sciendo

Impact of Risk on Gender Diversity and Board Size − Case Study Northern Europe

Ioana RADU (GOBEAJĂ)*
The Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, radu1ioana16@stud.ase.ro*

Georgeta VINTILĂ
The Bucharest University of Economic Studies, Bucharest, Romania
georgeta.vintila@fin.ase.ro

Abstract. *Over time, the impact of risk on corporate governance has become a highly analysed topic. One of the most important indicators is gender diversity, where the desire for gender equality has evolved year by year. At the same time, the size of the board of directors is also important in a company, because when there are more members, there are more opinions, which may lead to more discussions and hinder decision making. Thus, the period of uncertainty created by the Sars-Cov-2 pandemic has been of significant importance in presenting the importance of gender diversity. Therefore, the analysis of the link between risk and governance indicators (gender diversity and board size) was carried out on a sample of 286 companies in Northern Europe (Denmark, Finland, the Republic of Ireland, and Sweden). The research is carried out over a four-year period (2020-2023) to capture the period of the Covid-19 crisis, has a panel database, in which the dependent variables are two corporate governance indicators (presence of women on boards and number of people on the board) and one risk indicator (Z-Altman), and both risk (leverage, Z-Altman score and current liquidity), performance (economic profitability, financial return and EBITDA), and other indicators (total assets) were chosen as independent variables, as well as three corporate governance indicators (nominating committee, audit committee, and corporate governance committee). The most important results found in the research are the positive and significant relationship between leverage and board size, the negative and significant relationship between Z score and gender diversity.*

Keywords: board size, gender diversity, Z-score, risk, Covid-19.

Introduction

The membership of a company venture can have negative or positive aspects in corporate governance indicators, as it can influence the presence of gender diversity on the board of directors, but also the number of people on the board of directors.

Following many studies in line with the literature, the importance of the following two governance indicators can be presented: gender diversity is important in a company because female people are risk averse while male people are not risk averse, which can lead to more board meetings, and board size is important because in small board size some aspects of some projects that lead to profit may be omitted; on the contrary, boards would hold as an advantage that there are more perspectives on a single decision.

In addition to the aspect presented above about the gender diversity indicator, it is also investigated in the present study as a social equality motive, this aspect being more hardly introduced in previous research, and often this indicator has been used in connection with the performance indicators of an enterprise. At the same time, another reason for studying gender diversity is that, in recent years, females have become increasingly competitive in the market.

DOI: 10.2478/picbe-2025-0230

In Europe, Directive (EU) 2022/2381 of the European Parliament has been issued, which lays the foundations for a project to achieve equal rights for women and men in the period 2020-2025. Women should also have the right to make decisions and should be considered equal to men in the right to express their opinions.

This paper aims at analysing the link between the risk of bankruptcy or financial failure of an enterprise and corporate governance indicators (gender diversity and board size), based on companies in Northern Europe (Denmark, Finland, Republic of Ireland, and Sweden).). The analysis is done over a 4-year period (2020-2023) as until 2023 we have officially available and posted data; for 2024 no data have been published yet at the time the research started.

The analysis period 2020-2023 was chosen because at the beginning of 2020 a health crisis caused by the Covid-19 pandemic appeared in Europe, which affected not only the health system, but also several areas including the economic and financial. Thus, all the boards of directors had to take the wisest decisions on performance but also on the risks they assume in such a period of maximum uncertainty.

The aim of the analysis is to observe whether companies with a mixed gender board of directors manage to achieve a lower risk of bankruptcy than those with only male directors. At the same time, we want to find out whether a larger board of directors succeeds in such a period in decreasing the indebtedness or whether a smaller board of directors also succeeds in maintaining a lower indebtedness.

The first part of the article will be a literature review, where the link between risk and gender diversity, as well as the size of the board of directors in all domains, will be followed in a systematic way. Subsequently, the research methodology will be analysed, where the database used will be presented, as well as the descriptive statistics and the correlation matrix. The econometric results are also important, and there we will observe how the risks of an enterprise can affect gender diversity and board size. We will then draw conclusions and add further proposals.

Literature review

The issues concerning the link between corporate governance characteristics and firm-specific risks have been addressed both from the perspective of the impact of risk on corporate governance and vice versa by tracking the impact of corporate governance on risk. In this study the investigation of the link between companies' risk and corporate governance is conducted in both directions. A limited number of studies in the literature analyze the influence of risk on corporate governance characteristics represented by board size and proportion of female employees. In this sense Pathan (2009) conducted a study on 212 companies in the American banking system between 1997-2004 (with 1534 observations) in which he wanted to highlight the relationship between small boards of directors and risk taking, he used as dependent variables the Z-square, total risk and risky assets ratio, and as independent variables board size, independent directors, CEO ownership, bank capital and year dummies. The most important result is the statistically significant negative impact of risk on board size. Following the study conducted a study in which can notice the two-way analysis between risk and corporate governance indicators.

From the perspective of the factors influencing companies' risk, the studies highlight as main independent variables financial indicators of indebtedness, profitability, liquidity, total assets, integrating also corporate governance variables.

Based on a sample of all nonfinancial Chinese firms listed on the Shanghai and Shenzhen stock exchanges over the period 1998 to 2017, Huang et al. (2024) used the following variables in their paper: leverage and Tobin's Q, ROA, Ln of Board size Ln(agefirm) LN of total assets

percentage of women on the board, percentage of nonexecutives and independents on the board, concluding that in firms with gender diversity, companies have more significant risk reduction. Although Bernile et al. (2018) used a database over a period of 18 years (1996-2014), but having a database with some common indicators with the research conducted by Huang, among which are gender diversity, board of directors' growth, as well as risk indicators such as LN(assets), ROA, ROE liquidity, population per country. Thus, the empirical analysis, conducted on nonfinancial, nonutility companies included in the Execu Comp and Risk Metrics database crosswalk, shows that lower risk levels are largely due to diverse boards adopting more persistent and less risky financial policies.

Yang et al. (2019) conduct a research based on Northern European countries, which, according to reports, is among the first countries to encourage gender equality. The authors analysed the period from 2002 to 2008 and included in the analysis independent variables such as Board size, tenure, quoted experience, private experience, age, nationality, and education. The results of the research are characterised by a negative and econometrically significant relationship between the presence of women on boards and the risks of the company. Vo et al. (2023) focused on the study of 329 companies listed on the Vietnam Stock Exchange from 2006-2020, using ROA, TOBINQ, and Risk-Taking as dependent variables. Among the independent variables used are: board gender diversity, chairwoman, female CEO, female CEO, CEO education, chair education, chair tenure, CEO tenure, board size, CEO duality, leverage, firm size, tangibility, and growth opportunities. They found that in the firms in this country the presence of female CEOs leads to a decrease in risk, therefore, this study also identifies a negative relationship between gender diversity and firm risks. The same link was also identified by Rouse et al. (2024) in his study based on the situation of great uncertainty created by the Covid 19 pandemic, where he finds an indirect link between female managers and their risk taking during the crisis period. This study was conducted during 2019-2020 in Chinese companies, with 1905 observations as the risk of the dependent variable and using board size, firm size, firm age, female, female CEO, meeting, CEO ownership, Top 3 ownership, SOE, growth, Tobin's Q and tangibility among independent variables.

Bhagat et al. (2015) analysed the impact that the risk of an enterprise has on the size of an enterprise; they chose to do an analysis over 11 years (2002-2012), concluding that there is a positive impact on the relationship presented above. The sample analysed consisted of US financial institutions, including commercial banks, investment banks and life insurance companies. Furthermore, the impact that total assets, market-to-book, director ownership, CEO ownership, CEO ownership, firm age, investment bank, insurance company, and financial crisis dummy have on bank risk was analysed. In an identical situation to Bhagat's results, Huang and Wang (2015) identified a positive and econometrically significant relationship between board size and firm risks, and they analysed a sample of several listed firms in China for the period 2003-2011. The study also presents the aspect that in China the China Securities Regulatory Commission (CSRC) Code has established by law that the size of the board of directors must be between 5 and 19 members. Analysing 1252 companies included in the Investor Responsibility Research Centre's (IRRC) data set over the 1996-2004, Cheng (2008) concluded that in firms where there is a larger board size, it is harder to reach consensus, and hence there is greater stability.ty.

Akhigbe and Martin (2008) study the relationship between boards of directors and bank risks because they find that in the literature this relationship is limited. To conduct the study, they have included 392 firms including 63 large banks and 329 relatively small banks, as dependent variables used are shorter-term risk shifts and longer-term risk shifts, and board independence, leverage, assets, and ROE were chosen as independent variables. Paul M. (2009), analyses in his

paper the link between board size and firm performance, he finds a negative relationship between board size and performance for large firms, he believes that the communication problem is mainly caused by ineffective boards. He took a sample of 2746 companies listed in England between 1981 and 2002, which end up containing 25,668 observations. The regression estimates show a negative and significant relationship between firm profitability and board size.

Vintila et al. (2014) conducted a study in which they wanted to emphasise the importance of female board members and their role in firm value. They emphasise that the presence of a gender diversity of at least 22.5% on the board of directors adds value to the firms. This analysis had as a sample the companies listed on the Bucharest Stock Exchange, from 2007-2011. As dependent variables, they used Tobin's Q, and as independent variables they used the percentage of female members of the board of directors, as dummy variables CEOGender and CEO State, Firm Size, and leverage. Vintila and Gheghina (2012) analyse the link between corporate governance ratings and firm performance, using as a sample 126 American firms listed on the New York Stock Exchange, NYSE Ames Equities and NASDAQ, using as dependent variables: Tobins Q, PBV, ROA, ROE and PER, and as independent variables they used CGI, Audit, Board_Structure, Compensation Shareholder_rights, and LN(Asset). They used risk and governance indicators, which can be affected by measurement errors, where they confirm that the errors of the indicators bring mixed conclusions about the relationship between corporate governance rating and firm performance.

Wang (2012) in his research wanted to emphasise the link between the size of the board of directors and their importance in choosing the risks of a company; he found that companies with a small board of directors hold less leverage, but they choose to invest in riskier companies. Thus, it can be deduced that small boards are suitable in the short term, but in the long term they are riskier. For this study he used the following variables, cash flow volatility, logarithm of monthly stock returns over 12 and 24 months, and as independent variables board size, independence, delta and vega, the sample is constructed based on 1,618 firms over a period of 12 years (1992-2004).). Nakano and Nguyen (2012) concluded that firms that hold boards with a larger number of people do not take bankruptcy risks, this study was conducted on Japanese companies, but they had the same view as the literature studied, which means that Japan also has a governance system similar to other countries.

Muhammad et al. (2023) in their research analyses the link between gender diversity and risk taking. Besides this governance indicator, the study also utilised CEO duality, board size, board independence, and CEO gender. They had a sample of 192 nonfinancial companies in Italy from 2014-2018, after analysing it was concluded that for the involvement of the entire board in risk taking, there must be a minimum of one female person in the board. Alam and Shah in a study conducted on 160 firms in Pakistan over a period of 6 years (2005-2010), as the dependent variable is the risk of the firm, and as independent, gender diversity, independent board and LN (total assets), it concludes that the size of the board positively but statistically insignificantly affects the risk of the firm.

Analysing 225 Canadian publicly traded companies (TSX 230) in 2002, Lajili (2009) examined the relationships between corporate governance mechanisms and risk disclosure behaviour, variables used included board size, board independence, number of committees, fraction of control votes, CEO incentive compensation, CEO stock and stock options, total risk disclosure, financial risk, and total nonfinancial risk. The results show that Canadian firms are more likely to disclose more risk information if they are larger in size and if they are characterised by boards with more independent board members. Cho et al. (2021) analysed the relationship between gender

diversity and bankruptcy risk for listed manufacturing firms in China from 2005-2016. The dependent variable is the level of bankruptcy risk as measured by -1 * Altman's Z score, and the independent variables include the percentage of female executives in the executive members, average education score, tangibility, profitability, volatility, growth, and firm size. The findings capture that firms with greater gender diversity are less prone to bankruptcy risk.

Following the literature review, it can be noted that most researchers have analysed the impact of corporate governance characteristics on risk, performance, and enterprise value. In the opposite direction, the specialised literature becomes narrower.

Methodology

The main objective of this document is to analyse the impact of the risk of an organisation on the choice of the board of directors in terms of both gender mix and the number of people on the board. Therefore, a sample of 286 companies from Northern Europe, more precisely from 4 countries (Denmark, Finland, Republic of Ireland, and Sweden) was used, these countries were chosen according to the availability of data on the Thomson Reuters platform. In the first stage, the sample was built from 807 enterprises; later it was narrowed down to 286 companies due to the lack of data of the enterprises. The period analysed is 4 years, more precisely 2020-2023; these years were chosen to capture the impact that an uncertain economic situation can have on the management of an enterprise, thus forcing it to make quick and important decisions. It is worth mentioning that in 2020 the whole world was facing the Covid-19 pandemic, which quickly brought several changes in the decisions taken by the boards of companies, and the last year was 2023, as it is the last year for which data were identified. At the same time, financial companies: insurance, pension, investment, banking, and state-owned enterprises were removed from the final database.

Econometric models are multivariate in empirical studies; in this study, we will use panel data to help us in panel regressions. In the analysis we will use both the least-squares model for two regressions, but also two fixed-effects regressions.

In the econometrics books Andrei et al. (2008) panel regression is found in the following form:

$$\boldsymbol{yit} = \boldsymbol{\alpha} + \boldsymbol{Xit}\,' \boldsymbol{\beta} + \boldsymbol{uit},$$

where:

$\boldsymbol{yit}$- dependent variable

Xit- Independent Variable

$\boldsymbol{\alpha}$ – constant

$\boldsymbol{i} = \mathbf{1}, \dots, \boldsymbol{N}$, iar $\boldsymbol{t} = \mathbf{1}, \dots, \boldsymbol{T}$, where :

N- denotes the sample size of enterprises

T - denotes the size of the time series.

To achieve the desired goal, several econometric models with panel data will be used. The data source for the dependent and independent variables in *Table 1* is the Thomson Reuters platform. The dependent and independent variables are presented and described in *Table 1.*

Table 1. Description of the variables used in the empirical study

Variable	Definition	Symbol
Dependent variables		
Board size	Number of persons on the Board of Directors (BoD)	BS
Gender diversity	Percentage of women in the BoD	%F
Z Score	The Z-score combines five common business reports using a weighting system calculated by Altman to determine the probability of bankruptcy.	Z-ALTMAN
Independent variables		
Degree of indebtedness	Long-term debt to equity ratio	GI
Z Score	The Z-score combines five common business reports using a weighting system calculated by Altman to determine the probability of bankruptcy.	Z-ALTMAN
Current liquidity	Ratio between current assets and current liabilities	LC
ROA	Ratio between net profit and total assets	ROA
ROE	Ratio between net profit and equity	ROE
%EBITDA	Relative ratio between year N and year N-1 all relative to year N-1	%EBITDA
LN(AT)	Natural logarithm of total assets	LN(AT)
Nomination Board Committee	Dummy variable: 1 represents the existence of the committee and 0 reflects the non-existence of the committee	Nomination Board Committee
Audit Board Committee	Dummy variable: 1 represents the existence of the committee and 0 reflects the non-existence of the committee	Audit Board Committee
Corporate Governance Board Committee	Dummy variable: 1 represents the existence of the committee and 0 reflects the non-existence of the committee	Corporate Governance Board Committee

Source: Authors' own research.

The descriptive statistics of the variables used can be identified in *Table 2*. It can be noticed that several firms in the sample have a minimum of 5 board members, but only Volvo Car has a total of 18 board members in 2022. On the other hand, a maximum of 50% of the percentage of female presence can also be noticed; this high percentage is particularly noticeable in several Swedish companies. The company with high total assets is H & M Hennes & Mauritz AB in 2022. At the same time, it can be noticed in the current liquidity a difference between the minimum coefficient of 0.395 recorded by Sagax AB in 2020 and a maximum liquidity of 5.70 held by Acarix AB in 2021. Another important aspect to highlight is the fact that in the sample there are also enterprises that do not have a degree of debt, the minimum coefficient of this variable being 0 held by several predominant enterprises in Sweden, and the maximum is 52% held by 6 enterprises in the sample.

Table 2. Descriptive statistics

Variables	Mean	Median	Minimum	Maximum	Std. Dev.
BS	7.6449	7.0000	5.0000	12.0000	2.1627
%F	0.3100	0.3300	0.0000	0.5000	0.1295
Z-ALTMAN	4.4794	3.0400	0.0000	18.4850	4.4735
GI	0.2438	0.2500	0.0000	0.5200	0.1596
ROA	0.0285	0.0700	-0.4500	0.2100	0.1564
ROE	0.1105	0.1600	-0.6100	0.4600	0.2542
Nomination Board Com	0.6434	1.0000	0.0000	1.0000	0.4792
Audit Board Com	0.8339	1.0000	0.0000	1.0000	0.3723
Corp Gov Board Com	0.0656	0.0000	0.0000	1.0000	0.2476
LN(AT)	20.3073	20.3800	16.6800	23.5700	1.9979
%EBITDA	0.1023	0.0800	-0.6100	0.9100	0.3437
LC	1.7774	1.4200	0.3950	5.7000	1.2765

Source: Authors' own research.

Table 3 shows the correlation matrix of the variables used in the panel econometric model, this is done to establish the correlation, and if this correlation exists between variables then they cannot be used in the same panel regression. Thus, a correlation threshold of +/-70% is set, and the highest values will be considered to have a high level of correlation. As can be seen in Table 3, there is a strong correlation of 95.3% between ROE and ROA that will not allow the variables to be included in the same regression model.

Table 3. Correlationmatrix of variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. BS	1.0000											
2. %F	0.0364	1.0000										
3. Z-ALTMAN	-0.0997	-0.0612	1.0000									
4. GI	0.1549	0.1250	-0.4223	1.0000								
5. ROA	0.2456	0.1346	0.1464	0.2382	1.0000							
6. ROE	0.2583	0.1429	0.1550	0.2521	0.9530	1.0000						
7. Nomination Board Com	0.1947	0.0580	0.0029	0.0493	0.1885	0.1967	1.0000					
8. Audit Board Com	0.2496	0.1659	-0.1688	0.2525	0.2884	0.2803	0.2548	1.0000				
9. Corp Gov Board Com	0.2819	-0.0232	-0.0608	0.1412	0.0792	0.0856	0.1431	0.1085	1.0000			
10. LN(AT)	0.6238	0.2125	-0.2663	0.4377	0.4845	0.4651	0.2223	0.4091	0.2670	1.0000		
11. %EBITDA	-0.0160	0.0560	0.1579	0.0158	0.1157	0.1610	0.0939	-0.0203	-0.0184	0.0177	1.0000	
12. LC	-0.2151	-0.0947	0.5310	-0.4566	-0.3943	-0.3648	-0.1005	-0.2423	-0.0817	-0.4666	0.0300	1.0000

Source: Authors' own research.

Results and discussions

Table 4 presents the results of the panel econometric models with fixed effects and random effects. The first two regressions present the impact of leverage (GI) on board size (BS), while the next regression analyzes the relationship between gender diversity (%F) and bankruptcy risk (Z-Altman). We also study in the reverse direction in which Z-score becomes the dependent variable. We wanted to analyze in the reverse direction the relationship between risk and corporate governance characteristics, even if there is a more limited literature in this regard, because corporate governance characteristics were greatly affected by the pandemic period, we wanted to analyze the impact of risk on corporate governance. The research is based on the work of Pathan (2009) who has approached the link between risk and board diminishment in both senses, which led to the realization of the research in both senses.

Table 4. Results of econometric regressions

Variables	(1)	(2)	(3)	(4)	(5)
	BS	BS	%F	Z-ALTMAN	Z-ALTMAN
	Random effects	Random effects	Fixed effects	Fixed effects	Random effects
GI	.6339*	.7589**		-3.7897***	-5.2219***
	(.3312)	(.3429)		(.9638)	(.7629)
ROA	1.4483***			7.1704***	10.2097***
	(.3721)			(1.1595)	(.8601)
ROE		.7194***			
		(.2115)			
Nomination Board Com	.2037*	.2193**	.0788***		
	(.1054)	(.107)	(.0107)		
Audit Board Com				-1.5278***	-1.1216***
				(.3513)	(.2967)
Corp Gov Board Com	.9135***	.9648***			
	(.3475)	(.3482)			
Z-ALTMAN			-.0032***		
			(.0012)		
LN(AT)			.0603***	-.739**	-.2765***
			(.0124)	(.3132)	(.0911)
%EBITDA				1.209***	1.1837***
				(.1947)	(.1942)
LC				1.2741***	1.5218***
				(.1085)	(.0908)
CONSTANT	7.2243***	7.1727***	-.9532***	19.1011***	9.1755***
	(.1548)	(.1576)	(.2527)	(6.3369)	(1.8214)
Obs.	1102	1085	1140	1135	1135
R-squared	0.1697	0.1703	0.0997	0.2570	0.2491

Source: Authors' own research.

Note: P-value: *p<0.1, **p<0.05, ***p<0.01. For each variable we only took from the regression the coefficients and standard errors.

The increase in indebtedness leads to an increase in the number of members on the board of directors, justified by the fact that a larger board of directors could make optimal decisions regarding the degree of indebtedness. In a period of maximum uncertainty, economic and financial profitability could be supported by a larger board of directors. In an economic and health crisis, the existence of committees could support the growth of the board in order to support decision making.

The increase in the Z score reflects a lower risk of bankruptcy as a result of effective financial decisions by the board of directors, where the proportion of women on the board is significant in a period of health crisis. According to and studies in the literature analysed in the opposite direction the presence of female individuals who are risk averse, balanced and can bring a greater balance to companies in risk and performance management. At the same time, the larger the company, the more gender diversity is desired, due to the prudence and risk aversion that women possess.

The existence of three members and a financial expert on the audit committee during the pan-emergency period led to a decrease in the Z-score and an increase in the risk of bankruptcy. An increase in indebtedness leads to a decrease in the Z-score, which means an increase in bankruptcy risk. When economic profitability increases, the Z-score increases, which means a reduction in bankruptcy risk. The larger the enterprise, the lower the Z-score, and the higher the risk of bankruptcy. This is due to the COVID-19 pandemic, which generated more needs for companies to carry out their activities, so they had to supplement their resources through debt. A

relative increase in EBITDA is reflected in a lower risk of bankruptcy. An increase in liquidity decreases the risk of bankruptcy because it is reflected in an increase in the Z-score.

Conclusion

The analysis aims to analyze the impact of risks on corporate governance, as key governance indicators were board size and gender diversity. These two broad categories of governance were chosen because in recent years they have been of major importance in keeping the risk of bankruptcy or financial risk as high as possible. This has of course been specifically adapted to the market context, bearing in mind that an uncertain period broke out in 2020, forcing the management of an enterprise to make quick and responsible decisions. This fact is also proven in this research where Northern European enterprises had to make important enterprise decisions during Covid - 19, and the results show the importance of qualitative governance.

This paper analyzed the influence of risk indicators on corporate governance indicators (gender diversity and board size). Based on a sample of 286 companies in Northern Europe (Denmark, Finland, Republic of Ireland and Sweden) over a four-year period (2020-2023).

The results suggested that there is a direct and statistically significant relationship between the indebtedness of firms and board size. Also, the risk of bankruptcy negatively and statistically significantly influences the presence of female board members, which shows the importance of gender diversity on boards. These results add to the literature on the influence of risk on corporate governance in a relatively recent context of Northern European companies.

As future directions, extend the database with other variables but also with other countries. Limitations of this study are lack of data for several Northern European countries.

References

Alam, A. and Shah, S.Z.A. (2013) "Corporate governance and its impact on firm risk" International Journal of Management, Economics and Social Sciences. 2 (2), 76-98.

Akhigbe, A. and Martin. A. D. (2008). "Influence of disclosure and governance on risk of US financial services firms following Sarbanes-Oxley". *Journal of Banking & Finance,* 32 (10), 2124-2135.

Andrei, T. Oancea, B. Mirica, A., Toma, I. E and Herteliu, C.(2008). "Econometrics. Theory and applications in EViews and R", Economic. Publishing.

Bernile. G., BhagwatV., and Yonker.S.(2018). "Board diversity, firm risk, and corporate policies". *Journal of Financial Economics,* 127(3), 588-612.

Bhagat, S., BoltonB, and Lu.J.(2015). „Size, leverage, and risk-taking of financial institutions". *Journal of Banking & Finance,* 59, 520-537.

Cheng, Sh. (2008). „Board size and the variability of corporate performance". *Journal of Financial Economics,* 87(1), 157-176.

Cho, E., Okafor, C., Ujah, N. and Zhang, L. (2021). "Executives' gender-diversity, education, and firm's bankruptcy risk: Evidence from China", Journal of Behavioral and Experimental Finance, 30, 1-12.

Huang. L. Y., FungH. G., and Wen.M.M. (2024). "Bank board diversity on risk and value: evidence from Taiwan" *Applied Economics.*

Huang, Y. Sh., and Wang. C. J. (2015). "Corporate governance and risk-taking of Chinese firms: The role of board size". International Review of Economics & Finance, 37, 96-113.

Lajili, K. (2009). "Corporate Risk Disclosure and Corporate Governance". Journal of Risk and Financial Management, 2(1), 94-117.

Muhammad, H., Migliori, S. and Mohsni, S. (2023). "Corporate governance and firm risk-taking: the moderating role of board gender diversity". Meditari Accountancy Research. 31 (3), 706-728.

Nakano, M. and Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. Corporate Governance: An International Review, 20 (4), 369-387.

Pathan, Sh. (2009). „Strong boards, CEO power and bank risk-taking". *Journal of Banking & Finance,* 33(7), 1340-1350.

Paul M. (2009). „The impact of board size on firm performance: evidence from the UK", The European Journal of Finance, 15 (4), 385-404.

Rouse, M., Ottemoesoe, R. Sh. D., Wang Y., and Zhang Y. (2024). "Do female independent directors reduce corporate risk taking during COVID-19?". *Asia-Pacific Journal of Accounting& Economics,* 31(4).

Vintila, G. and Gherghina S.C. (2012). "An Empirical Examination of the Relationship between Corporate Governance Ratings and Listed Companies' Performance", International Journal of Business and Management, 7 (22), 46-61.

Vintila, G. Onofrei, M. and Gherghina S.C. (2014). "Corporate Governance Context On Women's Representation In Top Management Positions And Listed Companies Value", Revista de cercetare si interventie sociala, 44, 229-252.

Vo, T. T. A.Nguyen,T. N. T.Henry,D. Nguyen, M. T. and Joseph.N. L. (2023). "Does female leadership matter in firm risk-taking and performance? Evidence from gender equality reforms in an emerging market". *Applied Economics*, 55 (60).

Wang (2012). Board size and firm risk-taking. Review of Quantitative Finance and Accounting, 38, 519-542

Yang Ph., J. Riepe, K. Moser, K. Pull, and S. Terjesen. (2019). "Women directors, firm performance, and firm risk: A causal perspective". *The Leadership Quarterly*, 30 (5).

Directive (EU) 2022/2381 of the European Parliament and of the Council on enhancing gender balance among directors of listed companies and related measures