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# Corporate governance and bank risk-taking: Transitional economic evidence

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## Corporate governance and bank risk-taking: transitional economic evidence

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#### ABSTRACT

This study examines the impact of corporate governance on risktaking in Vietnamese banks. Using data from 2007 to 2020 and employing the two-step generalized method of moments (GMM) technique, the study finds that certain aspects of corporate governance significantly influence bank stability efficiency. Specifically, the presence of female board members, independent directors, and larger board sizes are associated with improved stability efficiency, while the presence of foreign board members has a negative impact. These findings are consistent with agency theory, stewardship theory, and resource dependence theory. By employing the stochastic frontier approach, this research contributes to understanding how corporate governance characteristics can help mitigate risk-taking in emerging market contexts.

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#### **KEYWORDS**

Risk-taking; stability efficiency; corporate governance

#### 1. Introduction

In the framework of increasingly profound economic globalization, commercial banking institutions assume a significant role in capital distribution within the economy. Historically, bank managers primarily focused on maximizing the company's worth to optimize shareholders' assets. In addition to these objectives, bank managers now also prioritize preserving bank stability. Jokipii and Monnin (2013) assert that bank stability will emerge as a significant catalyst for GDP development in the future.

Maintaining bank stability necessitates fulfilling duties related to investment support, guarantees, and safeguarding investor funds (Marie et al., 2021; T. L. Nguyen et al., 2018). Managers have a range of strategies to uphold and enhance bank stability, one of which is adopting effective corporate governance practices. The optimization of a company's worth and performance is widely acknowledged to depend on the implementation of efficient corporate governance practices (Salim et al., 2016). According to the study conducted by Fu et al. (2014), commercial banks within the banking industry that possess efficient corporate governance practices can enhance credibility, mitigate exposure to risks, generate value, and improve business effectiveness.

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The existing literature on the influence of corporate governance on bank stability can be categorized into two distinct research orientations. Researchers have investigated the impact of corporate governance on bank operations and performance, drawing upon the works of El-Chaarani and Abraham (2022), El-Chaarani et al. (2022), Bhatia and Gulati (2021), Choi and Hasan (2005), and Liang et al. (2013). Additionally, studies have explored the correlation between corporate governance and bank stability. Previous research has primarily focused on specific elements of corporate governance and their influence on bank stability. For instance, Bart and McQueen (2013) examined the presence of women on corporate boards, while King et al. (2016) explored the effect of board members' educational backgrounds on bank performance. However, other researchers have investigated the broader impact of corporate decision-making on bank stability. Notable examples include studies conducted by Abdelbadie and Salama (2019), Anginer et al. (2018), Marie et al. (2021), and Mihail et al. (2022).

However, these more recent studies use Z-scores or the ratio of non-performing loans to measure the impact of corporate management and take into consideration various levels of risk (Abou-El-Sood, 2019; Fiador, 2023; Q. K. Nguyen & Dang, 2022). Furthermore, Fang et al. (2014) and Safiullah (2021) point out that the Z-score is an absolute measure of bank stability, providing limited insight into the relative stability of individual banks, such as their proximity to the most financially stable ones among them. Based on the available literature, it appears that none of the aforementioned research has considered the potential impact of corporate governance attributes on the stability and efficiency of banks. Hence, the present study aims to fill this gap by employing a stochastic frontier methodology to assess inefficiency in the stability of banks and reexamine the relationship between corporate governance characteristics and the associated risks in the banking sector of Vietnam.

Vietnam has been selected as the subject of this study for various reasons. It is a dynamic emerging nation that has effectively transitioned from a centrally planned economy to a market-oriented one. This transition stems from a series of economic reforms initiated by the comprehensive Doi Moi reform in 1986. Critical facets of these reforms include fostering the private sector and privatizing large state-owned enterprises, which have led to remarkable economic achievements over the past two decades (Vo, 2018). The nation's economy has demonstrated outstanding performance, securing its position as a significant entity within the Association of Southeast Asian Nations (ASEAN), with an average annual growth rate of 6.02% from 2007 to 2020. Despite its relatively early stage of development, the banking sector has played a pivotal role in propelling Vietnam's significant economic growth. Another motivating factor for this study is the increasing importance of emerging markets. While extensive research exists on the US and other developed markets globally, transitional economies have received comparatively less focus (Khaw et al., 2016). Therefore, investigating the effects of corporate governance and bank risk-taking in a transitional economy like Vietnam becomes essential.

Our study evaluates a panel of 25 Vietnamese commercial banks from 2007 to 2020 to examine the impacts of corporate governance on Vietnamese bank stability and efficiency. The study reveals that certain aspects of corporate governance have a substantial impact on the stability and efficiency of banks. Notably, boards with female members, independent directors, and larger sizes are positively associated with bank stability and

efficiency. Conversely, foreign board members exhibit a negative effect on bank stability and efficiency. These results remain reliable when tested against alternative risk indicators and align with the views espoused by agency theory, stewardship theory, and resource dependence theory.

Our study contributes significantly to the existing body of literature. Firstly, it represents the inaugural investigation into the influence of corporate governance characteristics on a bank's stability and efficiency, utilizing the stochastic frontier technique. By pioneering this analysis, we provide new insights into how corporate governance practices affect a bank's ability to maintain operational stability. Secondly, our research fills a notable gap in the ongoing discussion regarding corporate governance and risk-taking within the banking sector. While considerable debate exists on this topic, the conclusions have often been inconclusive. By exploring this subject matter, our study sheds light on the intricate relationship between corporate governance practices and the propensity for risk-taking within banks. Furthermore, while some studies have examined the influence of corporate governance on banks' risk-taking behavior in various economies, evidence of this relationship remains scarce, particularly in transitional economies. Finally, the findings of our research carry significant implications for policymakers and bank managers. Understanding the impact of corporate governance on stability and efficiency can guide the development of more effective regulatory frameworks and governance guidelines. Additionally, bank managers can use these insights to refine their corporate governance practices, potentially reducing risk-taking and enhancing resilience in the face of challenges.

The remainder of the paper is organized as follows. The next section explains the conceptual framework and hypotheses, followed by the research methodology and data sample. Section 4 discusses the empirical results. The final section concludes with the research implications and suggests avenues for future research.

#### 2. Conceptual framework and hypotheses

#### 2.1. Theoretical framework on corporate governance

Corporate governance literature has extensively discussed the significance of the board of governors in company operations. The board's primary responsibility is to oversee the allocation and utilization of resources and activities while ensuring bank stability aligned with shareholders' interests. The importance of corporate governance can be demonstrated through several theoretical frameworks, such as agency theory, stewardship theory, and resource dependence theory (Abdelbadie & Salama, 2019). Agency theory aims to resolve conflicts that may arise between agents, such as corporate executives, and shareholders (Shapiro, 2005). This theory suggests managers may prioritize their interests over generating shareholder value without realizing it. Therefore, the board of directors must implement strategies that enable management to pursue increasing shareholder value effectively (Shapiro, 2005).

Stewardship theory presents an alternative viewpoint on managers' motivation compared to agency theory. Donaldson and Davis (1991) suggest that business managers are naturally inclined toward efficient performance and responsible handling of finances. Therefore, a thorough assessment by businesses under CEO guidance is essential for enhancing overall organizational performance by evaluating the efficacy of chosen organizational frameworks in achieving objectives (Donaldson & Davis, 1991).

Furthermore, as suggested by Abou-El-Sood (2019), resource dependence theory posits that boards play a crucial role in connecting firms with other organizations, enabling them to access valuable information, expertise, and support from important stakeholders while enhancing the firm's legitimacy. Consequently, boards comprising diverse members, including those with political connections, may facilitate interactions with regulators. For instance, Agrawal and Knoeber (2001) discovered that directors with backgrounds in politics and law are more likely to serve on the boards of companies subject to government regulation or those providing services to government entities. Thus, unlike stakeholder theory, resource dependence theory strongly supports the relationship between board diversity and firm financial performance, thereby enhancing stability. The authors present several potential scenarios based on these hypotheses and the current research evidence presented below.

#### 2.2. The link between board female and bank risk-taking

Research on gender diversity in risk management is limited and yields inconsistent results. Farag and Mallin (2017) discovered that having female board members may reduce the likelihood of a financial crisis when analyzing the effect of board diversity on a European bank's financial fragility and performance. Similarly, Cardillo et al. (2021) suggest that European banks with higher gender diversity on their boards have a lower probability of receiving public bailouts and are allocated less cash in case of a bailout (Pandey et al., 2020) found that female directors are negatively associated with the cost of debt for Australian listed firms. Abou-El-Sood (2021), using data from 195 U.S. commercial banks during 2002–2018, concluded that having diverse boards has several advantages, particularly in reducing bank risk-taking behavior. Kinateder et al. (2021) revealed decreased bank-specific credit risk across 20 countries due to women's involvement on the board of directors.

Recently, Z. Li et al. (2022) studied the global relationship between board gender diversity and firm risk, considering the influence of country characteristics. The findings reveal that board gender diversity is associated with lower firm risk globally, with stronger effects in firms that attract female directors more easily and in countries with lower power distance and higher individualism. Uyar et al. (2022), using data from 8,633 firm-year records of financial firms worldwide from 2011 to 2018, tested whether female and independent directors ensure financial stability in financial firms. The results indicate that board gender diversity promotes financial stability. Menicucci and Paolucci (2022) explored the impact of gender diversity on risk-taking behavior in Italian banks. The study finds that female board directors and executives tend to be more risk-averse and less overconfident compared to their male counterparts. This negative relationship between gender diversity and risk-taking is confirmed by the results, which show that banks led by women exhibit lower risk levels, reflected in higher capital adequacy and equity-to-assets ratios.

Fiador (2023) researched the significant effects of corporate governance, board gender diversity, and bank risk-taking behavior in Ghana using various proxy variables for measuring risks. Abinzano et al. (2023) investigated the impact of female board members

on firm corporate default risk, finding that the presence of women directors is associated with a reduction in corporate default risk. Elnahass et al. (2023) delved into the relationship between board diversity and bank stability. Utilizing a unique dataset spanning 14 countries, they revealed strong evidence suggesting a positive association between the presence of female directors on a bank's board and its stability.

Interestingly, Huh and Kashian (2021) examined the association between U.S. banks' corporate board gender and ethnic ownership diversity, focusing on cultural gender norms related to female leadership positions. The results revealed differential effects on both the gender composition of corporate boards and the likelihood of having female members on corporate boards, depending on the ethnic diversity of bank ownership. Black-owned banks exhibited a strong positive impact on board gender diversity, while Hispanic-owned banks showed a strong negative impact relative to mainstream banks.

Existing studies present divergent viewpoints about women's involvement in risk reduction, with some depicting women as risk-neutral and others as prone to taking risks. Berger et al. (2014) aimed to examine the influence of executive board involvement on German banks' propensity towards engaging in risky activities. They discovered empirical evidence supporting a substantial positive correlation between women's presence on bank boards and the extent of portfolio risk. Similarly, Adams and Funk (2012) found evidence suggesting that Swedish female directors have an increased inclination towards engaging in risky behaviors compared to their male counterparts. Conversely, Loukil and Yousfi (2013) found no statistically significant correlation between the inclusion of women on Tunisian firms' boards of directors and the organizations' tendency towards financial risk-taking. Sila et al. (2016) focused specifically on nonfinancial US firm samples, showing no significant association between equity risks and gender-diverse boards. Furthermore, Adams and Ragunathan (2017) acknowledge converging preferences for finance-related risks among females and males. Numerous studies have been conducted concerning the excessive risk tendencies of banks in developing nations related to board diversity, but these have produced inconclusive conclusions (Abou-El-Sood, 2019; Hoang et al., 2021; Khan et al., 2018; Othmani, 2021).

In light of this ongoing discussion we propose our hypothesis:

H1: Board Female influence bank risk-taking

#### 2.3. The link between board independence and bank risk-taking

The existing literature delves into the significance of board autonomy and the inclusion of external directors in the banking industry. Bhatia and Gulati (2021) posit that outside directors are more effective monitors than internal ones, a statement that aligns with the resource dependency hypothesis. They further assert that independent directors display a strong commitment to enhancing business performance while safeguarding their reputation. Additionally, Hermalin and Weisbach (2003) and Johnson et al. (1996) have shown that external directors generally lack any social or business ties with management but maintain better relationships with external resources, which can help reduce conflicts of interest and achieve desired outcomes. Moreover, incorporating

independent directors helps alleviate decision-making biases, as proposed by Dalton et al. (1998). Previous research has also demonstrated that financial institutions with higher representation of independent directors on their boards prioritize improving accuracy and dependability in financial information while reducing fraudulent activities in their statements (Marie et al., 2021). During crises, when banks experience decreased revenue and increased expenses, independent directors can provide innovative ideas to tackle these difficulties. El-Chaarani and Abraham (2022) reveal favorable outcomes associated with including independent directors within banks' governance structures regarding revenue generation and overall performance, resulting in increased stability. Furthermore, Uyar et al. (2022) confirm that board independence enhances financial stability within the investment banking sub-sector.

Several empirical studies support a favorable association between board independence and bank stability, including those by Adams and Mehran (2008); Dong et al. (2017); El-Chaarani and Abraham (2022); El-Chaarani et al. (2022); Marie et al. (2021). In addition to supporting the resource dependency hypothesis through the aforementioned viewpoints, an alternative view grounded in stewardship posits that senior managers hold greater quantities of internal knowledge compared to external members. This internal knowledge enhances decisionmaking procedures, leading to improved bank performance while maintaining stability (Bhatia & Gulati, 2021). However, Adams and Funk (2012) argue that external members are less likely to be aware of firm problems compared to their internal counterparts.

Therefore, several studies suggest that independent governing bodies demonstrate little motivation toward improving both performance and stability at financial institutions. Mollah and Zaman (2015) utilized data collected over six years from both conventional and Islamic banks. Their findings indicate a negative correlation between board independence and bank performance. Mehmood et al. (2023) analyzed the impact of board attributes and gender diversity on the risk-taking behavior of banks in South Asia, specifically in Pakistan, Sri Lanka, India, and Bangladesh. The findings indicate that board attributes, such as board size, board meetings, and board independence, have significant negative effects on the credit risk of banks. Fiador (2023) explored the link between corporate governance and risk-taking behavior in Ghanaian banks. The results indicate that independence significantly influences the risk profile of banking firms. J. Liu et al. (2023) found that the absence of independent directors in firms amplifies the impact of celebrity shareholders on corporate risk. Javed et al. (2024) studied the relationship between board structure and risk-taking behavior in Pakistan's financial sector. The findings suggest that increasing the number of independent directors can help reduce risk and financial disruptions.

However, based on the conflicting papers mentioned above, the authors believe that increasing the number of independent board members could lead to conflicts during the decision-making process. One possible reason is the limited understanding among independent directors about the distinct characteristics unique to certain types of financial institutions, which hinders optimal judgments.

H2: Board independence influence bank risk-taking

#### 2.4. The link between board size and bank risk-taking

In contrast to nonbanking entities, banks often have larger boards due to their more intricate organizational structure and greater scale of operations (Adams & Funk, 2012). Caprio et al. (2007) have conducted research indicating that board members with extensive expertise and knowledge can positively impact a company's success. As such, the implementation of larger boards may potentially bolster an organization's ability to efficiently achieve its objectives, resulting in increased efficiency and stability for financial institutions.

Numerous previous studies in academic literature have presented empirical evidence supporting a favorable correlation between the size of a company's board of directors and its financial success within the banking sector. For instance, Adams and Funk (2012) analyzed data from commercial banks in the United States from 1986 to 1999, while Abobakr (2017) performed a similar analysis using data collected from 25 Egyptian banks between 2006 and 2014. Both studies found consistent results with ideas outlined in resource dependence theory. According to Bhatia and Gulati (2021), this theory suggests there exists a positive correlation between the number of board members present within the boardroom and the level of expertise available therein. C. Li et al. (2023) explored the relationship between corporate debt and firm productivity, finding that a larger board size positively impacts firm productivity and enhances efficiency.

However, some sources argue against these findings by proposing that there is actually a negative relationship between bank stability and the size of the board. This is due to concerns raised by the agency hypothesis, which suggests that organizations characterized by a higher number of directors amplify agency concerns, thereby reducing the effectiveness of the supervisory role played by those on the board (Mamatzakis & Bermpei, 2015). The study by Mamatzakis and Bermpei (2015), which examines corporate governance performance across investment banks in the US from 2000 to 2012, presents supportive empirical findings for this viewpoint. Their findings demonstrate a strong negative association between board size and bank performance. The increase in communication costs and the presence of information asymmetry are factors associated with the expansion of board membership at banks (Mamatzakis & Bermpei, 2015). Consequently, this does not facilitate the advancement of bank stability.

Manini and Abdillahi (2015) conducted a study using data from 42 banks in Kenya and demonstrated the harmful impact of board size on bank performance. José García et al. (2022) analyzed the impact of corporate board structure on the default risk of European banking firms and found that board size influences banks' default risk. Muhammad et al. (2023) analyzed data from 192 non-financial, publicly traded Italian companies between 2014 and 2018 and found a significant correlation between board size and the company's propensity for risk-taking, suggesting that a larger board of directors may lead to an increase in the firm's level of risk-taking. This outcome aligns with the research findings by Asiamah et al. (2024), which observed a similar trend among banks in Sub-Saharan Africa.

Furthermore, a study conducted by Javed et al. (2024), involving an analysis of data from 67 financial firms listed on the Pakistan Stock Exchange over the period from 2011 to 2022, reveals that entities with smaller boards of directors exhibit superior

performance and tend to refrain from engaging in overly risky behavior. These findings support the previously mentioned results

H3: Board size influence bank risk-taking.

#### 2.5. The link between board foreign and bank risk-taking

As per Liang et al. (2013), companies may employ the inclusion of foreign board members as a strategic measure to bolster their corporate governance and oversight mechanisms, consequently leading to improved company performance. The authors suggest that such an approach can introduce contemporary management practices and novel technologies to companies while also promoting diversity in the decision-making process. Additionally, Carpenter et al. (2001) and S. C. Lee et al. (2018) assert that a diverse board comprising individuals from various nations can facilitate the generation of a wider pool of information, a broad spectrum of ideas, and multiple perspectives, which would aptly serve as a means to advocate for international stakeholders' concerns and preferences.

Empirical evidence supports this notion. Maier and Yurtoglu (2022) research analysis on 2,519 non-financial publicly listed corporations across 29 European countries from 2012–2020 found that having directors from other nations on the board has moderating effects on bankruptcy probability. Similarly, Ameer et al. (2010) study based on panel data consisting of 277 Malaysian non-financial listed enterprises from 2002–2007 revealed that boards with more external and international directors tend to have better performance than those with higher proportions of internal executives or linked non-executive directors. Additionally, Choi and Hasan (2005) research examined Korean commercial banks' governance structures over four years, from 1998–2002, and found significant associations between the presence of foreign directors on bank boards and lower risks and enhanced profits.

Nainggolan et al. (2023) explored how the attributes of the board affect both risk-taking and performance in Indonesian and Malaysian Islamic banks. The study's results highlight that the inclusion of foreign board members positively influences bank performance and concurrently diminishes the inclination towards risk-taking. Furthermore, Ali et al. (2023) investigated the correlation between firm risk and board diversity, which is assessed through demographic dimensions (age, gender, and nationality) and cognitive-oriented dimensions (tenure, expertise, and education). The study reveals that total board diversity, encompassing both demographic and cognitive-oriented aspects, has an inverse relationship with a firm's risk level. Conversely, García-Meca et al. (2015) demonstrate that diversity in nationality diminishes bank performance. They attribute this phenomenon to demographic discrepancies that diminish group cohesion, thereby slowing the decision-making process and ultimately impairing bank performance, thus reducing bank stability.

Furthermore, Alzayed et al. (2024) conducted research on US financial institutions, using data from 2010 to 2022 to examine the relationship between the diversity in nationality among board members and the banks' risk-taking behavior. The findings from this study indicate that diversity in nationality among the board members has a significant positive impact on the institutions' propensity for risk-taking.

H4: Board foreign influence bank risk-taking.

#### 3. Data and methodology

#### 3.1. Data

The sample for this study consists of 25 commercial banks that are currently operating in Vietnam. The data collection period for this study spans from 2007 to 2020. The banks mentioned here jointly represent over 80% of the total assets in the business. Bank-specific data is primarily sourced from annual financial reports, encompassing balance sheets and income statements, which are accessible and can be obtained from the websites of the banks and the database (T. D. Le et al., 2022). Furthermore, the macro-economic indicators included in this study were obtained from the World Bank. Our investigation largely centered on commercial banks due to their crucial role as major contributors to the Vietnamese economy. However, it is important to acknowledge that international bank affiliates and joint-venture banks operating in Vietnam encounter certain constraints in relation to their operational capabilities. The dataset employed in this study consisted of an imbalanced panel including 350 observations, which were obtained from many bank mergers that occurred throughout the investigated time period.

#### 3.2. Variable definitions

#### 3.2.1. Dependent variable – stability efficiency

In the banking industry, the Z-score is a risk/stability indicator that is commonly used in empirical studies. It is calculated by adding a bank's return on assets and equity to the risk of its total assets ratio (Mirzaei et al., 2013)The Z-score measures how close a bank is to insolvency, and is formulated as follows:

$$Z - score_{i,t} = \frac{ROA_{i,t} + E_{i,t}/TA_{i,t}}{\sigma ROA_{i,t}}$$
(1)

where  $ROA_{i,t}$  presents return on assets ratio; the ratio  $E_{i,t}/TA_{i,t}$  denotes the proportion of equity over total assets;  $\sigma ROA_{i,t}$  is the standard deviation of return on assets and is calculated using the three-year rolling window.

However, Safiullah (2021) argues that the Z-score may not fully capture a bank's potential stability. Additionally, the difference between a bank's current stability and its maximum stability, given economic and regulatory conditions, should be considered. Therefore, the concept of "stability inefficiency" is introduced. The extent of stability inefficiency indicates how much a bank deviates from the optimal Z-score. This study estimates stability inefficiency for Vietnamese banks using a translog cost function with

10 👄 D. NGUYEN

one output (total assets) and three input prices (price of deposits, price of labor, and price of physical capital). Two fixed inputs (fixed assets and total equity) and technical change (measured by a variable ranging from 1 to 14 for the period 2007–2020) are included to control for observable heterogeneity. This study specifies both the inputs and outputs of banks based on the intermediation theory, which views banks as financial intermediaries that convert deposits into loans and other earning assets (Sealey & Lindley, 1977). All variables in the translog cost function are defined in Table 1 below.

Consequently, the specification of the translog cost function is as follows:

$$\begin{split} \operatorname{In}\left(\frac{Z-\operatorname{score}_{it}}{W_{3,it}}\right) &= \alpha_0 + \alpha_1 \ln Q_{it} + \frac{1}{2}\alpha_2 (\ln Q_{it})^2 + \sum_{m=1}^2 \beta_n \ln\left(\frac{W_{mit}}{W_{3,it}}\right) + \sum_{m=1}^2 \sigma_m \ln Z_{mit} \\ &+ \frac{1}{2} \sum_{m=1}^2 \sum_{j=1}^2 \gamma_{mj} \ln\left(\frac{W_{mit}}{W_{3,it}}\right) \ln\left(\frac{W_{jit}}{W_{3,it}}\right) + \frac{1}{2} \sum_{m=1}^2 \sum_{j=1}^2 \pi_{mj} \ln Z_{mit} \ln Z_{jit} \\ &+ \sum_{m=1}^2 \delta_m \ln Q_{it} \ln\left(\frac{W_{mit}}{W_{3,it}}\right) + \sum_{m=1}^2 \varepsilon_m \ln Q_{it} \ln Z_{mit} + \sum_{m=1}^2 \sum_{j=1}^2 \theta_{mj} \ln\left(\frac{W_{mit}}{W_{3,it}}\right) \ln Z_{mit} \\ &+ \varphi_1 \operatorname{Trend} + \frac{1}{2} \varphi_2 (\operatorname{Trend})^2 + \varphi_3 \operatorname{Trend} \ln Q_{it} + \sum_{m=1}^2 \mu_m \operatorname{Trend} \ln\left(\frac{W_{mit}}{W_{3,it}}\right) \\ &+ \sum_{m=1}^2 \vartheta_m \operatorname{Trend} \ln Z_{mit} + \varepsilon_i \end{split}$$

The error term  $\varepsilon_i$  consists of the one-sided time-varying inefficiency component (u<sub>i</sub>) and the two-sided random error term (v<sub>i</sub>), which captures the time-invariant heterogeneity as opposed to inefficiency. The inefficiency term (u<sub>i</sub>) is independently and identically distributed with a non-negative truncated normal distribution and is obtained using the formula proposed by Jondrow et al. (1982). Employing the two-step approach (Coelli et al., 2005), we estimate the bank stability efficiency scores by extracting them from the error term, specifically  $STABEFF_i = E[\exp(-u_i)]$ . A higher stability efficiency score implies the lower level of bank risk and vice versa.  $\alpha$ ,  $\beta$ ,  $\sigma$ ,  $\gamma$ ,  $\pi$ ,  $\delta$ ,  $\omega$ ,  $\theta$ ,  $\varphi$ ,  $\mu$ , and  $\tau$  are the estimated parameters respectively.

#### 3.2.2. Independent variable- corporate governance

The current study utilized a comprehensive set of four separate metrics to evaluate corporate governance procedures in the banking industry. To evaluate the level of gender diversity in Vietnamese banks, this study uses the variable BODFEMALE, which

Table II Valiables definition for estin	lating bank stability enterency.
Variable	Definition
$Z - score_{i,t}$	The index is obtained from Equation (1)
Q <sub>it</sub> (output)	Total assets
$W_1$ (Input price of deposits)	The ratio of interest expenses to total deposits
$W_2$ (Input price of labour)	The proportion of personnel expenses/number of employees
$W_3$ (Input price of physical capital)	The proportion of other operating cost to fixed assets
$Z_1$ (Fixed netput1)	Fixed assets
$Z_2$ (Fixed netput2)	Total equity
Trend	Technical change
ε	Error term

Table 1. Variables definition for estimating bank stability efficiency.

represents the proportion of female board members. This measure has been widely used in previous studies on corporate governance by Adams and Ferreira (2009), Sila et al. (2016), and Kinateder et al. (2021). Data was subsequently collected pertaining to board size (BODS) with the aim of quantifying the yearly count of board members within each banking institution. This variable is consistent with previous academic inquiries, such as the investigations carried out by Adams and Funk (2012), Karkowska and Acedański (2020), Bhatia and Gulati (2021), and Zagorchev and Gao (2015).

Moreover, some previous research studies have utilized the independent variable of the board of directors (BODIN) to examine the impact of corporate governance on the operations of financial institutions. Prominent instances are the investigations carried out by Mollah and Zaman (2015), Adams (2012), Dong et al. (2017), and Marie et al. (2021). The practice of incorporating foreign directors onto a bank's board, known as BODFOR, has been extensively utilized as a measure of corporate governance in previous academic studies, such as those conducted by Choi and Hasan (2005), Ameer et al. (2010), and Carpenter et al. (2001).

Additionally, the level of risk attributed to banks may be influenced by several governance and financial factors at both macro and micro levels. Consequently, additional variables are included to account for these characteristics. To examine the unique characteristics of banks, we utilize a binary variable, referred to as Big4, to evaluate the kind of audit firm. A value of 1 signifies the presence of Big 4 audit firms, while a value of 0 indicates non-Big 4 audit firms. This characteristic is consistent with previous research undertaken by Mitton (2002), Hanim Fadzil et al. (2005), Iatridis (2011), C. Liu et al. (2012), Bouaziz and Triki (2012), Farouk and Hassan (2014), and C.-C. Lee et al. (2017).

The variable "Bank age" is utilized as a quantitative measure to assess the age of a bank, which is defined as the length of time that a bank has been operational. This characteristic is consistent with previous research undertaken by Athanasoglou et al. (2008), Stierwald (2009), Tan and Floros (2012), Mehari and Aemiro (2013), Tan (2016), and Gupta et al. (2020).

#### 3.2.3. Control variables

The concept of "too-big-to-fail" suggests that larger banks may have a tendency to take on higher amounts of risk, which might lead to increased occurrences of bank insolvency (Beck et al., 2006; T. D. Le, 2021). However, it is important to acknowledge that larger financial institutions may demonstrate improved efficiency and stability as a result of their decreased financial limitations, as emphasized by Karavitis et al. (2021). Therefore, to consider the impact of bank size on the efficiency of Vietnamese banks, we introduce the variable of bank size (SIZE), which is measured by the natural logarithm of total assets. The impact of bank performance on company risk is particularly significant, as evidenced by the findings of Kinateder et al. (2021).

The primary objective of this study is to conduct a comprehensive examination of the relationship between the financial performance of banks in Vietnam, as evaluated by return on assets (ROA). More profitable banks can absorb financial shocks better, thus improving bank stability (Athanasoglou et al., 2008), thereby enhancing bank stability efficiency. Moreover, as stated by T. D. Le and McMillan (2020), there exists a debate about the vulnerability of financial institutions with higher liquidity ratios, usually

known as LATA, to risk. Therefore, the incorporation of the liquidity ratio, which measures the ratio of liquid assets to total assets, functions as a mechanism to alleviate the influence of liquidity risk on the effectiveness of bank stability (Shim, 2013; Vithessonthi, 2014).

Furthermore, research conducted by Özşuca and Akbostancı (2016) and Ghenimi et al. (2017) confirms that banks characterized by robustness, liquidity, and strong capitalization have lower probabilities of encountering risks, thereby being considered more financially secure. The equity-to-assets ratio, alternatively referred to as the capital adequacy ratio (CAP), serves as a metric for determining the proportion of a financial institution's assets that are funded by equity. The concept of ownership is commonly recognized as a means of safeguarding against potential financial losses. In a study done by T. P. T. Nguyen and Nghiem (2015), it was shown that shareholders of organizations with higher ownership levels, or lower debt levels, tend to encounter decreased levels of risk.

To incorporate the influence of economic expansion and inflation on the efficiency of bank stability in Vietnam, we utilize the annual growth rate of Gross Domestic Product (GDP growth) and the annual rate of inflation (inflation rate) as control variables, as recommended by T. D. Le and McMillan (2020) and Vu and Nahm (2013).

#### 3.3. Model specification

The issue of endogeneity is a common concern in studies that examine corporate governance practices, as past financial achievements may influence existing governance features. Ignoring this connection can lead to distorted statistical results (Coles et al., 2012). Therefore, it is plausible that static panel models such as the Fixed Effects Model (FEM) and Random Effects Model (REM) might produce erroneous results because they do not consider heterogeneity and unobservable elements. To address these econometric issues and investigate potential factors contributing to endogeneity, we utilize a dynamic panel data model. Specifically, we apply the two-step system generalized method of moments (GMM) estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998), which allows for precise estimation of relevant parameters while simultaneously accounting for unobserved heterogeneity and endogeneity.

The GMM framework proposed by Bond (2002) includes lagged dependent variables in both levels and differences along with lagged independent variables that could potentially act as endogenous instruments. The inclusion of one-year lagged variables in the model is supported by previous research indicating instrumental strength diminishes with an increase in delay (Distinguin et al., 2013; T. Le, 2019). We evaluate the reliability of GMM estimates using Arellano-Bond autocorrelation tests for serial correlation in idiosyncratic errors along with Hansen tests to check the null hypothesis that the instruments are valid. Valid moment conditions continue even if the AR(2) test's null hypothesis is not rejected.

The dynamic model to empirically test our hypotheses is formed as follows:

				Std.		
Variable	Definition	Obs	Mean	Dev.	Min	Max
STABEFF	Bank stability efficiency estimated from stochastic frontier analysis.	332	0.32	0.17	0.05	0.87
	A higher stability efficiency score implies the lower level of bank					
	risk taking and vice versa.					
BODFEMALE	The proportion of women directors	320	0.16	0.15	0.00	0.60
	on the board					
BODIND	The proportion of independent	320	0.10	0.10	0.00	0.57
	directors on the board					
BODS	The number of directors on the board	320	7.47	1.89	4	13
BODFOR	The proportion of foreigner directors on the board	320	0.07	0.16	0.00	0.75
BIG4	A dummy variable that takes a value of 1 signifies the presence of	333	0.82	0.38	0.00	1.00
	Big 4 audit firm, and 0 otherwise					
BANK AGE	The natural logarithm of the number of years since the	349	22.09	11.30	0.00	63.00
	establishment of the bank					
ROA	Return on asset ratio	341	0.91	0.80	-5.51	5.95
CAP	The proportion of equity capital to total assets	339	0.09	0.05	0.02	0.46
LATA	The ratio of liquid assets to total assets	339	0.32	0.12	0.05	0.82
SIZE	The natural logarithm of total assets	340	32.25	1.32	28.42	35.17
GDP	the annual growth rate	349	0.06	0.01	0.03	0.07
INF	The inflation rate	349	0.07	0.06	0.01	0.23

Table 2. The descriptive statistics of variables.

Table 3. The VIFs statistics results.

Variable	VIF	1/VIF
BODFEMALE	1.41	0.71
BODIND	1.31	0.76
BODS	1.60	0.62
BODFOR	1.41	0.71
BIG4	1.45	0.69
BANK AGE	1.92	0.52
ROA	1.40	0.71
CAP	2.40	0.42
LATA	1.38	0.72
SIZE	4.69	0.21
GDP	1.03	0.97
INF	1.46	0.68
Mean VIF	1.77	

$$STABEFF_{it} = \alpha_0 + \varphi STABEFF_{i,t-1} + \beta CORPORATEGOVERNANCE_{it} + \gamma CONTROL_{it} + \nu_i + \varepsilon_{it}$$

(3)

where  $STABEFF_{it}$  denotes the stability efficiency scores of bank *i* at time *t*; corporate governance<sub>it</sub> is the matrix of our main explanatory variables, including (BODFEMALE) women board, board size(BODS); board independent(BODIN), and foreign board members(BODFOR); *CONTROL*<sub>it</sub> comprises bank-specific and macro variables in section 3.2.3;  $v_i$  is the unobserved fixed effect for bank *I* while  $\varepsilon_{it}$  implies the remaining disturbance term; the coefficient  $\alpha$ ,  $\varphi$ ,  $\beta$ , yare the parameters to be estimated.

Table 2 presents an intricate summary of the descriptive data associated with the variables encompassed in the research model. The Vietnamese banking sector exhibits noteworthy characteristics, as evidenced by the measures concerning bank stability, efficiency, and corporate governance. The significant standard deviation observed suggests that there is a considerable degree of variation in bank stability across various

	STABEFF	BODFEMALE	BODIND	BODS	BODFOR	BIG4	Bank age	ROA	CAP	LATA	SIZE	GDP	INF
STABEFF	-												
BODFEMALE	-0.07	-											
BODIND	-0.22	0.04	1										
BODS	-0.05	-0.06	-0.17	1									
BODFOR	-0.07	-0.26	0.22	-0.11	-								
BIG4	0.12	-0.21	0.02	0.28	0.20	-							
BANK AGE	-0.37	0.10	0.11	0.21	0.03	0.18	-						
ROA	-0.11	-0.14	-0.08	0.17	0.16	0.20	-0.07	-					
CAP	0.00	-0.22	-0.15	-0.13	0.04	-0.17	-0.34	0.32	-				
LATA	0.04	-0.05	-0.04	-0.13	0.21	0.06	-0.32	0.26	0.09	-			
SIZE	-0.21	0.08	0.21	0.43	0.17	0.42	0.65	-0.03	-0.64	-0.25	-		
GDP	0.04	0.02	0.00	-0.03	-0.03	0.05	-0.04	-0.07	-0.03	0.00	-0.03	-	
INF	0.22	-0.06	-0.37	-0.12	-0.10	0.00	-0.18	0.23	0.33	0.24	-0.36	-0.10	-

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14 🔄 D. NGUYEN

institutions. Furthermore, from 2007 to 2020, Vietnamese commercial banks displayed diverse corporate governance attributes with some shared features. Typically, these banks had a board of directors comprising seven members; approximately 10% were independent directors, 16% were female, and only 7% were international personnel.

To evaluate potential multicollinearity issues, variance inflation factors (VIF) were tested, as shown in Table 3. Table 4 displays the correlation matrix for all variables, which reveals no concerns regarding multicollinearity within this study.

#### 4. Empirical results

#### 4.1. Corporate governance and bank risk-taking

The findings of our baseline model (Model 1), which investigates the hypothesis, are presented in Table 5. The present study adheres to previous literature on cross-country banking, as shown by Fosu et al. (2020) and T. D. Le and McMillan (2020), by employing

		System-GMM	FEM	REM
Dependent variable – Stability efficiency (STABEFF)	Predicted sign	(1)	(2)	(3)
Panel A – Coefficients estimation				
BODFMALE	+	0.007***	0.029***	0. 029***
		(0.002)	(0.007)	(0.007)
BODIND		0.017**	-0.010	-0.012
		(0.007)	(0.010)	(0.010)
BODS		0.003**	0.016***	0.016***
		(0.001)	(0.004)	(0.005)
BODFOR		-0.007***	-0.013*	-0.013*
		(0.002)	(0.004)	(0. 007)
BIG4	+	0.002	-0.001	-0.001
		(0.001)	(0.004)	(0.004)
BANK AGE	±	0.001***	0.017***	0. 017**
		(0.000)	(0.001)	(0.001)
ROA	+	0.002**	0.003**	0.003**
		(0.001)	(0.002)	(0.001)
CAP	+	0.013	0.091***	0.089***
		(0.015)	(0.029)	(0.030)
LATA	+	0.006***	0.022*	0.025**
		(0.002)	(0.011)	(0.012)
SIZE	+	-0.001	0. 011***	0. 010***
		(0.001)	(0.003)	(0.002)
GDP	+	0.023***	-0.093	-0.089
		(0.007)	(0.067)	(0.071)
INF	+	-0.013***	0.004	0.008
		(0.003)	(0.017)	(0.017)
STABEFF <sub>t-1</sub>	+	1.036***		
		(0.008)		
Constant		-0.046	0.301	0.324
		(0.028)	(0.081)	(0.089)
Year		No	Yes	Yes
Panel B – Model fit				
AR1 (p-value)		0.044		
AR2 (p-value)		0.454		
Hansen test (p-value)		0.620		
No.of Obs		282	303	303
No.of Groups		25	25	25

Table 5. Baseline regression results of corporate governance on Vietnamese bank stability efficiency.

Note: This table presents the results of main equation. Robust standard errors are in parentheses. \*, \*\* and \*\*\* Significant at 10, 5 and 1 % levels, respectively.

a restriction on the lagged dependent variable to a value of 1. This approach is adopted to mitigate the number of moment conditions. The presence of the lagged dependent variable coefficient (STABEFFt-1) in the initial model suggests that the utilization of system GMM estimation is justified. Furthermore, the null hypothesis remains unchallenged as the p-value obtained from the Hansen test does not reach statistical significance. This suggests that in cases where all prerequisites are met and the instruments are deemed authentic, there is a lack of evidence supporting the presence of over-identifying limitations.

Despite the rejection of the null hypothesis, which suggests the absence of first-order autocorrelation between first residual differences, the relatively high p-value obtained from the AR1 test indicates that the moment requirements of our model remain satisfied. This is supported by the substantial p-value obtained from the AR2 test. Consequently, it may be inferred that our diagnostic tests exhibit a high degree of reliability. To enhance the robustness of the analysis, static panel regressions are further performed, specifically referred to as Model 2 and Model 3.

We concentrate on our major interest variables. First, the significant positive impact of women (BODFEMALE) on Vietnamese bank stability indicates that a substantial reduction in bank-specific risk is achieved by the presence of women on boards. This suggests that banks with more gender diversity on their boards are more stable and efficient. This finding highlights the benefits of gender diversity in a Vietnamese setting, where the role of female directors is still being recognized. Women board members bring a new perspective to board discussions, which can help to mitigate cognitive biases in problem-solving and strategy formulation (Westphal & Milton, 2000). This research is consistent with the findings of Kinateder et al. (2021), Abou-El-Sood (2021), Cardillo et al. (2021), and Pandey et al. (2020).

Second, the presence of independent directors (BODIND) on the board of directors has a positive impact on bank stability and efficiency. This research confirms that independent directors contribute to bank stability by improving corporate performance, reducing conflicts of interest, mitigating biases in decision-making, enhancing the quality of financial data, and deterring fraud. Even during a crisis, independent directors can suggest innovative solutions to boost revenue and bank performance. These findings are in line with those of Adams and Mehran (2008), Dong et al. (2017), Marie et al. (2021), El-Chaarani and Abraham (2022), and El-Chaarani et al. (2022).

Third, board size (BODS) is positively correlated with Vietnamese bank stability efficiency, suggesting that larger boards can improve company performance by providing more expertise and experience. This finding is consistent with those of Adams (2012), Caprio et al. (2007), and Abou-El-Sood (2021).

Finally, the presence of foreign directors on the board of directors (BODFOR) is inversely correlated with bank stability efficiency. This suggests that while foreign directors may possess valuable administrative skills and experience, they may also engage in profit-boosting activities in unstable regions, which could compromise the bank's stability. Additionally, it is crucial to recognize that foreign board members often represent a minority within the board, potentially leading to cultural differences and hindered decision-making processes that can ultimately undermine the financial institution's stability. These concerns align with research conducted by Alzayed et al. (2024). Regarding bank-specific characteristics, there is a positive correlation between the age of a bank (BANK AGE) and its stability in Vietnam. This suggests that a longer-standing bank is likely to perform better than a newer one due to the learning effect. Furthermore, an experienced bank's quality is more visible to its customers (Petersen & Rajan, 1997), and its creditworthiness is more apparent to debt and equity suppliers (Niskanen & Niskanen, 2006), which may confer operational advantages over less experienced competitors.

The substantial positive impact of bank size (SIZE) on the stability of Vietnamese banks suggests that larger financial institutions are more diversified and possess a higher degree of risk management expertise, rendering them less hazardous than their smaller counterparts (Karavitis et al., 2021). The primary objective of this study is to conduct a comprehensive examination of the relationship between the financial performances of banks in Vietnam, as evaluated by return on assets (ROA). More profitable banks can absorb financial shocks better, thus improving bank stability (Athanasoglou et al., 2008) and enhancing bank stability efficiency.

In addition, the ratio of liquidity risk (LATA) was found to be positively associated with the stability efficiency of Vietnamese banks, indicating that financial institutions with ample liquid assets tend to be more stable. This can be attributed to the fact that high-value liquid assets enable banks to overcome any sudden difficulties caused by unforeseen cash withdrawals. Research by Özşuca and Akbostancı (2016), as well as Ghenimi et al. (2017), confirms that sturdy, liquid, and well-capitalized banks have lower probabilities of experiencing risks and are thus deemed more financially secure.

Regarding macroeconomic factors, a positive effect of GDP on the efficiency of bank stability strengthens the conventional notion that during cyclical upswings in the economy, there is a rise in demand for banks' services and products, resulting in more bank stability. This finding aligns with the research by T. D. Le and McMillan (2020).

Finally, the adverse coefficients on INF indicate that an elevated inflation rate diminishes bank efficiency due to its direct impact on macroeconomic and financial instability. These results closely resemble those of Vu and Nahm (2013).

#### 4.2. Robustness check

In order to reinforce our conclusion, we have carried out supplementary examinations to assess the durability of our primary discovery. The outcomes of these rigorous assessments are presented in Table 6. Initially, we substituted the dependent variable (STABEFF) with Z-score (ZSCORE), an explicit assessment of banking stability and a reverse measure of hazard. Additionally, we contemplated another alternative risk gauge – nonperforming loan (NPL) ratio. Our findings from models (1) and (2), as demonstrated in Table 6, validate our main conclusions.

In contrast to the financial systems of developed nations, Vietnam's banking sector is primarily controlled by four state-owned banks, commonly referred to as the "big four banks." Therefore, it is crucial to evaluate the sensitivity of our outcomes by excluding state-owned banks and solely incorporating private banks (PRIVATE) in our sample. The qualitative similarity between our baseline findings and those presented in Model (3) of Table 6 indicates that including the four major banks did not skew our initial results.

#### 18 👄 D. NGUYEN

#### Table 6. Robustness tests.

	ZSCORE	NPL		STABEFF
Dependent variable	(1)	(2)	STABEFF (PRIVATE) (3)	(4)
BODFEMALE	0.848*	-2.019***	0.007*	0.009**
	(0.496)	(0.692)	(0.004)	(0.003)
BODIND	2.428	-6.298**	0.022**	0.011*
	(1.733)	(2.869)	(0.010)	(0.006)
BODS	1.067*	-2.397**	0.006***	0.004**
	(0.571)	(1.063)	(0.002)	(0.001)
BODFOR	-1.587**	-2.440*	-0.007***	-0.004
	(0.706)	(1.242)	(0.002)	(0.003)
BIG4	0.283	-1.891**	0.001	0.001
	(0.383)	(0.889)	(0.002)	(0.002)
BANK AGE	-0.013	0.005	0.001*	0.001*
	(0.039)	(0.072)	(0.000)	(0.001)
ROA	1.354***	-0.136	0.001	-0.001
	(0.001)	(0.182)	(0.001)	(0.001)
CAP	-6.879	7.656	0.004	0.045**
	(3.016)	(4.528)	(0.010)	(0.018)
LATA	0.118	-2.551	0.006	0. 008
	(1.112)	(2.685)	(0.004)	(0.006)
SIZE	-0.173	0.815	-0.003	-0.001
	(0.237)	(0.589)	(0.001)	(0.001)
GDP	-2.562	11.202	-0.061	0. 093
	(5.148)	(7.780)	(0.024)	(0.067)
INF	2.036	9.917***	-0.009*	-0. 010***
	(0.693)	(2.811)	(0.005)	(0.002)
Covid				-0.012*
				(0.006)
П <sub>t-1</sub>	0.294***	0.803***	0.033**	1.019***
	(0.028)	(0.219)	(0.047)	(0. 008)
Constant	4.133	-20.155	1.025	-0.016
	(6.475)	(16.939)	(0.014	(0.040)
AR1 (p-value)	0.004	0.008	0.046	0.039
AR2 (p-value)	0.289	0.400	0.157	0.410
Hansen test (p-value)	0.999	0.822	0.567	0.677
No.of Obs	294	262	238	282
No.of Groups	25	25	21	25

Note: This table presents the results of main equation. Robust standard errors are in parentheses. \*, \*\* and \*\*\* Significant at 10, 5 and 1 % levels, respectively.

Additionally, the COVID-19 pandemic began in 2020 and has had wide-ranging effects beyond the health sector and resulted in significant economic repercussions, especially within the global banking system. Following the approach of Ho et al. (2023), we use COVID as a dummy variable, taking a value of 1 for the years 2020 and 0 otherwise. Consequently, we further include the COVID-19 dummy variable to investigate how the pandemic affects the nexus between corporate governance and bank risk-taking in Vietnam.

The results of model (4), as illustrated in Table 6, confirm our primary conclusions. Furthermore, the findings indicate a negative correlation between COVID-19 and STABEF, suggesting that the COVID-19 pandemic significantly influenced bank stability efficiency throughout the crisis. The pandemic exacerbated existing vulnerabilities within the banking sector and introduced new challenges. Various studies, including those by Rizwan et al. (2020); Yan et al. (2023), have documented a significant increase in banking risk due to the COVID-19 outbreak, consequently reducing bank stability efficiency (Elnahass et al., 2021).

During the COVID-19 period, female board members (BODFEMALE) positively influenced STABEF. This implies that banks with more diverse boards were more actively engaged in responsible efforts during the COVID-19 crisis (Garikipati & Kambhampati, 2021; Henley & Roy, 2020; Sbai & Ed-Dafali, 2023). It suggests that female directors exhibit higher levels of ethical awareness and responsiveness to social and community issues, particularly during disasters, compared to their male counterparts (Adams & Funk, 2012).

Additionally, the presence of independent board members (BODIN) also positively affects STABEF. The role of independent directors extends beyond governance to being crucial during crises. With their authority, expertise, and experience, independent directors can enhance decision-making effectiveness. Arora (2018) notes that independent directors with financial ties can offer valuable information, advice, and essential resources during crises. The heightened volatility during the pandemic might be attributed to the significant amount of COVID-19-related information (Hoffmann et al., 2013) and increased information asymmetry. Greater board independence can lead to more effective oversight and reduced agency costs (Huang et al., 2011), thus mitigating the impact of COVID-19 on volatility (Hsu & Liao, 2022).

Lastly, board size (BODS) has a positive impact on STABEF. The rapidly changing business environment and increased complexity of business operations during the COVID-19 crisis (Uddin et al., 2021) underscore the need for a larger board. A larger board, with a diverse range of experts, can better manage complex situations such as this crisis (Coles et al., 2008). Therefore, a larger board size, suggesting more effective responses to the pandemic, can help reduce business risk (Hsu & Liao, 2022).

#### 5. Conclusions

This study evaluates the influence of corporate governance on the efficiency and stability of Vietnamese banks, utilizing a stochastic frontier approach. The analysis includes data from 25 commercial banks in Vietnam between 2007 and 2020, drawing upon agency theory, stewardship theory, and resource dependence theory to identify differences. Results indicate that specific aspects of corporate governance significantly impact bank stability efficiency, with female members, independent directors, and larger board sizes being positively linked to this outcome. This implies that policymakers and bank managers should encourage effective governance mechanisms to minimize excessive risk-taking by increasing the number of female members, independent directors, and larger-scale directors on the bank's board.

In contrast, foreign board members exhibit a negative effect on bank stability efficiency. The findings suggest that having foreign board members has a detrimental effect on bank stability and efficiency. Therefore, policymakers and bank managers should carefully consider the composition of their board members and evaluate the potential risks associated with having foreign representatives. It may be beneficial for banks to prioritize the appointment of local board members who have a deeper understanding of the domestic market and regulatory environment, which could contribute to enhanced stability and efficiency. Additionally, efforts should be made to ensure effective communication and collaboration between local and foreign board members to mitigate any adverse impacts on bank performance.

Furthermore, alternative risk indicators were used to re-examine the effects of corporate governance characteristics on the nexus between bank risk and stability; eliminating state-owned banks from the sample yielded robust results. The results suggest that using alternative risk indicators and excluding state-owned banks from the sample can provide robust insights into the effects of corporate governance characteristics on the relationship between bank risk and stability. Therefore, bank managers should consider employing a variety of risk indicators and accounting for the unique characteristics of their bank, such as ownership structure, when assessing risk and implementing governance measures.

Additionally, the study highlights the importance of considering external factors, such as the COVID-19 crisis, in analyzing the impact of corporate governance on bank stability. By incorporating these insights into their risk management strategies, bank managers can enhance their ability to mitigate risk-taking and maintain stability in the face of challenges.

Nevertheless, the limitation of this investigation is that its database solely encompasses Vietnamese financial institutions within a brief timeframe. To gain a more comprehensive understanding of the context, future research should scrutinize this correlation in other developing nations as well. Furthermore, it is plausible that a non-linear association between corporate governance and bank stability efficiency exists. Consequently, researchers may need to ascertain the threshold of corporate governance that preserves banks' stability over an extended period.

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