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Board Gender Diversity and Bank Performance during COVID-19: Did Women Save the Day?[3]

Abstract:

This paper explores the impact of board gender diversity on bank performance during the COVID-19 crisis. Using the data on 87 European banks over 2015-2021 we show that the women on board have a greater positive impact on banks' profitability during the COVID-19 crisis. Moreover, this effect is more pronounced in countries where the morbidity rate is higher. Our results suggest a negative relationship between the women on bank boards and bank credit risk during the pandemic. The female impact on insolvency risk contraction, however, appears only for banks with relatively large boards of directors.

Introduction

The COVID-19 pandemic originated in 2019 in China is expected to bring the deepest global economic recession since the Second World War (World Bank, 2020). COVID-19 was a poorly understood and rapidly spreading deadly disease, so the governments had to implement extraordinary measures to deal with the phenomenal emergency. As a result of global lockdown restrictions enforced to mitigate the transmission rate of the pandemic, most economic sectors faced a dramatic depression, consumption and investment levels were generally reduced. The governments implemented supportive fiscal and monetary measures to diminish the economic downturn. For instance, they provided additional liquidity to the banks and delayed some of the repayment obligations (World Bank, 2020).

Consequently, acting as intermediaries between governmental backing and citizens, banks enforced mentioned support measures by providing additional loan opportunities and reorganization of already presented ones. The vital role of banks in the financial system which was even enhanced during the COVID-19 crisis cannot be overemphasized. Banks not only maintained the stability of the financial system but also provided support through donations (Kara et al., 2022).

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To handle the liquidity problem which banks face in a crisis it is possible, for instance, to suspend loan commitments, invest in derivatives, change the rates, or provide supplementary banking services (El-Chaarani, 2022). All these kinds of strategies are supposed to generate additional cash flows. What is more, they require innovative approaches from board members. Thus, effective corporate governance was essential for banks during the COVID-19 crisis.

The greater representation of women on board is proven to bring significant positive effects to corporate efficiency (Valls Martinez et al., 2019; Beji et al., 2021; Galletta et al., 2022). Female leaders establish a comprehensive governance approach enhancing creativity and innovativeness of decision-making procedures (Huse and Solberg, 2006; Huse et al., 2009). Moreover, a diverse board is associated with superior bank performance and lower bank riskiness as well (Gulamhussen and Santa, 2015; Owen & Temesvary, 2018).

Accordingly, in this paper, we examine the female impact on bank profitability and riskiness during the COVID-19. We use the original set of data collected from BoardEx, BankFocus, and World Bank Open Data databases. We exploit financial and board composition data of the banks located in Europe and the UK from 2015 to 2021. We employ both static and dynamic techniques of panel data estimation and run corresponding tests. A special variable that captures the impact of the female contribution to performance and riskiness specifically during coronavirus is constructed.

We contribute to the existing literature on corporate governance topics. Particularly to the stream which examines performance and riskiness inferences of gender-diverse boards. Our results support the evidence of the positive and significant impact of females on board on various performance characteristics. The impact of female directors on credit risk is proved to be negative, while we cannot confirm any significant influence on insolvency risk.

We also contribute to the papers on the economic consequences of the COVID-19 pandemic. Based on our unique data sample, we conclude that the share of women on board has a positive and significant impact on banks' profitability during the COVID-19 crisis. Moreover, we prove that the impact has a positive relationship with the intensity of disease spread: the more people got sick, the higher the female impact was discovered.

The negative impact of women on board on credit risk is also strengthened with respect to COVID-19 spread in different countries. These findings have substantial research implementation. While prior studies provide mixed evidence on female impact, our results confirm that female impact is significant precisely in emergencies and is almost not relevant

under favorable economic conditions. This conclusion is probably the solution to the discussion of the ambiguity of results obtained in the existing empirical papers.

The policy implications of our results suggest that improved gender diversity might protect banks in crisis, and markedly the positive contribution improves depending on the burden of the crisis. Thus, our findings suggest the improvement of board diversity without waiting for another following crisis as it is proven to have a positive impact on bank performance and negative impact on bank riskiness.

Literature Review and Hypotheses Development

Females' Impact on Bank Performance and Riskiness

The financial sector is a very special industry and banks are very special organizations as they play a vital role in financial system stability (Fama, 1985). Additionally, the banking industry has an influence on the non-financial sector as well. Efficient governance of banks is important not only for financial industry operations but also for the economy as a system. Another special feature of the financial industry compared with non-financial ones is that women are still highly underrepresented on financial companies' boards. Hence, in scientific literature, it is customary to study financial and non-financial firms separately. Nowadays the number of research focused mainly on the banking industry is increasing. Researchers specify various hypotheses about gender diversity's impact on the banking sphere as effective bank governance is extremely beneficial as well as highly complex to achieve.

The question of banking governance became increasingly debated after the subprime crisis in 2007-2009. Adams and Mehran (2012) raise a question about the impact of board governance structure on performance. The authors name board independence and board size as important factors affecting banks' performance. However, many researchers such as García-Meca et al. (2015) similarly name gender diversity as a major factor. In the article, researchers prove that gender diversity increases banks' performance. The research is based on 156 banks located in 9 European countries. The sample contains data collected in the period of 2004-2010. Authors use GMM proposed by Arellano and Bond (1991) in order to deal with endogeneity issues. Gulamhussen and Santa (2015) confirm this result. They construct their models on the sample of 461 banks located in member states of the Organization for Economic Co-operation and Development (OECD). The extended size of the sample makes the conclusions look more reliable. The main takeaway of this study is that the more women participate in discussions in the boardrooms, the better the bank performs.

To address the endogeneity problem Ting (2021) uses a logic-modeling approach to investigating the Chinese banking sector. The conclusion complements the previous studies. Moreover, the author points out that women in top management tend to have even stronger authority than men. It might be explained by the «glass ceiling» concept. This concept stands for the issue that female directors are inclined to be more educated, experienced, and skilled as women must overcome the discrimination barrier to obtain the highest position (Adams et al., 2012). Bouteska and Mili (2021) study the Asian market on the same subject. They prove the positive impact of women of banks' performance in ASEAN countries which are namely Brunei, Cambodia, Myanmar, Laos, Indonesia, Malaysia, the Philippines, Thailand, Singapore, and Vietnam. The significance of Bouteska and Mili's contribution is that gender impact exists even in countries where the discussion about equality issues is less relevant.

Del Prete and Stefani (2021) obtain the results which are also in line with previous studies by looking at Italian banks' governance. They include in the sample the observations for 15 years and adopt a two-step OLS approach with instrumental variables to avoid endogeneity issues. Similarly, exploiting the data set based on a single country in particular Luxembourg, Reinert et al. (2016) include an extended time period (1999-2013) to make the estimations look solid. They also confirm the positive link between females on board and bank performance. Moreover, they confirm that the impact of women was almost twice as greater during the financial crisis of 2007-2009. This finding is explained by women's high risk aversion amongst other factors.

Speaking of the banking industry and gender diversity, there is also a significant stream of scientific literature that examines the impact of women on banks' risk management. It is commonly believed that being in general more risk-averse women on board reduces the average level of risk by faster response to challenges and more adaptive behavior.

Gulamhussen and Santa (2015) confirm the negative relation between the presence of female directors on the board and banks' risk attitude. They examine the largest 25 banks located in 24 OCED countries because of data availability issues. The estimation is completed for supervisory boards and audit committees. The results are valid both for credit risk and insolvency risk. Authors relate their results to the stricter monitoring, conservatism, and general risk aversion associated with female directors. The results are consistent for various risk measures and modeling approaches employed.

Jabari and Muhamad (2022) conclude that women directors also improve insolvency risk measures for Islamic banks. The sample is wide and consists of all Islamic banks functioning

all over the world from 2010 to 2018. The risk measures are non-performing loans and z-score. The results align with the assumption of greater risk averseness of female directors as they prove positive and significant effects of female share on mitigating the insolvency risk.

Arart et al. (2023) examine how the gender diversity of the workforce influences banks' risk. They focus not only on the representation of women on board and other decision-making bodies but also on female representation within the other bank structures. They collect financial data from 462 banks operating in 17 countries over 2005-2012. However, the sample is significantly reduced due to data availability issues which is quite typical for gender research. The authors find positive effects of gender diversity on banks' risk measures as well as on banks' effectiveness.

Lu and Boateng (2023) focus on the credit risk of the banks located in the UK. Researchers detect the negative impact of women directors on credit risk measures. Moreover, they confirm the robustness of the results by using alternative modeling specifications that account specifically for the financial crisis period. Díez-Esteban et al. (2022) prove that women on board influence banks' systemic risk, which is the risk imposed by a bank on the whole financial system in crisis. Elnahass et al. (2023) confirm that board diversity is strongly associated with bank stability.

However, in this sphere, the search findings are inconclusive as well. Birindelli et al. (2020) conclude that females do not diminish bank risk provided that the bank itself is not trustworthy. However, for credible banks, the female impact is significant. The authors investigate 215 banks listed in 40 countries for 8 years. They use a panel data approach, different specifications of the model, and 4 indexes of risk to obtain robust results.

Likewise, there are more studies in which it is found no significant impact of women on bank risk. For instance, Shukla et al. (2021) review Indian banks. Although they support the evidence of the positive role of women in terms of performance, nevertheless, the authors do not confirm the existence of any significant influence on risk measures. Abou-El-Soo (2021) even proves the negative dependence between the share of women on board and risk attitude on the assumption of high capitalization. Under such circumstances, women are rewarded if they invest in riskier assets. Thus, the author claims that generally, women tend to invest in less risky assets mostly in periods of high uncertainty. Exploiting the mixture of agency theory and social psychology studies, researchers argue that women's decisions are likely to be determined by the capital structure rather than by inherent risk aversion. Abou-El-Soo

studies 195 US banks over a 16-year period and the reduction of risk in more diverse boards remains, the author explores the conditions when this is not supported.

No significant dependence between gender board structure and risk is detected based on UK financial companies by Akbar et al. (2017). They explore different board characteristics such as board size, board independence, gender diversity, and CEO profile. There is data on all firms operating in the financial sector of the UK, including banks, insurance, real estate companies, and firms providing financial services over 11 years. GMM method of modeling is used, and the results are proven to be reliable. However, other authors reveal women's positive effects on risk management practices. Consequently, Kacem and Harbi (2022) studying the 50 largest banks worldwide conclude that there is not only a positive correlation between the score of female leaders and performance, but also risk management significantly improves thanks to gender diversity. The authors claim that the GMM method is the most appropriate in their research.

Another popular gender research direction is the estimation of women's impact on environmental banks' performance. As banks are increasingly involved in the sustainability debate, they are expected to implement sustainable management practices. According to experts, gender diversity in leadership is a must for a sustainable world (Sustainability Development Goals). Researchers support this statement empirically. Thus, Birindelli et al. (2019) study 96 banks in Europe, the Middle East, and Africa from 2011 to 2016. They use the panel data approach and, according to tests, choose a random effect model rather than a fixed effect model to define the dependence between environmental performance and women share on board. They determine positive and significant nonlinear relationship which is also in line with critical mass theory and homophily perspective. These results are supported by Galletta et al. (2022) who explore banks in 48 countries over 8 years, constructing OLS and probit models to verify female contribution in environmental, social, and governance (ESG) dimensions. They prove the hypothesis about positive effects.

However, the conclusions in this field are not straightforward as well as on the other topics related to the impact of gender diversity. Hence, Gallego-Sosa et al. (2020) find no significant relationship between the share of female directors and bank environmental performance. They base the research on the data of the 52 largest banks located in Europe and North America and exploit a fixed effect model for estimation.

Therefore, the question of female leaders' impact on banks' metrics is a highly topical issue among the scientific community over the past few decades. Researchers investigate this

impact by applying various techniques and indicators. However, the obtained results are equivocal, so the discussion is going to be expanded onward considering more specifics in relation to different circumstances, for example, business cycles and crisis periods.

Female Directors' Impact During Crises

Being a very topical point for discussion, effective governance is highly particularly relevant in crisis situations. For instance, Mitton (2002) highlights the significant role of corporate governance on firms' outcomes during the East Asian financial crisis of 1997-1998. Lemmon and Lens (2003) substantiate the same results stressing the importance of ownership structure. In the research of Francis et al. (2012), it is proven that firm performance extremely depends on the corporate governance effectiveness over the 2007-2009 crisis.

Gender diversity is an essential part of effective corporate governance as it is proven in numerous studies. Thus, Reinert et al. (2016) define that the female leaders' impact on bank performance increased during the 2007-2009 financial crisis almost twice compared with both previous and further time periods. This finding is in line with the studies underlining the monitoring function of female directors as well as innovative approaches as these instruments are likely to be more substantial in overcoming emergencies.

The COVID-19 pandemic is not only a ubiquitous terrible disease but also the latest global financial crisis. The banking system encounters incredible pressure, attempting to support the clients and counteragents facing pandemic and quarantine restrictions. Consequently, effective banks' corporate governance whilst COVID-19 is vitally important. There are not many related articles by now, but clearly, the field will be developed further from various perspectives.

The most relevant paper about gender diversity's impact during the pandemic is prepared by Kara et al. (2022). Authors hypothesize that responses of female leaders to the shock in the banking industry are likely to be more effective. They build a special unique measure to estimate bank reactions. The new measure is constructed based on textual analysis of news, press releases, and reports which provide data on actions implemented by banks to mitigate COVID-19 negative effects. The authors develop a scoring system that gives points for the support of customers and the economy by implementing mechanisms proposed by the government as well as for introducing in-house activities for the same purpose. Moreover, the points are added for charity and donations, support of financial stability, protection of

employees, and providing information. The total score reflects the banks' responses to the pandemic.

The total score is a dependent variable of the model, while the variable of interest is the proportion of women on board. Naturally, board and bank controls are also introduced in the model. The main employed model is OLS with countries' fixed effects adjusted for possible heteroscedasticity of errors. Thus, empirically, Kara et al. provide evidence of the positive relationship between board gender diversity and banks' responses during COVID-19. They prove that the more females are on board, the more banks support their clients and employees in crisis. Moreover, higher levels of charity and donations are associated with female leaders as well.

According to Garikipati and Kambhampati (2021), female national leaders did better during the first wave of the pandemic. They reacted more quickly and decisively and implemented a proactive and effective policy against COVID-19. Studying the relationship between the responses of 194 countries to the COVID-19 pandemic and their social and demographic characteristics, the authors make a substantial conclusion about female leaders' role in handling the crisis. Female leaders are proven to obtain significantly better outcomes systemically, even accounting for a wide range of specific countries' characteristics.

Naeem et al. (2022) investigate the relationship between women and sustainable performance during the COVID-19 crisis in the Malaysian region. They show a positive relationship in the financial sector, while there is no evidence for non-financial firms. This withdrawal once again suggests that the financial industry is a very special sector as regards corporate governance.

Turning to financial outcomes during the COVID-19 crisis, Akhtar et al. (2022) find out that firms with gender-diverse boards experienced higher abnormal returns. According to the authors, as female leaders are considered to improve board monitoring and advisory functions, their impact is highly appreciated by investors, especially in a crisis. Hence, the stock price response to the COVID-19 emergency is improved by female directors through two channels: investors' expectations and superior board functioning.

These conclusions confirm the expectations of higher diversity significance during crisis periods. The female impact is proven to be reinforced in case of emergency as a high degree of uncertainty involves wider discussion and requires the establishment of extraordinary measures.

Hypotheses Development

We base the main hypothesis of our study both on theoretical and empirical conclusions outlined ahead. Even though there is an ambiguity in outcomes obtained in different studies examining the impact of women on board on firm targets, the authors focused on crisis situations that support the existence of positive female impact. Thus, we argue that women on board improve bank profitability and reduce riskiness substantially during the COVID-19 crisis compared to the other banks. We focus on a very specific banking industry and explore only the banks located in Europe and the UK so that the obtained results turned out to be more robust. Following Kara et al. (2022) we argue that the banks with greater board diversity are better able to cope with unexpected challenges like COVID-19. In line with Reinert et al. (2016) we intend to verify whether better women representation improves performance during recession and insecurity. Consequently, the main hypothesis is the following:

Hypothesis 1: Higher share of women on board has a positive effect on banks' profitability during the COVID-19 crisis.

Speculating further upon this issue, we wonder whether the female impact is additionally positively correlated with the severity of the pandemic. To the best of our knowledge, there are no articles investigating this question yet. However, several authors check the mutual effects of female representation and other board or firm characteristics on performance. For instance, Naeem et al. (2022) examine the mutual impact of gender diversity and firm age on performance among other things. Lee (2023) considers the joint effects of gender diversity and disclosure requirements as well as the shared impact of gender diversity and shareholders' rights protection on Tobin's Q measure of performance. Accordingly, the research on the mutual impact of women's presence on banks' boards and COVID-19 spread among different countries illuminates the dimension of female impact. Hence, the following hypothesis is tested:

Hypothesis 2: The positive impact of women on banks' profitability during the COVID-19 crisis is more pronounced in the countries where the incidence is higher.

Following the results of Lu and Boateng (2023), and Arart et al. (2023) we examine how the gender diversity of banks' directors impacts the risk attitude. As women in general are considered to be more risk averse than men, we suppose that they have the power to reduce the risk of banks' portfolios. However, we consider the female impact on riskiness specifically during COVID-19. We argue that the effects of board gender diversity would be

more substantial during the crisis both for credit risk and insolvency risk indicators. Consequently, the next hypothesis is formulated as follows:

Hypothesis 3: Higher share of women on bank board is associated with lower banks' riskiness during the COVID-19 crisis.

Considering the reasoning supporting the second hypothesis of particular research and the assumption of female impact on riskiness presence, we are going to examine whether the female contribution to risk reduction strengthens along with the COVID-19 severity increases from one country to another. This aspect has not been discussed in scientific literature yet according to our knowledge. Thus, the following hypothesis is tested:

Hypothesis 4: The impact of women on banks' riskiness during the COVID-19 crisis is more pronounced in the countries where the incidence is higher.

Methodology and Data

Sample and Data Sources

The data was collected from BoardEx, Bureau van Dijk BankFocus, and World Bank's databases. The BoardEx database provides a wide range of information about the characteristics of directors working for the companies of various industries and countries. The selected sample covers the board information related to banks located in Europe and the UK between 2015 and 2021 with annual frequency. The time period is chosen such that the largest number of observations could be included in the sample, with regard to the issue of data availability. Thus, 156 banks are left in the sample after deleting those having missed observations over the mentioned period.

Financial data is collected from the BankFocus database. These two data sets are merged using ISIN identification numbers and bank names. After the merger procedure, the number of banks that have all necessary observations decreased to 87. Afterward, country-specific variables are added from the World Bank's database. Therefore, the final sample contains 2380 bank-year observations on board composition, just above 5000 bank-year observations on financial indicators, and over 900 observations on country-specific variables of 87 banks located in 22 countries over 7 years.

Dependent Variables

Following, Post and Byron (2015), we focus on accounting measures of bank profitability such as Return on Assets (ROA), Return on Equity (ROE), Return on Average Assets

(ROAA), Return on Average Equity (ROE). They are unified across different countries and applicable to all banks in the same manner. They are more reliable, stable, and consistent compared to the market-based performance indicators if the goal is to obtain some meaningful insights on annual data over banks located in various countries.

ROA is defined as a ratio of net income and total assets and denotes a bank's profitability. ROE is calculated as a ratio of net income and shareholders' equity and exhibits return on net assets. This measure is initially calculated in the BankFocus database using a profit and loss statement before tax. ROAA is calculated as a ratio of net income before tax and interest, and an average book value of total assets. ROAE is computed as net income after tax divided by the average book value of total equity. We use these three measures to check the robustness of our results and confirm that the findings are not dependent on the chosen method of performance measure calculation.

By choosing accounting measures of bank performance, we follow the approach used by numerous authors studying gender diversity field. For example, ROA and ROE are used as dependent variables by Adams and Ferreira (2009), Pathan and Faff (2013), Gulamhussen (2015), Owena and Temesvary (2018), Ting (2021), Galetta et al. (2022), and many others.

All the profitability variables have shown a similar dynamic over a period under consideration (see Figure 1). They all sufficiently decreased in 2020 and began to recover in 2021 although they did not reach the level obtained before COVID-19. ROAA evolves between 37.31% and 65.64%. ROA varies between 35.43% and 61.02%. The ranges of ROE and ROAE are much smaller. ROE demonstrates values in an interval between 5.8% and 10.89% with a mean of 8.53%. The difference between the minimal and maximum value of ROAE over the period is just about 4%.

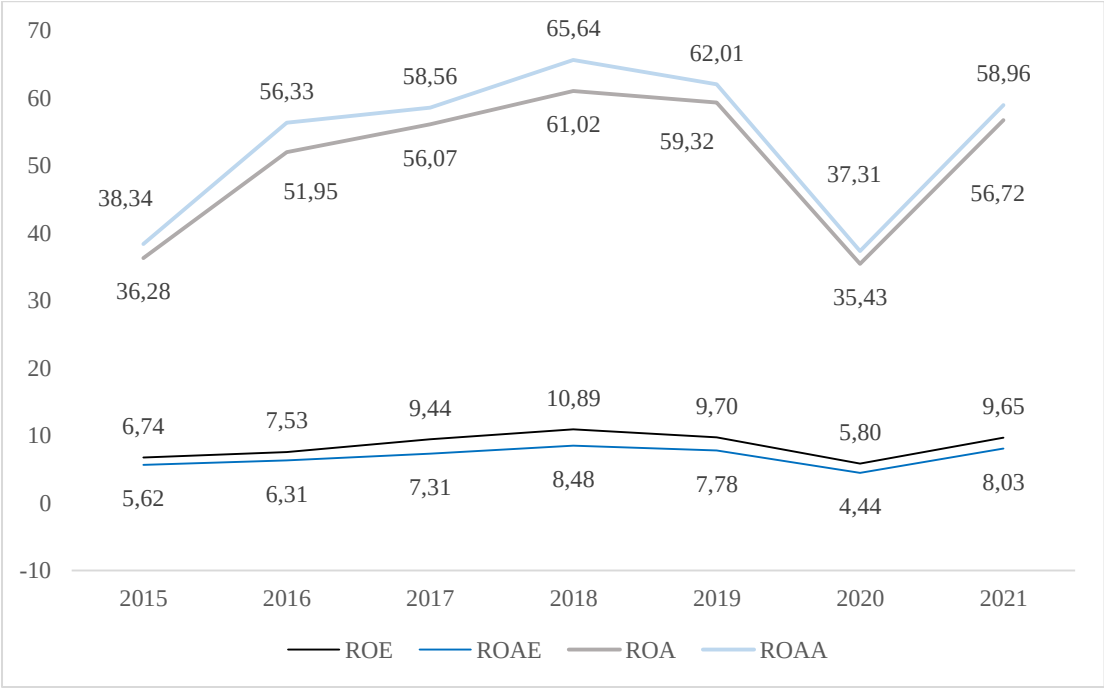

Figure 1 Average Performance Evolution over Time, %

Bank risk can be measured by a certain range of metrics as well. Following Gulamhussen and Santa (2015), Jabari and Muhamad (2022), Lu and Boateng (2023), and Arart et al. (2023) Loan Loss Ratio (LLR) and Non-performing Loans ratio (NPL) are employed as measures of bank credit risk, while Z-score (SCORE) is used a proxy of insolvency risk. Loan Loss Ratio is calculated as loan loss reserves value divided by gross loan value. This ratio shows how much reserves a bank has to hold to manage its risk. A higher value of LLR signifies a higher credit risk for a bank. Figure 2 shows that the average value of LLR varies from 4.01 to 1.76 over the period under consideration.

Non-performing Loans ratio is defined as the total value of non-performing loans divided by the total value of gross loans. This measure indicates how much of the banks' loans are not repaid or are in default. The higher value of NPL implies that the credit risk of a bank is higher. It varies between 1% and 90%, meaning that there is a wide range of banks in the sample whose attitude to risk differs a lot. Some banks in a particular year have almost zero defaulted or unpaid loans, while others experience highly unpleasant situations being on the verge of total default. The average value of NPL over time is consistent enough. This measure of credit risk is reducing over time on average identifying and improving the risk perception among banks.

Z-score is a measure of bank insolvency risk. It indicates the likelihood of a bank being able to deal with its' financial liabilities. It captures the relationship between a bank's performance, capital, and volatility.

$$SCORE = \frac{ROA + TE/TA}{SD(ROA)} \# \quad (1)$$

ROA – return on assets;

TE – total equity;

TA – total assets;

SD(ROA) – standard deviation of ROA calculated as a moving average over 1 year.

Thus, the higher value of this indicator shows a lower probability for the bank to be insolvent. The average value of insolvency risk over all the banks in the sample varies much more over time than credit risk measures according to Figure 2. The risk of bank insolvency increased before the start of the pandemic in 2019. However, a significant improvement was identified in 2021. It could be related to the governmental support measures implemented during the pandemic by the majority of the authorities.

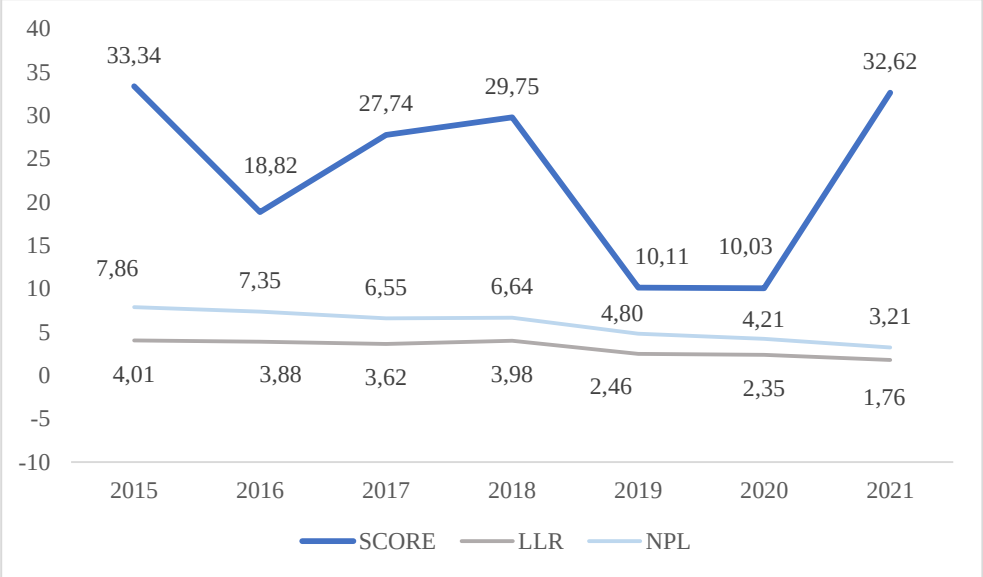

Figure 2 Average Risk Evolution over Time, %

Measuring Bank Board Gender Diversity and COVID-19 Shock

Following Cucari (2018), and Birindelli (2019), we proxy bank board gender diversity by the share of women on board. By its very nature, the ratio of females is calculated as:

$$RFEM = \frac{FEM}{BOARD} \#(2)$$

FEM – number of women on board;

BOARD – total number of directors.

The average value of the female ratio in our sample is about 27.5%. The median board size is about 12 people, while the median number of women on board is 3. Thus, we believe that roughly every 4th director of a representative bank is a woman. We consider median values as the means are not integers and we cannot accurately interpret the fractional number of people. Over 7 years the average board size has increased between just about 23.5% to 32%.

Checking the robustness of the results we substitute *RFEM* with the Blau index (Blau, 1977; Bear et al., 2010; Owena and Temesvary, 2018; Alharbi et al., 2022). Blau index (*BLAU*) is a proxy of board diversity, and it is calculated as:

$$BLAU = \left[1 - \sum_{g=1}^{G} P_g^2\right] \#(3)$$

P – the number of females and males on the board divided by the total number of directors;

g – gender index.

Blau index lies in the range from 0 to 0.5. The maximum possible value implies there are 50% of females and 50% of males on board. The low values of the Index mean a poor level of equality. The Blau index is increasing over time and is highly correlated with the female share ratio. The Blau index average value increases from 32.7% to 40.3% over 7 years.

Figure 3 illustrates the distributions of average and median female share on board and Blau index over 2015-2021.

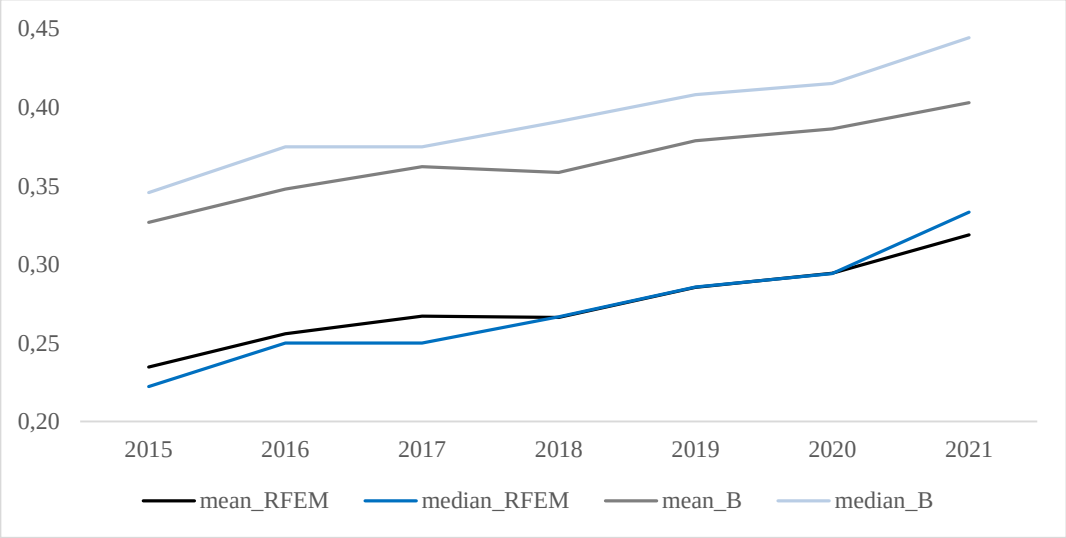

Figure 3 Average and median of female ratio and Blau index over 2015-2021

Table 1 demonstrates the details on the gender diversity variables' summary statistics and its dynamics over time.

Table 1 Summary Statistics of Female over Time

Variable	Statistic	2015	2016	2017	2018	2019	2020	2021
RFEM (%)	mean	23.47	25.60	26.71	26.62	28.55	29.44	31.89
	median	22.22	25.00	25.00	26.67	28.57	29.41	33.33
	standard deviation	12.80	12.89	12.17	12.76	12.15	12.14	12.61
	min	0	0	0	0	0	0	0
	max	50.00	53.85	53.33	57.14	50.00	54.55	55.56
B (%)	mean	32.69	34.81	36.22	35.85	37.88	38.63	40.30
	median	34.57	37.50	37.50	39.11	40.82	41.52	44.44
	standard deviation	13.48	12.84	11.47	12.64	11.85	11.12	9.97
	min	0	0	0	0	0	0	0
	max	50	50	50	50	50	50	50

There are also two different COVID-19 measures exploited. The first one is a dummy variable which equals 1 in 2020 and 2021 and 0 otherwise (*DCOVID*). It captures the simple presence of the pandemic. Another one is the ratio of people who experienced COVID-19 over the population of a country (*COVID*). This measure not only detects the simple presence of the pandemic but also reveals the variability of pandemic impact among the banks located in different countries.

Control Variables

The set of control variables can be divided into three categories. We use board controls collected from BoardEx, bank financial characteristics taken from BankFocus, and country-specific variables collected from World Bank's database.

The most frequently used board control is board size. We include board size (*RBOARD*) as a proportion of the total number of directors at the end of the fiscal year to total assets. Following Terjesen et al. (2016), Birindelli (2019), and Elnahass et al. (2020, 2022) we expect the larger board size to have a negative impact on bank performance because of possible degradation of effective communication despite the greater information and

resources available for the larger board. In line with that, we also expect board size to increase bank riskiness.

As another board control, the average age of board members (*AGE*) is included. The average age is expected to negatively affect bank performance in compliance with results obtained by Ting (2021), Elnahass et al. (2022), and Kara et al. (2022). Age of directors is assumed to increase bank riskiness as well.

The average tenure on board (*TENURE*) reflects the average number of years the directors held on board by the end of the financial year. We expect positive dependence between average tenure on the board and bank performance since more experienced directors are likely to do their job more effectively. This expectation is in line with Fernandes and Fich (2009), Owena and Temesvary (2018), and Kara et al. (2022). Moreover, directors' experience measure is also supposed to improve bank risk attitude.

Bank financial characteristics impact on bank performance without doubt. Following the literature, we employ the control variables to account for bank size, leverage, risk, and efficiency.

As a bank size measure, we employ a logarithm of total assets (*LTA*) following Elnahass et al. (2020, 2022), Alharbia et al. (2022), and Kacem (2022). The larger bank size is associated with worse performance as it is more complicated to effectively organize the functioning of a substantial organization. However, larger banks are expected to allocate necessary resources more quickly to deal with crisis situations (Kara et al., 2022).

To accommodate banks' leverage, we use Tier 1 capital ratio (*TIER*) which is calculated as core Tier 1 capital divided by risk-weighted assets. Tier 1 capital is defined as a measure of a bank's financial strength. In line with Terjesen et al. (2016), Birindelli (2019), Elnahass et al. (2020), and Alharbia et al. (2022) banks with higher leverage are expected to perform poorly as they have fewer opportunities to allocate funds for development and innovativeness.

As a measure of efficiency, the ratio of total operating expenses to total operating income (*CINC*) is used. This measure demonstrates the proficiency of management in keeping the bank cost-effective and revenue-generating at the same time. Intrinsically successful cost management is expected to improve bank performance. Thus, we expect a negative dependence between the efficiency ratio and performance. The expectation is supported by the articles written by Galletta et al. (2022), and Kacem (2022).

Studying the impacts on risk measures loans and capital indicators are most commonly used (Gulamhussen and Santa, 2015; Andrieș et al., 2017). *LOANS* is the share of loans in total assets. A positive impact is expected on *LLR* and *NPL* as a greater amount of loans is likely to increase credit risk. A negative impact is expected on *SCORE* as the insolvency risk also grows with the rise of banks' liabilities. *CAPITAL* is the share of capital funds in total assets. *CAPITAL* ratio is supposed to have a negative coefficient related to the regressions with *NPL* and *LLR* as dependent variables because higher capital reduces credit risk. We expect a positive coefficient for the regressions with *SCORE* as a dependent variable as a higher score means lower insolvency risk.

Finally, we also control for country specifics by exploiting the logarithm of gross domestic product in per capita terms (*LGDP*). Countries with higher gross domestic product are likely to have more developed banking systems and, consequently, these banks probably perform better (Alharbia et al., 2022; Elnahass et al., 2022). On the other hand, people in richer countries consume more and perhaps there are more loans and fewer resources for the development of the banking system, so the GDP contribution might be negative as well (Terjesen et al., 2016; Elnahass et al., 2020).

Table 2. Descriptive Statistics

Variable	Mean	St. Dev.	Min	Median	Max
ROA	0.48	0.76	-3.78	0.48	3.33
ROE	0.08	0.11	-0.76	0.08	0.46
ROAA	0.52	0.75	-3.98	0.49	3.32
ROAE	0.07	0.09	-0.55	0.07	0.46
LLR	0.03	0.06	0.001	0.02	0.93
NPL	0.06	0.10	0.001	0.03	0.90
SCORE	0.23	0.63	0.06	0.09	10.57
DCOVID	0.29	0.45	0.00	0.00	1.00
COVID	2.39	4.84	0.00	0.00	23.96
RFEM	27.47	12.70	0.00	26.67	57.14
BLAU	36.62	12.13	0.00	39.11	50.00
RBOARD	1.30	7.21	0.01	0.19	96.51
AGE	56.95	3.37	43.82	56.87	65.50
TENURE	5.07	2.42	0.10	4.81	14.64
LTA	18.04	1.99	11.91	17.89	21.84
TIER	16.19	3.86	5.50	15.80	41.60
CINC	64.90	21.45	20.03	61.76	300.29
LGDP	10.71	0.61	9.05	10.74	12.10
CAPITAL	7.21	2.59	1.91	6.77	15.99
LOANS	11.73	5.01	0.01	10.78	32.00

Table A1 in Appendix shows the brief description of all introduced variables, complemented with data sources and units of measurement. Table 2 demonstrates the descriptive statistics for all the discussed variables.

Model Specification

To investigate female impact on bank profitability and riskiness measures during the COVID-19 era and to test the first and the third hypotheses we start with dividing the initial data set into two subsamples. The first one includes all the periods before the coronavirus pandemic (2015-2019). The second one includes all the observations over the period of the COVID-19 outbreak (2020-2021). For each subsample we estimate the following equation by applying panel OLS model with bank fixed effects:

$$Dep_{it} = \gamma RFEM_{it} + \beta CONTROLS_{i,t-1} + \alpha_i + \varepsilon_{it} \#(4)$$

where *Dep* is a vector of variables measuring bank profitability (*ROA, ROAA, ROE, ROAE*) or riskiness (*NPL, LLR, SCORE*). *RFEM* stands for the ratio of female directors over the board size. We focus on the coefficient of the *RFEM* variable and check whether it differs in two periods and whether it has a significant impact on the dependent variable. *CONTROLS* stands for the vector of control variables detailed above: board controls are *RBOARD, RFEM, AGE, TENURE*; bank controls for regressions with performance as dependent variable are *RTA, TIER, RWA, CINC;* bank controls for regressions with riskiness measure as dependent variable *CAPITAL, LOANS*; country control is *LGDP*). The bank index is *i*, *t* is an index for a tear. All of the control variables are used with one year lag as their influence is expected to be evident with a lag.

At the second step we estimate the following regression for the full sample:

$$Dep_{it} = \phi Dep_{i,t-1} + \gamma(DCOVID * RFEM_{it}) + \beta CONTROLS_{i,t-1} + \delta DCOVID_t + \alpha_i + \varepsilon_{it} \#(5)$$

where *DCOVID* – dummy variable, equals 1 in 2020 and 2021, 0 otherwise.

We expect a negative impact of *DCOVID* and a positive impact of *DCOVID*RFEM* on profitability measures and the Z-score. We expect a positive impact of *DCOVID* and a negative impact of DCOVID*RFEM on credit risk variables as the higher values of both *NPL* and *LLR* indicate higher risk.

As performance tends to persist over time and the period under consideration is quite long, we include a lag of *Dep* for consistency and employ the GMM approach of estimation. GMM also deals with endogeneity problems and reverse causality issues (Adams and Ferreira, 2009;

Campbell and Mínguez-Vera, 2008). Hence, we continue our analysis by implementing the Arellano-Bover /Blundell-Bond GMM estimation. Additionally, we run Hansen and Arellano-Bond tests to check the reliability of modeling results.

To test the second and the fourth hypotheses, we exploit the short subsample including data on 2020-2021 only. The regression equation estimated by the OLS techniques with bank fixed effects goes as follows:

$$Dep_{it} = \gamma(COVID * RFEM_{it}) + \beta CONTROLS_{i,t-1} + \alpha_i + \varepsilon_{it} \#(6)$$

where *COVID* is a measure of the COVID-19 intensity being a ratio of people who experienced the disease in a particular country in a selected year over a population of this country in the same year.

*COVID*RFEM* here captures the degree to which the presence of women in the bank board mitigates the negative consequences of the higher country exposure to the pandemic. For bank profitability measures and the Z-score we expect a negative sign of the coefficient by the *COVID* measure and a positive sign of *COVID*RFEM*. A negative impact is expected for *NPL* and *LLR* as the multiplied variable is assumed to be associated with lower credit risk. Thus, we expect that female impact on stability and profitability is higher if the pandemic is more severe. At the same time, we expect that the negative contribution in riskiness is also increased in absolute value in accordance with the rise of pandemic severity.

Ensuring the robustness of the results, we substitute the share of women in the board (*RFEM*) with the Blau index (*BLAU*). We estimate of all equations (4)-(6) using *ROA, ROE, ROAE,* and *ROAA* as measures of profitability, and *NPL, LLR, SCORE* as measures of riskiness.

Results and Discussion

Females' Impact on Bank Profitability during the COVID-19 Crisis

We start with the estimation of the equation (3) with profitability measures as dependent variables. The subsample analysis results are presented in Table 3. Generally they support *Hypothesis 1:* the female contribution to bank profitability is statistically significant and positive whatever profitability measure is considered. During the period of favorable economic conditions the effect is much lower, and it is marginally significant for ROA and ROAA, for ROE and ROAE it appears to be insignificant. In the model specifications with ROA and ROAA as dependent variables the share of women on board continuously improves

performance, and the impact becomes more substantial during COVID-19. Hence, we conclude that there is a positive female contribution during the COVID-19 crisis on bank performance. All the control variables that are significant for the regressions obtain the expected direction of influence on performance measures.

Table 3 Subsample Analysis: Profitability Indicators

Consequently, the results of the dynamic estimation of equation (4) are presented Table 4. The share of women on board stays insignificant in all the model specifications. However the multiplied variable is positive and significant at the 0.1% significance level for all the profitability variables. This is in line with the results obtained at the first step and supports the *Hypothesis 1:* higher proportion of women in bank boards was associated with higher bank profitability during the first two years of the pandemic. Remarkably the female ratio included in the model as a control variable demonstrates no significant influence on bank performance, implying that the female impact on bank performance is likely to occur solely in crisis periods, remaining insignificant under favorable economic conditions.

Table 4. Profitability and COVID-19: effect of female directors, GMM estimations

Variable	ROA	ROAA	ROE	ROAE
RFEM	0.135	-0.0101	-0.0322	-0.0131
	(0.773)	(0.982)	(0.687)	(0.847)
DCOVID	-32.43	-33.76	-5.326	-4.618
	(6.97e-06)	(1.47e-06)	(1.07e-05)	(8.79e-06)
*RFEM*DCOVID*	11.08***	11.80***	2.179***	2.141***
	(2.28e-07)	(1.42e-08)	(3.23e-09)	(0)
RBOARD	-43.54**	-31.48*	-3.987	-3.380
	(0.0200)	(0.0815)	(0.204)	(0.207)
AGE	3.706	4.282*	0.478	0.437
	(0.100)	(0.0507)	(0.212)	(0.182)
TENURE	0.415	-0.397	0.0783	0.145
	(0.894)	(0.896)	(0.882)	(0.748)
LTA	-52.72*	-70.37***	-13.42***	-14.02***
	(0.0504)	(0.00643)	(0.00248)	(0.000222)
TIER	-3.016**	-2.516*	-0.703***	-0.507***
	(0.0271)	(0.0569)	(0.00259)	(0.00973)
CINC	0.295	0.291	0.0569	0.0430
	(0.279)	(0.271)	(0.206)	(0.257)
LGDP	-114.2**	-84.38*	-2.606	-6.569
	(0.0272)	(0.0918)	(0.758)	(0.363)
ROA_{t-1}	0.375***			

	(8.02e-06)			
$ROAA_{t-1}$		0.294***		
		(0.000380)		
ROE_{t-1}			0.244***	
			(0.000657)	
$ROAE_{t-1}$				0.264***
				(0.000349)
Constant	2,054***	2,018***	260.3**	311.0***
	(0.00107)	(0.000934)	(0.0132)	(0.000559)
Observations	435	435	435	435
Number of banks	87	87	87	87

*Note: pval in parentheses *** p<0.01, ** p<0.05, * p<0.1 AR(1) stands for Arellano-Bond test for AR(1), AR(2) stands for Arellano-Bond test for AR(2), Hansen test is the test for overidentifying restrictions, for the test p-value is provided.*

The possible explanation might be that mentioned channels of female influence such as monitoring improvement, innovativeness, and discussion extension are more valid, especially in crisis periods. COVID-19 is a total disaster that is impossible to predict. During this period of substantial uncertainty, for bank directors, it is vitally important to stay open-minded to new ideas, be creative, kind and supportive to the clients and counteragents. Thus, it is no wonder that the best skills and qualities of female leaders were much more in demand during the COVID-19 crisis.

Relationship between Females' Impact on Performance and COVID-19 Spread

To examine the second hypothesis, we apply the short subsample over 2020-2021 only as we are aimed to capture the diversity of the effect of the women's presence on board on profitability depending on the country-level COVID-19 spread. We expect the positive relationship between the share of female directors and bank profitability to be more pronounced in the countries facing more severe pandemic pressure. The results of FE estimation are represented in Table 5.

The coefficients by *COVID*RFEM,* which is interpreted as a measure of women's contribution to bank profitability during the pandemic with respect to its severity, have a positive sign, significant on the 1% significance level, in all model specifications. This result suggests that the more severe the spread of the pandemic the stronger the positive input of female directors on bank performance during the COVID-19 pandemic. The share of women without reference to coronavirus severity is insignificant, which is in line with the previously

obtained results. The signs of control variables are in line with the expectation for the statistically significant ones.

Therefore, we provide the support for *Hypothesis 2*: the positive impact of women banks' performance during the COVID-19 crisis is more pronounced if the intensity of the emergency in the country is higher. This finding highlights the vitally important role of board diversity in decision-making procedures in crisis. Female leaders are proven to be more concerned with the problems related to the pandemic in a broad sense. The higher share of the number of new COVID-19 cases itself is supposed to negatively affect bank performance by degrading the economic situation in the country, however, our results emphasizes that it is female directors who improve efficiency in crisis.

Table 5 Profitability and COVID-19 spread: effect of female directors

Variables	ROA	ROAA	ROE	ROAE
*COVID*RFEM*	6.737***	6.981***	1.158***	1.194***
	(2.380)	(2.470)	(0.351)	(0.324)
RFEM	0.170	0.194	0.020	0.038
	(0.480)	(0.498)	(0.071)	(0.065)
RBOARD	-24.697**	-23.750**	1.320	0.539
	(9.584)	(9.945)	(1.413)	(1.305)
AGE	-2.968*	-3.153*	-0.243	-0.338
	(1.688)	(1.752)	(0.249)	(0.230)
TENURE	1.903	2.279	0.304	0.482*
	(2.071)	(2.149)	(0.305)	(0.282)
LTA	0.276	0.066	0.361	0.058
	(4.642)	(4.817)	(0.684)	(0.632)
TIER	1.770	1.569	0.324*	0.281*
	(1.143)	(1.186)	(0.169)	(0.156)
CINC	-1.051***	-1.120***	-0.174***	-0.124***
	(0.309)	(0.321)	(0.046)	(0.042)
LGDP	33.745***	33.319**	3.352*	1.995
	(12.365)	(12.831)	(1.823)	(1.683)
Bank FEs	yes	yes	yes	yes
Observations	174	174	174	174
R^2	0.340	0.330	0.267	0.257
Adjusted R^2	0.184	0.172	0.094	0.082
F Statistic	8.011***	7.646***	5.661***	5.392***

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

Females' Impact on Bank Risk during the COVID-19 Crisis

In this section we apply the same estimation steps and techniques to analyze the relationship between the share of female directors and bank riskiness during the pandemic. In all the specifications we employ *LLR*, *NPL*, and *SCORE* as risk measures.

We start with testing the third hypothesis. The results for subsample analysis are presented in Table 6. Not that unambiguously as for the profitability ratios but we observe the certain evidence that there existed the negative relationship between the share of female directors and bank credit risk during the COVID-19 years and this relationship is more pronounced compared to the stability period. The effect on *LLR* is negative and significant both before and during the pandemic, but its size is twice as high in the crisis period as it was before it. The female on board influenced *NPL* only during COVID-19 being insignificant throughout relatively favorable economic conditions. However the female impact on insolvency risk measured by *SCORE* still cannot be confirmed, as the variable is insignificant for both subsamples.

Table 6. Subsample analysis: Risk Indicators

	LLR		NPL		SCORE	
Variable	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021
RFEM	-0.039**	-0.064**	-0.065	-0.048*	0.050	0.676
	(0.029)	(0.012)	(0.042)	(0.029)	(0.263)	(0.636)
RBOARD	0.390	0.523**	0.259	1.078*	-2.610	2.914
	(0.454)	(0.242)	(0.666)	(0.591)	(4.142)	(12.866)
AGE	0.229*	0.118**	0.375**	0.283**	-0.472	-2.008
	(0.123)	(0.052)	(0.180)	(0.127)	(1.119)	(2.774)
TENURE	-0.725***	-0.262***	-1.218***	-0.394***	3.853***	-0.990
	(0.145)	(0.061)	(0.212)	(0.148)	(1.320)	(3.227)
CAPITAL	-0.804***	-0.348***	-1.483***	-0.667***	-1.746	-3.653
	(0.147)	(0.054)	(0.216)	(0.133)	(1.341)	(2.891)
LOANS	-0.150	0.059	-0.148	0.163	0.526	2.293
	(0.107)	(0.057)	(0.157)	(0.139)	(0.973)	(3.030)
LGDP	-3.263***	-1.759***	-6.835***	-2.925***	9.857	16.433
	(0.881)	(0.344)	(1.294)	(0.840)	(8.043)	(18.272)
Bank FEs	yes	yes	yes	yes	yes	yes
Observations	435	174	435	174	435	174
R^2	0.161	0.475	0.220	0.313	0.030	0.038

Adjusted R^2	0.003	0.360	0.073	0.163	-0.154	-0.172
F Statistic	10.024***	18.319***	14.716***	9.245***	1.605***	0.807***

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

In Table 7 the results of GMM dynamic estimations are presented. First of all, we observe the negative relationship between the share of female directors and bank's *LLR*, which is even more pronounced in terms of the effect size during the COVID-19 years. Therefore, the negative impact of female during COVID-19 on this measure signifies that the greater share of female on board encourage a bank to reduce the risk of the loan portfolio during the crisis even more than in stable times. However the results provide no evidence for the reduction in the share of nonperforming loans, meaning that female impact is more pronounced if the ex-ante risks are considered: the banks with more women in boards demonstrate more optimism on the on the loan portfolio quality, but there exist no difference in the ex-post share of non-performing loans in the loan portfolio. In this specification we did not find any evidence on the gender diversity effect on the insolvency risk measured by *SCORE*.

Table 7. Bank risks and COVID-19: effect of female directors, GMM estimations

Variables	LLR	NPL	SCORE
RFEM	-0.108**	-0.0902	-0.0547
	(0.0389)	(0.195)	(0.923)
DCOVID	5.045***	3.389	-12.93
	(0.00563)	(0.169)	(0.507)
*DCOVID*RFEM*	-0.0951*	-0.0322	0.0551
	(0.0996)	(0.674)	(0.928)
RBOARD	3.913***	6.183***	-14.77
	(0.00270)	(0.000593)	(0.322)
AGE	0.297	0.162	4.236
	(0.242)	(0.624)	(0.129)
TENURE	-0.720**	-0.866**	-6.593*
	(0.0299)	(0.0452)	(0.0734)
LTA	-2.015	3.147	25.41
	(0.418)	(0.347)	(0.352)
CAPITAL	-0.833**	-1.715***	3.399
	(0.0442)	(0.00241)	(0.430)
LOANS	0.641**	1.224***	-0.726
	(0.0348)	(0.00252)	(0.824)
LGDP	-8.596*	-14.54**	167.0***
	(0.0693)	(0.0214)	(0.00214)
L(LLR)	0.0155		
	(0.824)		
L(NPL)		0.453***	
		(1.50e-07)	
L(SCORE)			0.0446
			(0.525)
Constant	128.9**	112.6	1.133
	(0.0446)	(0.201)	(0.114)
Observations	435	435	435

Number of banks	87	87	87

*Note: pval in parentheses *** p<0.01, ** p<0.05, * p<0.1 AR(1) stands for Arellano-Bond test for AR(1), AR(2) stands for Arellano-Bond test for AR(2), Hansen test is the test for overidentifying restrictions, for the test p-value is provided*

The variable capturing COVID-19 effects has a positive and significant coefficient for the *LLR*. It shows that during the pandemic the credit risk increases significantly. This is the adequate result as because of lockdown restrictions economic activity dropped dramatically. Many people lost their jobs. Small businesses found themselves in trouble due to a lack of demand and supply chain disruption. Numerous creditors failed to deal with their loan liabilities as a consequence of the COVID-19 crisis. All significant coefficients of the other control variables demonstrate the expected signs in both described regressions.

This our results provide partial support to Hypothesis 3: women on board are associated with lower ex ante credit risk and the impact becomes more substantial throughout the pandemic. However, we cannot conclude whether there are any effects of board gender diversity on banks' insolvency risk.

Relationship between Females' Impact Intensity on Riskiness and COVID-19 Spread

The fourth hypothesis suggests that the impact of gender diversity on risk characteristics is more pronounced in countries with higher rates of disease spread, as the effective management importance increases with the rise of crisis intensity. Hence, the impact of gender diversity on risk indicators is likely to vary according to the difference in COVID-19 spread.

Table 8. Risks and COVID-19 spread: effect of female directors

Variables	LLR	NPL	SCORE
*COVID*RFEM*	-0.117*	-0.135	5.281
	(0.067)	(0.164)	(3.551)
RFEM	-0.028**	-0.035**	0.184
	(0.013)	(0.033)	(0.714)
RBOARD	0.506**	1.058*	-2.144*
	(0.241)	(0.592)	(12.822)
AGE	0.121**	0.285**	-2.112
	(0.052)	(0.128)	(2.763)
TENURE	-0.263***	-0.396***	-0.914
	(0.060)	(0.148)	(3.214)
CAPITAL	-0.345***	-0.664***	3.525*
	(0.054)	(0.133)	(2.880)
LOANS	0.053	0.156	2.563
	(0.057)	(0.140)	(3.023)
LGDP	-1.730***	-2.892***	15.148
	(0.342)	(0.842)	(18.215)

Bank FEs	yes	yes	yes
Observations	174	174	174
R^2	0.486	0.316	0.053
Adjusted R^2	0.369	0.161	-0.162
F-Statistic	16.650^{***}	8.156^{***}	0.988^{***}

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

The results are presented in Table 8. *COVID*RFEM* captures the difference in female impact on risk depending on COVID-19 diffusion across countries. Higher proportion of women on board is associated with lower credit risk measured by *LLR* and their role increases with the rise of morbidity rate. However, we cannot make the same conclusion for *NPL* and *SCORE* as the coefficient of variable of interest is insignificant. Consequently, there is no enough evidence to fully support *Hypothesis 4*.

Effects of Board Size

The banks in the sample are not homogeneous in terms of their board size. In this section, we check whether the female impact on bank performance and bank risk during the COVID-19 pandemic varies along with board size. Particular additional analysis is primarily implemented to possibly deal with inconsistent results about the female impact on bank riskiness obtained above.

The banks with larger boards are more likely to have more women on them. There is a stream of research on gender diversity topics that accounts for the critical mass of female directors (Birindelli, 2019; Kara et al., 2022). These papers generally state that the number of female directors on board should be more than 3 so that women's voices are heard. To account for board size effects, we divide the sample into two subsamples by the median value of the board size. The equation (3) is estimated by the FE approach for both subsamples separately.

The results of female impact on bank profitability depending on board size are presented in Table 9. The first subsample includes all the banks which have a higher number of directors than the median number. The results are presented in the odd columns. The second subsample includes all the banks which have a number of directors below the median value. The results are presented in the even columns.

The multiplied variable *DCOVID*REM* is positive and significant in the model specifications, supporting the results we obtained for the whole sample. The impact of female directors during COVID-19 is consistently higher for the banks with larger boards. However, the difference between coefficients is not quite substantial.

Table 9. FE Estimation for Performance Indicators: Banks Separated by Board Size

	ROA		ROAA		ROE		ROAE	
Variables	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*
*DCOVID*RFEM*	9.066***	8.775***	9.359***	8.975***	1.669***	1. 063***	1.596***	1.208***
	(3.143)	(2.612)	(3.167)	(2.552)	(0.371)	(0.471)	(0.349)	(0.411)
RFEM	-0.648	0.526	0.622*	0.495**	-0.064	0.048	-0.044	0.054*
	(0.440)	(0.474)	(0.443)	(0.463)	(0.052)	(0.085)	(0.049)	(0.074)
DCOVID	-30.90***	-31.05***	-31.94***	-32.25***	-2.938**	-6.334***	-3.03***	-5.120***
	(10.034)	(9.566)	(10.113)	(9.344)	(1.186)	(1.725)	(1.114)	(1.503)
RBOARD	2.078	12.562***	2.065	-9.541***	-0.393**	-13.94***	-0.40***	17.54***
	(1.377)	(27.662)	(1.387)	(27.020)	(0.163)	(4.987)	(0.153)	(4.347)
AGE	0.997	0.042	1.158	0.225	0.076	0.138	0.088	-0.177
	(2.064)	(2.605)	(2.080)	(2.544)	(0.244)	(0.470)	(0.229)	(0.409)
TENURE	4.188	-1.63	4.383	-1.992	0.611*	-0.311	0.570*	-0.125
	(3.073)	(3.002)	(3.097)	(2.932)	(0.363)	(0.541)	(0.341)	(0.472)
LTA	-1.819	-20.885	-7.503	-21.242	0.929	4.466	-0.014	-0.779
	(25.200)	(31.033)	(25.398)	(30.312)	(2.978)	(5.595)	(2.798)	(4.877)
TIER	1.034	-2.943*	0.944	-3.157**	-0.187	-0.581**	-0.177	0.392
	(1.036)	(1.634)	(1.044)	(1.596)	(0.122)	(0.295)	(0.115)	(0.257)
CINC	-0.304	-0.145	-0.28	-0.142	-0.13***	0.069	-0.10***	0.025
	(0.234)	(0.386)	(0.236)	(0.377)	(0.028)	(0.070)	(0.026)	(0.061)
LGDP	-23.023	59.405	-27.51	56.629	-1.107	15.894*	0.773	9.119
	(41.391)	(50.114)	(41.716)	(48.950)	(4.891)	(9.035)	(4.595)	(7.875)
Bank FEs	yes	yes	yes	yes	yes	yes	yes	yes
Observations	305	305	305	305	305	305	305	305
R^2	0.092	0.159	0.099	0.159	0.162	0.226	0.151	0.156
Adjusted R^2	-0.122	-0.044	-0.114	-0.043	-0.036	0.04	-0.049	-0.047
F Statistic	2.505***	4.615***	2.697***	4.641***	4.742***	7.159***	4.387***	4.529***

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

Estimating, in the same manner, the different impacts of women on bank riskiness, we obtained the following results introduced in Table 10. For banks with large boards the female impact on risks during the pandemic period is statistically significant whatever risk measure we consider. The COVID-19 is associated with both higher credit risk and lower stability measured by Z-score, however for banks with large boards more articulated presence of female directors mitigates these consequences for all risk measures: higher share of women is the boards is associated with lower ex ante and ex post credit risk as well as lower insolvency risk. This might be a possible explanation for the ambiguous results obtained in the previous section: while female impact on performance indicators during the pandemic varies a bit only in terms of absolute value depending on the board size, female impact on risk measures during the pandemic disappears for banks with smaller boards.

Table 10. FE Estimation for Risk Indicators: Banks Separated by Board Size

Variable	LLR		NPL		SCORE	
	LARGE	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*
*DCOVID*REM*	-0.154**	-0.013	-0.228***	-0.052	2.045**	0.197
	(0.065)	(0.025)	(0.080)	(0.046)	(0.871)	(0.476)

RFEM	-0.098*	-0.020*	-0.094	-0.012*	-0.543	-0.084
	(0.052)	(0.020)	(0.063)	(0.037)	(0.694)	(0.387)
DCOVID	5.335***	1.558*	8.197***	4.227**	-50.977**	-5.371
	(1.916)	(0.885)	(2.327)	(1.631)	(25.507)	(16.890)
RBOARD	-0.3	-6.152***	-1.326	-9.182***	-13.59	22.389
	(0.882)	(12.938)	(1.072)	(23.856)	(11.748)	(247.006)
AGE	-0.045	-0.014	-0.343	-0.223	5.610*	-1.858
	(0.252)	(0.115)	(0.306)	(0.212)	(3.354)	(2.195)
TENURE	-0.174	-0.224*	-0.252	-0.207	-5.469	4.754*
	(0.352)	(0.128)	(0.428)	(0.235)	(4.688)	(2.438)
CAPITAL	-0.054	0.014	0.297	0.238	-3.09	1.329
	(0.335)	(0.187)	(0.407)	(0.345)	(4.462)	(3.572)
LOANS	-0.034	10.891***	-0.011	16.001***	1.221	-16.493
	(0.218)	(2.319)	(0.265)	(4.275)	(2.904)	(44.268)
LGDP	-6.55	0.312	-15.468***	3.305	-48.792	0.124
	(4.850)	(1.971)	(5.892)	(3.634)	(64.570)	(37.623)
Bank FEs	yes	yes	yes	yes	yes	yes
Observations	305	305	305	305	305	305
R^2	0.062	0.204	0.119	0.19	0.047	0.051
Adjusted R^2	-0.163	0.016	-0.093	-0.001	-0.182	-0.173
F Statistic	1.813*	6.996***	3.682***	6.411***	1.354***	1.469***

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

The possible explanation might be that banks with a larger number of directors tend to have wider discussions considering management decisions. More directors are likely to have a broader range of different opinions on the topic. Thus, they pay more attention to the efficiency of their solutions. Consequently, women are more likely to be heard because larger boards are more open-minded to innovative approaches as well as the absolute number of women is higher and they probably have stronger mutual bargaining power during board meetings.

Remarkably, the board size itself is associated with reduced credit risk of the small banks. The board size is generally considered to worsen bank performance and increase riskiness because of possible communication problems within a large number of directors.

Bank board gender diversity and the COVID-19 pressure

Initially, we use different performance and risk measures within all the estimations to provide the evidence the results' consistency. Moreover, various estimation techniques exploited in the previous sections also contribute to the confirmation of the results' strength. To ensure our results are robust to the way we measure the gender diversity, in this section we employ the Blau index instead the female ratio and re-estimate the equations (4)-(6).

We start with the subsample estimations and comparisons, the results for both risks and profitability are presented in Table A2 in Appendix. The coefficient of *BLAU* is positive and

significant in model specifications with *ROA, ROAA*, and *ROAE* both before the pandemic period as well as during it. However, before the pandemic the significance is just marginal and during the COVID-19 crisis the relationship is statistically significant and the size of the effect is almost twice as large. As for the risk measures, the gender diversity indicator proved to significant in the *LLR* model. Moreover, we obtained certain evidence – however, quite weak- for the negative relationship between *BLAU* and the *NPL*, measuring the ex post credit risks. The size of the effect appears to be larger for the pandemic period. Thus, the alternative model specification estimation strengthens the findings.

Table A3 in Appendix demonstrates the results of GMM estimations of equation (5) with both performance and risk indicators and the Blau index. The coefficients by the multiplied variable remain positive and significant for all the profitability variables. Although COVID-19 itself proves significant and negative impact on performance, this contribution of the COVID-19 variable is partly mitigated by the board gender diversity. As for the risks, the pandemic witnessed an increase in ex ante credit risk measure (*LLR*), however negative and significant impact of diversity index on *LLR* is confirmed as well as insignificant results regarding *NPL* and *SCORE*.

Table A4 in Appendix shows the results for equation (6) estimations aimed to test the second and fourth hypotheses with alternative measure of the board gender diversity. The variable of our interest is the *COVID*BLAU* one. The effect of this variable is positive and significant for all the profitability model specifications: although higher exposure to infection is associated with lower returns on both assets and equity, this effect is mitigated in banks with more diversified boards. Our results partially support the fourth hypothesis as well. Higher proportion of the country population hit by the COVID-19 is associated with higher credit risk measured by *LLR*. In the same time, the female impact on *LLR* increases along with the rise of COVID-19 severity and the coefficient is negative and significant. Finally, as in the main body of the research, here we do not obtain significant results for the model specifications with *NPL* and *SCORE* as dependent variables.

Finally we repeated the deeper analysis examining the role of the board size. Subsample estimations with the Blau index instead of the female ratio confirm the previously obtained results (see Table A5 in Appendix). The impact of female directors on bank profitability indicators during the COVID-19 pandemic persists positive and significant for banks with any board size. The size of the effect does not statistically differ much for the banks with larger and smaller boards.

The impact on the reduction of credit risk measured by both *LLP* and *NPL* during the pandemic is identified again for the banks with larger boards. For those with smaller ones the effect is economically and/or statistically marginally significant or insignificant. In addition our results provide certain evidence that the female directors' influence on insolvency risk improvement during the crisis persists for the banks with larger boards.

Conclusion

In this paper the relationship between corporate governance and such important issues as bank profitability and bank riskiness during the COVID-19 pandemic is examined by employing gender diversity indicators. Specifically, we exploit the detailed data set which covers the period 2015-2021. The sample includes 87 banks located in Europe and the UK.

The main finding of the research is that the female impact on bank profits and – at least to some degree – on bank riskiness was significantly pronounces during the COVID-19 pandemic compared with the previous period which can be characterized as relatively favorable in terms of economic conditions. We demonstrates that there is a positive and significant dependence between gender diversity indicators and bank performance in 2020-2021, while in 2015-2019 the discovered impact is lower or even insignificant. Moreover, the positive impact of women on banks' performance during the COVID-19 crisis is shown to be more pronounced in the countries where the incidence is higher all else being equal.

We prove that the negative contribution of female on board into credit risk is also more pronounced during the pandemic compering with the previous period especially in countries with the higher incidence rates. However, the positive and significant contribution of female directors to insolvency risk reduction in proven for the banks with larder boards only.

This research highlights that gender diversity topics seem to become more urgent, especially in a crisis caused be an unexpected external non-economic shock. Our findings might be of interest for banks' clients with long-term investment horizons as they are highly risk-averse and aim to minimize possible uncertainties and the negative effects of unexpected shocks. Thus, the board gender diversity might be one of the viable characteristics to consider choosing the best investment option.

Furthermore, this research also contributes to the stream of literature regarding COVID-19. The pandemic is perceived to be an unanticipated negative economic shock apart from being a substantial pan-human disaster. Unprecedented measures were taken by most governments to

prevent the incredibly rapid spread of disease. Lockdowns were the major stress both for people confined in their homes and the companies faced the lack of demand. It is vitally important to draw the lessons from best practices to mitigate the negative consequences of this crisis. Therefore, the results obtained during such a severe crunch could be possibly extrapolated in the future to deal with prospective challenges. The great representation of women on board increases the probability to go through critical situations successfully. It is likely to be explained by such female inputs in corporate governance as creativity and innovativeness along with enhanced network and communication.

This is in line with resource dependence theory which claims that female presence improves the effectiveness of the decision-making process. As women have specific traits of character, unique sets of skills, and particular backgrounds compared to men. Female leaders incorporate various additional approaches while solving the problems, and, thus, they bring a broader view. Moreover, the claims of our research comply with an agency theory as well. Improved monitoring and controlling functions of boards associated with female directors substantially become more essential in a crisis.

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Appendix

Table A1. Variables Description

Variable	Units	Description	Source
Dependent Variables – Profitability			
ROA	%	Return on Assets	BankFocus
ROE	%	Return on Equity	BankFocus
ROAA	%	Return on Average Assets	BankFocus
ROAE	%	Return on Average Equity	BankFocus
Dependent Variable – Risk			
LLR	%	Loan loss reserves / gross loans	BankFocus
NPL	%	Non-performing loans / gross loans	BankFocus
SCORE	index	Z-score = (ROA + TE / TA) / SD (ROA)	BankFocus
COVID-19 Controls			
DCOVID	dummy	Dummy variable (equals 1 in 2020 and 2021, and 0 otherwise)	World Bank
COVID	%	Ratio of people experienced COVID-19 over population of a country	World Bank
Board Controls			
RFEM	%	Number of women on board / total number of directors	BoardEx
BLAU	index	Blau Index	BoardEx
RBOARD	%	Total number of directors / total assets	BoardEx
AGE	years	Average age of board members	BoardEx
TENURE	years	Average tenure on board of board members	BoardEx
Bank Controls – Profitability			
LTA	log	Logarithm of total assets	BankFocus
TIER	%	Tier 1 capital ratio	BankFocus
CINC	%	Efficiency ratio	BankFocus
Bank Controls – Risk			
LTA	log	Logarithm of total assets	BankFocus
CAPITAL	%	Capital funds / TA	
LOANS	%	Gross loans / TA	
Country Control			
LGDP	log	Logarithm of GDP per capita	World Bank

Table A2. Subsample analysis with Blau index: Profitability and Risk Indicators

Variable	ROA		ROAA		ROE		ROAE		LLR		NPL		SCORE	
	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021
BLAU	0.491*	0.931***	0.497*	0.998***	0.172	0.229**	0.162**	0.188***	-0.049***	-0.085***	-0.062**	-0.092*	0.019	0.561
	(0.329)	(0.519)	(0.326)	(0.538)	(0.054)	(0.077)	(0.044)	(0.072)	(0.028)	(0.014)	(0.041)	(0.035)	(0.255)	(0.758)
RBOARD	-24.961***	-25.426**	-26.191***	-24.483**	2.014*	1.435	2.199***	0.652	0.331	0.515**	0.187	1.066*	-2.676	2.944
	(6.273)	(9.827)	(6.211)	(10.194)	(1.027)	(1.457)	(0.847)	(1.359)	(0.451)	(0.241)	(0.664)	(0.590)	(4.145)	(12.896)
AGE	0.151	-2.895*	0.284	-3.076*	0.453**	-0.232	0.228	-0.324	0.216*	0.108**	0.360**	0.271**	-0.481	-1.824
	(1.308)	(1.731)	(1.296)	(1.796)	(0.214)	(0.257)	(0.177)	(0.239)	(0.122)	(0.052)	(0.180)	(0.127)	(1.120)	(2.773)
TENURE	5.796***	2.154	5.349***	2.538	0.228	0.349	0.303	0.527*	-0.694***	-0.252***	-1.185***	-0.383**	3.836***	-1.226
	(1.716)	(2.121)	(1.700)	(2.200)	(0.281)	(0.314)	(0.232)	(0.293)	(0.144)	(0.060)	(0.211)	(0.147)	(1.319)	(3.220)
LTA	-4.503	1.376	-5.192	1.168	-0.258	0.489	-0.122	0.215						
	(3.972)	(4.773)	(3.934)	(4.951)	(0.650)	(0.708)	(0.537)	(0.660)						
TIER	4.171***	2.553**	4.095***	2.398*	0.617***	0.470***	0.473***	0.433**						
	(1.102)	(1.208)	(1.091)	(1.254)	(0.180)	(0.179)	(0.149)	(0.167)						
CINC	-0.839***	-0.922***	-0.874***	-0.983***	-0.130***	-0.147***	-0.112***	-0.097**						
	(0.187)	(0.323)	(0.185)	(0.335)	(0.031)	(0.048)	(0.025)	(0.045)						
CAPITAL									-0.784***	-0.339***	-1.458***	-0.653***	-1.779	3.804**
									(0.146)	(0.055)	(0.214)	(0.134)	(1.338)	(2.924)
LOANS									-0.133	0.063	-0.129	0.168	0.532	2.204
									(0.106)	(0.057)	(0.156)	(0.139)	(0.976)	(3.034)
LGDP	23.059**	34.477***	20.819*	34.013**	2.343	3.367*	2.764*	2.056	-3.439***	-1.859***	-7.038***	-3.053***	9.744*	17.5
	(10.771)	(12.708)	(10.665)	(13.183)	(1.763)	(1.884)	(1.455)	(1.758)	(0.879)	(0.344)	(1.295)	(0.842)	(8.076)	(18.393)
Bank FEs	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	435	174	435	174	435	174	435	174	435	174	435	174	435	174
R^2	0.285	0.3	0.299	0.29	0.172	0.215	0.183	0.188	0.171	0.479	0.226	0.316	0.03	0.034
Adjusted R^2	0.147	0.142	0.165	0.129	0.013	0.036	0.026	0.003	0.015	0.365	0.079	0.166	-0.154	-0.177
F Statistic	18.104***	7.570***	19.443***	7.198***	9.444***	4.816***	10.225***	4.070***	10.791***	18.617***	15.206***	9.356***	1.600***	0.721***

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

Table A3. Bank profitability, risks and COVID-19: effect of Blau index, GMM

VARIABLES	ROA	ROAA	ROE	ROAE	LLR	NPL	SCORE
*DCOVID*BLAU*	9.159***	9.779***	1.698***	1.704***	-11.87*	-3.364	19.54
	(8.45e-08)	(4.04e-09)	(5.50e-09)	(0)	(0.0593)	(0.685)	(0.771)
BLAU	-0.0929	-0.279	0.0139	-0.0108	-0.140***	-0.107	0.00713
	(0.839)	(0.530)	(0.858)	(0.870)	(0.00450)	(0.102)	(0.990)
DCOVID	-33.01***	-34.29***	-5.429***	-4.669***	6.840***	3.828	-6.965
	(6.93e-06)	(1.52e-06)	(9.59e-06)	(9.62e-06)	(0.00713)	(0.262)	(0.797)
RBOARD	-41.98**	-29.87*	-3.628	-3.108	3.826***	6.042***	-14.81
	(0.0247)	(0.0978)	(0.245)	(0.245)	(0.00290)	(0.000684)	(0.319)
AGE	3.383	3.937*	0.504	0.417	0.29	0.172	4.316
	(0.130)	(0.0701)	(0.182)	(0.199)	(0.244)	(0.598)	(0.119)
TENURE	0.374	-0.414	0.0582	0.133	-0.686**	-0.854**	-6.685*
	(0.905)	(0.891)	(0.912)	(0.768)	(0.0361)	(0.0460)	(0.0697)
LTA	-52.52*	-70.76***	-13.06***	-13.78***			
	(0.0511)	(0.00607)	(0.00310)	(0.000278)			
TIER	-3.056**	-2.611**	-0.680***	-0.498**			
	(0.0256)	(0.0490)	(0.00355)	(0.0114)			
CINC	0.314	0.309	0.0609	0.0470			
	(0.249)	(0.243)	(0.174)	(0.216)			
LTA					-2.16	2.791	25.39
					(0.374)	(0.394)	(0.347)
CAPITAL					-0.818**	-1.699***	3.399
					(0.0461)	(0.00250)	(0.430)
LOANS					0.638**	1.200***	-0.7
					(0.0326)	(0.00271)	(0.830)
LGDP	-111.1**	-79.64	-3.903	-6.950	-7.831*	-14.32**	-168.1***
	(0.0323)	(0.113)	(0.644)	(0.337)	(0.0936)	(0.0220)	(0.00203)
LAG(ROA)	0.377***						
	(7.48e-06)						
LAG(ROAA)		0.297***					
		(0.000343)					
LAG(ROE)			0.237***				
			(0.000915)				
LAG(ROAE)				0.260***			
				(0.000422)			
LAG(LLR)					-0.00824		
					(0.906)		
LAG(NPL)						0.436***	
						(5.12e-07)	
LAG(SCORE)							0.0449
							(0.523)
Constant	2.041***	2.003***	264.2**	311.4***	125.7**	117.7	1.139
	(0.00119)	(0.00105)	(0.0118)	(0.000560)	(0.0464)	(0.176)	(0.112)
Observations	435	435	435	435	435	435	435
Number of banks	87	87	87	87	87	87	87

*Note: pval in parentheses *** p<0.01, ** p<0.05, * p<0.1 AR(1) stands for Arellano-Bond test for AR(1), AR(2) stands for Arellano-Bond test for AR(2), Hansen test is the test for overidentifying restrictions, for the test p-value is provided*

Table A4. Bank profitability, risks and COVID-19 spread: effect of Blau index

Variable	ROA	ROAA	ROE	ROAE	LLR	NPL	SCORE
*COVID*BLAU*	5.240***	5.436***	0.877***	0.904***	-0.111**	-0.138	4.189
	(1.861)	(1.931)	(0.274)	(0.253)	(0.053)	(0.131)	(2.846)
BLAU	0.371	0.417	0.079	0.092	-0.038**	-0.048*	0.143
	(0.544)	(0.565)	(0.080)	(0.074)	(0.015)	(0.037)	(0.807)
RBOARD	-24.239**	-23.251**	1.236	-0.447	0.492**	1.038*	2.091
	(9.603)	(9.962)	(1.412)	(1.307)	(0.239)	(0.591)	(12.857)
AGE	-2.895*	-3.075*	-0.232	-0.324	0.110**	0.273**	-1.907
	(1.690)	(1.753)	(0.249)	(0.230)	(0.051)	(0.127)	(2.763)
TENURE	1.921	2.296	0.31	0.486*	-0.256***	-0.387***	-1.100*
	(2.072)	(2.150)	(0.305)	(0.282)	(0.060)	(0.147)	(3.208)
LTA	0.321	0.074	0.313	0.033			
	(4.675)	(4.850)	(0.688)	(0.636)			
TIER	2.118*	1.946	0.397**	0.358**			
	(1.190)	(1.234)	(0.175)	(0.162)			
CINC	-1.017***	-1.082***	-0.163***	-0.113***			
	(0.317)	(0.329)	(0.047)	(0.043)			
CAPITAL					-0.337***	-0.651***	3.742*
					(0.054)	(0.134)	(2.912)
LOANS					0.055	0.158	2.5
					(0.056)	(0.139)	(3.029)
LGDP	33.455***	32.952**	3.196*	1.88	-1.815***	-2.999***	15.867
	(12.412)	(12.876)	(1.826)	(1.690)	(0.341)	(0.843)	(18.351)
Bank FEs	yes	yes	yes	yes	yes	yes	yes
Observations	174	174	174	174	174	174	174
R^2	0.338	0.328	0.268	0.255	0.495	0.321	0.049
Adjusted R^2	0.182	0.17	0.096	0.08	0.38	0.167	-0.167
F Statistic	7.940***	7.593***	5.701***	5.332***	17.242***	8.332***	0.906***

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

Table A5. FE estimation for profitability and Risk Indicators with Blau index: Banks Separated by Board Size

Variable	ROA		ROAA		ROE		ROAE		LLR		NPL		SCORE	
	LARGE	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*	*LARGE*	*SMALL*
*DCOVID*BLAU*	6.619***	7.329***	6.910***	7.492***	0.834***	1.432***	0.932***	1.350***	-19.156***	-3.737	-27.578***	-11.681*	17.289*	21.843
	(2.385)	(2.199)	(2.404)	(2.148)	(0.282)	(0.394)	(0.265)	(0.345)	(6.894)	(3.506)	(8.386)	(6.465)	(92.782)	(67.266)
BLAU	-0.606	1.003*	-0.596	0.962*	-0.046	0.179*	-0.036	0.146	-0.101**	-0.039	-0.085	-0.035	-0.282	0.034
	(0.374)	(0.589)	(0.377)	(0.575)	(0.044)	(0.106)	(0.042)	(0.092)	(0.044)	(0.024)	(0.053)	(0.044)	(0.589)	(0.461)
DCOVID	-30.316***	-33.258***	-31.507***	-34.457***	-3.113**	-7.017***	-3.161***	-5.615***	8.103***	2.659*	12.134***	7.418***	-61.457*	-1.105
	(10.272)	(9.971)	(10.350)	(9.741)	(1.212)	(1.789)	(1.140)	(1.564)	(2.632)	(1.535)	(3.202)	(2.830)	(35.426)	(29.446)
RBOARD	2.097	91.065***	2.078	84.438***	0.399**	28.854***	0.409***	15.809***	-0.205	-6.554***	-1.211	-9.753***	-13.231	17.961
	(1.373)	(28.348)	(1.384)	(27.694)	(0.162)	(5.085)	(0.152)	(4.445)	(0.873)	(13.297)	(1.062)	(24.525)	(11.745)	(255.159)
AGE	1.042	0.113	1.176	0.301	0.1	0.161	0.096	-0.159	-0.016	-0.002	-0.296	-0.193	6.008*	-1.991
	(2.028)	(2.604)	(2.043)	(2.544)	(0.239)	(0.467)	(0.225)	(0.408)	(0.246)	(0.114)	(0.299)	(0.211)	(3.313)	(2.195)
TENURE	4.033	-1.72	4.248	-2.081	0.587	-0.323	0.555	-0.138	-0.175	-0.218*	-0.264	-0.195	-5.764	4.746*
	(3.057)	(2.999)	(3.080)	(2.930)	(0.361)	(0.538)	(0.339)	(0.470)	(0.349)	(0.127)	(0.424)	(0.234)	(4.690)	(2.440)
LTA	-2.757	-28.601	-8.588	-28.666	0.786	2.637	-0.162	-2.116						
	(25.247)	(31.564)	(25.439)	(30.836)	(2.980)	(5.662)	(2.801)	(4.949)						
TIER	0.94	2.572	0.854	2.792*	-0.186	0.475	-0.172	0.317						
	(1.051)	(1.654)	(1.059)	(1.615)	(0.124)	(0.297)	(0.117)	(0.259)						
CINC	-0.306	-0.099	-0.281	-0.097	-0.136***	0.076	-0.100***	0.032						
	(0.234)	(0.385)	(0.236)	(0.377)	(0.028)	(0.069)	(0.026)	(0.060)						
CAPITAL									-0.088*	0.003	0.291	0.222	-2.6	1.334
									(0.334)	(0.186)	(0.406)	(0.343)	(4.493)	(3.573)
LOANS									-0.006	10.178***	0.012	15.327***	1.284	-13.583
									(0.217)	(2.381)	(0.264)	(4.392)	(2.923)	(45.693)
LGDP	-26.424	56.514	-30.827	53.77	-1.507	15.353*	0.389	8.662	-6.882	0.473	-15.897***	3.374	-54.528	0.878
	(41.269)	(50.066)	(41.583)	(48.912)	(4.871)	(8.981)	(4.579)	(7.851)	(4.793)	(1.958)	(5.830)	(3.611)	(64.501)	(37.570)
Bank FEs	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	305	305	305	305	305	305	305	305	305	305	305	305	305	305
R^2	0.092	0.16	0.099	0.16	0.164	0.235	0.152	0.161	0.075	0.212	0.129	0.198	0.04	0.051
Adjusted R^2	-0.122	-0.043	-0.113	-0.042	-0.034	0.051	-0.047	-0.041	-0.147	0.026	-0.081	0.008	-0.191	-0.173
F Statistic	2.504***	4.656***	2.711***	4.673***	4.809***	7.524***	4.425***	4.694***	2.220**	7.338***	4.036***	6.730***	1.139***	1.460***

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