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The Leadership Attributes and Commercial Bank Financial Performance: The Mediating Role of Capital Adequacy Ratio

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Abstract

This paper aims to explore how factors such as age, gender, professional qualifications, and experience of the Chairman of the Board of Directors (COB) and Chief Executive Officer (CEO) influence the financial performance of Vietnamese commercial banks. Data are collected from 28 listed banks in Vietnam from 2013 to 2023. The study employs regression methods including OLS, FEM, REM, and FGLS. To ensure robustness and address potential model limitations, SGMM regression is also utilized. The results indicate that banks led by female COBs and CEOs tend to achieve better financial performance. Additionally, older COBs are associated with lower bank performance. The findings also highlight the significant impact of bank leaders' expertise and educational background on financial performance. To the author's knowledge, this is the first study to analyze the combined effect of bank leadership attributes on the profitability of Vietnamese commercial banks within an emerging economy. It is also among the first to examine the mediating role of the capital adequacy ratio (CAR). The results provide a solid basis for stakeholders to make informed decisions related to the recruitment, appointment, training, and development of bank leaders to enhance financial performance.

Keywords:

Commercial Bank;
Chairman of the Board of Directors (COB);
Chief Executive Officer (CEO);
Leadership Attributes;
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1- Introduction

Commercial banks play a crucial role in the financial system by providing intermediary services and facilitating the flow of capital to the real economy. As a result, the financial performance of banks remains a primary concern for policymakers, managers, and researchers [1]. Many studies emphasise financial performance as vital for an organisation's survival and future growth [2, 3]. Most previous research has examined financial performance from three main perspectives. Firstly, it focuses on micro factors such as size, asset structure, or credit risk, assuming these are direct sources of profitability [4, 5]. Secondly, it concentrates on corporate governance and leadership, highlighting how governance structures influence bank performance [6, 7]. Thirdly, it combines macro and micro factors such as inflation, crises, GDP growth and monetary policy [8-11]. However, these approaches have limitations, as they do not fully explain performance differences among banks operating in similar environments. This suggests that factors related to senior leadership may be critical, yet are often insufficiently examined.

Research into leadership traits - particularly those of the Chairman of the Board (COB) and the Chief Executive Officer (CEO) - is increasingly gaining attention. Some scholars have shown that the age, gender, educational background, and professional expertise of CEOs influence bank strategies and performance [12]. Zaidi et al. [12] found that CEOs' general education and financial expertise positively affect key financial metrics such as ROA and ROE. Abiad et al. [13] discovered that gender diversity on the board significantly enhances bank performance, while [14]

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highlighted that CEO financial expertise promotes better outcomes. Gupta & Mahakud [14] also argued that male CEOs tend to benefit bank performance. A recent study of Pham [15] confirmed that CEO age and financial background positively influence bank performance. This study also found that female CEOs negatively impact performance in Vietnamese commercial banks. Nonetheless, most current literature mainly concentrates on the role of the CEO, often neglecting the significant contribution of the COB, who formulates long-term strategies and supervises the CEO, thus representing a notable gap in the literature.

The results of this study suggest that having a female CEO significantly and positively influences financial performance indicators such as ROA, ROE, and NIM. Conversely, studies in Indonesia often find no significant gender differences or report a negative gender effect. In the Philippines, most research does not show a positive impact from female leadership [16]. Similar to the Philippines, where younger members tend to perform better [16], this research indicates that CEO age in Vietnam is usually negatively related (older age → lower performance). This finding differs from Indonesia, where CEO age is sometimes positively associated with ROE [17]. More importantly, this study is one of the few in the region to investigate the mediating role of the Capital Adequacy Ratio (CAR) between leadership traits and financial performance. In contrast, most studies in Indonesia and the Philippines only examine the direct effect of CAR on profitability, neglecting the mediating mechanism. Furthermore, in both countries, most research considers only the direct impact of CAR on efficiency; few have developed mediation models involving top leadership attributes.

Thus, although there is relatively abundant evidence on the impact of CAR on financial performance in Indonesia and the Philippines in particular, and in other countries more generally, the mechanism linking COB/CEO attributes to CAR and ultimately to performance remains largely unexplored - this constitutes the primary academic contribution of this study. This distinction is based on the specific characteristics of Vietnamese banking governance: the more prominent strategic role of the Chairman of the Board of Directors, high levels of state ownership, and rapid changes in Basel-standard capital adequacy ratios, which make CAR a crucial mechanism in the relationship between leadership and financial performance. Another limitation pertains to the mechanism of impact. Although there is evidence that leadership influences performance, few studies consider the mediating variables underpinning this relationship. In the banking context, a suitable candidate is the capital adequacy ratio (CAR). International standards, such as Basel II and Basel III, have consistently emphasised that CAR is an essential measure of risk tolerance, economic stability, and customer and investor confidence in banks [18]. Goddard et al. [19] clarified CAR's role in enhancing banks' financial performance. The CAR ratio is no longer merely an indicator that a bank is operating overly conservatively and missing profitable trading opportunities; instead, it increases the cost of bankruptcy insurance. Managers thus use CAR to signal expected future profits, fostering a positive relationship between CAR and profitability. Trujillo-Ponce [20] acknowledged that high CAR positively impacts profitability (measured by ROA) and negatively impacts profitability (measured by ROE). Conversely, Gupta & Mahakud [21] indicated that CAR negatively affects ROA and ROE. While many studies examine the impact of CAR on financial performance, the mediating role of CAR in the relationship between leadership traits and financial performance remains largely unexplored, particularly in emerging markets. This research is the first to identify this crucial role, enhancing theoretical understanding and offering solid empirical evidence for policymakers and bank managers to formulate effective capital management strategies.

In Vietnam, this issue is even more significant. Vietnamese commercial banks are undergoing substantial restructuring and integration, facing bad debts, declining profit margins, and Basel II/III compliance requirements. In this context, senior leadership's role becomes even more vital. However, most existing research on Vietnamese banks has solely focused on analysing micro factors (such as size and state ownership) or macro factors (such as GDP growth and inflation), neglecting the influence of leadership traits. Furthermore, very few studies have examined COB and CEO simultaneously, nor clarified the impact mechanism through CAR. This is the gap that this study seeks to fill.

The research makes three main contributions. First, it broadens the scope of analysis by incorporating micro factors (leadership traits, banking financial structures), industry factors (competition level, market power), and macro factors (inflation, GDP growth) to provide a more comprehensive view of banking financial performance. Second, it offers evidence from the Vietnamese context—an emerging economy with notable differences in governance and institutions compared to developed countries—providing lessons for similar transitional economies. Third, it is the first to explore the mediating role of CAR in the relationship between top leadership characteristics and financial performance, bringing new insights to management theory practice.

The primary aim of this research is to elucidate the role of top leadership traits (CEO and COB) in enhancing financial performance in Vietnamese commercial banks by analysing the mediating effect of the capital adequacy ratio (CAR). Additionally, the study presents a comprehensive perspective on the influence of factors from three groups - micro, industry, and macro - to propose practical and appropriate management strategies for banking operations in Vietnam. To achieve this, the study employs a panel dataset of 28 Vietnamese commercial banks from 2013 to 2023, combining

leadership characteristics (age, gender, education, expertise), financial indicators (ROA, ROE, NIM), and industry and macro factors. The chosen analytical approach is a panel data model integrated with a mediating role assessment, enabling a deeper understanding of the impact mechanism.

This study aims to answer two questions: (i) how COB and CEO characteristics influence the financial performance of Vietnamese commercial banks, and (ii) whether CAR mediates this relationship. By addressing these questions, the research provides new empirical evidence and offers recommendations for banks and policymakers on senior human resource strategies and capital management policies. In summary, this work highlights the dual roles of COB and CEO in financial performance and presents CAR as a key mediating mechanism. Consequently, the study helps bridge the gap between theory and practice and offers valuable management suggestions for Vietnamese banks as they pursue integration and competitiveness enhancement.

Section 2 reviews and discusses content related to the theoretical framework, literature review, and hypothesis development. Section 3 addresses the research data and models and describes the research variables. Section 4 presents and discusses the results of the empirical findings. Section 5 summarises the conclusions and implications.

2- Literature Review and Hypothesis Development

2-1- Background Theory

This study employs the Upper Echelons Theory [22], the Resource-Based View (RBV) [23], and Resource Dependence Theory (RDT) [24] to present and explain the relationship between variables reflecting top leadership characteristics and financial performance. The Upper Echelons Theory posits that organisational decisions and outcomes are mainly influenced by the personal traits of top leaders, such as their experience, values, and perceptions [22]. According to this theory, top leaders embody their attributes in their strategies and decisions, directly impacting the organisation's performance. Leaders with diverse backgrounds, expertise, genders, ages, unique personalities, and varying abilities influence their capacity to make asset management, lending, and investment decisions. Extensive experience helps leaders make sound financial choices, boosting the bank's profits. Risk-taking and risk management shape a bank's credit policy and investment decisions, driving expansion strategies and profit growth. Conversely, a more conservative leader may prioritise maintaining financial stability and minimising risk. A strong and decisive leader can foster morale and innovation within the organisation, which, in turn, positively impacts financial performance. Therefore, this theory explains why banks led by individuals with different personality traits can achieve varying levels of profitability based on how they develop and execute financial strategies.

According to the RBV theory, an organisation can build a sustainable competitive advantage when it possesses strategic resources that are valuable, rare, difficult to imitate, and non-substitutable [23]. Managing a highly skilled senior leadership team effectively with appropriate utilisation strategies will enhance the organisation's competitiveness and sustainability. These competitive advantages over rivals can, in turn, help the organisation achieve significant profitability. Resource Dependence Theory describes the organisation as an open system reliant on contingencies in the external environment [24]. To reduce dependence, organisations must expand relationships with other entities to access necessary resources. Additionally, they must rationally and effectively utilise existing resources to optimise operational efficiency [25].

RDT encourages organisations to mobilise resources or diminish dependencies to improve performance and growth. At the same time, RDT supports the view that increasing control over resources and assets within the business environment will aid organisations in obtaining the resources needed for survival and sustainable development.

2-2- Financial Performance Evaluation

Many ratios can be used as dependent variables to assess bank profitability, including ROA, ROE, and NIM, which are widely recognised. This is supported by numerous studies [26, 27]. ROA measures a bank's capacity to generate returns on its assets, while ROE evaluates returns to shareholders, and NIM indicates a bank's ability to generate income from its assets. ROA and ROE differ due to the level of financial leverage employed. If a bank's financial leverage is low, it will display a higher ROA and a lower ROE. Conversely, if the bank's leverage is high, ROE will increase while ROA decreases. NIM functions as an indicator of a bank's interest rate performance, reflecting its ability to earn interest from lending and deposit activities. In summary, ROA and ROE assess profitability and performance based on a bank's assets and equity, whereas NIM concentrates on interest rate performance and the capacity to earn interest on deposits and loans. These three indicators are essential for evaluating a commercial bank's financial health and performance.

2-3- The Effect of COB/CEO Age on Bank Financial Performance

Bank senior leadership (COB and CEO) can directly influence a bank's financial outcomes through key strategic decisions such as financial management, investment, and risk management. The personal characteristics of leaders, such as age, expertise, gender, and education, can shape the decision-making style and strategy of banks, thereby affecting

financial indicators like ROA, ROE, and NIM. Previous studies have suggested that a leader's age may reflect their experience level and strategic decision-making ability. Older leaders often possess extensive experience and are more capable of making prudent financial decisions, which helps banks maintain financial stability and improve operational efficiency.

When studying CEO characteristics and bank performance in commercial banks, Johan & Sari [28] recognised that CEO age is a factor that positively and significantly influences bank return on equity. A recent study by Pham [15] also noted that CEO age positively impacts bank performance: the older the CEO, the better the bank's outcomes. Greater age often correlates with more experience and wider exposure in managing organisations.

Based on the aforementioned foundations and analysis, the study hypothesises that the ages of the COB and CEO can positively influence the bank's financial performance. Thus, hypothesis H_1 is proposed as follows:

H_1: The age of the COB and the CEO positively impacts the bank's financial performance.

2-4- The Effect of COB/CEO Gender on Bank Financial Performance

Gender can influence how leaders make decisions, manage crises, and handle daily tasks. Studies have shown that female leaders offer different perspectives on management and decision-making, especially in evaluating risk and fostering innovation. Women are often perceived as more conservative and cautious than men [29-31].

Studies by Abiad et al. and Bhatia & Gulati [13, 32] acknowledged that gender diversity, particularly increasing the proportion of female directors on boards, positively impacts bank performance. Dinh et al. [33] also demonstrated that gender diversity has a beneficial effect on banks' performance. However, Haddad [34] emphasised that while gender diversity and the proportion of female board members have a positive and significant effect on the performance of non-financial companies, their impact on banks is insignificant. Other research indicates that male CEOs are more likely to enhance bank profitability [14, 35], while female CEOs have been associated with a negative influence on ROE [15].

The varying effects of female CEOs on financial performance across studies show that their impact is conditional. In the context of banking in emerging economies, female CEOs are influenced by: (i) capital constraints and regulatory pressures (current CAR level, Basel progress); (ii) market structure (market power/Lerner; competition); and (iii) governance structure (board independence, state ownership, separation of chairperson and CEO, gender representation on the board). Therefore, this paper contributes by proposing a moderating mechanism—the mediating role of CAR—to resolve inconsistencies in previous findings.

Although debates about gender impact continue, I hypothesise that the gender of senior management can have a positive effect on banks' financial performance. Hypothesis H_2 is proposed as follows:

H_2: The gender of the COB and CEO positively impacts the bank's financial performance.

2-5- The Effect of COB/CEO Qualifications on Bank Financial Performance

Higher education, especially in fields such as finance, business administration, or economics, can help leaders gain deeper insights into financial and management issues. Leaders with higher education often make more informed strategic decisions and manage banks effectively. Zaidi et al. [12] confirmed that banks led by CEOs with higher education levels perform better than comparable banks. Quoc Trung [36] also recognised that the high educational level of the board of directors has a positive impact on bank performance. I hypothesise that the educational levels of the COB and CEO will positively influence the bank's financial performance as follows:

H_3: The educational level of COB and CEO positively impacts the bank's financial performance.

2-6- The Effect of COB/CEO Expertise on Bank Financial Performance

A commercial bank is a financial institution. Consequently, financial and banking expertise is nearly a prerequisite for assisting leaders in managing daily operations, enhancing their analytical skills to make sound financial decisions, and crafting sustainable development strategies and tactics. Leaders with financial and banking expertise can effectively oversee bank finances, optimise financial indicators, and improve operational efficiency. Gupta and Mahakud [14] affirmed that CEO expertise in the financial sector contributes to enhanced bank performance. Abdul Gafoor et al. [37] also argued that a greater number of financial experts on the board of directors is crucial for bank performance. Hypothesis H_4 is as follows:

H_4: The financial and banking expertise of the COB and CEO positively influences the bank's financial performance.

2-7- The Intermediary Role of the Capital Adequacy Ratio

The CAR ratio is a key indicator of a bank's financial strength and stability. A high CAR ratio shows that the bank can sustain stable financial operations and manage risks effectively, which influences its overall financial performance. Leaders with strong financial expertise or risk management experience can maintain an appropriate CAR ratio, helping the bank achieve positive financial indicators. According to the Upper Echelons Theory, the decisions of bank leaders reflect their individual traits, but this effect is only exerted through the capitalization mechanism (CAR). Besides directly impacting profitability, CAR also acts as a mediating factor, transmitting the influence of COB and CEO characteristics on the bank's financial performance. Increasing CAR improves the bank's risk management, enhances financial results, and boosts confidence among investors and customers. From the Resource-Based View (RBV) perspective, CAR is an internal resource that indicates the bank's resilience and capacity for risk management. From the Resource Dependence Theory (RDT) stance, CAR serves as a tool to lower reliance on external capital. Therefore, CAR links leadership qualities to financial performance, and this study hypothesises that top management attributes can indirectly influence bank financial results by adjusting and maintaining CAR.

The fifth hypothesis is proposed as follows:

H_5: COB and CEO attributes affect financial performance through the CAR ratio.

The control variables in the model, such as bank size (BSIZE), loan-to-deposit ratio (LDR), asset management quality (AM), cost-to-income ratio (CIR), market power (MP), inflation rate (INF), and GDP growth (GDP), all influence bank performance. Among these, the variables reflecting internal and industry factors (BSIZE, LDR, AM, CIR, MP) directly impact bank profitability, while macroeconomic factors (INF, GDP) shape the broader business environment. Controlling for these factors helps clarify the effect of senior leadership attributes on bank financial performance. The study expects that BSIZE, LDR, AM, MP, and GDP will positively influence bank profitability, whereas CIR and INF will have a negative effect. In summary, the hypotheses above aim to verify how top leadership attributes influence bank financial performance through mediating and controlling factors. This study will enhance understanding of the role of top leadership in shaping and developing financial strategies at Vietnamese commercial banks.

Figure 1 below depicts the conceptual and empirical framework of the study.

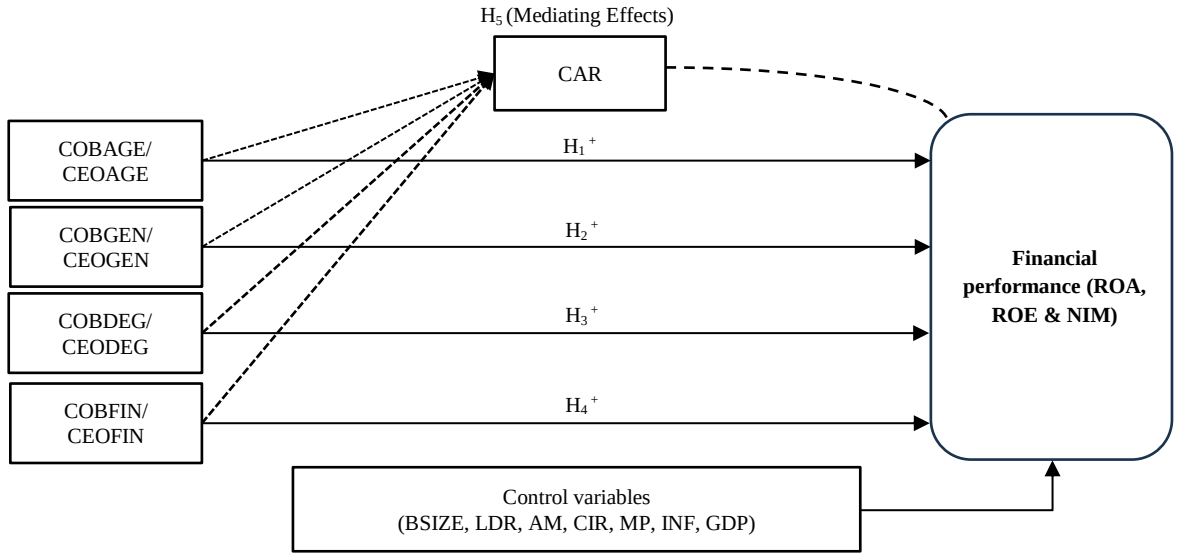

Figure 1. Conceptual and empirical framework

3- Research Data, Procedures and Models

3-1- Research Data and Procedures

As of December 31, 2023, 31 commercial banks were trading on Vietnamese stock exchanges, including the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX, UPCOM). After excluding three banks due to delisting or insufficient data during the research period, the remaining 28 banks qualified for inclusion in the sample. The financial and non-financial data were collected directly by the authors from the financial statements and annual reports of the banks published on the website of the State Securities Commission [38], as well as on the websites of the stock exchanges [39, 40] and the individual websites of each bank in the sample. For economic factors such as GDP growth and inflation in Vietnam from 2013 to 2023, data were sourced from the World Bank [41] and the General Statistics Office under the Ministry of Planning and Investment of Vietnam [42].

To ensure systematicity and transparency, as well as the reproducibility of the analysis, this study was carried out through a six-step process, as illustrated in Figure 2. First, the study identified the problem and research objectives, from which appropriate questions and hypotheses were developed. Next, the research model was built based on the theoretical foundation and previous works. The following stage focused on data collection and processing to compile a reliable panel data set. Then, quantitative analysis methods were applied, including OLS, FEM, REM, GLS, and GMM regressions, to evaluate the impact of factors on bank financial performance. Based on the analysis results, the study discussed, compared with previous evidence, and explained the differences. Finally, the main conclusions were drawn, and practical policy implications along with future research directions were proposed.

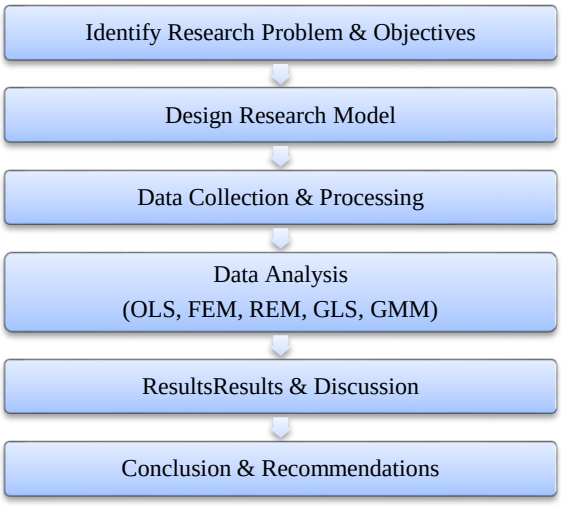

Figure 2. Research Methodology Framework

To ensure the reliability of the results, this study employs various regression techniques. OLS provides the basic estimate, but it may lack objectivity due to the specific characteristics of each bank. FEM and REM are used to control for unobserved factors that are fixed or random for each bank. FGLS helps to correct for heteroscedasticity and autocorrelation, which are common in financial panel data. Finally, SGMM is applied to address potential endogeneity and the dynamics of bank efficiency by using lagged variables as instruments. Combining these methods allows for comparison and verification of the robustness of the results, rather than relying on a single model.

3-2- Research Models

Drawing on the research overview and hypotheses, this study analyses panel data collected over time to examine the factors reflecting the attributes of COB and CEO, as well as other internal and external factors influencing the profitability of Vietnamese commercial banks. This paper employs three dependent variables (ROA, ROE, and NIM) to represent profitability, along with eight independent variables that capture leadership attributes (age, gender, qualifications, and expertise), one mediating variable, and seven control variables representing internal factors, industry characteristics, and macroeconomic influences affecting the profitability of Vietnamese commercial banks. A total of 308 observations were gathered from 28 commercial banks listed on the Vietnamese stock market from 2013 to 2023, and the regression models are proposed through the Equation 1:

$$FP_{it} = \beta_0 + \beta_j INDV_{it} + \beta_j MEDV_{it} + \beta j CONV_{it} + \varepsilon_{it} \quad (1)$$

where, FP_{it}: dependent variables reflecting profitability (ROA, ROE, NIM) of bank i at time t.

- INDV*it*: represents the firm's independent variables.
- MEDVit: represents the mediating variable, showing the role of transmitting the impact of COB and CEO characteristics on financial performance.
- $CONV_{it}$: represents the firm's control variables.
- β_0: is a constant term.
- β_j (j = 1, 16): are correlation coefficients.
- ε: is an error.

To address the issues of endogeneity and the dynamic relationships in the panel data, the study employs the System Generalised Method of Moments (SGMM) model. Since the profitability of commercial banks in the current year may be affected by previous years, a lagged variable for profitability is included in the model. Equation 2 is presented as follows:

$$FP_{it} = \beta_0 + \beta_j FP_{i,t-1} + \beta_j FP_{i,t-2} + \beta_j IV_{it} + \beta_j ITEV_{it} + \beta jCV_{it} + \varepsilon it \quad (2)$$

Table 1 offers a clear description of the dependent, independent, and control variables employed in this study.

Table 1. Variable definitions

Variable (Code)	Definition	Explanation	Expected sign	Related research
Dependent variables				
Return on Assets (ROA)	Net Income/ Total Assets	Measures the return on a bank's assets		Abdul Gafoor et al. [37], Nguyen et al. [43]
Return on Equity (ROE)	Net Income/ Total Equity	Measures the return on a bank's equity		Abiad et al. [13], Gupta & Mahakud [14]
Net interest margin (NIM)	Net Interest Income/ Average Earning Assets	It reflects the difference between a bank's interest income and interest expense to total earning assets		Gupta & Mahakud [21], Martins et al. [10]
Independent variables				
COB Age (COBAGE)	Age of the COB	Actual age of COB in the current year	+	Dinh et al. [33], Al-Absy [44]
COB Gender (COBGEN)	Gender of the COB	The dummy variable is set to 1 if COB is female; otherwise, it is 0	+	Abiad et al. [13], Dinh et al. [33]
COB Qualification (COBDEG)	Qualification of the COB	The dummy variable is set to 1 if COB has a postgraduate degree; otherwise, it is 0	+	Andoh et al. [45], Haddad [34]
COB Expertise (COBFIN)	Expertise of the COB	The dummy variable is set to 1 if COB has a finance/bank background; otherwise, it is 0	+	Haddad [34], Zaidi et al. [12]
CEO Age (CEOAGE)	Age of the CEO	Actual age of CEO in the current year	+	Gupta & Mahakud [14], Pham [15]
CEO Gender (CEOGEN)	Gender of the CEO	The dummy variable is set to 1 if the CEO is female; otherwise, it is 0	+	Abiad et al. [13], Gupta & Mahakud [14]
CEO Qualification (CEODEG)	Qualification of the CEO	The dummy variable is set to 1 if the CEO has a postgraduate degree; otherwise, it is 0	+	Johan & Sari [28], Quoc Trung [36]
CEO Expertise (CEOFIN)	Expertise of the CEO	The dummy variable is set to 1 if the CEO has a finance/bank background; otherwise, it is 0	+	Gupta & Mahakud [14], Zaidi et al. [12]
Mediating variable				
Capital Adequacy Ratio (CAR)	Total Equity/Total Assets	CAR measures a bank's financial strength	+	Pham et al. [46]
Control variables				
Bank Size (BSIZE)	Natural logarithm of Total Assets	Measures the size of a bank's assets	+	Gupta & Mahakud [14], Nguyen et al. [47]
Loan to Deposit Ratio (LDR)	Total Loans/Total Deposits	Indicates liquidity risk and capital mobilisation efficiency	+	Abiad et al. [13], Amare [48]
Asset Management Quality (AM)	Operating Income//Total Assets	Indicates the capacity to produce operating income, demonstrating the quality of asset management	+	Al-Homaidi et al. [49], Batten & Vo [11]
Cost to Income Ratio (CIR)	Operating Expenses/ Operating Income	Measures the bank's efficiency in managing and using its costs	-	Amare [48]
Market Power (MP)	Each bank's assets/Assets of all banks	Measures the bank's asset concentration	+/-	Adelopo et al. [27], Quoc Trung [36]
Inflation Rate (INF)	Annual percentage change in the consumer price index (CPI)	Reflects the annual inflation rate.	-	Quoc Trung [36], Nguyen & Nguyen [50]
GDP Growth Rate (GDP)	Real annual growth in GDP	Reflects the annual GDP growth rate	+	Abiad et al. [13], Trinh et al. [51]

4- Results and Discussion

4-1- Descriptive Statistics

The descriptive statistics (Table 2) summarises the key indicators, including the number of observations, mean, standard deviation, and minimum and maximum values, for the variables in the research model. These variables include financial indicators, characteristics of the COB and CEO, mediating variables, control variables, and macroeconomic factors.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	308	0.007	0.006	-0.004	0.032
ROE	308	0.081	0.064	-0.046	0.264
NIM	308	0.027	0.013	-0.006	0.088
COBAGE	308	50.734	8.622	29	74
COBGEN	308	0.114	0.318	0	1
COBDEG	308	0.614	0.488	0	1
COBFIN	308	0.971	0.169	0	1
CEOAGE	308	47.705	7.144	32	71
CEOGEN	308	0.133	0.34	0	1
CEODEG	308	0.828	0.378	0	1
CEOFIN	308	0.994	0.08	0	1
CAR	308	0.09	0.034	0.041	0.238
BSIZE	308	18.603	1.096	16.502	21.29
LDR	308	0.686	0.237	0.259	3.878
AM	308	0.031	0.014	0.004	0.096
CIR	308	0.569	0.157	0.242	1.085
MP	308	0.033	0.041	0.002	0.164
INF	308	0.032	0.014	0.006	0.066
GDP	308	0.06	0.018	0.026	0.081

Table 2 illustrates that all three variables reflecting bank profitability show low values and significant fluctuations, with many banks operating at a loss. The respective mean values of ROA, ROE, and NIM are 0.007, 0.081, and 0.027; the standard deviations are 0.006, 0.064, and 0.013, respectively. The minimum and maximum values range from -0.004 to 0.032 for ROA, from -0.046 to 0.264 for ROE, and from -0.006 to 0.088 for NIM.

Regarding the independent variables, the ages of COBs and CEOs in the sample vary. COBAGE has a mean age of 50.734 and a standard deviation of 8.622, ranging from 29 to 74 years. Similarly, CEOAGE has a mean age of 47.705 and a standard deviation of 7.144, spanning from 32 to 71. In terms of expertise, most COBs and CEOs have experience in the economic or financial sectors. The mean values for COBFIN and CEOFIN are close to 1, recorded at 0.971 and 0.994, respectively. Concerning gender, most leadership positions are held by men, resulting in a very low proportion of women in these roles. The mean values for COBGEN and CEOGEN are also low, at 0.114 and 0.133. With respect to qualifications, most company leaders hold postgraduate degrees, with mean values for COBDEG and CEODEG being relatively high at 0.614 and 0.828.

Some control variables show notable fluctuations. BSIZE has a mean of 18.603 and a standard deviation of 1.096, ranging from 16.502 to 21.29, indicating diversity in bank sizes. LDR has a mean of 0.686, with a standard deviation of 0.237, ranging from 0.259 to 3.878, reflecting variation in banks' lending policies. CIR has a mean of 0.569 and a standard deviation of 0.157, ranging from 0.242 to 1.085, indicating that banks' cost-to-income ratios vary widely. MP has a mean of 0.033 with a standard deviation of 0.041, ranging from 0.002 to 0.164, reflecting differing levels of market dominance among banks. The remaining variables, such as AM, INF, and GDP, exhibited little fluctuation, suggesting that most banks showed a relatively low level of asset management along with slight variations in the inflation rate and GDP growth during the research period.

4-2- Correlation Analysis

Table 3 presents the results of the correlation analysis for the variables in the research model. Accordingly, AM has a strong positive correlation with ROA (0.834*), ROE (0.687*), and NIM (0.892*). This indicates that greater asset management efficiency is associated with improved financial performance. CIR demonstrates a significant negative correlation with ROA (-0.701*), ROE (-0.722*), and NIM (-0.523*), suggesting that as operating costs increase, financial performance declines. Factors such as BSIZE, CEOAGE, and LDR positively correlate with financial performance.

Regarding the correlation among the explanatory variables, BSIZE and MP are strongly correlated (0.813*), indicating that large banks tend to possess greater market power. CAR and BSIZE show a negative correlation (-0.522*), suggesting that large banks generally maintain lower CARs. Certain variables, such as COBAGE and CEOAGE,

correlate positively (0.192*). Additionally, there are notable correlations among the personal characteristics of CEOs (age, gender, education level), although these correlations are not particularly strong. Concerning macroeconomic variables, GDP is negatively correlated with ROA (-0.213*) and ROE (-0.195*), indicating that bank financial performance tends to be lower in high GDP environments, possibly due to increased market competition. The INF variable shows almost no correlation with the banks' financial performance indicators, suggesting that this factor has minimal direct relevance or influence.

Table 3. Pairwise correlations

Variables	ROA	ROE	NIM	COBAGE	CEOAGE	CAR	BSIZE
(1) ROA	1						
(2) ROE	0.878***	1					
(3) NIM	0.687***	0.545***	1				
(4) COBAGE	0.176***	0.193***	0.056	1			
(5) CEOAGE	0.289***	0.271***	0.354***	0.265***	1		
(6) CAR	0.209***	-0.183***	0.371***	-0.057	0.064	1	
(7) BSIZE	0.429***	0.635***	0.133**	0.229***	0.119**	-0.522***	1
(8) LDR	0.289***	0.332***	0.315***	0.130**	0.182***	0.015	0.259***
(9) AM	0.834***	0.687***	0.892***	0.143**	0.324***	0.337***	0.285***
(10) CIR	-0.701***	-0.722***	-0.523***	-0.236***	-0.240***	-0.016	-0.484***
(11) MP	0.227***	0.410***	0.077	0.101*	0.074	-0.320***	0.813***
(12) INF	-0.04	-0.085	-0.01	-0.048	-0.101*	0.136**	-0.127**
(13) GDP	-0.213***	-0.195***	-0.051	-0.061	-0.085	-0.002	-0.150***

Variables	LDR	AM	CIR	MP	INF	GDP
(8) LDR	1					
(9) AM	0.329***	1				
(10) CIR	-0.357***	-0.651***	1			
(11) MP	0.210***	0.154***	-0.392***	1		
(12) INF	-0.099*	-0.043	0.124**	0.005	1	
(13) GDP	-0.149***	-0.110*	0.225***	0.001	0.026	1

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

4-3- Multiple Regression Analysis and Model Defects Treatment

The results of the multicollinearity test among the independent variables indicate that the average value of the Variance Inflation Factor (VIF) is 2.1, with the BSIZE variable showing the highest VIF of 7.2 and the INF variable exhibiting the lowest VIF of 1.09. This allows the study to conclude that there is no multicollinearity among the independent variables.

The study employs Pooled OLS (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM) to analyze each dependent variable (ROA, ROE, and NIM), respectively. The Hausman test is conducted to determine the suitable model. The results indicate that in model 1 (ROA) and model 2 (ROE), REM is preferred due to their p-values of 0.1452 and 0.2305, respectively, while FEM is chosen for model 3 (NIM) based on a p-value of 0.0001.

The study then conducted the Breusch and Pagan Lagrangian multiplier test for random effects on models 1 and 2 (ROA and ROE) and the Modified Wald test for groupwise heteroskedasticity on model 3 (NIM). The results confirmed that all three models exhibited heteroskedasticity, as Prob > chi2 = 0.000 < α = 0.05. The Wooldridge test for autocorrelation in panel data indicated that all three models showed autocorrelation. The Prob > F value for all three models was less than 5% (Models 1 and 2 had Prob > F = 0.0000, and Model 3 had Prob > F = 0.0001). Next, the study employed the Durbin and Wu-Hausman tests. The results indicated that the MP variable is endogenous in the ROA and ROE models. In the ROA model, the Durbin (score) chi2(1) = 8.6577 (p = 0.0033) and Wu-Hausman F(1,262) = 8.35961 (p = 0.0042). In the ROE model, the Durbin (score) chi2(1) = 4.39505 (p = 0.0360) and Wu-Hausman F(1,262) = 4.17809 (p = 0.0419). The NIM model does not include endogenous variables. Therefore, the study used SGMM (System Generalised Method of Moments) to address endogeneity while correcting for heteroskedasticity and autocorrelation in the ROA and ROE models. Since there is no endogeneity for the NIM model, the study employs FGLS (Feasible Generalised Least Squares) to address heteroskedasticity and autocorrelation. The regression results from OLS, FEM, REM, SGMM, and FGLS are presented in Table 4 (ROA model), Table 5 (ROE model), and Table 6 (NIM model).

Table 4. Results of the regression model of the dependent variable ROA

Variables	OLS	FEM	REM	SGMM
L.ROA				0.181***
				0
L2.ROA				-0.063
				-0.237
COBAGE	-0.000*	0	0	-0.000***
	-0.055	-0.758	-0.298	-0.004
COBGEN	0.001*	0.001	0.001*	0.002***
	-0.063	-0.461	-0.094	-0.002
COBDEG	0	0	0	0
	-0.38	-0.881	-0.643	-0.873
COBFIN	-0.001	0.001	0	-0.008
	-0.648	-0.702	-0.802	-0.527
CEOAGE	0	0.000*	0.000*	0
	-0.518	-0.066	-0.096	-0.486
CEOGEN	-0.001	0	0	-0.001
	-0.223	-0.605	-0.607	-0.263
CEODEG	-0.001**	0	0	-0.002**
	-0.041	-0.842	-0.502	-0.01
CEOFIN	0	-0.002	-0.001	0.01
	-0.915	-0.417	-0.497	-0.546
CAR	0.044***	0.065***	0.059***	0.069***
	0	0	0	0
BSIZE	0.003***	0.005***	0.004***	0.003***
	0	0	0	0
LDR	-0.001	-0.001**	-0.001*	-0.002***
	-0.124	-0.048	-0.077	0
AM	0.215***	0.246***	0.229***	0.229***
	0	0	0	0
CIR	-0.010***	-0.006***	-0.007***	-0.008***
	0	-0.004	0	-0.001
MP	-0.049***	0.009	-0.059***	-0.044***
	0	-0.812	0	0
INF	0.022*	0.026**	0.024**	0.051***
	-0.061	-0.013	-0.019	0
GDP	-0.006	0.002	-0.001	-0.003
	-0.559	-0.816	-0.937	-0.828
Constant	-0.054***	-0.092***	-0.076***	-0.061***
	0	0	0	0
Number of obs	308	308	308	252
Number of groups				28
Number of instruments				28
Prob > chi2 =				0.000
Arellano-Bond test for AR(1)				Pr > z = 0.001
Arellano-Bond test for AR(2)				Pr > z = 0.397
Hansen test of overid. restrictions				Prob > chi2 = 0.152

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5. Results of the regression model of the dependent variable ROE

Variables	OLS	FEM	REM	SGMM
L.ROE				0.394***
				-0.005
L2.ROE				-0.237
				-0.227
COBAGE	0	0	0	-0.002**
	-0.149	-0.493	-0.245	-0.022
COBGEN	0.007	0.014	0.01	0.041
	-0.31	-0.179	-0.195	-0.315
COBDEG	0.003	0.002	0.002	0.053
	-0.405	-0.828	-0.682	-0.216
COBFIN	-0.001	-0.015	-0.009	0.134
	-0.916	-0.386	-0.52	-0.367
CEOAGE	0	0	0	0.001
	-0.374	-0.199	-0.287	-0.73
CEOGEN	-0.006	0.003	-0.001	0.078***
	-0.352	-0.696	-0.903	0
CEODEG	-0.011*	-0.006	-0.007	0.041**
	-0.062	-0.406	-0.247	-0.031
CEOFIN	0.033	0.012	0.018	-0.127
	-0.219	-0.632	-0.468	-0.406
CAR	-0.382***	-0.184	-0.268***	-0.533*
	0	-0.117	-0.008	-0.055
BSIZE	0.022***	0.041***	0.030***	0.009
	0	0	0	-0.466
LDR	0.003	-0.008	-0.002	-0.048
	-0.71	-0.374	-0.8	-0.519
AM	2.214***	2.386***	2.263***	1.907***
	0	0	0	-0.004
CIR	-0.120***	-0.080***	-0.104***	-0.254**
	0	-0.002	0	-0.046
MP	-0.223**	-0.163	-0.328**	-0.217
	-0.015	-0.727	-0.01	-0.233
INF	0.241*	0.300**	0.255**	0.311
	-0.076	-0.022	-0.045	-0.693
GDP	-0.053	0.049	-0.012	-0.202
	-0.642	-0.66	-0.911	-0.377
Constant	-0.313***	-0.708***	-0.469***	0.047
	0	0	0	-0.892
Number of obs	308	308	308	252
Number of groups				28
Number of instruments				28
Prob > chi2 =				0.000
Arellano-Bond test for AR(1)				Pr > z = 0.047
Arellano-Bond test for AR(2)				Pr > z = 0.061
Hansen test of overid. restrictions				Prob > chi2 = 0.760

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

Table 6. Results of the regression model of the dependent variable NIM

Variables	OLS	FEM	REM	FGLS
COBAGE	-0.000**	0	-0.000**	0
	-0.013	-0.126	-0.027	-0.105
COBGEN	-0.004*	-0.001	-0.003	0.002**
	-0.064	-0.651	-0.252	-0.049
COBDEG	0.001	0.002	0.002	0
	-0.626	-0.165	-0.181	-0.911
COBFIN	0	-0.003**	-0.001	-0.004***
	-0.533	-0.014	-0.169	0
CEOAGE	0.000***	0	0.000*	0
	-0.008	-0.794	-0.097	-0.12
CEOGEN	0.002	-0.001	0.001	0
	-0.581	-0.806	-0.876	-0.648
CEODEG	0.001	0.001	0.001	-0.001
	-0.592	-0.568	-0.537	-0.382
CEOFIN	-0.001	-0.001	-0.001	0.002
	-0.107	-0.233	-0.214	-0.241
CAR	-0.014	0.005	-0.004	0.01
	-0.354	-0.797	-0.782	-0.344
BSIZE	-0.003***	-0.005***	-0.003***	-0.002***
	0	0	0	-0.001
LDR	0.002*	0.001	0.001	0
	-0.076	-0.415	-0.329	-0.884
AM	0.881***	0.801***	0.865***	0.852***
	0	0	0	0
CIR	0.003	-0.005	0.001	0.001
	-0.364	-0.21	-0.768	-0.704
MP	0.041***	0.077	0.055***	0.033***
	-0.006	-0.288	-0.004	0
INF	0.007	-0.023	-0.005	-0.009
	-0.76	-0.256	-0.801	-0.424
GDP	0.018	0.001	0.01	0.011
	-0.346	-0.965	-0.553	-0.2
Constant	0.048***	0.095***	0.061***	0.035***
	-0.001	0	0	-0.001
Number of obs	308	308	308	308

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

The research results presented in Tables 4 to 6 indicate that both the COB and the CEO significantly influence the financial performance of Vietnamese banks. However, the degree of influence varies and depends on factors such as age, expertise, gender, and educational background. The COB has a considerable impact on the bank's long-term strategies and vision; therefore, the COB directly affects decisions related to governance, development, and organizational risk. The CEO plays a crucial role in implementing the bank's strategies and overseeing daily operations, thus contributing to the achievement of financial goals.

The results indicate that COB age has a negative and significant impact on ROA (at 1% significance level), ROE (at 5% significance level), and NIM (not statistically significant). This implies that banks with older chairmen tend to be more cautious and conservative in decision-making, less innovative, or less able to adapt to rapid market changes, thereby restricting their capacity to generate returns on assets and equity. However, no significant effect on NIM is observed, suggesting that interest rate spread management primarily depends on the bank's overall macroeconomic policies and strategies rather than the demographic characteristics of COBs. The findings also reveal that CEO age has a positive but statistically insignificant impact on ROA, ROE, and NIM. Hypothesis H_1 is therefore not supported. Although CEOs

may be more experienced and employ suitable financial strategies, these factors do not always translate into improved economic efficiency. The results contradict those of Zaidi et al. [12], who found no relationship between CEO age and financial performance. These results also contrast with Johan & Sari [28], who discovered that CEO age positively and significantly affects a bank's financial performance. Nguyen et al. [52] demonstrated that CEO age contributes to shareholder wealth. According to these studies, the older the CEO, the more experience and exposure he has in managing the organisation, which leads to improved bank performance.

The results indicate that the gender of both COB and CEO positively influences banks' financial performance. COB gender significantly affects ROA at the 1% level and NIM at the 5% level, while CEO gender significantly impacts ROE at the 1% level. Hypothesis H_2 is supported. This may reflect cautious leadership, effective risk management, and gender diversity on the board. Unlike previous studies that contradict this, the finding provides further evidence that the banking environment in emerging economies can enhance the positive effects of gender diversity. Female leaders bring unique approaches and stronger risk management skills in today's banking sector. Gender diversity in leadership has a direct impact and an indirect effect through factors such as management style, leadership approach, and communication skills, all contributing to improved financial performance. This aligns with the findings of Abiad et al. [13], Bhatia and Gulati [32], 2021, and Dinh et al. [33], who identified a positive link between diversity and bank performance. Conversely, this result conflicts with studies by Gupta & Mahakud [14], Pham [15] and Sahoo et al. [35], which suggest that male CEOs have a greater impact on performance, while female CEOs decrease it.

Regarding education, the results show that the education level of the Chairman of the Board (COB) is not significantly linked to financial performance. In contrast, the education level of the Chief Executive Officer (CEO) has a negative effect on ROA, while it has a positive effect on ROE at the 5% significance level. This outcome highlights the complex relationship between education and economic performance. It suggests that higher education does not necessarily lead to short-term asset management efficiency but may aid in optimising long-term capital gains. The education of bank leaders can provide managerial and strategic advantages; however, their influence on financial performance is not always strong or clear. Although higher education may enhance a bank's reputation and decision-making capability, other factors - such as practical experience, bank strategy, and market conditions - may significantly impact financial results. This also indicates that while advanced education is important for strategic decision-making, leaders who focus solely on theory and lack practical experience and skills to address real-world problems may see their performance decline. Moreover, although CEOs may demonstrate strong decision-making skills, an overemphasis on maximising return on equity (ROE) could lead them to take riskier decisions regarding asset utilisation, potentially resulting in lower return on assets (ROA). CEO education does not significantly influence net interest margin (NIM), implying that education is not a critical factor in managing a bank's NIM. Instead, NIM is affected by various factors, including financial strategy, macroeconomic conditions, and management of the cost of capital. This finding somewhat conflicts with the studies of Quoc Trung [36] and Zaidi et al. [12], who identified a positive relationship between educational attainment and financial performance. It also conflicts with Andoh et al. [45] and Haddad [34], who found a negative link between postgraduate educational attainment and bank financial performance. Additionally, Johan & Sari [28] discovered no relationship between educational attainment and performance.

Regarding financial and banking expertise, the results show that, aside from the statistically significant negative impact of COBFIN on NIM (at the 1% level), variables related to COB or CEO expertise (COBFIN, CEOFIN) generally do not significantly affect financial performance. This finding suggests that financial expertise, rather than providing a clear advantage, may lead to managerial bias towards safety and risk control, thereby reducing interest rate profit margins. Consequently, Hypothesis H4 is not supported. The results also indicate that although COB expertise may benefit long-term strategic planning or risk management, it does not inherently guarantee improvements in ROA or ROE. Conversely, financial expertise can sometimes be limited if leaders are overly conservative or lack flexibility in adapting to market fluctuations. In banking – where the competitive and regulatory environment is evolving rapidly – effective leadership requires technical expertise and the ability to innovate, be creative, and make timely decisions. This finding also highlights an essential managerial implication: in the selection and appointment process, banks should avoid overemphasising technical expertise, as a leader who is overly confident in their technical skills may become rigid, unintentionally diminishing financial performance. This finding is partially similar to the research results of Yang et al. [53], which indicated that financial expert CEOs significantly negatively impact corporate innovation and non-financial performance. This finding contrasts with the research results of Gupta & Mahakud [14] and Zaidi et al. [12], who identified a positive effect of financial and banking expertise on financial performance. Furthermore, Hakimi et al. [54] do not support this finding, which showed no impact of expertise on the financial performance of commercial banks. This finding also differs from Liang et al. [55], who demonstrated that CEOs with financial backgrounds will enhance the relationship between foreign experience and safe financial investment to promote long-term shareholder value.

The lagged variables L.ROA and I.ROE positively influence ROA and ROE (0.181*** and 0.394***), with a significance level of 1%. This indicates that the bank's asset and equity performance are closely linked over time, suggesting that past decisions and strategies may continue to influence current financial results. For the 2-period lagged variables (L2.ROA and L2.ROE), there are negative effects on ROA (-0.063) and ROE (-0.237), but these are not statistically significant. This implies that influences from the more distant past do not notably affect current asset and equity performance, indicating that the bank's financial performance depends more on recent factors than on distant history.

The results from testing and identifying the intermediary variable CAR are shown in Table 7, which involves five steps. Step 1 examines the direct impact of the independent variable on the dependent variable; Step 2 investigates how the independent variable affects the intermediary variable CAR; Step 3 assesses the effect of the intermediary variable CAR on the dependent variable; Step 4 analyses the impact of the independent variables on the dependent variable when the intermediary variable CAR is included; and Step 5 employs the SEM model to establish and test the relationships among the variables. Additionally, bootstrap analysis is conducted to verify the accuracy and stability of the results regarding indirect relationships via the intermediary variable. The regression results in Table 7 show that CAR significantly affects ROA, with a coefficient of 0.044*** and a t-statistic of 5.89, indicating that CAR has a meaningful and statistically significant influence on ROA, confirming its mediating role in the relationship between management factors and bank financial performance. For ROE, the CAR coefficient is -0.382***, with a t-statistic of -4.37, indicating that CAR has a negative and statistically significant effect on ROE. However, for NIM, the CAR coefficient is -0.137, with a t-statistic of -0.95, which is not statistically significant, implying that CAR does not considerably impact NIM. Therefore, it can be concluded that CAR mediates the relationship between COB/CEO characteristics and bank financial performance (ROA/ROE). Hypothesis H_5 is accepted. Furthermore, CAR is affected by COB/CEO characteristics and significantly influences bank financial performance, particularly ROA and ROE. The SEM model results in Table 7 confirm that CAR acts as a mediating variable between COB/CEO traits and financial performance (ROA/ROE). The SEM coefficients for CAR in relation to ROA and ROE are 0.0439 and -0.3819, respectively, with high t-statistics (5.89 and -4.37), highlighting that CAR substantially mediates the relationship between COB/CEO traits and financial outcomes. The SEM model for NIM indicates that CAR has no significant effect, showing that CAR is not a mediating variable in the connection between management factors and NIM.

To assess the stability and reliability of the results, the study employed the bootstrap method with 1,000 replications. The bootstrap findings confirmed that the estimated coefficients of CAR on ROA and ROE are highly consistent, with very small p-values (p-value < 0.01). This indicates that CAR is an important mediating variable that significantly influences ROA and ROE. CAR consistently mediates the relationship between management factors and bank financial performance (expressed through ROA and ROE).

Table 7. Results of determining the intermediate variable CAR

Variables	Step 1	Step 2	Step 3	Step 4	SEM
ROA					
COBAGE	0	0.000***		-0.000**	0**
COBGEN	0.001	-0.012***		0.001**	0.001*
COBDEG	0	0.001		0	0
COBFIN	0	0.022***		-0.001	-0.001
CEOAGE	0	0		0	0
CEOGEN	-0.001	0.002		-0.001	-0.001
CEODEG	-0.001**	0.006*		-0.001**	-0.001**
CEOFIN	0	0.012**		0	0
CAR			.037***	0.044***	0.044***
ROE					
COBAGE	-0.001**	0.000***		0	0
COBGEN	0.011*	-0.012***		0.007	0.007
COBDEG	0.003	0.001		0.003	0.003
COBFIN	-0.01	0.022***		-0.001	-0.001
CEOAGE	0	0		0	0
CEOGEN	-0.006	0.002		-0.006	-0.006
CEODEG	-0.013**	0.006*		-0.011**	-0.011*
CEOFIN	0.028*	0.012**		0.033*	0.033
CAR			-0.415***	-0.382***	-0.382***
NIM					
COBAGE	-0.000**	0.000***		-0.000**	0**
COBGEN	0.001	-0.012***		0.001	0.001
COBDEG	0	0.001		0	0
COBFIN	-0.004***	0.022***		-0.004***	-0.004*
CEOAGE	0.000*	0		0.000*	0***
CEOGEN	0	0.002		0.001	0.001
CEODEG	-0.002	0.006*		-0.001	-0.001*
CEOFIN	0.002	0.012**		0.002	0.002
CAR			-0.028**	-0.014	-0.014

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results of the SGMM (with ROA/ROE) and FGLS (with NIM) models indicate that CAR has a positive effect on ROA but a negative effect on ROE. The positive influence of CAR on ROA further supports the theory that high capital ratios can reduce risk and improve asset utilisation. However, the negative impact of CAR on ROE suggests a trade-off between maintaining high capital ratios to reduce risk and maximising return on equity. This finding contrasts with the conclusions drawn by Goddard et al. [19], which indicated that CAR promotes ROE.

Tables 4 to 6 also demonstrate the effect of control variables on profitability. The AM variable has a positive and highly significant relationship (at the 1% level) with financial performance across all three measures. This finding indicates that better asset management correlates with higher profitability for commercial banks. It aligns with most existing research findings [56, 57]. It shows that effective asset management can help banks optimise their assets to generate profits.

The regression results suggest that the variables MP and LDR negatively affect ROA (at the 1% significance level) and positively influence NIM (at the 1% significance level, and insignificant, respectively). At the same time, their impact on ROE is negative and insignificant. This situation may arise because banks tend to lend more than they deposit, which can lead to growth in interest income. However, if banks expand too quickly without properly managing loan quality, an increase in LDR might raise risks (especially the bad debt ratio), adversely affecting ROA and ROE

Regarding MP, a rise in MP indicates the bank is gaining more market share, but this does not necessarily translate into improved financial efficiency. Banks may be forced to lower prices or accept more competitive conditions, which could reduce profit margins (resulting in increased NIM but decreased ROA). This finding contradicts the conclusions of Derbali [58], who argued that LDR has a statistically significant negative effect on all three dependent variables. However, it partially aligns with Farooq et al. [59], who identified a negative impact of LDR on ROA, while its effects on ROE and NIM were statistically insignificant.

The BSIZE variable has a positive and significant effect on ROA, while it negatively influences NIM at the 1% significance level. For ROE, BSIZE exhibits a positive but statistically insignificant impact. This underscores that larger banks are more likely to benefit from economies of scale, reduce average management costs, and manage assets more efficiently, thereby boosting ROA. However, increased competition among large banks in mobilisation and lending results in narrower interest rate margins, which ultimately lowers NIM. Additionally, large banks are under greater regulatory pressure, prompting them to adopt cautious credit pricing strategies, further narrowing the gap between mobilisation and lending interest rates. While total profits increase for large banks, the ROE ratio does not show a significant rise due to the substantial equity base, making the positive effect present but statistically insignificant. This aligns with many previous studies by Liang et al. [55] and Trinh et al. [51], but contradicts the findings of Gupta & Mahakud [14].

CIR significantly and negatively impacts ROA and ROE at the 1% and 5% significance levels, respectively, but positively influences NIM at the 10% level. A high CIR indicates that banks spend more to generate the same level of income, which directly reduces net profit and leads to declines in ROA and ROE. In contrast, NIM - representing the difference between lending and deposit interest rates - is less directly affected by internal cost efficiency and is more influenced by product pricing strategies and asset structure. This is supported by studies from Gupta and Mahakud [21] and Salike & Ao [60], though Petria et al. [1] found opposite results.

Regarding inflation, the findings indicate that it positively and significantly influences ROA at the 1% level, while its effect on ROE is not statistically significant. It also has a negative, yet statistically insignificant, impact on NIM. When inflation rises moderately, banks tend to adjust lending interest rates faster than deposit rates, boosting interest income and enhancing ROA. In the short term, this is typically advantageous. However, if inflation increases rapidly or fluctuates significantly, the costs of mobilising capital may escalate, and intense competition can make it difficult to widen interest rate spreads. This can lead to a slight decline or fluctuation in NIM that is not statistically significant. This contrasts with Quoc Trung [36], who found inflation to be a significant negative factor affecting bank performance.

Lastly, the GDP growth rate negatively impacts ROA and ROE, with positive effects on NIM, though neither relationship is statistically significant. Strong economic growth often leads to heightened competition and low interest rate policies designed to stimulate the economy. Consequently, banks' profitability may diminish due to competitive pressures on capital costs and the offering of preferential loans. Moreover, fierce competition means interest rate spreads are unlikely to increase substantially, rendering the positive effects statistically insignificant. This differs from studies by Adelopo et al. [27] and Gupta & Mahakud [21], which identified a significant positive relationship between GDP and profitability, and from research by Al-Homaidi et al. [57] and Dao & Nguyen [61], which reported a negative relationship between GDP growth and financial performance.

The effect of various factors on financial efficiency in Vietnamese commercial banks is illustrated in Figures 3 and 4.

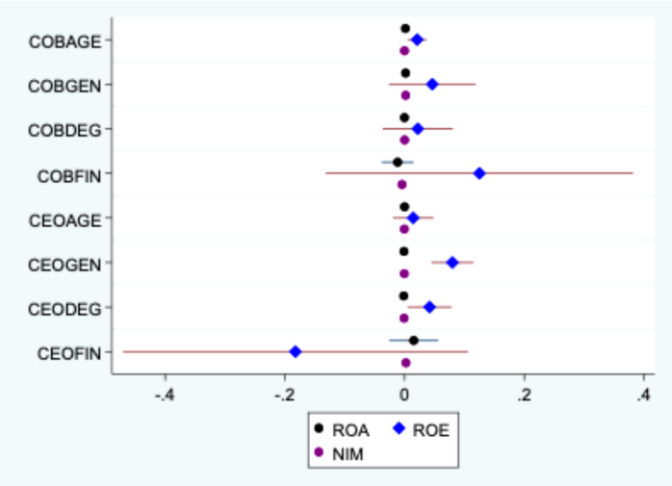

Figure 3. The Impact of Leadership Characteristics on Financial Performance

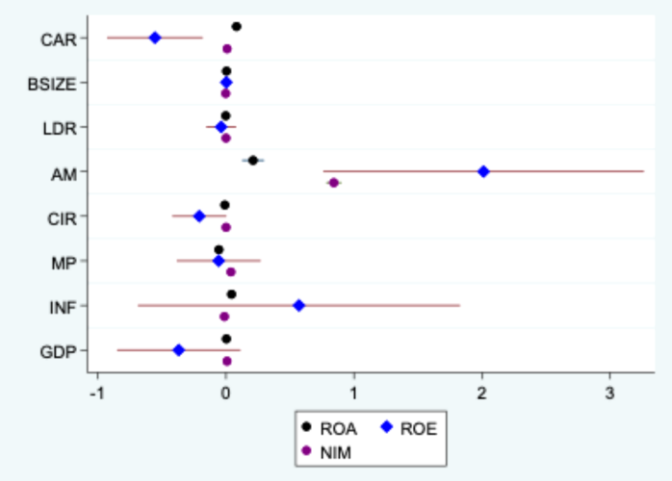

Figure 4. The Impact of Control Variables on Financial Performance

5- Conclusions

This study provides new insights into how bank leadership attributes influence financial performance. Its uniqueness lies in analysing the relationship between the personal characteristics (age, gender, education, and expertise) of both the Chairman of the Board of Directors (COB) and the Chief Executive Officer (CEO) and key financial indicators such as ROA, ROE, and NIM. The research was carried out within the context of commercial banks in Vietnam from 2013 to 2023. Using the CAR as an intermediary variable, the study clarifies the mechanism through which bank leadership traits affect financial performance, contributing to a broader theoretical understanding and offering valuable empirical evidence for policymakers and bank managers in developing suitable capital management strategies.

Research findings confirm that the gender of the COB (COBGEN) and CEO (CEOGEN) significantly and positively influence financial performance. This highlights the importance of gender diversity in leadership roles, an aspect not thoroughly examined in Vietnamese banks. Besides gender, the expertise and qualifications of leaders also significantly impact financial performance; notably, the expertise of the COB (COBFIN) negatively affects NIM, while the qualifications of the CEO (CEODEG) negatively influence ROA yet positively affect ROE. This emphasises the importance of selecting leaders with strong educational qualifications, expertise, practical experience, and essential skills to assess situations and make timely, appropriate decisions that improve financial performance and support the bank's sustainable development. Moreover, the age of leaders, especially the COB (COBAGE), shows a negative correlation with financial indicators such as ROA and ROE, suggesting that senior leadership may contribute to financial inefficiency.

These results support previous studies and offer new insights, especially regarding the roles of gender diversity and the significance of high educational attainment in bank leadership. Consequently, the study presents several policy implications for recruiting and appointing senior personnel. Firstly, promoting gender diversity within the leadership team is crucial, encouraging banks to create leadership opportunities for both men and women to benefit from this diversity. Additionally, rejuvenating the leadership team should focus on professional training and improving

educational qualifications. The study shows that young leaders can drive higher financial performance; therefore, banks must reassess their leadership selection strategies to foster innovation and sustainable development. Furthermore, banks should adopt effective capital and risk management strategies to balance maintaining liquidity with profit optimisation, while also improving efficiency through control factors. Management strategies in banks should carefully consider variables such as BSIZE, LDR, AM, CIR, and MP. This approach will help maximise the influence of external factors like inflation and GDP growth on banks' financial performance. The findings of this study highlight the factors impacting banks' financial performance and provide specific policy recommendations to enhance the operational efficiency of the Vietnamese banking industry amid globalisation and growing competition.

The study has certain limitations. The most notable limitation is the sample size, which focuses solely on joint-stock commercial banks in Vietnam and does not include other regions. Furthermore, this study has not fully considered external factors such as changes in banking policies, financial crises, or significant macroeconomic shifts. Additionally, variables such as age, gender, education, and expertise represent only a small part of bank leaders' characteristics. Factors like leadership style, crisis management skills, or innovation could substantially affect financial performance. Therefore, a more comprehensive study is necessary to cover the entire banking sector in emerging economies while accounting for external variables such as interest rates, exchange rates, tax rates, and policy changes. Simultaneously, this study suggests several future research directions, including expanding the sample to emerging countries globally and applying this research model to different industries, sectors, and governments to better understand how leadership attribute variables impact profitability.

6- Declarations

6-1- Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6-2- Funding

The author received no financial support for the research, authorship, and/or publication of this article.

6-3- Institutional Review Board Statement

Not applicable.

6-4- Informed Consent Statement

Not applicable.

6-5- Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the author.

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