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Breaking the glass ceiling in banking: the impact of female directors, digitalization, and income diversification on financial stability

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Breaking the Glass Ceiling in Banking: The Impact of Female Directors, Digitalization, and Income Diversification on Financial Stability

Abstract:

Purpose – This study aims to analyze the impact of board gender diversity on a bank's financial stability. Moreover, it also examines whether digitalization and income diversification act as mediators (individual and serial) in this relationship.

Design/methodology/approach – Hypotheses were tested using data from Pakistan's banking sector financial statements from 2017-2021. A two-step analytical approach was employed: panel regression in STATA for initial hypothesis examination, followed by mediation analyses using bootstrapping in SPSS. Additionally, Mixed-effect ML regression was conducted to verify causation and ensure robust findings.

Findings – Results demonstrate that board gender diversity, digitalization, and income diversification are positively associated with higher financial stability. Moreover, as hypothesized, both digitalization and income diversification individually and sequentially mediate the relationship between board gender diversity and banks' financial stability.

Research limitations – It's important to acknowledge the study's limited 5-year timeframe. Further investigation is needed to determine the optimal board compositions, especially considering the study's inclusion of up to 25% female directors on boards.

Practical Implications – Policymakers and top management should prioritize increasing the number of female directors on boards for diversity. Banks that involve female directors can benefit from the synergies between gender diversity and digitization, along with the unique perspectives these women offer. This cooperative dynamic enables banks to explore and capitalize on innovative income diversification opportunities, enter new markets, and ensure financial stability.

Social Implications – Research findings emphasize promotion of gender equality and meritocracy through increased female director representation. This fosters a more inclusive and cooperative decision-making culture, benefiting individual banks and setting a model for other sectors. Ultimately, it contributes to greater social acceptance of women executives.

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Originality/value – The study reveals a novel mechanism, emphasizing the revolutionary impact of active female directors in tandem with digitalization, amplifying chances for income diversification, and accelerating increased bank viability.

Keywords: Gender, Female Directors, Digital Orientation, Revenue Diversification, Financial Stability, Commercial Banks, Serial Mediation.

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Introduction

Board gender diversity (BGD) has been widely researched in literature such as guarding stockholders' interests (Usman, Gull, Zalata, Wang, & Yin, 2022), affecting risk-taking and disclosure (Fiador, 2023), and influencing the cost of debt financing (Aksoy & Yilmaz, 2023). Researchers have also examined the linkages between BGD and financial performance (Gulamhussen & Santa, 2015; Okoyeuzu, Ujunwa, Ujunwa, & Onah, 2021; Reguera-Alvarado, de Fuentes, & Laffarga, 2017), and specifically, examining why the presence of female directors on corporate boards correlates with improved financial performance? While some researchers argue that BGD contributes to better decision-making (Yami, Poletti-Hughes, & Hussainey, 2023), others suggest that it brings different skills, knowledge, and experience (Reguera-Alvarado et al., 2017), as knowledge is an essential asset for a competitive organizations (A. Tariq, Sumbal, Dabic, Raziq, & Torkkeli, 2024). Prior research, with a few exceptions, has generally shown a favorable association between BGD and financial stability (Gulamhussen & Santa, 2015; Reguera-Alvarado et al., 2017; Terjesen, Couto, & Francisco, 2016).

In this regard, it is pertinent to further examined this relationship, due to the acknowledged underrepresentation of female directors (J. Chen, Leung, Song, & Goergen, 2019). Moreover, female directors' presence may counteract overconfident investment behavior, which could otherwise lead to detrimental outcomes for corporations (Usman et al., 2022). Female directors can significantly influence the CEOs, shaping their beliefs and behaviors, which in turn affect decision-making, thus, there remains a need to comprehensively examine and provide further evidence on this debate (J. Chen et al., 2019). Examining the impact of female directors offers insights that can result in stronger governance and more resilient financial institutions. This study also backs initiatives to increase gender diversity in senior leadership roles, which helps create more equitable and inclusive work settings. Therefore, this research aims to contribute to this discourse by providing evidences addressing a gap highlighted by researchers for strengthening conceptual foundations (Nsanzumuhire, Groot, Cabus, Ngoma, & Masengesho, 2023). Thus, the first research question to advance this debate is: does BGD have a positive influence on the banks' financial stability?

An equally persuasive argument contends that effective BGD influence on a bank's financial stability does not happen automatically or uniformly. It depends on various factors that shape this relationship. In addressing this question, we extend prior research by emphasizing the

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influence of BGD on financial stability, considering two important yet neglected factors: digitalization and income diversification (Merzki & Ben Rejeb, 2023). To explore these important dimensions, we relied on resource-based view, which emphasizes that organizations with valuable, rare, and non-substitutable resources are likely to gain a competitive advantage. We recognize female director skills in empathy, collaboration, risk management, strategic thinking, and communication as valuable assets that enrich the board. Additionally, businesses select top managers for their specific traits to access the diverse resources they bring (Wellalage & Locke, 2013). Reguera-Alvarado et al. (2017) argue that female directors contribute to the bank's digitization initiatives by attending to stakeholders' interests, which include meeting consumers' evolving expectations for services. Furthermore, by actively engaging with clients using digital technologies, a business may boost the likelihood of a higher conversion rate and improve financial performance (Ribeiro-Navarrete, Botella-Carrubi, Palacios-Marqués, & Orero-Blat, 2021). Thus, the second research question of this research is, does digitalization mediate the relationship between BGD and bank's financial stability?

Moreover, BGD is likely to encourage the diversification of revenues to include more revenue sources for gaining competitive advantage and superior performance (Liao, Zhang, & Wang, 2019). According to the resource-based view, gender diversity on boards enhances company profitability due to unique skills in empathy and collaboration improve firms' risk management and reducing financial volatility (M. Chen & Lim, 2016). Female directors employ income diversification to protect the firm from potential income losses (Mohsni, Otchere, & Shahriar, 2021). Thus, the higher proportion of female directors may influence income diversification, which is highlighted as an important factor in determining financial stability (W. Tariq et al., 2021). Thus, this research third research question is: does income diversification influence the relationship between BGD and bank's financial stability? Furthermore, this research has explored serial meditation where it examined the linkages between BGD and financial stability through digitalization and income diversification (serial mediation model). Female directors improve decision-making, facilitating a firm's adoption of digitalization for improved income diversification, and positively impacting financial stability. Besides, banks can utilize advanced digital technologies such as the internet of things (IOT), big data analytics, and blockchain technologies for revenue diversification, enhancing competitiveness, and superior financial performance (Ribeiro-Navarrete et al.,

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2021). Lastly, this research examines, do digitalization and income diversification act as a serial mediator in the relationship between BGD and financial stability?

This research enriches BGD literature in three notable ways. Firstly, the current study responds to earlier studies' recommendations that more research must be performed to explore the influence of female representation on performance under the voluntary system with nations that give quotas for female presence on boards (Brahma, Nwafor, & Boateng, 2021). This allows researchers and policymakers to comprehensively understand the interrelationship between BGD and banks' stability by understanding the implications of female directors on the board, specifically, in the context where the inclusion of female directors is not voluntary. This will provide an improved understanding to contextualize the findings of this research and have a broader generalization of female directors' significance not limited to any specific context (Nsanzumuhire et al., 2023). Thus, this provides strong foundations for the reconciliation of the existing findings in the domain.

Secondly, the current study makes a significant contribution by studying the impact of BGD in encouraging bank digitalization, which has been considered a result of organization strategic orientation in the previous studies (Arias-Pérez & Vélez-Jaramillo, 2022; Khin & Ho, 2018). Moreover, digitalization could be an effective tool for female directors to channel their skills, unique networks, and other capabilities to the advantage of the banks. As such, it adds to the digital orientation literature by investigating the digitalization mechanism through BGD and validating the importance of digitalization for income diversification and bank financial stability when contrasted with prior studies, which largely concentrated on the connection between BGD and financial performance (Brahma et al., 2021; M. Chen & Lim, 2016). This will allow researchers to reconsider the role of digitalization not only as a driver or consequence but also as a mediating mechanism to stimulate further research in this and similar domains.

Thirdly, this research offers novel insights by shedding light on the logical mechanism that governs the association between BGD and a bank's financial stability by investigating the serial mediation effect of digitalization and income diversification. Practically, this research provides an "ideal" configuration for managers and policymakers to understand the significance and utilize board gender diversity to reap higher financial stability. This mechanism is effective in terms of explaining the economic and social contribution of female

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directors to have a positive financial impact and also contributing significantly toward promoting the significance of female on boards and other aspects of life.

This paper has six sections, where the introduction is the first one. Section 2 presents the theory and hypotheses development, followed by section 3 which elaborates methods including context, data collection, variable measurement, and analyses strategy. In section 4, results are provided, and section 5 provides discussion and contributions. Section 6 includes the concluding remarks, limitations, and direction for further research.

Theory and hypotheses development

Due to the increased importance of governance in achieving superior performance, extant literature has shown considerable attention in linking BGD with firm stability (Mishra, Jain, & Manogna, 2021). For the purpose of this research, we relied on the resource-based theory as a distinct lens to examine the link between BGD and financial stability (Reguera-Alvarado et al., 2017). Reliance on resource-based views is logical as it claims that organizations with valuable, rare, non-substitutable resources are likely to gain a competitive advantage. We recognize that female directors bring valuable skills in empathy, collaboration, risk management, strategic thinking, and communication. These unique abilities enhance board performance and connect the organization to essential external resources needed in the modern era (P. Chen & Hao, 2022). For instance, researchers have linked women to characteristics like empathy, compassion, deep care for others, and a desire to actualize values in ties that are crucial to the community (Kim, Kuang, & Qin, 2020). Moreover, female directors with their risk management skills can contribute to a decrease in future performance volatility through increased risk management efficacy on the board (M. Chen & Lim, 2016). Thus, the resource-based view recommends that the presence of female directors enhances financial stability via digitalization and income diversification.

Board gender diversity and bank's financial stability

Banks' capacity to endure internal and external challenges while fulfilling key functions, such as solvency and efficient financial flow management, defines financial stability (Carson & Ingves, 2003). Presently, prioritizing financial stability over short-term gains is crucial for banks' long-term development strategies. Financial stability within the banking sector is pivotal for resilience and sustainable growth; therefore, it is imperative to scrutinize its facets concerning board gender diversity and strategic shifts. BGD and bank's financial

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performance relationship has been recognized in earlier studies (Gulamhussen & Santa, 2015; Liao et al., 2019). Researchers have reported negative relationships based on the premise that increased board diversity leads to additional agency costs which leads to a negative financial performance (Wellalage & Locke, 2013). Joecks, Pull, and Vetter (2013) argued that a negative or no link between female directors and financial performance is due to a limited or greater number of female directors on the board. Researchers have posted positive e.g. (Bonn, Yoshikawa, & Phan, 2004; Campbell & Mínguez-Vera, 2008; Reguera-Alvarado et al., 2017; Terjesen et al., 2016), negative e.g. (Wellalage & Locke, 2013), and non-linear relationship e.g. (Ming & Eam, 2016) between BGD and financial stability. Researchers argue that female directors offer diverse perspectives, skills, and expertise, enhance media visibility, engage in stakeholder-demanded initiatives such as stability and digitalization, foster innovation, and influence firms' strategic direction, thus impacting financial progress (Reguera-Alvarado et al., 2017).

This research is also in line with existing research argues that female directors increased presence on the board facilitates to improve the financial stability of the banks, as 1) female directors on the board are empathetic and supportive and they provide necessary support to other board members and CEO to take initiatives for financial stability (Kim et al., 2020). 2) Moreover, board gender lessens the possibility of taking non-realistic risks which is likely to enhance the financial stability of the banks (M. Chen & Lim, 2016). 3) Reguera-Alvarado et al. (2017) argued that the inclusion of female directors leads to a positive reputation which also influences the financial stability of the banks positively. Furthermore, 4) Female directors also consider stakeholders requirements to incorporate changes which has overall positive impact. Building upon existing arguments highlighting the contributions of female directors to decision-making, diverse skills, knowledge, experience, and perspective, as well as their role in mitigating male directors' overconfidence and addressing environmental and stakeholder demands, we posit a positive relationship between board gender diversity (BGD) and bank financial stability. Thus, this research hypothesizes that:

H1: Increase the number of female directors on the board is positively linked to the bank's financial stability.

The Mediating role of Digitalization

Digitalization encompasses banks' integration of digital technologies across operational domains, facilitating digital communications and the provision of services to customers

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(Brennen & Kreiss, 2016). It involves the adoption or increased use of information technology and other digital tools to meet stakeholders' digital demands and improve organizational efficiency. Hinings, Gegenhuber, and Greenwood (2018), argue that embedding digitalization in an organization requires alignment with its belief system, with top management playing a crucial role in embracing changes to adapt to evolving market dynamics. Similarly, without the director's approval, it would not be possible for the banks to adopt digital technologies for higher digitalization (Sainger, 2018).

Based on RBV, we argued that board gender diversity is a valuable resource that influences firm strategic decision-making and increases the firm's capacity to entail benefits presented by digitalization. Gender diversity is also considered as a strategic asset that can bring effective skills that are required for the digitalization and adoption of digital technologies. Moreover, female directors with higher consideration of stakeholder's demands are more cognizant of digital technologies and determine the direction to move towards digitalization. Furthermore, female directors can build collaborative networks to enable higher digital competencies required by the banks (AlNuaimi, Singh, Ren, Budhwar, & Vorobyev, 2022). In a related vein, it is contended that female directors enhance the bank's digitalization efforts by caring for stakeholders' interests that enables providing updated services to the customers (Reguera-Alvarado et al., 2017). BGD brings new insights and methods for approaching problems that can lead to enhance innovativeness and digitalization (Lopez-Nicolas, Nikou, Molina-Castillo, & Bouwman, 2020). Bank's higher digitalization leads to changes in the way banks operate and deliver services to customers that have a positive effect on financial performance (AlNuaimi et al., 2022). Moreover, an organization can utilize digital tools to engage actively with the customers which increases the possibility of the conversion rate (Ribeiro-Navarrete et al., 2021) and has a positive effect on financial performance. In addition, banks can utilize advanced digital technologies such as internet of things (IOT) and big data analytics for revenue diversification, leading to enhanced competitiveness and superior financial performance (Ribeiro-Navarrete et al., 2021). Thus, this research hypothesizes that:

H2: Digitalization mediates the relationship between female directors and bank's financial stability.

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The Mediating role of Income Diversification

Income diversification refers to the shift from traditional sources of income to other sources of income (Githaiga, 2023; W. Tariq et al., 2021) and the changes in the bank income sources influence the bank performance (Abedifar, Molyneux, & Tarazi, 2018; Doan, Lin, & Doong, 2018). Based on RBV, it is argued that a company's distinct assets and skills are what give it a competitive edge. By using this lens, we can notice female directors as an important asset that may impact diversification, strategy choices, and overall organizational performance for banks. Moreover, female directors brought diverse viewpoints that might act as a stimulant for discovering novel market prospects, encouraging creativity in product lines, and adjusting to changing consumer demands. Female directors' unique capabilities motivate banks to compete through diversified revenue generation, including offering customers access to various digital services such as online booking for international or national air tickets via online banking platforms. Furthermore, low-income diversification may make banks vulnerable in the market as competitors may take a larger share of the customer with better and diversified services (Hoang, Nguyen, & Tran, 2021), and a bank with low-income diversification may not be able to generate the sufficient income necessary to stay in the market or to meet recurring expenses (Hoang et al., 2021; W. Tariq et al., 2021). Consequently, female directors with concern for the stakeholders are likely to pursue higher income diversification to maintain profitability (Liao et al., 2019).

Literature has already established a relationship between income diversification and a bank's financial performance (Hoang et al., 2021; W. Tariq et al., 2021; Zouaoui & Zoghlami, 2020). In the same vein, this research has argued that income diversification is likely to improve a bank's financial performance as 1) it enhances efficiency and reduces risk as these activities are not related to traditional income-generating activities of the banks, 2) income diversification activities are likely to generate more revenues and resulted in improved financial performance, and 3) finally, banks benefit from utilizing existing resources for income diversification, reducing capital costs by achieving operational economies of scope (Goddard, McKillop, & Wilson, 2008). Thus, this research hypothesizes that:

H3: Income diversification mediates the relationship between female directors and bank's financial stability.

Though a link between BGD and financial stability has been established in the literature (Post & Byron, 2015; Terjesen et al., 2016; Usman et al., 2022), no studies have developed the

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linkages to explain the complete underlying mechanism. Relying on a resource-based view, we explain the serial mediation of digitalization and income diversification. Firstly, adding female directors broadens the cognitive diversity of the board and provides the foundations for the valued decision-making required for a dynamic competitive era (Kim et al., 2020). Female directors' inclusion fosters a culture that requires organizations to advance in terms of digitalization which is needed to capture various customers' emerging needs. Consequently, this makes the process of income diversification easier, enabling the company to increase the variety of its revenue sources and reduce the risks connected with a single revenue source (AlNuaimi et al., 2022).

Female director's influence on income diversification may not make complete sense without the intervention of digitalization. Higher-income diversification occurs when digitalization is pursued by female directors as digitalization enhances the availability of data to deal with the changing customer needs (Ribeiro-Navarrete et al., 2021) and designing customer-centric strategies (Güler & Büyüközkan, 2019) which enabled banks to diversify income into other sources of income. Additionally, female directors can enhance a firm's digitalization efforts, improving income diversification and positively impacting the bank's financial stability. Therefore, female directors have an indirect impact on financial stability by influencing how the company approaches income diversification and digitalization. This serial mediation model illustrates how the unique resources of female directors trigger a series of strategic skills, ultimately enhancing financial stability through digitalization and income diversification. Thus, it is hypothesized that:

H4: The relationship between female directors and bank's financial stability is mediated by digitalization and income diversification.

A conceptual model of this research explaining the relationship between different variables is provided in the figure 1.

I. **Insert Figure 1 Here:** Conceptual Model

Methods

To test the proposed hypotheses, this research relied on the Pakistani banking sector for a number of reasons. Firstly, the current study, responds to earlier studies' recommendations and is based on a context where there is a necessary quota for female representation on boards (Brahma et al., 2021) as the Pakistan Companies Act (2017), encourages at least one

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female director on the corporate board. Secondly, technological advancement and the changing market dynamics have increased the high pressure on the economy of Pakistan (Gohar, Abrar, & Tariq, 2022) and specifically, the banking sector to align their offerings according to international requirements to be more competitive. Thirdly, banking sector reforms and regulations have created a more competitive and dynamic environment, witnessing the adoption of digitalization to bring more operational efficiencies and introduce new services to customers.

To empirically measure the variables, panel data is collected from the banks, listed with the State Bank of Pakistan, annual financial reports. Thus, eighteen commercial banks are selected from 2017 to 2021, a total of 5 years. The sample size is reflective of the overall population as the number of commercial banks has reduced subject to national and international banking regulations (W. Tariq, Ali, Ibrahim, Asim, & Rehman, 2014). To meet these regulations, the banking sector in Pakistan has been subject to mergers and acquisitions which resultantly lead to a stronger banking structure and fewer banks which is consistent with the existing literature (Hussain et al., 2021). Moreover, the choice of this time frame is further supported by the fact that banks started to disclose digitalization-related expenses in 2017. Banks that do not report these characteristics and necessary information such as digitalization expenses are not included as a part of this research. Table A1 in appendix shows the sample summary of the banks.

We used different statistical techniques to measure the empirical models in two statistical software STATA and SPSS. First, to get unbiased results the ordinary least square and panel regression model, fixed effects and random effects models are used, thus enhancing the accuracy and reliability of empirical analyses (Bhutta, AlHares, Shahab, & Tariq, 2022; Suparman & Muzakir, 2023). Second, the endogeneity and robustness of findings of the serial mediation measurement are investigated through the Hayes process model 6 with the bootstrap method to isolate the direct and the indirect effects in the model used in SPSS (Hayes & Scharkow, 2013). For the robustness purpose, we applied a Mixed-effects ML regression method in STATA, allowing for a more detailed investigation of dynamic interactions (Timofeyev & Jakovljevic, 2020; Zhao, Li, He, & Shi, 2024).

Construction of Variables

Independent Variable

The main explanatory variable is board gender diversity which is calculated by the ratio of the total number of female board members to the total board size (Khatri, 2023; Okoyeuzu et al., 2021; Rahman, Zahid, & Al-Faryan, 2023).

Dependent Variable

Following the prior studies, we used return on assets (ROA) and return on equity (ROE) to examine bank financial stability (Arnaboldi, Casu, Kalotychou, & Sarkisyan, 2020; Issa, Yousef, Bakry, Hanaysha, & Sahyouni, 2021). ROE measures the return on equity investment which is calculated by net income divided by total equity (Arnaboldi et al., 2020; Aslam & Haron, 2020) and ROA measures how banks used their assets efficiently to generate revenues (Liang, Xu, & Jiraporn, 2013) which is calculated by net income divided by total assets (Arnaboldi et al., 2020; Aslam & Haron, 2020).

Mediator Variables

This research relied on investment in information technology expenses such as network charges, hardware & software maintenance, IT management services, and other digital technologies expenses to measure the bank's digitalization. The variable is calculated by the ratio of IT expenses to total non-interest expenses (Carbó-Valverde, Cuadros-Solas, Rodríguez-Fernández, & EY, 2020). In line with the literature, the income diversification variable is calculated by non-interest income divided by operating income (W. Tariq et al., 2021).

Selection of control variables

We used bank size and capital adequacy ratio as control variables. Bank size is highlighted in the literature as an important variable that influences financial performance (Platonova, Asutay, Dixon, & Mohammad, 2018). We measure bank size by taking the log of total assets (W. Tariq et al., 2021). Capital adequacy ratio shows the financial soundness of banks (Chiorazzo, Milani, & Salvini, 2008; W. Tariq et al., 2021) and we measure capital adequacy ratio by total equity to total assets (Chiorazzo et al., 2008; W. Tariq et al., 2021). As the sample constitutes different types of banks, we created two dummies of public and private banks, and Islamic and non-Islamic banks to control the effect of bank types on the results.

Results

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Table 1 shows the descriptive statistics and correlation matrix for the dependent and independent variables. The mean score of 0.069 indicates that female directors make up 6.9% of the bank's board in our study, highlighting a significant gender imbalance. This disparity is crucial for interpreting the study's findings, suggesting that banks with fewer female directors perform better financially, consistent with our results. The mean score of 0.035 for digitalization, it is indicated that, on average, IT expenses account for 3.5% of all non-interest expenses in the dataset. The lower percentage of IT expenses shows that more cautious approach to digital transformation (Carbó-Valverde et al., 2020). With a mean score of 28.140 for income diversification, it is stated that banks obtain their revenue from sources other than traditional interest-based activities. The lower value indicates that less diverse revenue stream and a greater reliance on interest income. While the mean values of ROE and ROA are 0.077 and 0.005 respectively.

Moreover, correlation values in the tables are highlighted with bold font to make the values stand out from descriptive statistics. Moreover, all the dependent variables digitalization, income diversification, return on assets, and return on equity are mentioned at the top, followed by the dependent and control variables. Correlation analysis showed that BFS is positively associated with all variables which provided support for the initial results. Likewise, board gender diversity, digitalization, and income diversification are found to have significant relationships with one another which also show support for the hypotheses. The correlation values between all variables are less than the correlation threshold level of 0.70, which indicates a minimum level of multicollinearity in the analysis (Belsley, Kuh, & Welsch, 2005). The study also measures the variance inflation factor (VIF) test to investigate multicollinearity, however, no proof of VIF was found.

I. Insert Table 1 Here: Descriptive Statistics and Correlation Matrix

Panel Regression Results

In table 2, the result shows that the effect of FD on BFS is significant (ROE and ROA at 1%), thus, it supports hypothesis 1. Moreover, the Hausman test's non-significant p-value indicates that the random effect model is the preferable one in ROE and fixed effect model is preferred in ROA.

II. Insert Table 2 Here: OLS, Fixed and Random Effect Model Results

Mediation Analysis

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Using a step-by-step approach, in table 3, model 2, revealed that the effect of FD on DIG is significant: OLS and random effect model at 1% and fixed effect model at 10%, respectively. Furthermore, in model 3, it was found that DIG significantly partially mediates the relationship between FD and BFS, ROE, and ROA at 1%, it supports hypothesis 2. In table 4, Model 4, revealed that the direct effect of FD on ID is significant: OLS, fixed, and random effect model at 1%, respectively. Furthermore, in model 5, it was found that ID significantly partially mediates the relationship between FD and BFS, ROE and ROA at 1%, which supports hypothesis 3. Moreover, in model 2, the Hausman test's significant p-value indicates that the fixed effect model is preferred and in model 3, 4, & 5, the Hausman test's non-significant p-value indicates that the random effect model is the preferable one.

1II. Insert Table 3 Here: OLS, Fixed and Random Effect Model Results

IV. Insert Table 4 Here: OLS, Fixed and Random Effect Model Results

Using a step-by-step approach, in table 4, model 6, revealed that the direct effect of FD on DIG was significant: OLS and random effect model at 1% and fixed effect model at 10%, respectively. In table 3, model 7, the direct effect of digitalization on ID in the presence of FD was significant: OLS and random effect model at 1% and fixed effect model at 5%, respectively. Furthermore, in model 8, the direct effect of FD on BFS is significant in the presence of DIG and ID, ROE: 1%, of fixed effect, and 5%, of OLS and random effect model, respectively and ROA: 5%, fixed and random effect model, and 10%, OLS respectively of which indicated that digitalization and income diversification together partially mediated the effect of FD on BFS (ROE & ROA), it supports hypothesis 4. Moreover, in models 6 & 7, the Hausman test's significant p-value indicates that the fixed effect model is preferred and in model 8, the Hausman test's non-significant p-value indicates that the fixed effect model is preferable.

V. Insert Table 5 Here: OLS, Fixed and Random Effect Model Results

Robustness Hayes Serial Mediation Analysis

Tables 4 presents the mediation analysis, direct, total, and indirect effects for mediation Models of ROE and ROA results, explaining the impact on the dependent variable, bank stability, with respect to ROE and ROA. The result shows that the effect of FD on BFS is significant ROE and ROA at 1%, which supports hypothesis 1. This research analysis revealed that the direct effect of FD on DIG is significant ROE and ROA at 1%, and DIG also has a significant effect on BFS, ROE and ROA at 1%. Furthermore, it is found that DIG

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significantly partially mediates the relationship between FD and BFS, ROE (effect size = 0.280, CI [0.084, 0.524]) and ROA (effect size = 0.020, CI [0.007, 0.036]) respectively, because its 95 percent confidence interval did not contain zero (Preacher & Hayes, 2008), so it supported hypothesis 2.

It is found that the direct effect of FD on ID is significant ROE and ROA at 1%, and ID also has a significant effect on BFS, ROE and ROA at 1%. Furthermore, it is also revealed that ID significantly partially mediates the relationship between FD and BFS, ROE (effect size = 0.234, CI [0.089, 0.421]) and ROA (effect size = 0.013, CI [0.005, 0.023]) respectively, because its 95 percent confidence interval did not contain zero, so it supported hypothesis 3. Results show that these mediators significantly mediated the effect of FD on BFS, ROE (effect size = 0.142, CI [0.047, 0.282]) and ROA (effect size = 0.008, CI [0.002, 0.016]) respectively and their 95 percent confidence interval combined indirect effect did not contain zero, so it supported hypothesis 4. Further examination revealed that the direct effect of FD on BFS is significant in the presence of DIG and ID, ROE at 5%, and ROA at 1%, which indicated that DIG and ID together partially mediated the effect of FD on BFS, (ROE & ROA).

VI. Insert Table 6 Here: Direct, Total & Indirect Effects for Mediation models of ROE & ROA

Robustness Mixed-effects ML Regression

In table 5 Mixed-Effects ML Regression, model 1, the result shows that the direct effect of FD on bank stability is significant (ROE and ROA at 1%), thus, it supports hypothesis 1. Model 2 revealed that the direct effect of FD on DIG is significant at 1%. Furthermore, in model 3, it was found that DIG partially mediates the relationship between FD and BFS: ROE and ROA at 1%, which supports hypothesis 2. Model 4 revealed that the direct effect of FD on ID is significant at 1%. Furthermore, in model 5, it was found that ID significantly partially mediates the relationship between FD and BFS: ROE and ROA at 1%, which supports hypothesis 3. Model 6 revealed that the direct effect of FD on DIG was significant at 1%. In model 7, the direct effect of digitalization on ID in the presence of FD was significant at 1%. Furthermore, in model 8, the direct effect of FD on BFS is significant in the presence of DIG and ID, ROE, and ROA at 5% which indicates that digitalization and income diversification serially mediate the effect of FD on BFS, (ROE & ROA), which supports hypothesis 4.

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VII. Insert Table 5 Here: Mixed-effects ML Regression

Discussions

This study shows that having female directors on the corporate board leads to improved financial stability which parallels the other researcher's findings who argue that less than forty percent of female directors are likely to have a positive impact on financial performance (Gulamhussen & Santa, 2015; Reguera-Alvarado et al., 2017; Reid, 2001). Due to their good impact on financial performance, this research recommends increasing the number of female directors on bank boards; however, such inclusion should not be driven by regulation but rather by corporate promotions (Reguera-Alvarado et al., 2017). In line with, Reid (2001), it is possible to infer that promoting a diverse and inclusive corporate environment is not only a moral necessity but also a strategic one. Bank executives ought to put a priority on hiring and integrating female directors, realizing that they contribute in ways that go beyond gender representation. Thus, having female directors on board provides cognitive diversity which is necessary to compete in the modern dynamic era and pivotal to add financial stability to banks. These findings are in line with existing literature that supports the diversity of boards for improved financial performance (Kim et al., 2020).

In line with the proposed hypotheses, we uncovered that digitalization serves as a partial mediator in the relationship between female directors and the financial stability of the bank (AlNuaimi et al., 2022; Hinings et al., 2018). This finding is supported by the argument that female directors strengthen banks' attempts to go digital by considering stakeholders' interests in offering services to customers in line with changing needs. In order to actively engage with consumers and address their requirements, an organization can use digital tools (Saberian, Amirshahi, Ebrahimi, & Nazemi, 2020), which eventually has a good impact on the bank's capacity to sustain its financial position. These findings align with existing literature, which suggests that including female directors promotes digitalization, helping banks meet emerging customer needs, increase market share, and enhance financial stability (AlNuaimi et al., 2022).

Moreover, this research supported the mediating role of income diversification on the relationship between BGD and the bank's financial stability. This is in line with academics' claims that female directors may promote income diversity in order to maintain their market share and have enough money to cover their costs (Hoang et al., 2021; W. Tariq et al., 2021) and bank performance is influenced by a change from traditional income to non-interest

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income (Abedifar et al., 2018; W. Tariq et al., 2021). As a result, FD facilitates the process of income diversification, allowing the business to lower the risks associated with a single revenue source and expand the diversity of its revenue streams (AlNuaimi et al., 2022). Lastly, results of the serial mediation model of the research revealed that the influence of female directors is partially mediated by digitalization and income diversification together in a sequence. A company's adoption of digitalization for more revenue diversification may be successfully boosted by female directors, which is likely to have a positive impact on the bank's financial stability. Therefore, by influencing the company's attitude to revenue diversification and digitization, female directors indirectly affect financial stability.

Implications

This research has three key theoretical implications for the literature on BGD and bank's financial stability. First, this research advanced literature on gender diversity in boardrooms and banks' financial stability. Research results have confirmed that increased female directors resulted in improved bank's financial stability, particularly, research results suggest that increased female directors are equally suitable for developing countries, which greatly addresses the limitation of female directors' research by extending it to other regions.

Secondly, most of the earlier studies have not focused on the mechanism explaining the link between BGD and banks' financial stability. This research is the first to examine the role of digitalization and income diversification as mediators and has found support for the role of digitalization and income diversification in explaining the association between BGD and banks' financial stability. Thirdly, this research's main contribution lies in explaining the mechanism that governs the relationship between BGD and banks' financial stability. This research provides empirical evidence that the impact of BGD on banks' financial stability goes sequentially through digitalization and income diversification. Our findings highlight how actively participating female directors have a revolutionary effect on the business environment. Their active involvement generates an environment that works in concert with digitization initiatives, increasing the opportunities for income diversification.

This research also offers essential practical implications. First, these implications are based on the importance of managerial diversity in the corporate board; it can be a source of competitive advantage in the banking sector with high bank financial performance. The inclusion of female directors in the corporate board leads to better decision-making to obtain a high bank's financial stability. Thus, policymakers and top management shall consider

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increasing the number of female directors on their board for diversity for improved financial performance.

Second, our results highlight the important role that digitization plays in mediating the relationship between the number of female directors and the financial viability of banks. This underlines how crucial it is for managers in the banking sector to carefully plan and carry out successful digitalization strategies. Increased funding for digitalization efforts is essential since they might significantly improve bank financial performance. In order to create an atmosphere where technology innovations can favorably affect overall financial stability, decision-makers should give top priority to the establishment of comprehensive digitalization policies that are in line with the bank's aims and resources. Third, our research outcome reinforces the role of income diversification as a mediating factor between the presence of female directors and the financial stability of banks. Banks can strategically improve their overall financial performance by diversifying their revenue streams from traditional to non-interest sources. This emphasizes the need for bank executives and management to aggressively investigate and put these efforts into action. Such initiatives can entail the launch of cutting-edge financial products, funding for technology-driven services, or the investigation of undiscovered market niches.

Finally, in fact, the active participation of female directors creates a corporate environment where sequentially digitalization provides more opportunities to diversify income resources that lead to a bank’s financial stability. Banks that actively involve female directors stand to benefit from both the complementary synergy between gender diversity and digitization as well as from the distinct perspectives these women bring to the table. With the help of this cooperative dynamic, banks can explore and take advantage of cutting-edge opportunities for diversifying their sources of income.

Research findings emphasize gender equality and meritocracy by increasing the presence of female directors, who also question conventional ideas of leadership. By encouraging a more inclusive and cooperative decision-making process, this culture shift not only helps individual banks but also establishes a model for other sectors to follow, ultimately resulting in greater social acceptance of women executives. The emergence of women executives in banking fosters a more open and equal society, where ability is recognized regardless of gender, and serves as inspiration for future generations. The banking sector transforms itself and opens the door for more societal acceptance and female empowerment in leadership positions by

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breaking the glass ceiling and supporting the cause of female leadership. This benefits industry and society at large.

Banks are better positioned to enter new markets, take advantage of new growth opportunities, and ensure financial stability when they embrace gender diversity, digitalization, and income diversification initiatives. Banks may also improve client experiences, increase efficiency, spur innovation, and maintain a competitive edge in the market by adopting digitalization and using technology breakthroughs. Furthermore, income diversification techniques help banks access new revenue streams and reduce the risks connected with their core revenue streams, improving their financial stability and resilience. These initiatives not only boost individual bank profitability and expansion but also strengthen the financial system's resilience to shocks and readiness for long-term growth. By promoting economic prosperity and embracing gender diversity these banks set a precedent for the financial sector, emphasizing that diversity and innovation are essential for stability and sustained success.

Conclusion, Limitations and Future Research

In conclusion, this research examined the effect of BGD on bank financial stability via mediating roles of digitalization and income diversification in a sequence. The inclusion of female directors has been highlighted as an essential factor in enhancing financial performance in the literature as they bring different skills, knowledge, and experience, leading to better decision-making and, thus, improved bank financial stability. Their active involvement generates an environment that works in concert with digitization initiatives, increasing the opportunities for income diversification. As a result, the banking sector is well-positioned to develop more adaptability, resilience, and readiness to meet the difficulties presented by a constantly changing financial landscape. In line with the literature, this study has a few limitations that provide avenues for future research. Firstly, this research finding shall be interpreted with caution while generalizing to other countries because the current study covers a short time of five years due to the availability of the data, thus, future research may increase the time for more generalized results. Furthermore, future researchers can also see separately the influence of different types of banks (Islamic versus non-Islamic, private versus government banks) on the link between BGD and the bank's financial stability relationship. Secondly, the data samples constitute a limited percentage of female directors on the board i.e. twenty-five percent maximum, so it is unable to provide the optimum number

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of female directors to enhance financial stability, future studies, can research also the maximum number of female directors to determine optimum board compositions. Thirdly, this research is mainly focused on the mediating mechanism while examining the proposed relationship; future research may also consider the moderating conditions or mediating moderating mechanisms. Fourthly, this research was conducted in the banking sector; future studies may examine other industries too to provide a better generalization of this research finding. Finally, this study examines the effect of BGD on accounting measures of financial stability; future studies may examine the other measures of financial and non-financial performance to better understand the linkages between BGD and financial stability.

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Appendix

Insert Table A1 Here: Sample Summary of Banks

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Table 1: Descriptive Statistics and Correlation Matrix

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1.FD	0.069	0.06										
2. Dig	0.035	0.073	**0.558****									
3. ID	28.14	46.299	**0.562****	**0.576****								
4. ROE	0.077	0.107	**0.581****	**0.617****	**0.658****							
5. ROA	0.005	0.007	**0.615****	**0.638****	**0.642****	**0.828****						
6. BZ	8.838	0.559	**0.466****	**0.360****	**0.318***	**0.418****	**0.448****					
7. CAR	0.202	0.312	**0.405****	**0.387****	**0.426****	**0.417****	**0.456****	**0.304****				
8. PTB	0.822	0.384	**0.250***	**0.159**	**0.215***	**0.114**	**0.233***	**0.108**	**0.163**			
9. PBB	0.167	0.375	**-0.278****	**-0.126**	**-0.237***	**-0.125**	**-0.249***	**-0.12**	**-0.153**	**-0.962****		
10. NB	0.822	0.384	**0.287****	**0.196**	**0.178**	**0.112**	**0.171**	**0.270***	**-0.059**	**-0.216***	**0.208***	
11. IB	0.167	0.375	**-0.259***	**-0.164**	**-0.107**	**-0.061**	**-0.121**	**-0.236***	**0.079**	**0.208***	**-0.2**	**-0.962****

Note: *FD, female director; Dig, digitalization; ID, income diversification; ROE, return on equity; ROA, return on asset; BZ, bank size; CAR, capital adequacy ratio; PTB, private bank; PBB, public bank; NB, non-Islamic bank; IB, Islamic bank.*
*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 2: OLS, Fixed and Random Effect Model Results

Independent Variables	Dependent Variables					
	ROE			ROA		
	Model 1			Model 1		
	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect
FD	0.822(0.000)***	0.812(0.000)***	0.817(0.000)***	0.048(0.000)***	0.046(0.001)***	0.047(0.000)***
DIG						
ID						
BZ	0.033(0.082)*	0.042(0.093)*	0.037(0.064)*	0.002(0.079)*	0.001(0.519)	0.002(0.115)
CAR	0.063(0.059)**	0.026(0.453)	0.047(0.138)	0.004(0.015)***	0.003(0.224)	0.004(0.027)**
PTB	-0.018(0.472)	0.012(0.897)	-0.016(0.608)	0.001(0.346)	0.001(0.824)	0.002(0.365)
NB	-0.020(0.462)	0.100(0.265)	-0.014(0.666)	0.001(0.670)	0.010(0.083)*	0.001(0.585)
F-test	11.30(0.000)***	8.39(0.000)***		14.20(0.000)***	6.49(0.000)***	
Wald χ2			52.89(0.000)***			61.07(0.000)***
Hausman		4.88(0.431)			11.29(0.046)**	
R^2	0.4	0.28	0.4	0.46	0.28	0.46
Obs	90	90	90	90	90	90

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 3: OLS, Fixed and Random Effect Model Results

Independent Variables	Dependent Variables								
	DIG			ROE			ROA		
	Model 2			Model 3			Model 3		
	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect
FD	0.503(0.000)***	0.236(0.073)*	0.354(0.004)***	0.539(0.006)***	0.657(0.001)***	0.593(0.001)***	0.030(0.012)***	0.035(0.004)***	0.032(0.005)***
DIG				0.562(0.000)***	0.654(0.000)***	0.578(0.000)***	0.035(0.000)***	0.046(0.000)***	0.037(0.000)***
ID									
BZ	0.011(0.395)	0.034(0.030)**	0.022(0.119)	0.027(0.130)	0.019(0.414)	0.026(0.160)	0.002(0.125)	-0.001(0.685)	0.001(0.297)
CAR	0.045(0.056)**	0.015(0.493)	0.029(0.171)	0.037(0.230)	0.016(0.612)	0.027(0.354)	0.003(0.074)*	0.002(0.315)	0.003(0.125)
PTB	0.006(0.743)	0.036(0.534)	0.017(0.477)	-0.022(0.356)	-0.012(0.887)	-0.024(0.408)	0.001(0.378)	-0.000(0.941)	0.001(0.500)
NB	0.014(0.470)	-0.026(0.652)	0.014(0.578)	-0.127(0.268)	0.117(0.157)	-0.022(0.468)	0.000(0.884)	0.011(0.031)**	0.001(0.717)
F-test	9.22(0.000)***	3.76(0.0.005)***		13.78(0.000)***	10.61(0.000)***		16.64(0.000)***	9.76(0.000)***	
Wald χ2			31.15(0.000)***			77.60(0.000)***			84.14(0.000)***
Hausman		13.83(0.017)***			7.82(0.252)			12.29(0.056)**	
R^2	0.35	0.22	0.34	0.5	0.36	0.5	0.55	0.34	0.54
Obs	90	90	90	90	90	90	90	90	90

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 4: OLS, Fixed and Random Effect Model Results

Independent Variables	Dependent Variables								
	ID			ROE			ROA		
	Model 4			Model 5			Model 5		
	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect
FD	311.53(0.000)***	266.27(0.005)***	299.84(0.000)***	0.488(0.009)***	0.614(0.004)***	0.491(0.007)***	0.030(0.012)***	0.032(0.013)***	0.030(0.009)***
DIG									
ID				0.001(0.000)***	0.001(0.005)***	0.001(0.000)***	0.000(0.000)***	0.000(0.003)***	0.000(0.000)***
BZ	1.700(0.839)	7.685(0.490)	3.776(0.671)	0.031(0.064)*	0.036(0.128)	0.031(0.061)*	0.002(0.069)*	0.001(0.675)	0.002(0.115)
CAR	36.57(0.014)	30.69(0.050)**	34.60(0.016)***	0.024(0.436)	0.003(0.933)	0.023(0.443)	0.003(0.128)	0.001(0.604)	0.003(0.190)
PTB	11.02(0.332)	-0.921(0.982)	10.81(0.427)	-0.030(0.186)	0.012(0.885)	-0.030(0.190)	0.001(0.551)	0.001(0.806)	0.001(0.544)
NB	10.94(0.359)	101.83(0.014)***	15.33(0.278)	-0.031(0.188)	0.024(0.784)	-0.031(0.190)	0.001(0.953)	0.005(0.393)	0.000(0.886)
F-test	10.03(0.000)***	7.02(0.000)***		16.11(0.000)***	9.15(0.000)***		16.68(0.000)***	7.76(0.000)***	
Wald χ2			43.95(0.000)***			95.67(0.000)***			88.37(0.000)***
Hausman		7.14(0.210)			11.82(0.066)*			8.64(0.195)	
R^2	0.37	0.18	0.37	0.54	0.47	0.54	0.55	0.47	0.55
Obs	90	90	90	90	90	90	90	90	90

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 5: OLS, Fixed and Random Effect Model Results

Independent Variables	Dependent Variables											
	DIG			ID			ROE			ROA		
	Model 6			Model 7			Model 8			Model 8		
	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect	OLS	Fixed Effect	Random Effect
FD	0.503(0.000)***	0.236(0.073)*	0.354(0.004)***	205.63(0.020)**	220.99(0.018)***	214.48(0.012)***	0.362(0.050)**	0.539(0.007)***	0.389(0.030)**	0.022(0.066)*	0.028(0.024)**	0.023(0.043)**
DIG				210.41(0.001)***	191.52(0.027)**	202.05(0.002)***	0.380(0.007)***	0.552(0.003)***	0.401(0.004)***	0.026(0.004)***	0.039(0.001)***	0.029(0.001)***
ID							0.001(0.000)***	0.001(0.038)**	0.001(0.000)***	0.000(0.004)***	0.000(0.024)**	0.000(0.003)***
BZ	0.011(0.395)	0.034(0.030)**	0.022(0.119)	-0.716(0.928)	1.080(0.923)	-0.102(0.990)	0.027(0.094)*	0.019(0.416)	0.027(0.108)	0.002(0.103)	-0.001(0.655)	0.001(0.294)
CAR	0.045(0.056)**	0.015(0.493)	0.029(0.171)	27.01(0.058)**	27.83(0.067)*	27.42(0.051)**	0.014(0.635)	0.001(0.974)	0.011(0.708)	0.002(0.219)	0.001(0.619)	0.002(0.356)
PTB	0.006(0.743)	0.036(0.534)	0.017(0.477)	9.761(0.365)	-7.727(0.845)	8.966(0.452)	-0.030(0.170)	-0.008(0.925)	-0.030(0.200)	0.001(0.533)	-0.000(0.984)	0.001(0.626)
NB	0.014(0.470)	-0.026(0.652)	0.014(0.578)	8.025(0.478)	106.76(0.008)***	10.07(0.419)	-0.034(0.136)	0.060(0.479)	-0.035(0.163)	-0.000(0.937)	0.007(0.161)	0.000(0.929)
F-test	9.22(0.000)***	3.76(0.0.005)***		11.13(0.000)***	7.06(0.000)***		15.99(0.000)***	10.23(0.000)***		16.86(0.000)***	9.69(0.000)***	
Wald χ2			31.15(0.000)***			60.31(0.000)***			106.19(0.000)***			100.58(0.000)***
Hausman		13.83(0.017)***			12.95(0.044)**			12.50(0.085)*			12.25(0.093)*	
R^2	0.35	0.22	0.34	0.45	0.22	0.44	0.58	0.48	0.58	0.59	0.45	0.59
Obs	90	90	90	90	90	90	90	90	90	90	90	90

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 6: Direct, Total & Indirect Effects for Mediation models of ROE and ROA

	Path Coefficient				Total Effect	Indirect Effect	
	DIG	ID	ROE	ROA	Estimates	Estimates	Bias-corrected 95% CI
FD	0.684(0.000)***	269.64(0.001)***	0.376(0.027)***	0.031(0.005)**			
DIG		239.96(0.000)***	0.409(0.004)***	0.029(0.001)***			
ID			0.001(0.000)***	0.000(0.001)***			
FD → ROE					1.032(0.000)***		
FD → DIG → ROE						0.280(0.113)	0.084,0.524
FD → ID → ROE						0.234(0.085)	0.089,0.421
FD → DIG → ID → ROE						0.142(0.060)	0.047,0.282
FD → ROA					0.050(0.000)***		
FD → DIG → ROA						0.020(0.007)	0.007,0.036
FD → ID → ROA						0.013(0.005)	0.005,0.023
FD → DIG → ID → ROA						0.008(0.004)	0.002,0.016

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

Table 7: Mixed-Effects ML Regression

Independent Variables	Dependent Variables											
	ROE	ROA	DIG	ROE	ROA	ID	ROE	ROA	DIG	ID	ROE	ROA
	Model 1	Model 1	Model 2	Model 3	Model 3	Model 4	Model 5	Model 5	Model 6	Model 7	Model 8	Model 8
FD	0.822(0.000)***	0.048(0.000)***	0.503(0.000)***	0.539(0.003)***	0.030(0.007)***	311.5(0.000)***	0.488(0.005)***	0.030(0.007)***	0.503(0.000)***	205.6(0.014)***	0.362(0.037)**	0.022(0.051)**
DIG				0.562(0.000)***	0.035(0.000)***					210.4(0.001)***	0.380(0.004)***	0.026(0.002)***
ID							0.001(0.000)***	0.000(0.000)***			0.001(0.000)***	0.000(0.002)***
BZ	0.033(0.069)*	0.002(0.066)*	0.011(0.376)	0.027(0.111)	0.002(0.106)	1.700(0.833)	0.031(0.050)**	0.002(0.055)**	0.011(0.376)	-0.716(0.925)	0.027(0.076)*	0.002(0.084)*
CAR	0.063(0.047)**	0.005(0.010)**	0.045(0.045)**	0.037(0.208)	0.003(0.060)*	36.57(0.009)***	0.024(0.415)	0.003(0.110)	0.045(0.045)**	27.01(0.046)**	0.014(0.618)	0.002(0.194)
PTB	-0.018(0.455)	0.001(0.326)	0.006(0.734)	-0.022(0.334)	0.001(0.356)	11.02(0.313)	-0.030(0.165)	0.001(0.533)	0.006(0.734)	9.762(0.342)	-0.030(0.147)	0.001(0.512)
NB	-0.020(0.444)	0.001(0.658)	0.014(0.453)	-0.027(0.245)	0.000(0.879)	10.94(0.339)	-0.031(0.167)	0.000(0.951)	0.014(0.453)	8.025(0.458)	-0.034(0.114)	-0.000(0.934)
Wald χ2	60.53(0.000)***	76.07(0.000)***	49.42(0.000)***	89.64(0.000)***	108.28(0.000)***	53.76(0.000)***	104.7(0.000)***	108.5(0.000)***	49.42(0.000)***	72.44(0.000)***	122.8(0.000)***	129.5(0.000)***
Obs	90	90	90	90	90	90	90	90	90	90	90	90

*The *** at 1%, ** at 5%, and * at 10% significance P-values levels.*

The Bottom Line

Appendix:

Table A1: Sample Summary of Banks

No.	Division of Banks	List of Banks	Years
1	Government Banks	Bank of Punjab	5
2		Bank of Khyber	5
3		National Bank of Pakistan	5
4	Islamic Banks	Dubai Islamic	5
5		Meezan Bank	5
6		Bank Alfalah	5
7	Private Banks	Askari Bank	5
8		Allied Bank	5
9		Albaraka Bank	5
10		Bank Al Habib	5
11		HBL	5
12		UBL	5
13		Soneri Bank	5
14		Standard Chartered Bank	5
15		JS Bank	5
16		Samba Bank	5
17		MCB Bank	5
18		Habib Metro Politian Bank	5

(Source: Self-reported)

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The Bottom Line

The Bottom Line

Research Framework

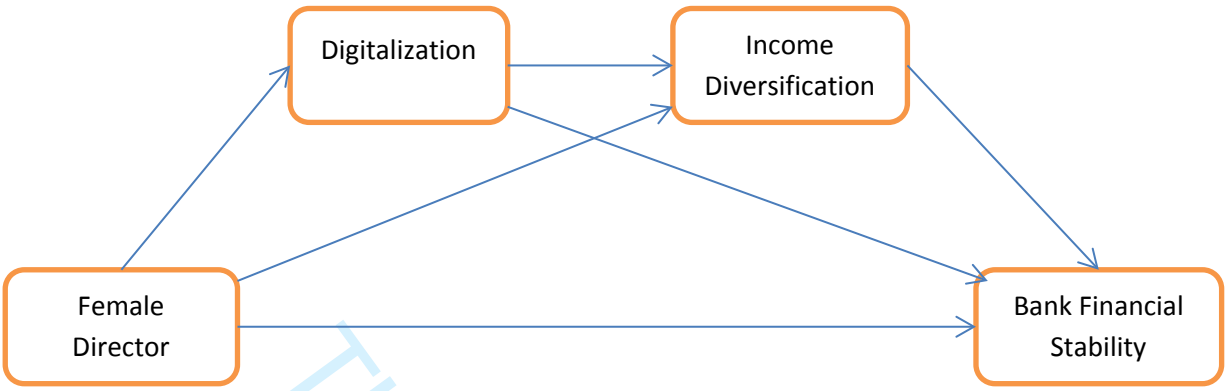

Figure I : Conceptual Model

The Bottom Line