Sustainable development goals and financial performance of commercial banks in Vietnam

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Abstract

Research purpose:
Our study aims to examine the sustainability and enduring effectiveness of the implementation of Sustainable Development Goals within the banking sector, in order to determine if it indeed enhances and contributes to greater financial performance in comparison to the conventional organizational practices that were previously employed.

Research motivation:
Sustainable development constitutes an imperative necessity and an inevitable trend within the developmental process of every nation globally, encompassing Vietnam. Consequently, both commercial banks and governmental bodies have been actively engaged in fostering high-profit activities while simultaneously striving to achieve the specific sustainable development goals and contribute to the advancement of the domestic market economy and facilitating integration into the international market.

Research design, approach, and method:
We collect both macroeconomics and bank-specific data for the period spanning from 2008-2022. We utilize 3 variables to represent the impact of sustainable development goals on banks' financial performance, specifically SDG3, SDG6, and SDG8. We employ the Generalized Method of Moments (GMM) technique to overcome the endogeneity problem.

Main findings:
Applying the GMM method, our findings show that the correlation between the attainment of sustainable development goals and the financial performance of commercial banks does exist, specifically: SDG3, SDG6, and SDG8. The results show that advancements in these sustainable development goals may enhance banks' financial performance.

Practical/managerial implications:
Banks should develop green financial products, such as preferential lending options for renewable energy projects and enhancements in sustainable infrastructure. Concurrently, the utilization of digital technologies to optimize lending operations and manage environmental hazards will significantly enhance financial performance.

Keywords*: commercial banks, financial performance, sustainable development*

1. INTRODUCTION

Financial institutions, particularly banks, are integral to the processes of economic development, stability, and the promotion of beneficial values within the community (Scholtens & Van't Klooster, 2019). In recent years, the Vietnamese financial market has witnessed the spectacular growth of the financial sector, with the most notable being the evolution of the commercial banking system. An unstable and inefficient financial system has the potential to obstruct economic growth. Consequently, the stability and progression of the banking sector are regarded as pivotal determinants of economic development.

Currently, the process of globalization is undergoing vigorous advancement, facilitating the interconnection of nations globally across various sectors. The robust expansion of the banking system network from developed nations, characterized by the adoption of sophisticated technologies and refined products, has engendered heightened competition in developing countries. Consequently, the entry of foreign banks is likely to influence the market shares and profitability of domestic banking institutions. In light of this, the Vietnamese banking system is progressively intensifying its efforts to enhance its operational framework in order to align with and keep pace with the dynamics of the global market economy. The attainment of the Sustainable Development Goals (SDGs) holds essential, as it seeks to curtail current consumption levels to ensure that future generations possess a resource foundation equivalent to that of their predecessors

(Gautam et al., 2019). Sustainable development has emerged as an urgent and essential criterion within the realm of global economic endeavors, while concurrently presenting a novel challenge in the framework of international economic integration. The SDGs signify the primary hurdles that the global community must deal with in order to maintain economic well-being, environment quality, social togetherness, and prosperity for future generations. The impetus for banks to incorporate sustainable development within their operational frameworks is influenced, in part, by the directives from regulatory bodies, social organizations, and the stipulations of funding entities, which are frequently linked to environmental and social factors (Bui, 2019). Regulatory bodies typically exert influence, either directly or indirectly, over the management of environmental and social repercussions associated with banking activities. Furthermore, the impetus for sustainable development often originates internally within banks, emerging from the necessity to define core objectives and establish brand values, harmonize the interests of diverse stakeholders, secure competitive advantages, cultivate consumer loyalty and market presence, as well as attract financial partnerships, thereby enhancing profitability in both the short and long term.

Furthermore, some studies have indicated that the sustainability of banks is contingent upon the income diversification through both interest and non-interest income sources (Köhler, 2015; Mergaerts et al., 2016; Nguyen et al., 2021). Certain banking institutions exhibit heightened vulnerability to risk when diversifying income (Köhler, 2015; Nguyen et al., 2021). The profitability of banks holds significant importance, as elevated profit levels enable these institutions to broaden their operations and enhance their role in financial intermediation. Moreover, the attainment of SDGs may be a potential external determinant of bank profitability. The realization of the SDGs is likely to facilitate banks' access to sustainable resources, thereby augmenting their profitability (Ozili, 2023). In addition to traditional interest-based income sources, banks have increasingly been transitioning towards and expanding into novel business avenues in recent years. Revenue-generating activities such as service provision, gold trading, and foreign exchange transactions are progressively gaining traction within the banking sector. These activities will enhance the financial performance of banks and contribute to the diversification of their income streams (Mergaerts et al., 2016; Trivedi, 2015). Consequently, both banking institutions and governmental bodies have been actively engaged in fostering high-profit activities while simultaneously striving to achieve the specific sustainable development goals established for individual enterprises, thus contributing to the advancement of the domestic market economy and facilitating integration into the international market.

Sustainable development constitutes an imperative necessity and an inevitable trend within the developmental process of every nation globally, encompassing Vietnam. The United Nations held a Summit on Sustainable Development in September 2015 within the United States, during which 193 member states ratified the 2030 Agenda, featuring 17 objectives aimed at sustainable development. Upon engaging with this program, through a comprehensive analysis, Vietnam recognized that fundamentally, all sustainable development goals align with the ideological framework espoused by the Party and the State. To actualize Vietnam's commitment to sustainable development, the Prime Minister executed and promulgated Decision No. 622/QD-TTg, which outlines the National Action Plan for the execution of the 2030 Agenda for Sustainable Development, encompassing 17 objectives and 115 specific targets corresponding to the global sustainable development goals. Consequently, it is evident that sustainable development represents a pivotal and consistent orientation within Vietnam's growth goals. Despite this, because the subject is in its infancy, research on sustainable development goals in the Vietnamese scenario is limited.

Leaders, investors, depositors and even the Government are concerned about whether achieving the SDGs will improve or reduce the performance of banks. In recent years, an extensive array of empirical investigations concerning bank performance has been undertaken by numerous academic and professional research entities across various nations, including Vietnam. Although numerous prior researches have elucidated the correlation between Corporate Social Responsibility (CSR) and banking performance (Belasri et al., 2020) as well as researchers examining the ramifications of sustainable development on various finance-related domains, such as those conducted by Al Lawati & Hussainey (2022) and Cosma et al. (2020), there exists a paucity of comprehensive research regarding the influence of Sustainable Development Goals (SDGs) on the performance of financial institutions. International research, exemplified by the works of Scholtens & Van't Klooster (2019) and Ozili (2023), has underscored the critical significance of incorporating SDGs into the strategic frameworks of banks to enhance their financial performance and profitability; however, the majority of these studies have predominantly concentrated on developed economies. Köhler (2015) and Nguyen et al. (2021) posited that income diversification is instrumental in fostering the sustainability of banks, yet they failed to delineate the specific contributions of individual SDGs. In the context of Vietnam, research by Nguyen et al. (2021) primarily emphasizes macroeconomic variables or governance dimensions of banking institutions, neglecting to evaluate their specific impacts.

In line with other recent studies trying to investigate the ramifications of attaining Sustainable Development Goals (SDGs) on the operational dynamics within the banking sector in Vietnam, our study aims to evaluate the sustainability and enduring effectiveness of the implementation of Sustainable Development Goals within the banking sector, in order to determine if it indeed enhances and contributes to greater financial performance in comparison to the conventional organizational practices that were previously employed. Specifically, our study aims to identify the bank-specific characteristic and macroeconomic factors that impact the performance of Vietnamese commercial banks.

We collect both macroeconomics data and bank-specific data for the period spanning from 2008-2022, which has been sourced from official governmental entities and esteemed research organizations, including the official website of the State Bank of Vietnam (SBV) and the General Statistics Office (GSO). Furthermore, the majority of the bank-specific data comprises secondary data extracted from the audited financial statements of Vietnam commercial bank throughout the research timeframe. Consequently, leveraging these secondary data, the quantitative methodology will entail the description, enumeration, and synthesis of prior empirical studies, as well as the summarization of theories and antecedent research articles in accordance with the topic's keywords to establish a theoretical foundation.

Our study contributes to the current literature in a couple of ways. Firstly, the issue of the influence of sustainable development goals on the financial performance of commercial banks remains a relatively new in Vietnam. The recent literature discourse surrounding this matter is notably sparse; consequently, this study aims to provide a more comprehensive theoretical framework alongside a proposed model that may serve as a foundational reference for subsequent inquiries within this domain. Secondly, in recent years, global economies have encountered geopolitical tensions manifesting as conflicts, acts of terrorism, and uncertainties surrounding economic policies. Such factors pose significant risks to the stability and financial performance of the banking sector. Hence, this study delves into the ramifications of geopolitical risks on the financial performance of banking institutions. Finally, the investigation was executed over a long timeframe, commencing in 2008 - a period marked by the global economic crisis and concluding in 2022, during which the Covid-19 pandemic critically impacted national economies. This temporal span facilitates an objective evaluation and underscores the imperative for banks to prioritize Sustainable Development Goals, thereby facilitating the banking sector’s advancement within the context of globalization.

The remainder of this paper is structured as follows. Section 2 reviews the current literature. Section 3 presents the data, research model and methodology. Section 4 discusses the findings. Section 5 concludes.

2. LITERATURE REVIEW

2.1. Theoretical basis of sustainable development

The sustainability of development is frequently evaluated through criteria and indicators that gauge the sustainability across three domains: economic, social, and environmental. In accordance with the definition provided by the United Nations Commission on Sustainable Development, a criterion is delineated as "a category of conditions or processes through which sustainable management can be evaluated." A criterion is distinguished by a collection of indicators—an index, target, or quantitative measure that reflects one or more environmental, economic, or social attributes that can be articulated or quantified systematically. These indicators play a crucial role in facilitating periodic monitoring and assessment of advancements in sustainable development. No singular criterion or indicator possesses the capacity to evaluate sustainable development within a specific domain; rather, a comprehensive set of criteria and indicators is essential. To fulfill the objective of evaluating and monitoring the execution of sustainable development, numerous frameworks of indicators have been devised, adhering to the overarching principle of possessing a scientific foundation, being readily comprehensible, and being amenable to investigation or constituting annual national statistical indicators. Parris & Kates (2003) “enumerated over 500 criteria for the evaluation of sustainable development, which includes 67 global criteria, 103 national criteria, 72 state/provincial criteria, and 289 local/city criteria.” The United Nations Commission on Sustainable Development (CSD) was constituted in 1992 under the auspices of the Economic and Social Council as a direct consequence of the United Nations Conference on Environment and Development. The primary endeavors of the organization to date have concentrated on formulating and validating a set of 58 indicators, encompassing 15 themes that address the socio-economic, environmental, and institutional dimensions of sustainable development, which were refined from an initial compilation of 134 selected indicators and 22 volunteer nations tasked with assessing the applicability of the toolkit (Parris & Kates, 2003). This assemblage of indicators is extensively utilized in numerous countries and serves as the foundational framework for constructing a set of tailored sustainable development assessment indicators in each nation, including Vietnam.

The framework for evaluating the extent of rapid and sustainable economic development can be categorized into three fundamental pillars: (i) Economic sustainability pillar: rate of economic growth; macroeconomic equilibrium; quality of growth; competitive economic environment; (ii) Social sustainability pillar: promotion of social equity; assurance of employment opportunities; accessibility to public services; (iii) Environmental sustainability pillar: efficient utilization of resources; mitigation of emissions and greenhouse gases; capacity to adapt to and endure climate change; utilization of renewable energy sources; sustainable production and consumption practices...

2.1.1. Sustainable economic development

Economic sustainable development is characterized by expeditious, secure, and high-quality advancement. The attainment of economic sustainable development necessitates the establishment of an economic framework wherein equitable access to resources is enabled, and the entitlement to utilize natural resources for economic endeavors is distributed fairly among all stakeholders. The evaluation of economic sustainable development can be conducted through

the assessment of the value and consistency of conventional economic growth indicators, which include: Gross Domestic Product (GDP), Gross National Product (GNP), GDP or GNP per capita, GDP growth rate, GDP structure... The growth of GDP signifies the augmentation of GDP within a specific fiscal year in relation to the GDP of the preceding year, expressed as a percentage. A nation exhibiting economic sustainability must guarantee high GDP growth and GDP per capita. Economically disadvantaged nations typically experience a GDP growth rate of approximately 5%. Despite attaining substantial income levels, developed nations are still compelled to preserve a stable GDP growth rate. Concurrently, nations in the process of development must endeavor to achieve an annual GDP growth rate of around 5% to be regarded as progressing in a sustainable manner.

Furthermore, the economic framework of a nation typically encompasses various sectors, including agriculture, industry, and services. Each sector exhibits distinct levels of profitability; however, it is generally observed that the service and industrial sectors tend to yield greater profits than the agricultural sector. Consequently, with an equivalent Gross Domestic Product (GDP), an economy characterized by a GDP composition with a substantial representation of services and industry is likely to experience accelerated growth. Moreover, it is imperative that economic expansion is pursued in a secure and highly efficient manner, eschewing any form of growth that is achieved at the expense of fundamental principles.

The economic aspect of sustainable development includes several fundamental components: First, the incremental reduction of energy and resource consumption via conservation technologies and lifestyle modifications; Second, the transformation of consumption patterns in a manner that preserves biodiversity and environmental integrity; Third, the promotion of equitable access to resources, living standards, healthcare, and education; Fourth, the elimination of hunger and significant reduction of absolute poverty; Fifth, the advancement of clean technologies and industrial ecology practices, including recycling, reusing, waste reduction, and energy regeneration.

2.1.2. Sustainable social development

Social sustainability is evaluated through various criteria, including the Human Development Index (HDI), the income inequality coefficient, as well as indicators pertinent to education, health, social welfare, and cultural engagement. Moreover, social sustainability encompasses not only the promotion of harmony within societal interactions but also the establishment of equality among diverse social classes, strata, and individuals. Concurrently, it is imperative to regulate the disparity in living standards across different regions, aiming to diminish this gap and alleviate the division between affluent and impoverished segments, thereby fostering a more equitable integration and advancement.

Social equity and human development, HDI index is the highest criterion for social development, including: average income per capita; intellectual level, education, health, life expectancy, cultural enjoyment, civilization. HDI < 0.550 is low development, HDI from 0.550 - 0.699 is average development, HDI from 0.700 - 0.799 is high development, HDI > 0.800 is very high development. A country that wants to develop sustainably must meet the condition of HDI growth and HDI reaching above average level.

Sustainable social development prioritizes equity and mandates that society cultivate conducive environments for human development, striving to afford every individual the opportunity to realize their potential and attain acceptable living conditions. The components of sustainable social development encompass several principal aspects: Firstly, the stabilization of population growth and the enhancement of rural development to alleviate the migratory pressures on urban areas; Secondly, the reduction of adverse environmental impacts arising from urbanization; Thirdly, the improvement of educational systems aimed at eradicating illiteracy; Fourthly, the safeguarding of cultural diversity; Fifthly, the promotion of gender equality while addressing gender-specific needs and interests; Lastly, the augmentation of public involvement in the processes of decision-making.

2.1.3. Sustainable environmental development

The ecological context is profoundly significant to the survival and advancement of each individual human being, in addition to the collective human species. In accordance with environmental theories, the ecosystem serves three principal purposes: it functions as a habitat for humans, provides essential resources requisite for human existence and productive endeavors, and also serves as a repository for waste generated by human activities in both daily life and production processes. The processes of industrialization, modernization, agricultural enhancement, tourism, urban development, and the establishment of new rural areas,... exert influence on the environment and yield negative impacts on ecological and natural conditions. Environmental sustainability entails that, in the utilization of these natural elements, the integrity of the human living environment must be assured. Environmental sustainability encompasses the prudent use of natural resources, ensuring that the quality of the human living environment remains unscathed. This includes the preservation of the cleanliness of terrestrial, aquatic, and atmospheric domains, as well as the safeguarding of geographical spaces and natural vistas. The quality of these components must consistently be acknowledged and subjected to regular evaluation and testing in accordance with national or international benchmarks.

In order to achieve environmental sustainability, it is imperative to first ascertain the sustainability of human habitats. To accomplish this, the population must remain within the limits of the environment's carrying capacity; the

quality of the environment must be preserved at a standard that is either superior to or at least commensurate with the established benchmarks; the volume of waste generated must not surpass the environment's ability to naturally process and decompose it. The sustainability of natural resources is exemplified by the principle that the quantity utilized should be less than or equal to the quantity that can be replenished through renewable resources, or the quantity that can be substituted with non-renewable resources.

Environmentally sustainable development encompasses several fundamental components: Firstly, the efficient utilization of resources, with particular emphasis on non-renewable resources; Secondly, the imperative that development activities do not surpass the carrying capacity of the ecosystem; Thirdly, the necessity of safeguarding biodiversity and the ozone layer; Fourthly, the imperative to regulate and diminish the emissions of greenhouse gases; Fifthly, the stringent protection of sensitive ecosystems; Sixthly, the reduction of waste discharge, the mitigation of pollution (including water, air, soil, and food), and the enhancement and rehabilitation of environments affected by pollution...

2.2. Theoretical basis of bank performance

Financial performance directly influences the existence and advancement of the bank itself. The reputation of a commercial bank is likely to enhance if it operates with efficiency. Depositors will be assured and trusted, thus facilitating favorable capital mobilization for the bank. On this foundation, the bank will possess the capability to broaden the scope of its business operations, generate increasingly higher profits, accumulate substantial reserves, and create conditions conducive to the enhancement of service quality aimed at attracting customers and augmenting financial performance.

When examining various perspectives across distinct domains such as economics and society, there exist divergent viewpoints, methodologies, as well as the researcher’s interpretation of the concept of financial performance. The performance of a bank is characterized by the fulfillment of the requirements of stakeholders, including shareholders (owners), employees, depositors, and other creditors, borrowers and customers in need of supplementary banking services. The financial performance of commercial banks is also defined by their capacity to generate profits while simultaneously ensuring the safety of the bank's operations in accordance with regulatory mandates and mitigating risks. Additionally, Afonso et al. (2010) suggests that efficiency represents the comparison between inputs and outputs, profits and costs. Given the same input, the activity yielding a greater output will be deemed the more efficient one. When analyzing the relationship between corporate governance and banking performance, performance is perceived as the ultimate outcome of such activities (Tomar & Bino, 2012).

Moreover, prior studies on bank's financial performance focus on two distinct angles: traditional and modern. According to the traditional methodology, financial performance is assessed by the disparity between the profits earned by the bank and the expenditures incurred by the bank within a specified timeframe. In contrast, the modern approach relies on the concept of efficiency frontiers to investigate a bank's financial performance. Within this approach, financial performance is determined through a comparative analysis of the outcomes achieved by the bank relative to other comparable banks.

In summary, banking operations are business undertakings that are assessed from various perspectives, serving special roles and functions within the economy. From a bank's business perspective, that is financial performance. From the aforementioned perspectives, it becomes evident that the financial performance of commercial banks can be delineated in three key directions: (1) the minimization of costs, which entails the utilization of minimal input factors such as capital, facilities, and labor to yield revenue, (2) maintaining a constant level of inputs while achieving an increase in outputs, and (3) employing a greater quantity of inputs while ensuring that the resultant output escalates at a rate surpassing the growth rate of input utilization. In general terms, financial performance is a relative measure: it involves the comparison of inputs and outputs, as well as the juxtaposition of business expenditures against the results derived from such business activities.

2.3. Related studies and hypothesis

Concerning the Sustainable Development Goals (SDGs), Choudhury et al. (2021) undertook an analytical inquiry into the connection between the ratio of renewable energy in a country’s total energy supply and the risk factors affecting banking institutions. The findings indicated that an augmentation in the renewable energy share within a nation's total energy supply substantially enhances business performance of banks by mitigating the probability of bank default. In a similar vein, an exploration of the effects of climate change management, as a component of SDG13, on the profitability of 137 banking institutions across both emerging and developed economies during the timeframe of 2011 to 2019 was conducted by Caby et al. (2022), who contended that the attainment of SDGs affords banks access to sustainable resources which can be leveraged to bolster their profitability or overall performance. Ozili (2023) posited that the successful realization of SDGs exerts a considerable influence on bank profitability, drawing upon data from 28 nations spanning the years 2011 to 2018, which included Vietnam. In the same timeframe, Bahl et al. investigated how business performance of a bank influences the Sustainable Development Goals (SDG1, SDG5, and SDG8), uncovering a positive correlation between these two elements. The integration of SDGs is deemed crucial for enhancing long-term profitability;

therefore, banking institutions should prioritize economic, social, and environmental performance (Iqbal & Nosheen, 2023). Three SDGs out of the 17 SDGs were analyzed.

Firstly, regarding SDG3 'Good Health and Well-being', underscores the intricate relationship between SDG3 and banking performance through various aspects such as financial results, institutional reputation, and risk management proficiency. Specifically, when banks actively support SDG3 objectives, such as allocating resources towards community health initiatives, it serves to enhance their public image and standing, which, in turn, attracts a greater clientele and investor base. This progression culminates in heightened performance manifested through revenue augmentation and access to lower-cost funding sources. Moreover, banks have the potential to provide health insurance offerings or financing for healthcare-related projects, thereby fostering a more sustainable financial ecosystem within the healthcare domain. This initiative not only elevates the bank's standing but also engenders consistent income streams derived from new financial products. Furthermore, an emphasis on employee well-being correlates with enhanced productivity and work performance, thereby directly influencing the business performance of the banking. Prior empirical investigations, including those conducted by Jiménez-Aceituno et al. (2020), Journeault et al. (2021), and Nigam et al. (2024), have found a positive correlation between SDG3 and the business performance of banks.

Secondly, regarding SDG6 'Clean Water and Sanitation', serves an essential function in promoting socio-economic stability and advancement. The availability of clean water and efficient sanitation systems for communities and enterprises mitigates the likelihood of health emergencies or environmental challenges, thereby fostering a more conducive and secure environment for banking operations. In research, Ozili (2024) elucidated a correlation between SDG6 and Loan Loss Provisions (LLP). In particular, the implementation of SDG6 leads to an augmentation of banks' LLP. When financial institutions adequately allocate provisions for potential losses, they safeguard their assets and diminish credit risks, consequently improving their business performance. Moreover, investments in water supply and wastewater treatment infrastructures not only enhance living standards for communities but also yield financial returns for banks through Build-Operate-Transfer (BOT) agreements. These initiatives frequently draw considerable investor interest and establish stable cash flows.

Thirdly, regarding SDG8 'Decent Work and Economic Growth', elucidates its correlation with banking performance by catalyzing economic expansion and generating novel business prospects, thereby augmenting market potential, bolstering reputation, and increasing revenue. Financial institutions assume a pivotal role in the allocation of capital to small and medium-sized enterprises (SMEs), thereby facilitating job creation and fostering economic advancement. Facilitating the growth of small and medium-sized enterprises, generating employment opportunities, and financing startup projects enable banks to enhance credit quality, mitigate risks, and improve business performance through workforce development and the establishment of a constructive work environment for employees. Furthermore, banks possess the capacity to innovate financial products that support businesses committed to sustainable employment policies, such as the provision of preferential lending to organizations that guarantee the protection of workers' rights and adhere to principles of social responsibility.

Additionally, participation in these pursuits aids in diversifying product portfolios, entering new markets, and creating competitive edges. Additionally, this involvement aids banks in attracting sustainable sources of capital, enhancing their reputation, and fulfilling their social responsibilities. Based on the aforementioned hypotheses and prior studies, it is plausible to propose a hypothesis that attaining sustainable development goals can enhance the financial performance of commercial banks in Vietnam.

H1: Sustainable Development Goals attainment is positively (+) related to banks' financial performance.

3. DATA AND RESEARCH METHODOLOGY

3.1. Research data

We employ data derived from audited annual reports and consolidated financial statements to ascertain both dependent and independent variables that represent the characteristic factors of 25 Vietnamese commercial banks during the timeframe spanning from 2008 to 2022. Among these banks, there exist 4 largest state-owned commercial banks in the Vietnamese market (Agribank, BIDV, Vietinbank, Vietcombank) alongside 21 private commercial banks. The selection of these banks is predicated upon criteria including bank size, asset quality, capital adequacy, economic conditions, and inflation rates. Geopolitical risk data were extracted from Caldara & Iacoviello (2018). Additionally, independent macroeconomic variables and indicators representing sustainable development goals were gathered from the website of the World Bank (WB) as well as the General Statistics Office of Vietnam (GSO).

3.2. Research methodology

Numerous investigations have generated empirical substantiation regarding the correlation between research parameters and the financial performance of banking institutions. Nevertheless, within the framework of global integration, the significance of sustainable development is becoming increasingly pronounced. Consequently, various

studies have been undertaken to examine the impact of achieving sustainable development goals on the performance of banks, notably the study by Ozili (2023). We thus put forth the subsequent research model:

$$\pi_{i,t} = \beta_0 + \beta_1 SDG_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 NPL_{i,t} + \beta_4 CAR_{i,t} + \beta_5 GPR_{i,t} + \beta_6 GDP_{i,t} + \beta_7 INF_{i,t} + \varepsilon_{i,t}$$

In this model, the dependent variables are represented by Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). The coefficient β_0 serves as the blocking coefficient, while β_i denotes the regression coefficient where i = 1,2,3,4,5,... The Sustainable Development Goals (SDG) variable acts as an independent variable, encompassing the specific goals SDG3, SDG6, and SDG8. The triad of control variables that illustrate bank-specific characteristics includes bank size (SIZE), non-performing loans (NPL), and the capital adequacy ratio (CAR), respectively. Furthermore, the remaining variables represent control factors pertaining to macroeconomic conditions, where GPR denotes geopolitical risk, GDP signifies the economic growth rate, and INF indicates the inflation rate. The symbol i represents the order of the banks, t represents the year and $\varepsilon_{i,t}$ is the error of the model.

In terms of estimation methodologies, the regression technique utilizing tabular data has been selected due to its capacity to explicitly incorporate heterogeneity across time-based observational units by integrating bank-specific variables. For this research, we incorporated various analytical models, featuring Ordinary Least Squares, Fixed Effects Model, and Random Effects Model (available from the authors). Nevertheless, in certain instances, the independent variables incorporated within the model might exhibit endogeneity, thereby causing defects in the analysis. In order to rectify issues such as endogeneity, heteroscedasticity, and autocorrelation, we employ the Generalized Method of Moments (GMM) technique to guarantee the precision and efficacy of the research model.

3.3. Variables description and measures

3.3.1. Independent variables

We identified three out of 17 sustainable development goals as focal points for the investigation. Specifically, these are SDG3, SDG6, and SDG8. The rationale for selecting these three indicators is attributed to the availability of comprehensive and complete proxy data for SDG proxy variables. Recent studies (for instance, Ozili 2023) also include selected SGDs variables depending on the availability of data.

- SDG3: Good Health and Well-Being. In relation to SDG3, Brollo et al. (2021) posited that an increase in healthcare expenditure is essential for the enhancement of health and well-being among individuals. Ozili (2023) correlated the health indicator with Gross Domestic Product (GDP), asserting that a heightened health indicator to GDP would foster a greater level of sustainable development. Consequently, in this analysis, the measurement unit for SDG3 is defined as the current health expenditure expressed as a percentage of GDP.

- SDG6: Clean Water and Sanitation. This objective seeks to guarantee that every individual has access to clean water and fundamental sanitation services. The augmented access to and utilization of safely managed drinking water services is pertinent to sustainable development, as it mitigates the risk of waterborne diseases and facilitates a healthy existence (Bain et al., 2018; Hutton, 2016). Hence, the number of people using safely managed drinking water services as a percentage of the population is considered a useful proxy for SDG6 (Ozili, 2023)

- SDG8: Decent Work and Economic Growth. This goal aspires to secure sustained, inclusive, and sustainable economic growth, alongside full and productive employment and decent work for all. Ozili (2023) emphasizes that the evaluation of SDG8 should focus on whether individuals attain decent employment rather than merely any form of employment, advocating that such work must be fulfilling and contribute to economic advancement. Therefore, the proxy measure of SDG8 is the average of the employment rate and GDP growth rate (Heirman et al., 2021).

We collect industry-level banking sector and SDG data from the World Development Indicators (WDI) and the Global Financial Development Indicators (GFDI) in the World Bank database.

3.3.2. Control variables

We introduce supplementary control variables to strengthen the theoretical framework regarding the determinants that influence the financial performance of banking institutions. First, in order to measure how specific attributes of banks affect financial performance, the research group utilized the natural log of total assets to explore how bank size (SIZE) impacts financial performance results. The effects of non-performing loans (NPL) are similarly taken into account. This metric is derived by calculating the ratio of total bad debt from categories 3, 4, and 5 against the total outstanding debt. The capital adequacy ratio (CAR) is computed by dividing equity by total risk-weighted assets, which is also incorporated within the model. Finally, to clarify how macroeconomic factors relate to financial performance, the research group utilized the GDP growth rate to evaluate the growth rate of the economy at a certain point in time, along with the inflation rate to assess the level of inflation at the time of study. Furthermore, witnessing numerous unpredictable and intricate fluctuations, including escalating geopolitical conflicts and increasingly intense and comprehensive strategic competition

among major nations, the research team applied the average GPR index over a 12-month period in the fiscal year, as developed by Caldara & Iacoviello (2022), to analyze the influence of geopolitical risks on the financial performance of banks.

Table 1: Summary of variables used in this study

	Variables	Symbol	Measures
Dependent variables			
1	Return on assets	ROA	$\frac{\text{Net income}}{\text{Total assets}}$
2	Return on equity	ROE	$\frac{\text{Net income}}{\text{Shareholder equity}}$
3	Non interest margin	NIM	$\frac{\text{Net interest income}}{\text{Average interest} - \text{earning assets}}$
Independent variables			
4	Good Health And Well-Being	SDG3	Current health expenditure expressed as a percentage of GDP
5	Clean Water and Sanitation	SDG6	The number of people using safely managed drinking water services as a percentage of the population
6	Decent work and economic growth	SDG8	The average of the employment rate and GDP growth rate
Control variables			
7	Bank size	SIZE	Logarithm (Total assets)
8	Non-performing loan	NPL	$\frac{\text{Net income}}{\text{Total assets}}$
9	Capital adequacy ratio	CAR	$\frac{\text{Eligible capital}}{\text{Risk} - \text{weighted assets}}$
10	Geopolitical risk	GPR	GPR average index per year
11	Economic growth	GDP	$\frac{\text{GDP}_t - \text{GDP}_{t-1}}{\text{GDP}_{t-1}}$
12	Inflation	INF	$\frac{\text{CPI}_t - \text{CPI}_{t-1}}{\text{CPI}_{t-1}}$

4. RESULTS AND DISCUSSIONS

4.1. Describe the variables and resources

Table 2 shows the descriptive statistics pertaining to the number of observations, alongside the minimum and maximum values, as well as the calculated average and standard deviation of various financial variables, including ROA, ROE, and NIM, along with bank-specific characteristic factors related to banking institutions such as SIZE, NPL, and CAR. Additionally, macroeconomic factors such as GPR, GDP, and INF are examined, with the primary variables of interest being the Sustainable Development Goal (SDG) indicators. The total number of observations for these variables amounts to 375, of which:

The dependent variables ROA and ROE exhibit mean values of 0.952 and 12.188, respectively, while NIM presents a mean value of 7.539, ranging from -0.75 to 30.02. Notably, the ROE ratio manifests a substantial standard deviation of 9.789, with a minimum value recorded at -82 (TPB in 2011) and a maximum value of 50.13 (AGB in 2021). The pronounced disparity in ROE among banks during this period highlights the significant differences in profit generation capabilities between large and small banks within the banking system.

The SDG independent variables, specifically SDG3, SDG6, and SDG8, reveal mean values of 4.737, 54.003, and 57.991, respectively. SDG3 demonstrates a small range of variation coupled with a low standard deviation, signifying values that are closely clustered around the mean. This consistency underscores the stability of health and well-being indicators throughout the observation timeframe. In contrast, SDG6 exhibits a higher standard deviation and a broader range of variation (spanning from 50.14 to 57.78). Concurrently, SDG8 indicates greater variability among observations, as reflected by its elevated standard deviation (57.991) and a range extending from 51.95 to 63.79. This may indicate that there is greater disparity in the attainment of decent work and economic growth.

Table 2: Descriptive statistics

Variables	Mean	Std. Dev.	Min	Max
ROA	0.952	0.781	-5.51	4.75
ROE	12.188	9.798	-82	50.13
NIM	7.539	4.635	-0.75	30.02
SDG3	4.737	0.259	4.3	5.07
SDG6	54.003	2.366	50.14	57.78
SDG8	57.991	4.539	51.95	63.79
SIZE	14.046	0.593	12.38	15.33
NPL	2.161	1.409	0.02	17.93
CAR	13.962	4.983	6.4	38.37
GPR	94.789	19.243	77.29	157.58
GDP	6.023	1.507	2.55	8.12
INF	6.591	6.165	0.63	23.12

Control variables such as SIZE exhibit low standard deviations, signifying a degree of homogeneity in size among commercial banks, with a minimum value recorded at 12.38 and a maximum at 15.33. The mean NPL ratio is 2.161, remaining beneath the critical threshold of 3%, and possesses a standard deviation of 1.409, thereby reflecting a degree of stability over time, with a minimum value of 0.02 (observed at TPB Bank in 2010) and a maximum of 17.93 (noted at NVB Bank in 2022). The average CAR exceeding 13% affirms the institutions' capacity to fulfill financial obligations. GPR demonstrates a high average value (94.789) and fluctuates strongly, ranging from 77.29 to 157.58, which could potentially influence economic stability. The average rate of economic growth is positioned at 6.023, coupled with a standard deviation of 1.507, while GDP fluctuates between 2.55 (in 2021) and 8.12 (in 2022). The average INF rate is recorded at 6.591, accompanied by a relatively low standard deviation of 6.165, suggesting governmental endeavors to uphold stability; however, there exists notable volatility, with a minimum value of 0.63 (in 2015) and a maximum of 23.12 (in 2008).

4.2. Correlation of variables in the model

Table 3 delineates the correlation matrix aimed at elucidating the determination of impact level the influence of independent variables in each part. The variables ROE, ROA, and NIM exhibit a notably elevated correlation with statistical significance at the 0.1% level, as these three metrics encapsulate the financial performance of banking institutions. The most pronounced positive correlation of 0.672 is observed between INF and SDG8, whereas the most significant negative correlation is recorded at -0.001 between NPL and SDG3.

In terms of positive and statistically significant correlations, SIZE and ROE display a moderate positive correlation of 0.342 with a P-value of 0.000, indicating that banks of larger size are likely to experience enhanced ROE. The correlation between SDG6 and SIZE implies that larger banking entities demonstrate a greater alignment with Sustainable Development Goal 6, which pertains to clean water and sanitation. Conversely, with respect to negative and significant correlations, a robust negative correlation is identified between INF and SDG6, suggesting that inflation may adversely affect activities related to water and sanitation. Furthermore, banking institutions that prioritize decent work and economic

growth (SDG8) tend to manifest a lower ROE of -0.161 (p = 0.002). Nevertheless, there appears to be a negligible or nonexistent linear association between ROA and SDG3.

Table 3: The correlation of variables

	ROA	ROE	NIM	SDG3	SDG6	SDG8	SIZE	NPL	CAR
ROA	1.000								
ROE	0.654	1.000							
NIM	0.418	0.203	1.000						
SDG3	-0.051	0.008	0.005	1.000					
SDG6	0.064	0.114	0.143	-0.004	1.000				
SDG8	-0.091	-0.161	-0.148	-0.025	-0.942	1.000			
SIZE	0.095	0.342	0.218	0.053	0.497	-0.456	1.000		
NPL	-0.132	-0.182	0.019	-0.001	-0.057	0.134	-0.125	1.000	
CAR	0.079	-0.239	0.053	0.034	-0.340	0.342	-0.632	0.089	1.000

Overall, the relationship between the independent variables and the dependent variables within the model is characterized as linear. Specifically, SDG6, SIZE, and GPR maintain a positive correlation with all three variables: ROA, ROE, and NIM. In contrast, the variables SDG8 and GDP exhibit a negative correlation. As evidenced in Table 3, it is notable that the three metrics representing banking performance (ROA, ROE, and NIM) do not exhibit significant multicollinearity with the independent variables, as the correlation coefficients remain below the threshold of 0.8 (Farrar & Glauber, 1967).

4.3. Results of regression estimation of the research model

We initially applied various analytical models, featuring Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM). Nevertheless, in certain instances, the independent variables incorporated within the model might exhibit endogeneity, thereby causing defects in the analysis. In order to rectify issues such as endogeneity, heteroscedasticity, and autocorrelation, we employ the Generalized Method of Moments (GMM) technique to guarantee the precision and efficacy of the research model.

Table 4: Summary of GMM estimation results

Independent variables	ROA	ROE	NIM
SDG3	0.159•	4.173***	0.620
	(1.93)	(4.37)	(1.27)
SDG6	0.254***	2.278***	1.049***
	(7.93)	(4.39)	(4.17)
SDG8	0.064***	0.396*	0.264**
	(3.67)	(2.12)	(2.64)
SIZE	1.627***	7.546***	5.343***
	(4.48)	(6.16)	(3.49)
NPL	-0.187**	-1.331*	-0.813*
	(-3.16)	(-2.12)	(-2.42)
CAR	0.100***	0.613*	0.463**
	(6.62)	(2.28)	(2.93)
GPR	-0.001	-0.005	-0.014
	(-0.55)	(-0.20)	(-1.60)

GDP	-0.005 (-0.21)	-0.315 (-1.13)	0.199 (1.55)
INF	0.092*** (9.58)	0.326*** (3.51)	0.184*** (4.01)
_cons	-41.659*** (-7.80)	-266.995*** (-6.16)	-148.866*** (-5.16)
Number of instruments	24	22	24
Number of groups	25	25	25
Wald chi2	13210.30	3857.89	5472.37
Prob > chi2	0.000	0.000	0.000
AR(1)	0.048	0.048	0.032
AR(2)	0.120	0.135	0.129
Hansen test	0.536	0.624	0.611

Note: •,,**,*** represent significance levels of 10%, 5%, 1% and 0.1% respectively; t-stat values are presented inside parentheses.*

With a high Wald Chi2 value indicates that the GMM model exhibits a superior fit for the data. Furthermore, this study assesses the appropriateness of the GMM model through three distinct tests: the Arellano-Bond test for first-order (AR(1)) and second-order (AR(2)) autocorrelation, as well as the Hansen test. The results demonstrate that the residuals of the GMM model exhibit first-order autocorrelation (P-value < 5%) while showing no evidence of second-order autocorrelation (P-value > 10%). The Hansen test fulfills the requisite conditions (P-value > 10% and > 0.25 as per Roodman, 2009), thereby substantiating the validity of the GMM methodology. To ensure robust estimation, the number of instrumental variables should not exceed the number of groups (24 < 25; 22 < 25).

The analytical outcomes indicate that SDG3 possesses a robust positive correlation with both ROA and ROE, with statistical significance at levels of 10% and 0.1%, respectively. The attainment of health and well-being objectives not only benefits the community but also enhances the financial performance of banking institutions. Investment in public health initiatives contributes to the cultivation of a healthier society, stimulates economic growth, and elevates demand for loans. Additionally, SDG6 and SDG8 also demonstrate positive correlations with all three performance indicators: ROA, ROE, and NIM, achieving statistical significance. Moreover, control variables such as SIZE, CAR, and INF all exhibit positive correlations with banking performance. Conversely, NPL presents a negative correlation, and the remaining two variables, GPR and GDP, do not attain statistical significance within this analysis.

The empirical results indicate that Sustainable Development Goals (SDGs) 3, 6, and 8 exert beneficial influences on both ROA and ROE. In particular, SDG3, which pertains to health and well-being, facilitates an increase in labor productivity and a reduction in medical expenses, thereby enhancing the financial performance of banking institutions (Journeault et al. (2021) and Nigam et al. (2024)). SDG6, which emphasizes the significance of clean water and sanitation, demonstrates that enhancements in living conditions can lead to improved performance and profitability for banks. Furthermore, SDG8, which is aimed at fostering sustainable economic growth and employment, aids in the cultivation of a conducive business environment, resulting in elevated profit margins. Moreover, the variables SDG6 and SDG8 also exert a positive influence on NIM. This implies that advancements in water infrastructure and economic growth not only facilitate sustainable development but also yield discernible economic advantages for banking entities. These findings support the initial hypothesis and align with Freeman's (1984) stakeholder theory, which posits that enterprises engaged in socially responsible collaborations will enhance their organizational performance, as the paramount concern of organizations is the welfare of their stakeholders. In conclusion, this outcome underscores the significance of the SDGs, not solely in fostering sustainable development but also in bolstering the performance of banking institutions. Banks should regard these objectives not merely as a social responsibility but as an integral component of their long-term business strategy. The incorporation of the SDGs into their operational frameworks will yield benefits for the community while simultaneously promoting sustainable growth and enhancing financial performance in the long run.

Furthermore, the research identified a positive correlation among bank size, capital adequacy ratio, and inflation with all three dependent variables that signify bank performance. In relation to bank size, this finding corroborates the market power theory, as larger banking institutions possess stronger market power, enabling them to negotiate more favorable terms with clients, thereby minimizing costs and maximizing profits. This scenario ultimately contributes to improved financial performance (Perera et al., 2013; Menicucci & Paolucci, 2016). This result is relatively logical when

postulating that larger banks will demonstrate superior performance compared to their smaller counterparts; however, this should not be construed as an absolute rule. In a similar vein, a robust capital adequacy ratio indicates that banks exhibit superior risk tolerance and can engage in business operations with greater safety. Such a condition can entice a larger customer base and enhance financial performance (Parenrengi & Hendratni, 2018). Inflation may also serve to elevate financial performance of banks under specific circumstances (Jackson et al., 2021 and Batten & Vo, 2019), particularly when interest rates escalate in conjunction with inflationary trends. This aligns with the inflation expectations-augmented Phillips Curve, which posits that inflation expectations have a bearing on monetary policy and bank interest rates. When inflation is anticipated and banks are equipped to recalibrate their operations, the detrimental effects of inflation on profitability may be alleviated. Conversely, the non-performing loan ratio demonstrates a negative correlation; specifically, an increase in non-performing loans results in heightened credit risks for banks, subsequently impairing performance (Gizaw et al., 2015 and Catherine, 2019). Additionally, geopolitical risk and the economic growth rate do not exhibit statistical significance in this examination, implying that their influence on bank performance remains ambiguous.

5. CONCLUSIONS

5.1. Conclusions

This research investigates the attainment of sustainable development objectives concerning banking performance during the timeframe from 2008 to 2022. Empirical data sourced from 23 commercial banking institutions in Vietnam are utilized for comprehensive analysis. The findings indicate that the realization of sustainable development goals can engender substantial enhancements in banking performance. Specifically, all three indicators SDG3, SDG6, and SDG8, exert a positive influence on the financial performance of banking institutions, as evidenced by the metrics of ROA and ROE. Concurrently, both SDG6 and SDG8 also contribute to improving the NIM ratio, thanks to improvements in the quality of life and a stable economic environment. This combination creates a robust foundation for the sustainable development of banking entities. Furthermore, the control variables yield the following findings: the dimensions of the bank, the capital adequacy ratio, and inflation positively affect performance, whereas non-performing loans impede the sustainable advancement of banking institutions. The aforementioned research findings have contributed to elucidating specific circumstances and risks inherent in the operations of commercial banks, thereby enabling we to propose strategic recommendations for both governmental entities and commercial banking institutions aimed at enhancing and optimizing financial performance.

5.2. Managerial implications

Banks need to incorporate sustainable development goals into their comprehensive business frameworks. In particular, banks should develop green financial products, such as preferential lending options for renewable energy projects and enhancements in sustainable infrastructure. Concurrently, the utilization of digital technologies to optimize lending operations and manage environmental hazards will significantly enhance financial performance. The establishment of a systematic reporting mechanism and the assessment of the effectiveness of sustainable development initiatives are of paramount necessary. Furthermore, it is essential that banks augment training programs for personnel concerning ESG risk management and elevate awareness of customers regarding sustainable projects. Ultimately, collaboration with enterprises and social organizations on community advancement initiatives will not only enhance brand reputation and boost financial performance but also generate enduring value for both financial institutions and society.

Additionally, banks must endeavor to enhance savings mobilization and increase credit provision to facilitate operational expansion, whilst simultaneously managing capital risks and operational capacity effectively. The formulation of targeted strategies that adhere to the policies set forth by the State Bank and the efficient management of expenses is essential. The enhancement of credit quality, risk management, and the resolution of non-performing loans are critically important for maintaining financial stability. Moreover, banks are obligated to adhere to regulations governing minimum capital adequacy (CAR) and to reorganize their asset portfolios in order to mitigate risks. Furthermore, the State Bank must monitor inflationary trends and stabilize liquidity while collaborating with financial institutions to ensure healthy credit growth.

5.3. Limitations and future research directions

Although the research has yielded favorable outcomes, certain limitations persist. As per data provided by the State Bank of Vietnam, there are currently 04 State-owned commercial banks and 31 joint stock commercial banks; however, we have managed to procure adequate data from only 25 banks, which may not adequately represent the entire banking system in Vietnam. An additional limitation pertains to the selection of indicators that epitomize sustainable development goals, as these indicators have not been comprehensively disclosed. Furthermore, the secondary data utilized for this study is derived from the consolidated financial statements of the banks; however, there exist substantial limitations concerning the reliability, comprehensiveness, and completeness of the data owing to the sensitive nature of the information, thus compelling we to base their research solely on publicly accessible documents.

Prospective research endeavors could expand upon this study by examining the influence of the remaining sustainable development goals on financial performance of banks. In light of the constrained scope and breadth of the current study, we propose broadening the research parameters to encompass additional banks within the system as well as institutions from other countries, thereby enhancing the objectivity and accuracy of the results.

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