found that female participation in companies' boards of directors in Ecuador does not have a significant effect. In contrast, the studies made on Pakistani companies show that gender diversity positively impacts stock liquidity (Khan et al., 2023).

On the other hand, Sonza & Valcanover (2019) analyzed the accounting liquidity and risk in 234 Brazilian companies during the 2010-2016 period. Their findings indicate that when the boards of directors had more women's presence, corporate liquidity was reduced; however, companies tended to raise their liquidity when women took executive positions. Regarding the risk, these authors mentioned that women in high-responsibility positions can face riskier decisions than expected.

Finally, a study by Mastella et al. (2021) that covered 150 Brazilian companies between 2010 and 2018 suggests that market investors value more female presence on the boards of directors than in executive positions. However, the impact of such a presence on the corporate risk is not conclusive.

METHODOLOGY

The research was of quantitative, descriptive, correlational, and not experimental nature. The sample consisted of 69 companies whose shares were traded on Santiago Stock Exchange and maintained an average stock presence above 50%, indicating lower liquidity risk. Only firms with complete data in the 2020–2023 gender reports were included, while financial institutions and companies with missing information were excluded. A total of 2,589 monthly observations were considered for the period between January 2020 and March 2023. This period was selected due to the availability of official gender reports and the relevance of analyzing the post-pandemic phase, which was marked by heightened stock market volatility.

Primary data sources were collected from the records of the Stock Exchange of Santiago, Chile, and from Reports of Gender Indexes of Chilean Companies made by Chile's Government (Ministerio de la Mujer y la Equidad de Género & Fundación ChileMujeres 2021; 2022; Ministerio de la Mujer y la Equidad de Género et al., 2023; Ministro de Hacienda & Fundación ChileMujeres, 2024). These reports are based on information that companies submit to the Financial Market Commission (Comisión para el Mercado Financiero, CMF) in compliance with specific regulatory standards, such as General Rule No. 386 (NCG No. 386) and, more recently, General Rule No. 461 (NCG No. 461).

In this research, liquidity risk indicators were estimated to capture five key dimensions of market liquidity: tightness, immediacy, depth, breadth, and resilience. The metrics used followed the proposals of Monga et al. (2023), as they are among the most commonly applied in studies on emerging markets. These indicators were selected for their ability to reflect different facets of liquidity that are particularly relevant in volatile contexts such as the Chilean stock market. Moreover, in emerging markets, access to detailed transaction

books and comprehensive financial databases is often limited. Therefore, this study relied on indicators that can be constructed from actual transaction data, allowing for a more realistic and feasible assessment of liquidity under such data constraints.

To measure market tightness, the Relative Quoted Spread (RQS) adapted for traded business data is used. Where Max_{it} y Min_{it} is the maximum and minimum price, respectively traded in the month t of the share i.

$$RQS = \frac{Max_{it} - Min_{it}}{(Max_{it} + Min_{it})/2} \quad [1]$$

To obtain and measure the market immediacy, the Coefficient of Elasticity of Trading - CET - is used. Where $\%\Delta V$ and $\%\Delta P$ are the percentual change of the monthly volume and the percentual change of the share price, respectively.

$$CET = \frac{\%\Delta V}{\%\Delta P} \quad [2]$$

To measure the depth, the Share Turnover - ST - is used. Where V_{it} is the volume of shares traded in the month t and N_{it} is the number of issued shares and in circulation in month t.

$$ST = \frac{V_{it}}{N_{it}} \quad [3]$$

Amihud's method (2002) is used for breadth that measures the return impact on the traded volume. Where $|R_{it}|$ is the absolute value of the daily return of the share (i) and V_{it} is the volume traded on the day t of the share i.

$$ILLIQ = \frac{1}{D_{it}} \sum_{t=1}^{D} \frac{|R_{it}|}{V_{it}} \quad [4]$$

The Market Efficiency Coefficient (MEC) is used to assess the market's resilience. For this work, five days is the long return period, one day is the short period's return period, and t is the same as 5. For liquid markets, we expect an MEC value that is the same as 1.

$$MEC = \frac{Long\ period\ return}{T * Short\ period\ return} \quad [5]$$

To address the research questions, six regression models are used which are an adaptation of the regression models, with panel data used by Loukil et al. (2019) and Sonza & Valcanover, (2019), in the stock markets of France and Brazil respectively. The models used are:

$$RQS = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [6]$$

$$CET = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [7]$$

$$ST = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [8]$$

$$ILLIQ = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [9]$$

$$MEC = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [10]$$

$$SD = \beta_0 + \beta_1 D_{it} + \beta_2\ G_{it} + \beta_3 Ri_{it} + \beta_4 Rm_{it} + \varepsilon \quad [11]$$

The models that are evaluated from (6) to (10) have as a dependent variable each of the described liquidity risk dimensions (RQS-CET-ST-ILLIQ-MEC) and four independent variables: the percentage of women on the board of directors (D), the percentage of women in top management positions (G), the monthly return of the company shares (Ri), and the market return (Rm). For this latter variable, the IPSA stock index was used as a proxy.

The eleventh model (11) shows as a dependent variable the stock return risk (standard deviation, SD), and as independent variables, the same as the other models. The stock return risk is based on the standard deviation of the share returns.

To avoid problems of heterogeneity, contemporary correlations, heteroscedasticity, and autocorrelation, estimators were used, with the "Feasible Generalized Least Squares or FGLS" methodology.

RESULTS AND DISCUSSIONS

The main descriptive statistics are depicted in Table 1. This shows that the average return of the market (Rm) is slightly positive, while the average return of the sample of the shares selected (Ri) is negative. There is also a noticeable difference between the minimum and maximum values of the shares in the sample, compared with the market, with a wider return range for the sample's shares. Although Rm and Ri show low averages, Ri shows a high variability that suggests a significant volatility in individual returns.

Table 1. Descriptive statistics of market, risk, and gender variables (2020–2023).

Variable	Obs	Mean	Std. Dev.	Min	Max
Rm	2,589	0.0001397	0.0030504	-0.007605	0.0062083
Ri	2,589	-0.0036108	0.1545486	-1.58814	1.407308
MEC	2,589	0.0026536	0.1152495	-2.225302	4.523401
CET	2,589	11.93951	372.4438	0.000047	18650
RQS	2,589	0.1841287	0.1559806	0.0064732	2
ST	2,589	0.0181197	0.0494881	2.78E-07	1.420215
ILLIQ	2,589	0.0002029	0.0019396	8.56E-09	0.0742658
SD	2,589	0.0217878	0.0174298	0.0029695	0.46138
G	2,589	16.45214	16.27938	0	100
D	2,589	11.84902	11.53689	0	60

The efficiency of the market (MEC) has low average values and a significant dispersion that suggests that the market could have difficulties recovering quickly from disturbances. Metrics such as the Coefficient of Elasticity of Trading (CET) and the Relative Quoted of Spread (RQS) reflect a high dispersion, indicating the presence of assets with extreme behaviors in sensitivity before price and breadth. On the other hand, the Stock Turnover (ST) and Amihud Index (ILLIQ) suggest that the market is generally liquid, but with certain exceptions of less traded assets.

Finally, the metrics related to gender equity highlight that, on average, 16.45% of the management positions (G) and 11.85% of the positions on boards of directors (D) are taken by women, evidencing a representation gap. The standard deviation of the stock returns (SD) indicates moderate volatility between the shares studied. These results show the importance of considering market and equity factors when analyzing corporate performance and the financial market.

The analysis also identified the "zero companies" which are the ones that do not count on female participation in management and/or boards of directors. In contrast, the company INVERCAP stands out since all the management positions are taken by women. In the case of the boards of directors, the company ENELGXCH leads concerning female inclusion since 60% of its directive positions are taken by women.

The results of the correlational analysis among the variables are depicted in Table 2 which shows several key ratios among the variables. The market return (Rm) shows a moderate positive correlation (0.49) with the individual return of the shares (Ri) which indicates that the individual returns tend to follow the market's direction. On the other hand, the Market Efficiency Coefficient (MEC) and the Coefficient of Elasticity of Trading (CET) show virtually null correlations regarding the rest of the variables, which suggests that these indicators are independent of the general features of the market and liquidity.

Table 2. Correlation matrix of financial, liquidity, and gender variables.

	Rm	Ri	MEC	CET	RQS	ST	ILLIQ	SD	G	D
Rm	1.00									
Ri	0.49	1.00								
MEC	0.01	-0.02	1.00							
CET	-0.01	-0.02	0.00	1.00						
RQS	-0.07	-0.12	0.01	0,00	1.00					
ST	0.01	0.05	-0.01	0.05	0.25	1.00				
ILLIQ	0.01	0.00	0.00	0.00	-0.07	-0.03	1.00			
SD	-0.03	-0.05	0.00	0.02	0.68	0.39	-0.05	1.00		
G	0.00	-0.01	0.02	0.01	0.05	-0.05	-0.02	0.06	1.00	
D	0.03	0.00	0.03	-0.02	0.04	-0.01	-0.01	0.01	0.05	1.00

The ratio between the Stock Turnover (ST) and the Relative Quoted Spread (RQS) is moderately positive (0.25) indicating that the assets with higher turnover tend to show higher differences between maximum and minimum prices. Moreover, the standard deviation of the stock returns (SD) has a strong positive correlation (0.68) with RQS, and moderate with ST (0.39), suggesting that the most volatile assets tend to have more breadth and frequency of trades.

Finally, gender variables such as women's percentage in management positions (G) and on boards of directors (D) show very weak correlations with the rest of the market variables. This indicates that the gender equity metrics are not directly related to the market or liquidity features in this analysis which highlights the need to research the additional factors that may influence these dimensions.

The results of the regressions using the methodology of fixed effects (FE) and random effects (RE) to reply to the research questions are depicted in Table 3. Six models were analyzed where the dependent variable is the liquidity risk, measured through the indicators RQS, CET, ST, ILLIQ, MEC, and SD.

Table 3. Panel data regression results using fixed and random effects models for liquidity and risk indicators.

Variable	RQS		CET		ST	
	fe	re	fe	re	fe	re
D	0.00038515	0.00045947	0.13376474	-0.72343116	-0.00024493	-0.00013628
G	-0.00006729	0.00016461	0.05837302	0.26606602	-0.00009729	-0.0001266
Ri	-0.079949***	-0.083897***	-48.208937	-45.932229	0.03001484***	0.02791198***
Rm	-1.4735605	-1.4029155	94.922879	117.79516	-0.51256261	-0.46886079
_cons	0.18058933***	0.17556255***	9.2068445	15.951803	0.02280231***	0.02213877***
N	2589	2589	2589	2589	2589	2589
r2	0.01205565		0.00039035		0.00898351	
r2_a	-0.01621621		-0.02821533		-0.01937626	
F	7.6755372		0.24562578		5.7018504	
Variable	**ILLIQ**		**MEC**		**SD**	
	fe	re	fe	re	fe	re
D	0.00001206	0.000004891	0.00001165	0.00032313	6.387E-07	0.00001271
G	0.000002039	-6.533E-07	0.00033432	0.00013563	-0.00004396	0.000008288
Ri	-0.00008138	-0.00008232	-0.02454712	-0.02191991	0.0003618	-0.00031566
Rm	0.00434263	0.0051062	0.97837221	0.8870118	-0.17060075	-0.15813554
_cons	0.00002556	0.00015188	-0.00321001	-0.00361589	0.02252869***	0.02150201***
N	2589	2589	2589	2589	2589	2589
r2	0.00154298		0.0012999		0.00141661	
r2_a	-0.02702971		-0.02727976		-0.0271597	
F	0.97203576		0.81869988		0.89231362	

Note. legend: * p<0.05; ** p<0.01; *** p<0.001.

The analysis shows that none of the variables related to gender (G or D) were statistically significant. This suggests that the liquidity risk (ILLIQ) as well as the stock return standard deviation (SD) are not explained by female participation in top management or on the board of directors.

Husman tests indicated that, for models with the dependent variables CET, ILLIQ, and MEC, the use of fixed effects is recommended. However, in the rest of the models, Chi-squared statistics showed negative values, suggesting possible inconsistencies in the estimations. This result may be associated with problems such as severe collinearity among the independent variables or a non-compliance of the asymptotic assumptions, necessary for the validity of the Hausman test.

In addition, autocorrelation and heteroscedasticity were made by using Wooldridge and Wald tests. Heteroscedasticity problems were found in all the models. Regarding autocorrelation, this is found in most of the models, except for those with dependent variables ST and ILLIQ.

The results of the panel data regressions show that, among the analyzed variables, Ri is the only one that shows statistical significance in the models, with the dependent variables RQS and ST, with a negative impact in the first one, and a positive in the second one. This indicates that the stock return is related in a relevant way to these risk dimensions, while gender variables (D and G), and the rest of the explanatory variables do not show significant effects in any of the models. On the other hand, the constant is significant in several cases, which suggests the presence of additional factors, not included in the current specifications.

The models showed heteroscedasticity problems in all the cases and autocorrelation in most of them, except for those with the dependent variables ST and ILLIQ. These deficiencies can compromise the validity of the estimations; therefore, it is fundamental to implement adjustments in the standard errors through solid methods. The Wooldridge and Wald tests confirmed the presence of autocorrelation and heteroscedasticity; therefore, the feasible generalized least squares (FGLS) methodology was applied, which corrects both issues simultaneously, ensuring robust and reliable estimates. To address these problems integrally, some additional analysis shall be made by using the methodology of feasible generalized least squares (FGLS) which allows correcting simultaneously the effects of autocorrelation and heteroscedasticity by guaranteeing then more trustful and precise estimations.

The results of the regressions using the feasible generalized least squares (FGLS) indicated in Table 4 show the importance of certain factors in explaining the dependent variables. In the model that has the market efficiency coefficient (MEC) as the dependent variable, female participation on the boards of directors (D) and in top management (G) became statistically significant at the level of 1%, showing a positive effect. This suggests that higher gender participation in top management of the organization contributes to higher market efficiency.

Table 4. Results of panel data regressions with FGLS

Variable	MEC	CET	RQS	ST	ILLIQ	SD
D	0.00049765**	-0.72343116	-0.00014636*	0.00001301*	0.00033065	0.00001763
G	0.00046976**	0.26606602	-0.00011885	1.44E-06	0.0001327	0.00006765***
Ri	-0.1165925**	-45.932229	0.02928569*	-0.00024076	-0.02167602	-0.0052451
Rm	-0.6489257	117.79516	-0.60169374	0.01455376	0.88036159	-0.04340706
_cons	0.17017315***	15.951803	0.02233563***	3.64E-06	-0.00364866	0.02045312***
N	2589	2589	2589	2589	2589	2589
r2	0.01896215	0.00096586	0.00921671	0.00282885	0.00228872	0.00683083

*Note. legend: * p<0.05; ** p<0.01; *** p<0.001*

In the model of Relative Quoted Spread (RQS) as the dependent variable, D and Ri are significant at the level of 5%, with negative and positive effects. This implies that female participation on the boards of directors and the stock returns are associated with reduced liquidity cost, reflected in a lower quoted spread. In the case of Share Turnover (ST), gender variable (D) is significant and positive such as it is in the study on Pakistani companies by Khan et al., (2023), even though its coefficient is of low magnitude. This suggests that female presence on the boards of directors has a positive but limited impact on the share turnover.

Likewise, since all the variables were non-significant, no ratio was observed for the liquidity risk measurement (ILLIQ) and the Coefficient of Elasticity of Trading (CET). This outcome is inverse to what was found in other studies, since the liquidity ratio (ILLIQ) shows a direct and significant ratio in women's participation on the boards of directors for the French market (Loukil et al., 2019), for the Tunisian market (Abidi & Nsaibi, 2022), for the Pakistani market (Ali et al., 2022; Khan et al., 2023), and for the Australian market (Ahmed & Ali, 2017).

In contrast, for the model where the dependent variable is the standard deviation of the stock return (SD), the percentage of women in management (G) is significant, with a level of 0.1% but no significance was found

between women's participation on the board of directors and corporate stock risk. This result does not coincide with the findings in the Brazilian stock market by Sonza & Valcanover (2019).

Finally, based on the results obtained and in relation to the first hypothesis proposed in the research, we can indicate that: It can be inferred that women's presence in management positions and/or on boards of directors influences some of the dimensions of liquidity risk (MEC, RQS, and ST), but it does not affect others (CET and ILLIQ). This latter, aligned with the work by Li et al. (2024), who found a positive and significant ratio between gender diversity on the boards of directors and stock liquidity by using three dimensions of liquidity risk, with Amihud liquidity risk measurement (ILLIQ), share turnover (ST) and spread impact.

On the other hand, regarding the second hypothesis of the research: A positive and significant ratio was found between women's presence in management positions (G) and the risk associated with the stock return (SD). This would suggest that as women's percentage in top management positions increases, the stock return risk also tends to rise, indicating the possibility of obtaining higher profitability.

The findings of this study offer relevant implications for corporate governance in Chile, particularly regarding the promotion of gender diversity in decision-making bodies. Female participation on boards of directors (D) and in top management (G) shows a positive and statistically significant association with market efficiency (MEC) and reduced quoted spread (RQS), suggesting a favorable impact on liquidity and overall market performance. This is especially important in emerging markets like Chile, where investor confidence and the perceived quality of governance are critical. From a practical standpoint, fostering female leadership may lead to concrete improvements in key market indicators.

Additionally, the significant relationship between women's presence in top management and increased stock return volatility (SD) points to a more dynamic decision-making environment, potentially linked to higher returns. In contrast, the lack of significance in indicators such as ILLIQ and CET —particularly ILLIQ, which has shown significant results in similar studies (Abidi & Nsaibi, 2022; Ahmed & Ali, 2017; Li et al., 2024; Loukil et al., 2019)— underscores the need to consider contextual and structural factors in the Chilean market.

These findings reinforce the view that gender diversity should be incorporated as a strategic element in strengthening governance, supported by institutional reforms and improvements in the structure and transparency of the capital market.

CONCLUSIONS

The study found evidence that female participation on boards of directors and in top management has positive and statistically significant effects on certain indicators of market efficiency and liquidity, such as the Market Efficiency Coefficient (MEC), Relative Quoted Spread (RQS), and Share Turnover (ST). A significant relationship was also identified between women in top management positions and higher stock return volatility (SD), suggesting a differentiated approach to risk management among women leaders, potentially associated with greater risk tolerance or strategic agility.

These findings reinforce the relevance of gender diversity as a strategic factor in financial decision-making and market performance. The presence of women in executive roles not only promotes greater equity but may also contribute to more dynamic and efficient management, especially in emerging markets where liquidity is limited and investor confidence is strongly influenced by the perceived quality of corporate governance.

It is proposed that organizations promote female leadership through workshops at all levels. This will also contribute to Sustainable Development Goal 5 (SDG 5), Gender Equality, proposed by the United Nations (UN). This goal seeks to achieve gender equality and empower all women and girls. Likewise, if this is considered the first study that connects female participation in top management positions and boards of directors with stock liquidity risk in Chilean companies, then the results are a contribution to the region.

Among the limitations of the study is the use of a restricted sample of 69 large Chilean companies with stock market presence equal to or greater than 50%, and the limited availability of official gender reports, which covered only the 2020–2023 period. Additionally, the indicator of female participation in senior management does not distinguish between types of roles or their relevance in financial decision-making. Based on the results, it is recommended that companies strengthen leadership development programs for women and promote diversity as part of their corporate governance strategy. Regulators could also consider normative adjustments to encourage inclusion, such as mandatory gender reporting or voluntary board quotas.

Future research could expand the time horizon to assess long-term effects and include comparative analyses with other Latin American countries. It would also be relevant to incorporate control variables such as firm size, industry sector, and debt level. Moreover, qualitative studies could help explain the mechanisms through which gender diversity influences financial risk management, as well as examine the specific roles women play in strategic positions such as finance or general management.

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Conflicts of Interest:

The authors declare that they have no conflicts of interest.

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