



Female directorship and bank performance: a meta-analysis<sup>1</sup>

*What is the general evidence on how female directorship is related to bank performance?*



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## **Abstract**

As the theoretical and more importantly empirical literature indicate no consensus on how female directorship is related to bank performance while consensus on how female directorship is related to bank performance is very relevant, we aimed to find what the general evidence is on how female directorship is related to bank performance by synthesizing all the existing empirical evidence. Moreover, we aimed to examine what caused the lack of consensus on how female directorship is related to bank performance. By examining the Hedges-Olkin Meta-Analysis (HOMA) and Meta-Analytic Regression Analysis (MARA) results, we could draw relevant conclusions as to how female directorship is related to bank performance and as to what variables moderate the relationship between female directorship and bank performance. In the end, we first of all found that female directorship and two of the three most commonly employed measures of bank performance, videlicet ROE and Tobin's Q, are positively related. Logically, we found that female directorship and bank performance are positively related. Hence, we found support that female board members promote better bank performance. Secondly, we found support that the board-level variables board size, board independence and CEO duality combined moderate the relationship between female directorship and bank performance. More specifically, we found that board size and board independence positively moderate the relationship between female directorship and bank performance, while CEO duality negatively moderates the relationship between female directorship and bank performance. However, we only found support that CEO duality individually moderates the relationship between female directorship and bank performance. This Master Thesis thus offers insights for banks to improve the gender diversity in their boards, thereby putting an end to the 'old boys' club' culture and improving equality of opportunity for at least as qualified women.

**Keywords:** female directorship, bank performance, HOMA, MARA

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## 1. Introduction

Especially over the past few years, various countries were determined to improve gender diversity in boards using non-binding as well as binding gender quotas, which often provided little or no improvement in the end (Hughes, Paxton, Clayton & Zetterberg, 2019). However, the theoretical and more importantly empirical literature indicate no consensus on how female directorship is related to bank performance. In fact, some studies have found that female directorship is positively related to bank performance (Belhaj & Mateus, 2016 ; García-Meca, García-Sánchez & Martínez-Ferrero, 2015), while other studies have found that female directorship is negatively related to bank performance (Kramaric & Pervan, 2016 ; Kilic, 2015). Furthermore, again other studies have found that female directorship is not (significantly) related to bank performance (Issa, Yousef, Bakry, Hanaysha & Sahyouni, 2021 ; Rafinda, Rafinda, Witiastuti, Suroso & Trinugroho, 2018).

Nevertheless, consensus on how female directorship is related to bank performance is very relevant. In fact, if female directorship is positively related to bank performance, more banks will indisputably improve the gender diversity in their boards, thereby putting an end to the ‘old boys’ club’ culture and improving equality of opportunity for at least as qualified women (Ministry of Justice and Security, 2021). On top of this, as the former President of the Federal Reserve Bank of Minneapolis Gerald Corrigan orated, “banks are special”. Banks namely comprise the major – and in some cases the exclusive – source of finance. Intelligibly, therefore, banks’ windfalls and setbacks induced by the functioning of their boards have a direct and substantial impact upon the functioning of the financial system and thereby the economy as a whole, which makes consensus on how female directorship is related to bank performance even more relevant (Staikouras, Staikouras & Agoraki, 2007).

In this Master Thesis, we therefore aimed to find what the general evidence is on how female directorship is related to bank performance by synthesizing all the existing empirical evidence. As such, we formulated the following question: *What is the general evidence on how female directorship is related to bank performance?* Moreover, as we aimed to examine what caused the lack of consensus on how female directorship is related to bank performance, we formulated the following subquestion: *What variables moderate the relationship between female directorship and bank performance?*

For the synthesization of all the existing empirical evidence on how female directorship is related to bank performance, we used the methodological procedure of a meta-analysis. The advantage of a meta-analysis is that it indicates consensus, as our goal is, with high accuracy.

In fact, as opposed to the narrative review where a certain level of importance is implicitly attributed to every study, in a meta-analysis decisive elements are determined and attributed contingent on mathematical criteria. Three important elements of a meta-analysis respectively comprise the effect size or the strength of a relationship between two variables for every study, the weight attributed to every effect size or the standard deviation, and the summary effect size (Borenstein, Hedges, Higgins & Rothstein, 2009). More specifically, we used the Hedges-Olkin Meta-Analysis (HOMA) and the Meta-Analytic Regression Analysis (MARA).

By examining the Hedges-Olkin Meta-Analysis (HOMA) results, we could draw relevant conclusions as to how female directorship is related to bank performance. In fact, the HOMA comprises regressing bivariate correlation coefficients from the correlation matrices and partial correlation coefficients from the regressions onto hypothesized variables (Arte & Larimo, 2022). In addition, as different studies employ different accounting and market measures of bank performance, we also conducted a subsample analysis for the three most commonly employed measures of bank performance, videlicet ROA, ROE and Tobin's Q.

By examining the Meta-Analytic Regression Analysis (MARA) results, we could draw relevant conclusions as to what variables moderate the relationship between female directorship and bank performance. In fact, the MARA comprises using the summary effect size as the dependent variable, while using the attributes of the studies as independent variables (Combs, Crook & Rauch, 2018). The hypothesized moderator variables are thus conceptualized as boundary conditions for the summary effect size (Steel, Beugelsdijk & Aguinis, 2021). More specifically, we included the three board-level variables board size, board independence and CEO duality as moderator variables.

In the end, we first of all found that female directorship and two of the three most commonly employed measures of bank performance, videlicet ROE and Tobin's Q, are positively related. Logically, we found that female directorship and bank performance are positively related. Hence, we found support that female board members promote better bank performance. Secondly, we found support that the board-level variables board size, board independence and CEO duality combined moderate the relationship between female directorship and bank performance. More specifically, we found that board size and board independence positively moderate the relationship between female directorship and bank performance, while CEO duality negatively moderates the relationship between female directorship and bank performance. However, we only found support that CEO duality individually moderates the relationship between female directorship and bank performance. This Master Thesis thus offers insights for banks to improve the gender diversity in their boards,

thereby putting an end to the ‘old boys’ club’ culture and improving equality of opportunity for at least as qualified women.

As such, this Master Thesis is organized as follows. Section 2 comprises the literature review and theoretical framework in which we dilate on female directorship and gender quotas, theoretical and empirical literature on how female directorship is related to bank performance, and what variables moderate the relationship between female directorship and bank performance. Then, section 3 motivates and describes the methodology and empirical strategy. Finally, section 4 includes the results, leading up to answering our question and subquestion and to reflecting upon some limitations and opportunities for future research in section 5.

## **2. Literature review and theoretical framework**

### **2.1 Female directorship and gender quotas**

In 2015, the United Nations set seventeen Sustainable Development Goals as a global call, of which gender equality was the fifth goal. In fact, women remained highly underrepresented at all levels of direction, while gender equality is a fundamental human right, as well as an essential groundwork for a peaceful, prosperous and sustainable world (United Nations, 2015). In response, more countries adopted non-binding as well as highly feasible binding gender quotas. In this way, the Australian Institute of Company Directors for example asked the 200 largest corporations listed on the Australian Securities Exchange to attempt to improve their female board representation up to at least 30% by the end of 2018. Furthermore, the State of California in the United States for example required all publicly traded corporations to improve their female board representation up to at least two or three women, conditional on the number of directors on the board, by the end of 2019 (Froehlicher, Knuckles Griek, Nematzadeh, Hall & Stovall, 2021). Nevertheless, the non-binding and highly feasible binding gender quotas provided too little improvement in female board representation: some corporations did not improve their female board representation as they would not be penalized and some corporations opted for the “minimum-and-done” approach. So, when the Indian Company Act required all publicly traded corporations to improve their female board representation up to at least one woman, various Indian corporations only appointed one female director to evade the substantial fines of the Securities and Exchange Board of India (ILO Bureau for Employers’ Activities, 2020).

Yet, the more challenging binding gender quotas were also not the key to improvement in female board representation. First of all, some corporations opted for the “golden skirts”

approach. So, when the Italian Golfo-Mosca Law required all publicly traded corporations and state-owned enterprises to improve their female board representation up to at least 33%, various Italian corporations and enterprises let their present female directors serve on multiple boards. In such wise, their female board representation improved by more than 80%, but the number of individual women did actually not. Secondly, some corporations opted for the “de-listing” and “moving registration” approach. So, when the Norwegian Gender Balance Law required all publicly traded corporations to improve their female board representation up to at least 40%, various Norwegian corporations with a lower pre-quota share de-listed from the Oslo Stock Exchange and registered in the United Kingdom (ILO Bureau for Employers’ Activities, 2020).

As a result, women only represent 16% of the board members in the top 500 multinational corporations according to the most recent data of the Organization for Economic Cooperation, even though women represent 39% of the global labor force according to the most recent data of the Worldbank (Organization for Economic Cooperation and Development, 2020 ; The World Bank, 2020a). Therefore, consensus on how female directorship is related to bank performance is very relevant. In fact, if female directorship is positively related to bank performance, more banks will indisputably improve the gender diversity in their boards, thereby putting an end to the ‘old boys’ club’ culture and improving equality of opportunity for at least as qualified women (Ministry of Justice and Security, 2021). On top of this, as the former President of the Federal Reserve Bank of Minneapolis Gerald Corrigan orated, “banks are special”. Banks namely comprise the major – and in some cases the exclusive – source of finance. Intelligibly, therefore, banks’ windfalls and setbacks induced by the functioning of their boards have a direct and substantial impact upon the functioning of the financial system and thereby the economy as a whole, which makes consensus on how female directorship is related to bank performance even more relevant (Staikouras et al., 2007).

## 2.2 Theoretical literature on female directorship and bank performance

Unfortunately however, the theoretical literature on female directorship and bank performance indicates no consensus on how female directorship is related to bank performance. In this way, the agency theory suggests that female directorship and bank performance are positively related. According to the agency theory, boards are able to execute their monitoring role better if they are eminently independent. So, when female directorship is involved, boards become more diversified and thereby attain eminent independence, and are therefore suggested to execute their safeguarding of interests of shareholders and their minifying of conflicts of interest between agents and principals better (Hindasah & Harsono, 2021).

Furthermore, the resource-based theory suggests that female directorship and bank performance are positively related. According to the resource-based theory, banks require an array of resources to subsist in a complex environment. So, when female directorship is involved, boards become more diversified and are thereby suggested to reinforce their array of information with wider viewpoints and new capabilities. More specifically, female directors are suggested to have more long-term and stakeholder-oriented views together with a superior problem-settlement capability and strategic decision-making capability (Birindelli, Chiappini & Savioli, 2020).

Moreover, the upper echelons theory suggests that female directorship and bank performance are positively related. According to the upper echelons theory, directors execute their role in consonance with their particular values, personalities and other akin human factors. More specifically, female directors are suggested to be more accessible, deferential, compassionate and interpersonally competent, while male directors are suggested to be more forceful and one-sided. So, when female directorship is involved, organizational patterns that are not masculine or feminine but gratifying to male collaborators, superintendents and subordinates are suggested to be embraced (Simionescu, Gherghina, Tawil & Sheikha, 2021).

However, the social identity theory suggests that female directorship and bank performance are negatively related. According to the similarity-attraction theory, directors employ a self-categorization process contingent on observable and pertinent aspects appertaining to different directors. Accordingly, in-groups and out-groups are established. So, when female directorship is involved, female directors are underrepresented and are thereby suggested to embody one of the out-groups whereas male directors are suggested to embody one of the in-groups. Subsequently, the social identity theory suggests that this categorization creates major impediments to collaboration and communication among the in-group male directors apropos the in-group female directors, and that it thereby negatively impinges upon the decision-making process. In fact, the social identity theory suggests that in-group male directors may not only favor in-group male directors over out-group female directors as the similarity-attraction theory suggests, but that they may also aim to derogate them to safeguard the positive distinctiveness of their position (Markoczy, Sun & Zhu, 2019).

Additionally, the role congruity theory suggests that female directorship and bank performance are negatively related. According to the role congruity theory, investors as well as subordinates are more likely to have objections against female directors than against male directors as a result of a mismatch between the socially deemed female role and the socially deemed characteristics for the director role. More specifically, the director role is appraised as



an incongruent role for women as women stereotypically reveal more “communal” demeanor whereas men stereotypically reveal more “agentic” demeanor. So, when female directorship is involved, investors are suggested to evaluate the bank performance more negatively, thereby actually affecting the bank performance or market value. Besides, subordinates are suggested to develop a poor relationship with the female directors which in turn affects their own performance, thereby actually affecting the bank performance (Mukarram, Saeed, Hammoudeh & Raziq, 2018 ; van Gils, van Quaquebeke, Borkowski & van Knippenberg, 2018).

### 2.3 Empirical literature on female directorship and bank performance

Commensurate with the theoretical literature on female directorship and bank performance, the empirical literature unfortunately also indicates no consensus on how female directorship is related to bank performance. In this way, Belhaj and Mateus (2016) has found that female directorship and bank performance are positively related. In fact, it examined the relationship between corporate governance variables (board size and composition, gender diversity and CEO duality) and European bank performance during the period 2002-2011. More specifically, it compiled the 100 largest banks from 11 European countries: Belgium, France, Germany, Greece, Italy, the Netherlands, Poland, Spain, Sweden, Switzerland, and the United Kingdom. Then, it confined its sample to the banks enclosed in the database BoardEx, which it used for the corporate governance variables, and subsequently to the banks having bank performance variables (ROE, ROA and Tobin’s Q) enclosed in the databases Thomson Reuters Worldscope and ORBIS. Ultimately, its sample contained 73 banks. In the end, the gender diversity variable was positive and statistically significant for ROA and Tobin’s Q.

Furthermore, García-Meca et al. (2015) has found that female directorship and bank performance are positively related. In fact, it examined the relationship between board diversity variables (gender and nationality) and bank performance variables (ROA and Tobin’s Q) during the period 2004-2010. More specifically, it compiled 159 listed banks from nine countries: Canada, France, Germany, Italy, the Netherlands, Spain, Sweden, the United Kingdom, and the United States. Then, it used the EIRIS database for the board diversity variables and the Compustat database for the bank performance variables. Ultimately, the sample distribution showed that almost half of the observations belong to United States banks and more than one fifth of the observations belong to United Kingdom banks. In the end, the gender variable was positive and statistically significant for ROA and Tobin’s Q.

However, [Kramaric and Pervan \(2016\)](#) has found that female directorship and bank performance are negatively related. In fact, it examined the relationship between board structure variables (gender of the president of the management board, management board female members and supervisory board female members) and the bank performance variable ROE during the period 2002-2013. More specifically, it compiled 46 Croatian banks in 2002, for which it gathered the annual reports disclosed by the Croatian National Bank. However, the total number of banks was altering over the years in consequence of multiple mergers, acquisitions and liquidations. Ultimately, its sample contained on average 34 banks per year. In the end, the management board female members and supervisory board female members variables were negative and statistically significant for ROE.

Additionally, [Kilic \(2015\)](#) has found that female directorship and bank performance are negatively related. In fact, it examined the relationship between board diversity variables (percentage of women directors on the board and percentage of foreign directors on the board) and bank performance variables (ROA and ROE) during the period 2008-2012. More specifically, it compiled 26 Turkish banks operating in four categories (state-owned, privately owned, foreign, and participation), for which it gathered the annual reports disclosed by the banks themselves and the Bank Association of Turkey (BAT). In the end, the women directors on the board variable was negative and statistically significant for ROA and ROE.

Nevertheless, [Issa et al. \(2021\)](#) has found that female directorship and bank performance are not (significantly) related. In fact, it examined the relationship between board diversity variables (nationality, gender and educational level) and bank performance variables (ROA and ROE) during the period 2011-2018. More specifically, it compiled 80 listed banks from 11 Middle East and North Africa (MENA) countries: Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia and the United Arab Emirates. Then, it used the Osiris database and hand-collected missing data from the annual reports disclosed by the banks themselves and websites such as [marketscreener.com](#). In the end, the gender variable was positive and statistically insignificant for ROA and ROE.

Moreover, [Rafinda et al. \(2018\)](#) has found that female directorship and bank performance are not (significantly) related. In fact, it examined the relationship between board diversity variables (nationality and gender diversity) and bank performance variables (ROA and ROE) during the period 2011-2015. More specifically, it compiled 22 Indian banks and financial industries, for which it gathered the data from the Bankscope and Spencer Stuart database. In the end, the gender variable was negative and statistically insignificant for ROA and ROE.

Hence, as there is no consensus on how female directorship is related to bank performance, we formulate the following unsubstantial hypothesis: *The general evidence on how female directorship is related to bank performance is that female directorship is positively related to bank performance.*

#### 2.4 Board-level moderator variables on female directorship and bank performance

As the empirical literature indicates no consensus on how female directorship is related to bank performance, there is presence of variables that moderate the relationship between female directorship and bank performance either as complements or substitutes. In the former case, bank performance is more positively influenced by female directorship, while bank performance is less positively influenced by female directorship in the latter case.

With regard to the former case, [Post and Byron \(2015\)](#) has found that the accounting-based measures of bank performance including ROA and ROE are positively influenced by female directorship and even more in contexts with stronger shareholder protections. In fact, it argues that shareholder protections incite boards to utilize the different knowledge, experience and values that every director brings. If directors are namely not optimizing their decision-making and upholding their fiduciary responsibility, shareholders can handily sue or endeavor to replace them when they enjoy strong legal protections. Furthermore, it has found that the market-based measures of bank performance including Tobin's Q are not (significantly) influenced by female directorship, but positively influenced in contexts with greater gender parity. In fact, it argues that women having more equal disposal of resources and opportunities in respect of education, economic participation, employment, and political empowerment are more predisposed to possess the types of human capital eligible for a director, as a result of which boards are more predisposed to exploit the knowledge, experience and values they bring. Additionally, it argues that greater gender parity influences external valuations by investors.

With regard to the latter case, [Amin, Ali, Rehman, Naseem and Ahmad \(2021\)](#) has found that Pakistani bank performance measured by ROA is positively influenced by female directorship, but less in contexts of family ownership. In fact, it argues that family ownership obstructs the independent decision-making of directors and hence the efficaciousness of the board. In consideration of the contingency theory of leadership, female directions namely alter their leadership styles towards the family owners for the preservation of their socioemotional wealth. Additionally, it argues that some female directors are appointed as a member of the family and not as a possessor of excellent decision-making qualities, as a result of which their presence is thus symbolic.

More specifically, other board-level variables than female directorship are especially likely to moderate the relationship between female directorship and bank performance. In fact, boards play a crucial role in the effective execution of governance mechanisms, notably in banks in which their fiduciary responsibilities, contrary to non-financial institutions, extend well beyond shareholders (Jadah, Murugiah & Adzis, 2016). To this extent, there is consensus on whether the board-level variables board size, board independence, and CEO duality moderate the relationship between female directorship and bank performance, but only not on how.

In this way, Quoc Trung (2022) has found that Vietnamese bank performance measured by Tobin's Q is positively influenced by board size, while Noor, Ahmed and Islam (2021) has found that Bangladeshi Islamic bank performance measured by ROE is negatively influenced by board size. In fact, Quoc Trung (2022) argues that a larger board has a larger number of directors who work to safeguard the interests of shareholders by monitoring and controlling bank performance, which is supported by the agency theory that we discussed earlier. Additionally, it argues that a larger board broadens the diversity of expertise and knowledge in different areas, thereby enhancing bank performance. This is supported by the resource-based theory that we discussed earlier. However, Noor et al. (2021) argues that larger boards are considerably slower in making decisions and monitoring bank performance as proper coordination is fairly difficult to preserve and consensus fairly difficult to achieve in larger boards.

Moreover, Pathan, Skully and Wickramanayake (2007) has found that Thai bank performance measured by ROA and ROE is positively influenced by board independence, while Sobhy, Ehab and Hussain (2017) has found that Asian bank performance measured by ROA and ROE is negatively influenced by board independence. In fact, Pathan et al. (2007) argues that independent directors have more incentives to safeguard the interests of shareholders as they regard preserving their reputation in the market for outside directorships as important. Additionally, it argues that independent directors outperform on duties such as ousting a CEO and making takeover bids in conjunction with curtailing the possibility of a hostile takeover. However, Sobhy et al. (2017) argues that independent directors have unlike executive directors less information about the operations of the bank and thus underperform on duties such as designating a new CEO or determining a new strategic direction for the bank, thereby impairing bank performance. This is supported by the stewardship theory.

Lastly, Isik (2017) has found that Turkish bank performance measured by ROA is positively influenced by CEO duality, while Sarkar and Sarkar (2018) has found that Indian

bank performance measured by ROA is negatively influenced by CEO duality. In fact, [Isik \(2017\)](#) argues that a joint leadership structure whereby the CEO heads the board engenders powerful leadership and unity of command. However, [Sarkar and Sarkar \(2018\)](#) argues that a dual designation of the CEO and chairperson of the board induces excessive power concentration in the hands of one individual, reducing oversight with the possible consequence of self-serving actions and increasing agency conflicts.

Hence, as there is consensus on what board-level variables moderate the relationship between female directorship and bank performance, but only not on how, we formulate the following founded subhypothesis: *The board-level variables board size, board independence and CEO duality moderate the relationship between female directorship and bank performance.*

### **3. Methodology and empirical strategy**

#### **3.1 Meta-analysis<sup>2</sup>**

For the synthesization of all the existing empirical evidence on how female directorship is related to bank performance, we use the methodological procedure of a meta-analysis. The advantage of a meta-analysis is that it indicates consensus, as our goal is, with high accuracy. In fact, as opposed to the narrative review where a certain level of importance is implicitly attributed to every study, in a meta-analysis decisive elements are determined and attributed contingent on mathematical criteria. Three important elements of a meta-analysis respectively comprise the effect size or the strength of a relationship between two variables for every study, the weight attributed to every effect size or the standard deviation, and the summary effect size. Thereby, a meta-analysis significantly increases the sample size and statistical power ([Borenstein et al., 2009](#)). Furthermore, published as well as unpublished studies are included in our meta-analysis, solving the file drawer problem of not including primary-level studies with statistically insignificant effect sizes and thus the problem of using upwardly biased effect sizes in meta-analysis ([Dalton, Aguinis, Dalton, Bosco & Pierce, 2011](#)). More specifically, we use the Hedges-Olkin Meta-Analysis (HOMA) and the Meta-Analytic Regression Analysis (MARA).

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<sup>2</sup> For an overview of all the empirical studies included in our meta-analysis, including the correlation coefficients, bank performance measures and board-level variables they employ, the Appendix can be consulted.

### 3.1.1 Hedges-Olkin Meta-Analysis (HOMA)

To answer our question what the general evidence is on how female directorship is related to bank performance, we use the Hedges-Olkin Meta-Analysis (HOMA). In fact, the HOMA comprises regressing correlation coefficients onto hypothesized variables. More specifically, the HOMA comprises bivariate correlation coefficients from the correlation matrices and partial correlation coefficients from the regressions, which are unit-less measurements (Arte & Larimo, 2022). Ensuing to the correlation coefficients, two models are considered for the determination of the weights to be attributed to every effect size or the standard deviations: the Fixed Effects Model (FEM) and the Random Effects Model (REM). As the REM takes between-study variance next to within-study variance into account, the REM is the more conservative and therefore in our view the more copacetic approach (Dao & Nguyen, 2020).

In addition, as different studies employ different accounting and market measures of bank performance, we also conduct a subsample analysis. More specifically, we include the three most commonly employed measures of bank performance, videlicet ROA, ROE and Tobin's Q, as three subgroups. Thereby, we also include the remaining less commonly employed measures of bank performance as a fourth subgroup for the completeness of the total number of observations, but we do not interpret its results as this subgroup thus consists of a 'motley crew'.

Lastly, with regard to this total number of observations, our HOMA sample for the bivariate correlation coefficients consists of 33 observations, of which 13 ROA observations, 7 ROE observations, 2 Tobin's Q observations and 11 other observations. Additionally, our HOMA sample for the partial correlation coefficients consists of 48 observations, of which 17 ROA observations, 10 ROE observations, 5 Tobin's Q observations and 16 other observations.

### 3.1.2 Meta-Analytic Regression Analysis (MARA)

To answer our subquestion what variables moderate the relationship between female directorship and bank performance, we use the Meta-Analytic Regression Analysis (MARA). In fact, the MARA comprises using the summary effect size as the dependent variable, while using the attributes of the studies as independent variables (Combs et al., 2018). The hypothesized moderator variables are thus conceptualized as boundary conditions for the summary effect size (Steel et al., 2021).

However, as different studies employ different designations and units of measurement for the means of the board-level variables that we include as moderator variables, the extraction of

them should be done with caution and will sometimes involve conversions. In fact, in our meta-analysis we employ the total number of directors on the board for the means of board size, the percentage of independent directors on the board for the means of board independence, and the percentage of CEOs that is simultaneously chairman of the board for the means of CEO duality. Nevertheless, taking board independence as an example, [Cooper \(2009\)](#) its designation for the mean of board independence is the percentage of non-independent directors on the board. Hence, we need to subtract this percentage from 100% to obtain the percentage of independent directors on the board. In the same way, [Adeabah, Gyeke-Dako and Andoh \(2018\)](#) its unit of measurement for the mean of board independence is the total number of independent directors on the board. Hence, we need to divide this number by the total number of directors on the board to obtain the percentage of non-independent directors on the board.

In addition, not only the three board-level variables that we include as moderator variables could have a complementary or substitutional influence on the relationship between female directorship and bank performance. In fact, other variables could also have a positive or negative influence on bank performance, as a result of what we include four other control variables. More specifically, we include one of the six dimensions of national culture of the Hofstede model, videlicet the variable masculinity, and the three bank-level variables bank size, bank age and ownership concentration as other control variables.

In fact, [Berger, Li, Morris and Roman \(2020\)](#) has found that masculinity, which stresses heroism and competitiveness, has a negative influence on bank performance. More specifically, it argues that directors in masculine cultures are less risk-averse and thereby less inclined to restrict credit availability to new, unestablished borrowers who carry substantial credit risks. Additionally, it argues that government authorities in masculine cultures concede banks to operate with less capital and liquidity, conceding them to fail.

Furthermore, [Gupta and Mahakud \(2020\)](#) has found that bank size has a negative influence on bank performance. More specifically, it argues that an increase in bank size is accompanied by an increase in marketing, operational and bureaucratic costs. Additionally, it argues that smaller banks may maintain durable contacts with local clients which may provide them with access to information valuable in formulating contract terms.

Moreover, [Adusei \(2011\)](#) has found that bank age has a positive influence on bank performance. More specifically, it argues that banks that are longer in business capitalize on the learning effect. Additionally, it argues that the earned visibility of the experienced banks their quality to their customers and the earned visibility of the experienced banks their

creditworthiness to their debt and equity suppliers provide operational advantages over their immature counterparts.

Additionally, [Ozili and Uadiale \(2017\)](#) has found that ownership concentration has a positive influence on bank performance. More specifically, it argues that controlling shareholders are more effective in asserting their rights and can thereby impose pre-eminent monitoring and exert their influence to enforce to make value enhancing decisions.

Lastly, if we combine the bivariate and partial correlation coefficients from the HOMA, the total number of observations encompasses 81 observations. However, as different studies employ different board-level variables, our MARA sample for board size consists of 71 observations, our MARA sample for board independence consists of 67 observations, and our MARA sample for CEO duality consists of 40 observations. Likewise, our MARA sample for the board-level variables combined could encompass up to 40 observations, but encompasses 37 observations. In fact, [Ting, Chueh and Chang \(2017\)](#) employs CEO duality but not board size and board independence in its study whereby bank performance is measured by the three bank performance measures ROA, pre-tax ROA and pre-provision profit over assets.

### 3.2 $t$ and Fisher's $z$ transformation

Nevertheless, before running the two aforementioned meta-analyses in Stata, we need to make sure that the bivariate and partial correlation coefficients that we are synthesizing are normalized for the accomplishment of non-skewness and comparison. In fact, not every study has the same sample size and control variables. More specifically, we accomplish this by using the  $t$  and Fisher's  $z$  transformation, which together consist of six formulas represented in [Stanley and Doucouliagos \(2012\)](#) and [Borenstein et al. \(2009\)](#). With regard to the  $t$  transformation, we first obtain  $t$ -statistics for the partial correlation coefficients by using the following formula:

$$t = \frac{\beta}{SE(\beta)}$$

Subsequently, to obtain the transformed effect sizes for the partial correlation coefficients within the  $t$ -transformation, we extract the degrees of freedom from the studies and we insert them together with the  $t$ -statistics in the following formula:

$$r = \frac{t}{\sqrt{t^2 + df}}$$

Thereupon, the transformed effect sizes for the partial correlation coefficients are on a par with the bivariate correlation coefficients and thus apt to be used in the Fisher's  $z$  transformation.



Hence, we insert the transformed effect sizes for the partial correlation coefficients as well as the bivariate correlation coefficients in the following formula:

$$z = 0.5 \times \ln\left(\frac{1+r}{1-r}\right)$$

Then, to obtain the variances of the transformed effect sizes within the Fisher's  $z$  transformation which we need for the weights attributed to the transformed effect sizes or the standard deviations, we extract the bank-year observations from the studies and we insert them in the following formula:

$$V_z = \frac{1}{n-3}$$

Hereafter, to obtain the weights attributed to the transformed effect sizes, we insert the variances of the  $z$ -transformed effect sizes in the following formula:

$$SE_z = \sqrt{V_z}$$

Concluding, the studies with more bank-year observations are attributed higher weights, which coincides with the Central Limit Theorem. Finally, to transform the  $z$  estimates of the transformed effect sizes back into  $r$  estimates for presentation, we insert the  $z$  estimates of the transformed effect sizes in the following formula:

$$r = \frac{e^{2z} - 1}{e^{2z} + 1}$$

Now, as the partial and bivariate correlation coefficients that we are synthesizing are normalized, we can run the two aforementioned meta-analyses in Stata and draw relevant conclusions as to what the general evidence is on how female directorship is related to bank performance and as to what variables moderate the relationship between female directorship and bank performance.

## 4. Results

### 4.1 Hedges-Olkin Meta-Analysis (HOMA)

#### 4.1.1 Bivariate correlation coefficients

After running the HOMA for the bivariate correlation coefficients in Stata, we obtain the results represented in [Table 1](#) below.

Subgroup meta-analysis summary						Number of observations = 33
Random-effects model						
Method: Hedges						
Group: Bank performance measure						
	theta	Std. Err.	z	P> z	[ 95% Conf.	Interval ]
Group: ROA	-.0453351	.0421644	-1.08	0.282	-.1279759	.0373056
Group: ROE	.0109333	.0258506	0.42	0.672	-.039733	.0615995
Group: Tobin's Q	-.0826433	.0710235	-1.16	0.245	-.2218469	.0565602
Group: Other	-.0612581	.0223072	-2.75	0.006	-.1049794	-.0175369
Overall	-.0341398	.021507	-1.59	0.112	-.0762928	.0080131
Heterogeneity summary						
Group	df	Q	P > Q	tau2	% I2	H2
ROA	12	99.84	0.000	.0185683	89.97	9.97
ROE	6	46.29	0.000	.0008579	16.91	1.20
Tobin's Q	1	12.98	0.000	.0093235	92.29	12.98
Other	10	36.50	0.000	.0032108	71.76	3.54
Overall	32	205.04	0.000	.0112406	88.39	8.62
Test of group differences: Q_b = chi2(3) = 5.05				Prob > Q_b = 0.168		

**Table 1:** HOMA for the bivariate correlation coefficients

Succinctly, for the bivariate correlation coefficients, we find that female directorship and the three most commonly employed measures of bank performance, videlicet ROA, ROE and Tobin's Q, are not (significantly) related. In fact, the p-values of respectively 0.282, 0.672 and 0.245 are larger than 0.05. Logically, we find that female directorship and bank performance are not (significantly) related for the bivariate correlation coefficients: the overall p-value of 0.112 is larger than 0.05. In this way, the results coincide with [Issa et al. \(2021\)](#) and [Rafinda et al. \(2018\)](#).

#### 4.1.2 Partial correlation coefficients

After running the HOMA for the partial correlation coefficients in Stata, we obtain the results represented in [Table 2](#) below.

Subgroup meta-analysis summary						Number of observations = 48
Random-effects model						
Method: Hedges						
Group: Bank performance measure						
	theta	Std. Err.	z	P> z	[ 95% Conf. Interval ]	
Group: ROA	.0516334	.0422167	1.22	0.221	-.0311099	.1343767
Group: ROE	.0400605	.0163329	2.45	0.014	.0080485	.0720724
Group: Tobin's Q	.1123654	.0433089	2.59	0.009	.0274814	.1972493
Group: Other	.0724587	.0289775	2.50	0.012	.0156639	.1292535
Overall	.0643237	.018736	3.43	0.001	.0276019	.1010456
Heterogeneity summary						
Group	df	Q	P > Q	tau2	% I2	H2
ROA	16	166.67	0.000	.0254668	91.05	11.18
ROE	9	11.68	0.232	.0002545	9.02	1.10
Tobin's Q	4	38.63	0.000	.0074276	83.52	6.07
Other	15	53.32	0.000	.0097993	85.60	6.95
Overall	47	281.05	0.000	.0127751	87.67	8.11
Test of group differences: Q_b = chi2(3) = 2.95					Prob > Q_b = 0.399	

**Table 2:** HOMA for the partial correlation coefficients

In accordance with the bivariate correlation coefficients, we find that female directorship and one of the three most commonly employed measures of bank performance, videlicet ROA, are not (significantly) related for the partial correlation coefficients. In fact, the p-value of 0.221 is larger than 0.05. In contrast to the bivariate correlation coefficients, however, we find that female directorship and two of the three most commonly employed measures of bank performance, videlicet ROE and Tobin's Q, are (significantly) related for the partial correlation coefficients. In fact, the p-values of respectively 0.014 and 0.009 are smaller than 0.05. Logically, we find that female directorship and bank performance are (significantly) related for the partial correlation coefficients: the overall p-value of 0.001 is smaller than 0.05.

More specifically, we find that female directorship and bank performance measured by ROE and Tobin's Q are positively related for the partial correlation coefficients. In fact, the thetas, which represent the summary effect sizes, comprise the positive thetas of respectively 0.0400605 and 0.1123654. Logically, we find that female directorship and bank performance are positively related for the partial correlation coefficients: the overall theta comprises the positive theta of 0.0643237. In this way, the results coincide with [Belhaj and Mateus \(2016\)](#) and [García-Meca et al. \(2015\)](#).

Now, on the basis of the argumentation that the sample size of the HOMA for the partial correlation coefficients is approximately 45% larger than the sample size of the HOMA for the bivariate correlation coefficients and thus less susceptible to sampling errors, we attach more value to the results from the HOMA for the partial correlation coefficients. Hence, we find support that female board members promote better bank performance.

However, the heterogeneity summary of the HOMA exhibits that the MARA is still sorely needed. In fact, the overall p-value of the Cochran's Q-test of heterogeneity of 0.000 is smaller than 0.05. More specifically, the amount of heterogeneity in the effect sizes, which is represented by the overall  $\tau^2$ , is 0.0127751. Furthermore, and more importantly, the percentage of observed dispersion as a result of this heterogeneity in the effect sizes, which is represented by the overall  $I^2$ , is as much as 87.67% ([Borenstein et al., 2009](#)).

## 4.2 Meta-Analytic Regression Analysis (MARA)

### 4.2.1 Combined sample

After running the MARA for our moderator variables combined in Stata, we obtain the results represented in [Table 3](#) below.

Random-effects meta-regression						
Method: Hedges						
						Number of obs = 37
						Residual heterogeneity:
						tau2 = .005918
						I2 (%) = 69.57
						H2 = 3.29
						R-squared (%) = 53.14
						Wald chi2(8) = 39.92
						Prob > chi2 = 0.0000
_meta_es	Coef.	Std. Err.	z	P> z	[ 95% Conf.	Interval ]
MeanBS	.0452797	.0157447	2.88	0.004	.0144205	.0761388
MeanBINDP	.2423117	.1192952	2.03	0.042	.0084974	.4761261
MeanDUAL	-.218685	.10794	-2.03	0.043	-.4302435	-.0071265
BVCdummy	-.1942714	.0389322	-4.99	0.000	-.2705772	-.1179657
Hof_MAS	.1305305	.1350002	0.97	0.334	-.134065	.395126
Ctrl_Size	-.1818411	.0672265	-2.70	0.007	-.3136026	-.0500796
Ctrl_Age	.0033626	.0669615	0.05	0.960	-.1278795	.1346047
Ctrl_OwnConc	.1242423	.0749103	1.66	0.097	-.0225791	.2710638
_cons	-.9244879	.7027376	-1.32	0.188	-2.301828	.4528526
Test of residual homogeneity: Q_res = chi2(28) = 120.33						Prob > Q_res = 0.0000

**Table 3:** MARA for board size, board independence and CEO duality combined

First of all, for our moderator variable board size, we find that it moderates the relationship between female directorship and bank performance. In fact, its p-value of 0.004 is smaller than 0.05. More specifically, we find that it positively moderates the relationship between female directorship and bank performance. In fact, its coefficient comprises the positive coefficient of 0.0452797. In this way, this result coincides with [Quoc Trung \(2022\)](#) which argues that a larger board has a larger number of directors who work to safeguard the interests of shareholders and which argues that a larger board broadens the diversity of expertise and knowledge in different areas.

Secondly, for our moderator variable board independence, we also find that it moderates the relationship between female directorship and bank performance. In fact, its p-value of 0.042

is smaller than 0.05. More specifically, we find that it positively moderates the relationship between female directorship and bank performance. In fact, its coefficient comprises the positive coefficient of 0.2423117. In this way, this result coincides with [Pathan et al. \(2007\)](#) which argues that independent directors have more incentives to safeguard the interests of shareholders as they regard preserving their reputation in the market for outside directorships as important and which argues that independent directors outperform on duties such as ousting a CEO and making takeover bids in conjunction with curtailing the possibility of a hostile takeover.

Lastly, for our moderator variable CEO duality, we again find that it moderates the relationship between female directorship and bank performance. In fact, its p-value of 0.043 is smaller than 0.05. More specifically, we find that it negatively moderates the relationship between female directorship and bank performance. In fact, its coefficient comprises the negative coefficient of -0.218685. In this way, this result coincides with [Sarkar and Sarkar \(2018\)](#) which argues that a dual designation of the CEO and chairperson of the board induces excessive power concentration in the hands of one individual, reducing oversight with the possible consequence of self-serving actions and increasing agency conflicts.

Hence, we find support that the board-level variables board size, board independence and CEO duality combined moderate the relationship between female directorship and bank performance. However, we take these results with a grain of salt. In fact, as we discussed earlier, the sample size of the MARA for board size, board independence and CEO duality combined is almost half of the sample size of the MARA for board size and board independence individually and thus more susceptible to sampling errors.

## 4.2.2 Individual samples

After running the MARA for our moderator variables individually in Stata, we obtain the results represented in [Table 4](#) below.

Random-effects meta-regression						Number of obs = 71
Method: Hedges						
_meta_es	Coef.	Std. Err.	z	P > z	[ 95% Conf.	Interval ]
MeanBS	.0057255	.0066906	0.86	0.392	-.0073878	.0188389
BVCdummy	-.0989022	.0282345	-3.50	0.000	-.1542409	-.0435635
Hof_MAS	-.0175474	.0761501	-0.23	0.818	-.1667989	.131704
Ctrl_Size	-.0883567	.0387622	-2.28	0.023	-.1643293	-.0123841
Ctrl_Age	.0610959	.0353091	1.73	0.084	-.0081087	.1303004
Ctrl_OwnConc	.1294888	.0471171	2.75	0.006	.0371409	.2218367
_cons	.1073551	.318947	0.34	0.736	-.5177696	.7324797

  

Random-effects meta-regression						Number of obs = 67
Method: Hedges						
_meta_es	Coef.	Std. Err.	z	P > z	[ 95% Conf.	Interval ]
MeanBINDP	-.0009307	.0751713	-0.01	0.990	-.1482638	.1464023
BVCdummy	-.1009041	.0294917	-3.42	0.001	-.1587068	-.0431014
Hof_MAS	-.0468312	.0884184	-0.53	0.596	-.220128	.1264656
Ctrl_Size	-.1016136	.0427378	-2.38	0.017	-.1853782	-.017849
Ctrl_Age	.0564869	.0398411	1.42	0.156	-.0216002	.134574
Ctrl_OwnConc	.1370692	.0509245	2.69	0.007	.0372591	.2368794
_cons	.311735	.3769209	0.83	0.408	-.4270163	1.050486

  

Random-effects meta-regression						Number of obs = 40
Method: Hedges						
_meta_es	Coef.	Std. Err.	z	P > z	[ 95% Conf.	Interval ]
MeanDUAL	-.2607638	.1050381	-2.48	0.013	-.4666346	-.054893
BVCdummy	-.211994	.0395381	-5.36	0.000	-.2894872	-.1345008
Hof_MAS	-.1407983	.1113804	-1.26	0.206	-.3591	.0775033
Ctrl_Size	-.2617089	.0667027	-3.92	0.000	-.3924437	-.1309741
Ctrl_Age	.1098379	.052736	2.08	0.037	.0064772	.2131985
Ctrl_OwnConc	.2008036	.0669787	3.00	0.003	.0695279	.3320794
_cons	.8607457	.4429751	1.94	0.052	-.0074695	1.728961

**Table 4:** MARA for board size, board independence and CEO duality individually

First of all, for our moderator variable board size, we find that it does not moderate the relationship between female directorship and bank performance. In fact, its p-value of 0.392 is larger than 0.05.

Secondly, for our moderator variable board independence, we also find that it does not moderate the relationship between female directorship and bank performance. In fact, its p-value of 0.990 is larger than 0.05.

Lastly, for our moderator variable CEO duality, we find that it does moderate the relationship between female directorship and bank performance. In fact, its p-value of 0.013 is smaller than 0.05. More specifically, we find that it negatively moderates the relationship between female directorship and bank performance. In fact, its coefficient comprises the negative coefficient of -0.2607638. In this way, this result coincides with the precedent result in section 4.2.1.

Hence, we only find support that the board-level variable CEO duality individually moderates the relationship between female directorship and bank performance.

## **5. Conclusion and discussion**

As the theoretical and more importantly empirical literature indicate no consensus on how female directorship is related to bank performance while consensus on how female directorship is related to bank performance is very relevant, we aimed to find what the general evidence is on how female directorship is related to bank performance by synthesizing all the existing empirical evidence. Moreover, we aimed to examine what caused the lack of consensus on how female directorship is related to bank performance. By examining the HOMA and MARA results, we could draw relevant conclusions as to how female directorship is related to bank performance and as to what variables moderate the relationship between female directorship and bank performance. In the end, we first of all found that female directorship and two of the three most commonly employed measures of bank performance, videlicet ROE and Tobin's Q, are positively related. Logically, we found that female directorship and bank performance are positively related. Hence, we found support that female board members promote better bank performance. Secondly, we found support that the board-level variables board size, board independence and CEO duality combined moderate the relationship between female directorship and bank performance. More specifically, we found that board size and board independence positively moderate the relationship between female directorship and bank performance, while CEO duality negatively moderates the relationship between female



directorship and bank performance. However, we only found support that CEO duality individually moderates the relationship between female directorship and bank performance.

Nonetheless, this Master Thesis also knows some limitations, especially with regard to the moderator and control variables included in the MARA. First of all, although previous studies did not find support for multicollinearity, in this Master Thesis this could be a cause, as well as the difference in sample size and thus sampling errors, of why board size and board independence combined moderate the relationship between female directorship and bank performance but individually not. Secondly, although the percentage of observed dispersion as a result of the heterogeneity in the effect sizes ( $I^2$ ) decreased by more than 20% after the inclusion of our moderator and control variables, 69.57% is still a considerable percentage.

As such, opportunities for further research would be to assess multicollinearity with the use of a non-traditional correlation matrix appropriate for a meta-analysis and to include additional moderator and control variables. With regard to the latter, an opportunity for further research would for instance be to include another dimension of national culture of the Hofstede model. In fact, [Boubakri, Mirzaei and Samet \(2017\)](#) has found that uncertainty avoidance, which stresses clearness and predictability, has a positive influence on bank performance. More specifically, it argues that directors in uncertainty-avoiding cultures feel threatened by ambiguity and are thereby less inclined to exhibit unorthodox behavior and ideas in defiance of definite structures, codes and procedures. Additionally, it argues that there is less information asymmetry and inclination to pay excessive dividends in uncertainty-avoiding cultures.

In conclusion, this Master Thesis thus offers insights for banks to improve the gender diversity in their boards, thereby putting an end to the ‘old boys’ club’ culture and improving equality of opportunity for at least as qualified women. However, this Master Thesis would benefit from replication with the aforementioned opportunities. Therefore, other researchers are recommended to carry out further research in order to provide a broader view on the topic in the context of meta-analysis studies.

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## 7. Appendix

Study	Correlation coefficient(s)	Bank performance measure(s)	Board-level variable(s)
Addo, K.A., Hussain, N., & Iqbal, J. (2021). Corporate governance and banking systemic risk: A test of the bundling hypothesis. <i>Journal of International Money and Finance</i> , 115, 102327. <a href="https://doi.org/10.1016/j.jimonfin.2020.102327">https://doi.org/10.1016/j.jimonfin.2020.102327</a>	Bivariate	ROA	Board size and board independence
Adeabah, D., Gyeke-Dako, A., & Andoh, C. (2019). Board gender diversity, corporate governance and bank efficiency in Ghana: A two stage data envelope analysis (DEA) approach. <i>Corporate Governance: The International Journal of Business in Society</i> , 19(2), 299-320. <a href="https://doi.org/10.1108/cg-08-2017-0171">https://doi.org/10.1108/cg-08-2017-0171</a>	Bivariate and partial	Technical efficiency	Board size and board independence
Bunea, M., & Turlea, E. (2016). The impact of the supervisory board structure on bank Performance. <i>Audit Financiar</i> , 14(135), 326-333. <a href="https://doi.org/10.20869/auditf/2016/135/326">https://doi.org/10.20869/auditf/2016/135/326</a>	Bivariate	ROA and ROE	X
Cooper, E.W. (2009). Monitoring and governance of private banks. <i>The Quarterly Review of Economics and Finance</i> , 49(2), 253-264. <a href="https://doi.org/10.1016/j.qref.2008.04.002">https://doi.org/10.1016/j.qref.2008.04.002</a>	Partial	ROA	Board size, board independence and CEO duality
Dedu, V., & Chitan, G. (2013). The influence of internal corporate governance on bank performance - an empirical analysis for Romania. <i>Procedia-Social and Behavioral Sciences</i> , 99, 1114-1123. <a href="https://doi.org/10.1016/j.sbspro.2013.10.585">https://doi.org/10.1016/j.sbspro.2013.10.585</a>	Partial	ROA	Board size and board independence
Dong, Y., Girardone, C., & Kuo, J.-M. (2017). Governance, efficiency and risk taking in Chinese banking. <i>The British Accounting Review</i> , 49(2), 211-229. <a href="https://doi.org/10.1016/j.bar.2016.08.001">https://doi.org/10.1016/j.bar.2016.08.001</a>	Bivariate and partial	Profit efficiency and cost efficiency	Board size, board independence and CEO duality

Elbahar, E. (2016). Corporate governance, risk management, and bank performance in the GCC banking sector (Doctoral dissertation, University of Plymouth).	Partial	ROA and ROE	Board size, board independence and CEO duality
Farag, H., & Mallin, C. (2017). Board diversity and financial fragility: Evidence from European banks. <i>International Review of Financial Analysis</i> , 49, 98-112. <a href="https://doi.org/10.1016/j.irfa.2016.12.002">https://doi.org/10.1016/j.irfa.2016.12.002</a>	Bivariate and partial	ROA	Board size, board independence and CEO duality
Fidanoski, F., Mateska, V., & Simeonovski, K. (2014). Corporate governance and bank performance: Evidence from Macedonia. <i>Economic analysis</i> , 47(1-2), 76-99.	Bivariate and partial	ROA and ROE	X
García-Meca, E., García-Sánchez, I.-M., & Martínez-Ferrero, J. (2015). Board diversity and its effects on bank performance: An international analysis. <i>Journal of Banking &amp; Finance</i> , 53, 202-214. <a href="https://doi.org/10.1016/j.jbankfin.2014.12.002">https://doi.org/10.1016/j.jbankfin.2014.12.002</a>	Bivariate and partial	ROA and Tobin's Q	Board size, board independence and CEO duality
Georgantopoulos, A.G., & Filos, I. (2017). Corporate governance mechanisms and bank performance: Evidence from the Greek banks during crisis period. <i>Investment Management and Financial Innovations</i> , 14(1-1), 160-172. <a href="https://doi.org/10.21511/imfi.14(1-1).2017.02">https://doi.org/10.21511/imfi.14(1-1).2017.02</a>	Partial	ROA, ROE, net interest margin and pre-tax operating income	Board size, board independence and CEO duality
Gulamhussen, M.A., & Santa, S.F. (2015). Female directors in bank boardrooms and their influence on performance and risk-taking. <i>Global Finance Journal</i> , 28, 10-23. <a href="https://doi.org/10.1016/j.gfj.2015.11.002">https://doi.org/10.1016/j.gfj.2015.11.002</a>	Partial	ROA, ROE, Tobin's Q, ratio of net interest income to total earning assets and ratio of other operating income to total average assets	Board size
Khan, H.U.Z. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting: Empirical evidence from private commercial banks of Bangladesh. <i>International Journal of Law and Management</i> , 52(2), 82-109. <a href="https://doi.org/10.1108/17542431011029406">https://doi.org/10.1108/17542431011029406</a>	Bivariate	ROE	Board independence



Leone, P., Gallucci, C., & Santulli, R. (2018). How does corporate governance affect bank performance? The mediating role of risk governance. <i>International Journal of Business and Management</i> , 13(10), 212-229. <a href="https://doi.org/10.5539/ijbm.v13n10p212">https://doi.org/10.5539/ijbm.v13n10p212</a>	Bivariate and partial	ROA	Board size and board independence
Liang, Q., Xu, P., & Jiraporn, P. (2013). Board characteristics and Chinese bank performance. <i>Journal of Banking &amp; Finance</i> , 37(8), 2953-2968. <a href="https://doi.org/10.1016/j.jbankfin.2013.04.018">https://doi.org/10.1016/j.jbankfin.2013.04.018</a>	Partial	ROA	Board size, board independence and CEO duality
Lu, J., & Boateng, A. (2017). Board composition, monitoring and credit risk: Evidence from the UK banking industry. <i>Review of Quantitative Finance and Accounting</i> , 51(4), 1107-1128. <a href="https://doi.org/10.1007/s11156-017-0698-x">https://doi.org/10.1007/s11156-017-0698-x</a>	Bivariate	ROA	Board size, board independence and CEO duality
Mamatzakis, E., & Bermpei, T. (2015). The effect of corporate governance on the performance of US investment banks. <i>Financial Markets, Institutions &amp; Instruments</i> , 24(2-3), 191-239. <a href="https://doi.org/10.1111/fmii.12028">https://doi.org/10.1111/fmii.12028</a>	Partial	ROA, ROE, pre-tax operating income and profit efficiency	Board size, board independence and CEO duality
Muhammad, M.B. (2019). Corporate governance and bank performance: Conventional vs Islamic banks in Malaysia (MBA dissertation, UTAR).	Bivariate and partial	ROA and ROE	Board size and board independence
Pathan, S., & Faff, R. (2013). Does board structure in banks really affect their performance? <i>Journal of Banking &amp; Finance</i> , 37(5), 1573-1589. <a href="https://doi.org/10.1016/j.jbankfin.2012.12.016">https://doi.org/10.1016/j.jbankfin.2012.12.016</a>	Bivariate and partial	ROA, ROE, Tobin's Q, pre-tax operating income, net interest margin and stock returns	Board size and board independence
Romano, G., Ferretti, P., & Rigolini, A. (2012, September). Corporate governance and performance in Italian banking groups. In <i>Paper to be Presented at the International Conference "Corporate Governance and Regulation: Outlining New Horizons for Theory and Practice"</i> .	Partial	ROA and ROE	Board size and board independence
	Partial	ROA, ROE and Tobin's Q	Board size, board independence

Sun, J., & Liu, G. (2014). Audit committees' oversight of bank risk-taking. <i>Journal of Banking &amp; Finance</i> , 40, 376-387. <a href="https://doi.org/10.1016/j.jbankfin.2013.12.015">https://doi.org/10.1016/j.jbankfin.2013.12.015</a>			and CEO duality
Talavera, O., Yin, S., & Zhang, M. (2018). Age diversity, directors' personal values, and bank performance. <i>International Review of Financial Analysis</i> , 55, 60-79. <a href="https://doi.org/10.1016/j.irfa.2017.10.007">https://doi.org/10.1016/j.irfa.2017.10.007</a>	Bivariate and partial	ROA, ROE, net interest margin and pre-provision profit ratio	Board size, board independence and CEO duality
Ting, H.-I., Chueh, H., & Chang, P.-R. (2017). CEO power and its effect on performance and governance: Evidence from Chinese banks. <i>Emerging Markets Review</i> , 33, 42-61. <a href="https://doi.org/10.1016/j.ememar.2017.09.005">https://doi.org/10.1016/j.ememar.2017.09.005</a>	Bivariate	ROA, pre-tax ROA and pre-provision profit over assets	CEO duality