The Impact of Sustainable Investment on the Financial Performance of China's Banking Sector

Haoran Sun
Email: haors11@uci.edu
Affiliation: University of California, Irvine school of social science

Abstract

The effect of sustainable investment on the financial performance of China's banking industry is examined in this research study. In this research paper, an attempt has been made to examine the impact of sustainable investment on the financial performance of China's Banking Sector by using a comprehensive dataset spanning a significant period. In China's banking sector, econometric techniques have been employed to examine the impact of sustainable investing practices on profitability, risk mitigation, and market valuation. The study adds to the expanding body of literature on sustainable financing by offering empirical data on China's economy. The ranking of the Banker's Top 100 Chinese banks for 2023 served as the sample source for this study. The best five commercial banks from the 2018–2022 ranking make up the research sample. The study's findings clearly show that economic scores positively and significantly affect ROA while having little effect on ROE and EPS. The social ratings also do not influence ROA but have a favourable and large impact on EPS and ROE. According to the environmental ratings, there is a slight negative impact on EPS but a slight positive influence on ROA and ROE. The research findings offer important insights for encouraging sustainable growth and responsible financial practices in China's banking industry.

Key Words: Sustainable, banks, econometric methods, the Chinese economy.

1. Introduction

The necessity of controlling environmental and social (E&S) risk in the lending process has become more apparent to financial institutions over the past decade. Sustainable investment (sometimes known as "ESG" investment, for "environmental, social, and governance") refers to investment techniques that balance social and environmental advantages with financial return. It can lower risk and improve financial performance (Akhtar et al., 2020). Investment plans increasingly include sustainability due to investors' increased understanding of environmental, social, and governance (ESG) issues. The environment and climate change are two of the world's most important long-term hazards, according to the World Economic Forum's (WEF) 15th Global Hazards Report, released in January 2020 (Franco, 2020). The functioning of the economy depends on finance. It facilitates strategic decision-making by allocating cash to the most profitable projects and users (Brammer, et al. 2006). Sustainable development is the only way to guarantee that the environment is preserved while ensuring that current and future generations have access to necessities such as food, water, healthcare, education, energy resources, and clean air (Raworth, 2017). The equitable and efficient allocation of natural resources among present and future generations is the definition of sustainability, according to Diamastuti et al. (2021). Finance is a tool for managing the economy, according to Scholtens (2006). Allocating resources to the most productive users is its main duty to enable them to contribute to achieving sustainable objectives on a larger scale (Schoenmaker & Schramade, 2018). A firm's finance department may have an impact on its social responsibility and environmental policies (Scholtens, 2006). While conventional investment strategies prioritize risk and financial gain, sustainable investment takes into account the combined benefits of the environment, society, and economy (Falcone and Sica, 2019). Sustainable finance has garnered significant attention globally, especially in the Asian region, as financial regulatory bodies focus on developing social and environmental policies and supporting the financial sector in integrating economic, social, and

environmental standards during financing and investment activities.

The financial sector has given sustainable financing particular emphasis on a global scale. By putting into practice sustainable financial policies, central banks and financial institutions may contribute to the achievement of sustainable financial policies, central banks and financial institutions may contribute to achieving this objective (Dikau and Volz 2021). The Sustainable Banking Network (SBN), an association of financial institutions, and the Network for Green Financial System (NGFS), an organisation of the central bank, are examples of how these ideas might be used in real life. Eight central banks introduced NFGS in 2017. In 2019, 208 central banks formed NFGS 19, which has 54 members (Durrani, Volz, and Rosmin, 2020). According to Durrani, Rosmin, and Volz (2020), the NFGS aims to create a sustainable economy by prioritising best practices, managing environmental issues, and raising money. China's economy has expanded tremendously during the past 20 years. Sustainable advances in finance present various problems, such as the dearth of sustainable goods on the market, the small number of SMEs, and the typically low level of public participation (Tianqi Luo, 2022). By taking the necessary steps, such as establishing a strategy for sustainable hiring, actively working with product development experts and offering support, setting up a fast track for green financing of small and medium-sized enterprises, and fortifying the position of commercial banks and sustainable financing, these problems can be resolved.

1.1. Problem Statement

When environmental challenges were widely known in the 1860s, an increasing understanding of them began to emerge. 1969 saw the appointment of the first environmental advisor by the World Bank (WB). Office of Environmental Affairs, WB, was created in 1970. In June 1972, the Swedish city of Stockholm hosted the United Nations Conference on the Human Environment, which brought together almost 1,300 representatives from 113 countries and international organisations (Sherman and Gold, 2014). The agenda of global governance now includes environmental challenges. The World Bank established environmental evaluation criteria for projects it funded in 1987. Since then, it has progressively created several policies for social and environmental protection, risk avoidance, and control. WB incorporated its basic social and environmental objectives into the Safeguard Policy framework in 1997, and all projects it supports are now required to abide by the regulations and laws of their host countries (Woo *et al.*, 2015).

China is an industrial powerhouse that is developing its market and expanding its economy. The financial sector, an important means of transportation for both persons and enterprises, is propelling China's economic reform and technical advancement as well as sustainable development worldwide. (Chen, H. et al. 2019). However, China's green finance sector has grown significantly in recent years. More accurately, there isn't much investment in green insurance, and its role is not apparent. Thus, it is advised to support the promotion of policies, create an effective system, and begin with the institutional innovation of green insurance investment. Allowing industrial infrastructure to play a full role and enhancing the liquidity of green insurance investment projects will contribute to the steady growth of China's green insurance investment (Zhao and Zhuang, 2016). China's economic and financial development is, therefore, significantly influenced by the banking sector's financial performance. The objective of the present research is to determine the correlation between sustainable investment and the financial performance of commercial banks in China. Not only may the study's findings be helpful to prospective investors, but they should also help legislators and regulators create and enhance China's banking legislation.

1.2. Research Questions and Research Objectives

The study examines the correlation between China's banking sector's financial outcomes and the country's overall sustainability in terms of economy, society, and environment. It specifically seeks to address several basic problems about the performance of the nation's banking sector, including the effect of environmental, social, and economic sustainability on the financial performance of China's banking industry. Sincere efforts are being made in this study to provide insightful information to help China's banking sector promote sustainable growth and ethical financial conduct. In light of the importance of the present

study entitled “The Impact of Sustainable Investment on the Financial Performance of China’s Banking Sector” researcher has set the following objectives:

- To investigate the association between China's banking industry's financial performance and its economic sustainability.
- To investigate the association between China's banking industry's financial performance and social sustainability.
- To investigate the association between China's banking industry's financial performance and environmental sustainability.

2. Review of Relevant Literature

2.1. Economic Dimensions

The economic aspect of sustainable finance keeps track of how organisational actions affect stakeholders' financial stability and general economic conditions nationally and worldwide (Aggarwal, 2013). Tawfik, Kamar and Bilal (2021) claimed that the economic aspect of sustainable finance monitors how organisational actions affect stakeholders' financial stability and general economic conditions on a national and worldwide scale. Furthermore, the organisations are responsible to many stakeholders rather than just a few shareholders. Treating all stakeholders equitably is a corporate responsibility, and sustainable corporations can improve relationships between organisations and their stakeholders. Sustainable investors must seek to make a long-term beneficial impact that might not make money right away but has the potential to succeed in the long run. This is because their goal is to have a positive and long-term impact. Sustainable investments also necessitate long-term dedication to ESG issues (Beisenbina et al. 2022) In China, the challenges posed by sustainable developments in finance include the fact that fewer sustainable products are available, SMEs are few in number, and public engagement is generally lower than it should be.

Additionally, the sustainability of the sustainable financing unit is weaker than it should be compared to other international standards (Tianqi Luo, 2022). A significant component of China’s financial system is commercial banks. Bringing in more sustainable talent to support operations and expanding their portfolio of sustainable financial products across various industries, enhancing the lending system to involve more SMEs and the general public, and keeping up the strengthening of the sustainable financing unit to meet global standards, will develop the commercial banking industry of China

2.2. Social Dimensions

The sustainable finance social ratings take into account several aspects, including the company's supply chain management and the upkeep of its connections with suppliers, customers, employees, and the general public. The trade-in illegal weapons, civil rights violations, the gambling industry, labour laws, the working environment, child labour, worker exploitation through long hours and low pay, gender discrimination, and the lack of paid maternity and sick leave are all subjects of intense public scrutiny. People are increasingly conscious of every social event linked to the company (Florea, et al. 2013). "Sustainable finance" is a financial system that incorporates sustainability concepts into its investment operations to foster positive social and environmental outcomes without compromising financial returns. Sustainable finance is the result of combining environmental, social, and economic sustainability. Additionally, sustainable firms integrate a thriving economy, a responsible society, and biodegradable practices into their financial operations. As a result, sustainable finance supports the efforts made by all financial sectors to attain and expand upon sustainability-related goals (Nyachanchu & Cheruiyot 2017). Zaffar (2020) claimed that cost-effectiveness and sustainability practices are positively correlated. The research highlights that the expenses can be reduced and operational effectiveness can be raised by investing with social responsibility (Florea, et al., 2013). Consequently, social sustainability is the process by which all parties involved in a business verify their well-being and the state of society.

2.3. Environmental Dimensions

There is a strong financial incentive for businesses to continuously improve their operations due to environmental regulations; the association between environmental performance and financial performance is evident even though there is currently no effective legislation or system in place

to verify this relationship (Schaltegger and Synnestvedt 2002). To protect the environment for the benefit of current and future generations as well as their requirements, the environmental scores of sustainable finance place a high priority on environmental preservation. How human activities impact living and nonliving natural systems, including air, water, soil, and ecosystems, is a concern of the environmental sustainability ratings.

Environmental sustainability is seen as a necessity of the times and has the potential to positively impact an organisation's overall profitability due to organisations' current accountability for the impact of their operations on the global environment and their obligation to disclose all such activities in their annual and sustainability reports (Aggarwal 2013). Enhancing the system of green financial services, expanding the investment space available to insurance funds, strengthening the ability of insurance funds to support the construction of ecological environments, and advancing China's economic transition towards a low-carbon, green development is all made possible by the implementation of green insurance investment (Chen, H., et al. 2019). Despite recent tremendous growth, China's green finance sector is still small compared to the massive demand for green investments. On the other hand, green startups seem to have more trouble raising capital than other types of businesses, partly because of their high level of creativity and lack of commercial experience (Bergset, L. 2017). Zhou, J. et al. (2017) state that this paper aims to promote the market via the growth of green finance in Shenzhen by analyzing the current development possibilities of China's green finance and the carbon trading market in Shenzhen. Shenzhen should lead the way in promoting the localized application of the green principle to incentivize enterprises involved in carbon trading to get financing through green bonds. It will attempt to lessen the production of carbon derivatives and decrease the entrance barrier for financial institutions into the market for carbon trading.

2.4. Hypotheses Development

In the study of sustainable finance, it is important to develop hypotheses to fully understand the complex relationship between financial performance and corporate social responsibility. Businesses constantly have to make trade-offs when balancing the needs of society with the rights of shareholders (Diamastuti et al. 2021). Businesses may have to give up income in order to finance their socially responsible initiatives (Tawfik, Kamar, and Bilal 2021). Remarkably, Lopez et al. (2007) draw attention to the inherent trade-offs by providing concrete proof of a negative relationship between an organisation's social success and financial performance. The literature presents a variety of findings. Aggarwal's (2013) study, for example, provides empirical evidence in favour of the negative association between company financial success and sustainable combination scores. A variety of performance measures, such as ROA, ROE, and EPS, are significantly improved by the economic component of sustainable finance, as highlighted by Munir et al. (2022), who introduce subtleties. Still, the social scores present a nuanced image, exhibiting a positive association with EPS and a negative correlation with ROA and ROE. This highlights the intricate connections between sustainable practices and overall social performance as well as how these connections impact company success.

For the present study, the researcher has set the following hypothesis to check the relationship between the variables.

H_1: Return on Assets (ROA) and investment sustainability are significantly correlated.
H_2: Return on Equity (ROE) and investment sustainability are significantly correlated.
H_3: Earnings per Share (EPS) and investment sustainability are significantly correlated

3. Database and Methodology

The current study looks at the relationship between sustainable investment and the financial performance of Chinese commercial banks. Therefore, a variety of data on the financial overview of certain Chinese commercial banks is required. This analysis is based on micro-level data collected over five years on just five commercial banks. For this reason, the analysis's foundation is solely quantitative data gathered from several authoritative secondary sources. Many studies have been conducted globally to examine the impact of

sustainable investment on the financial performance of different sectors and enterprises.

Two methods exist for assessing an organisation's financial performance: accounting-based metrics and market-based metrics. The study uses accounting-based measurements since they are believed to be the most legitimate, dependable, and commonly recognized because they are derived from audited financial accounts. According to Lopez et al. (2007), they might be seen as more dependable in terms of profitability and share market values since they are not impacted by investor views or market speculation. Return on equity (ROE), return on assets (ROA), and earnings per share (EPS) are examples of accounting-based measures that are frequently used to assess an organisation's accounting performance. Accounting-based metrics and market-based metrics are the two approaches used to evaluate the financial success of a company enterprise. Since audited financial statements are seen to be the most trustworthy, genuine, and commonly recognized, accounting-based metrics are employed in this study. Comparably, there are three categories of sustainable investments for a business: environmental, social, and economic sustainability. A company's economic sustainability is assessed by looking at its economic indicators, which are connected to the profits the company makes from its activities.

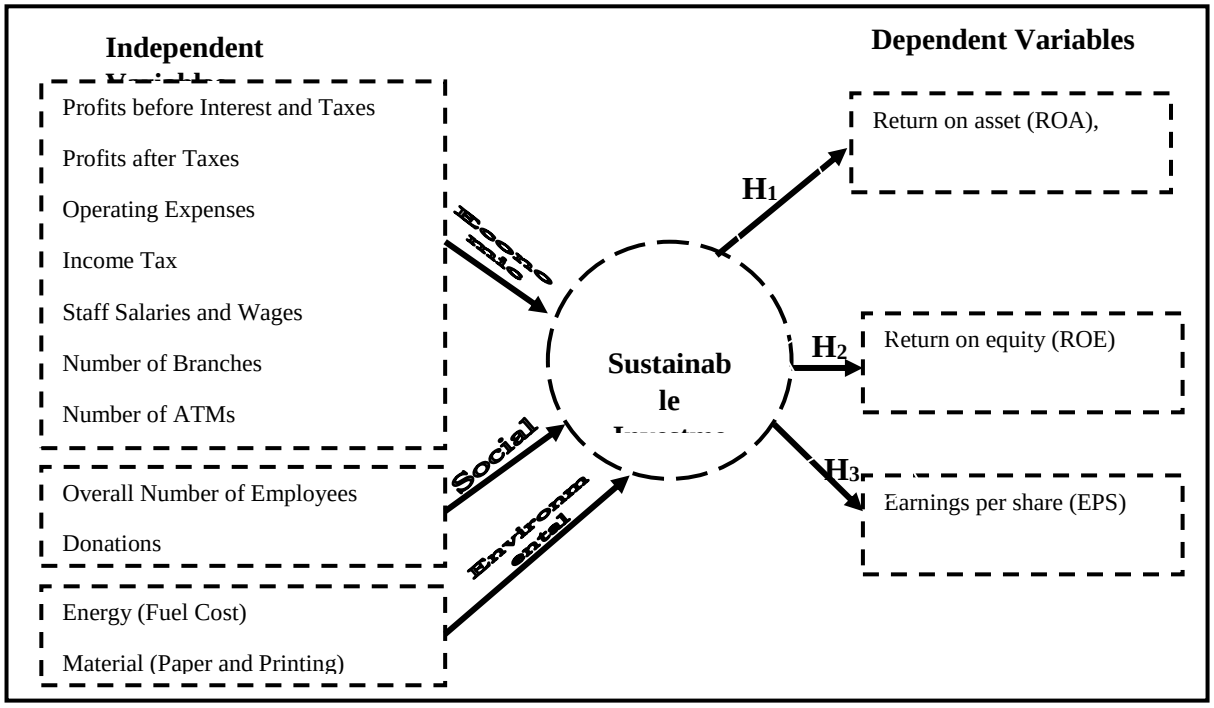

Figure 1: Theoretical Model

3.1.Sample Selection and Study Period

China's banking sector, which offers financial services to individuals, companies, and organisations, is essential to the country's economy. Therefore, it is essential to investigate how sustainable investment impacts the financial performance of China's banking sector in order to comprehend the function that banks play in fostering economic development in that nation. The Banker's Top 100 Chinese Banks 2023 list is where the sample for this study was gathered (Kimberley Long, 2023). The top five commercial banks on the list from 2018 to 2022 make up the research sample currently in use.

Table 1: Name of the Banks

S. No.	Name of the Bank	Rank *	Previous Rank
1.	Industrial and Commercial Bank of China **(ICBC)**	1	1
2.	China Construction Bank	2	2
3.	Agricultural Bank of China	3	3
4.	Bank of China	4	4
5.	Bank of Communications	5	5

* Rank indicates the rank of the bank as per the list of the Banker's Top 100 Chinese Banks 2023.

3.2. Data Collection

Secondary data served as the foundation for this investigation. From 2018 through 2022, the study used panel data for the five chosen banks on an annual basis. Secondary data were gathered from official sources by the study's standards. Secondary data sources include World Wide Fund for Nature publications, financial statements, bank annual reports, and the official websites of certain banks

3.3. Variables of the Study

3.3.1. Independent Variables

Economic sustainability is determined by looking at the earnings before interest and taxes, profits after taxes, operational costs, income tax, staff salaries and wages, number of branches, and number of ATMs. Social sustainability is assessed using donations and the total number of workers. Energy, such as gasoline costs, and materials, such as paper and printing, are examples of environmental indicators (Ozcelik & Avci Ozturk, 2014).

3.3.2. Dependent Variables

Return on asset (ROA), return on equity (ROE) and earnings per share (EPS) are commonly executed methods for examining a company's accounting performance (Tang et al., 2012).

Return on Asset (ROA) = $\frac{\textit{Net Income after Interest and Tax}}{\textit{Total Assets}}$

Return on Equity (ROE) = $\frac{\textit{Net Income after Interest and Tax}}{\textit{Total Equity}}$

Earnings per Share = $\frac{\textit{Net Income} - \textit{Preferred Dividends}}{\textit{Weighted Average Number of Common Shares Outstanding}}$

3.4. Regression Model

Data that was gathered was examined using Excel and SPSS software. The average, growth rate, standard deviation, coefficient of variation, and regression model are the statistical methods applied in this investigation.

This model investigates several uses for econometrics findings. Based on this, fixed and random effects models can be applied to the given regression model.

$$FP_{it} = \beta_0 + \alpha_i + \beta_1 \cdot \text{Economic Scores}_{it} + \beta_2 \cdot \text{Social Scores}_{it} + \beta_3 \cdot \text{Environmental Scores}_{it} + Eo_{it}$$

The composite financial performance variable in this model is called FP_{it}, and the independent variables are the economic, social, and environmental scores. So_{it} is the error term. The individual and time-based effects (α_i) are introduced to account for variations in financial performance that are distinctive to each individual and to each time period.

4. Results and Findings

Table 2: Descriptive Statistics

Variables	Observations	Minimum	Maximum	Mean	Range	Std. Deviation
ROA	25	0.0131	0.1373	0.2283	0.1243	0.0239

ROE	25	0.1661	2.1565	1.2808	1.9904	0.8925
EPS	25	0.5900	1.2800	0.8632	0.6900	0.2157
Economic Scores	25	24.8993	30.0782	28.0490	5.1790	1.7355
Social Scores	25	5.6848	8.1978	7.1964	2.5131	0.7053
Environmental Scores	25	9.1798	10.5429	10.0694	1.3631	0.4575

Source: Computed by Researcher from Appendices 1-5

Table 2, shows that the total assets' Return on Assets (ROA) ranges from 0.0131% to 0.137 %, with a mean value of 0.0228. Return on equity (ROE), which has a mean value of 1.2808, falls between 0.166 and 2.156 per cent of average shareholders' equity. Earnings per share (EPS) vary from 0.590% to 1.280% of the weighted average number of outstanding ordinary shares, with a mean value of 0.8632 per cent. The economic scores vary from 24.899 to 30.078, with an average value of 28.049 per cent. Similarly, social scores have a mean of 7.1964, a standard deviation of 0.70534 per cent, and a range of 5.684 to 9.197. The lowest and highest values for environmental ratings are 9.179 and 10.542%, respectively. In the table, it can be seen that the economic scores have the highest standard deviation when compared to other variables, meaning that their values are more dispersed. In contrast, the ROA has the lowest standard deviation when compared to other variables, meaning that its values are more closely distributed around the mean. The large discrepancies in Return on Equity (ROE), Return on Assets (ROA), and Earnings per Share (EPS) indicate variances in financial performance. The findings suggest that a wide range of businesses have different perspectives on sustainability and financial management, which adds to the discourse's complexity and variety.

Table 3: Correlation Matrix

	ROA	**ROE**	**EPS**	**Economic Scores**	**Social Scores**	**Environmental Scores**
ROA	1					
ROE	-0.222	1				
	(.285)					
EPS	0.079	0.100	1			
	(.707)	(.635)				
Economic	-0.332	0.300	-0.715	1		
Scores	(.105)	(.145)	(.000)			
Social Scores	-0.176	0.807	0.344	-0.034	1	
	(.400)	(.000)	(.092)	(.870)		
Environmental	-0.303	0.406	-0.599	0.879	0.142	1
Scores	(.141)	(.000)	(.002)	(.000)	(.000)	

Source: Computed by Researcher from Appendices 1-5.

The above correlation matrix s shows a negative and negligible association with ROA (-0.332), a positive and insignificant correlation with ROE (0.300), and a negative correlation with EPS (-0.715), according to the correlation matrix Table 3. Similarly, social ratings have an EPS correlation of -0.034, a negative

but negligible association with ROA (-0.176), and a positive and substantial correlation with ROE (0.807). Likewise, there is a negative but noteworthy link between environmental ratings and ROA (-0.303), a positive and noteworthy correlation with ROE (0.406), and a negative correlation with EPS (-0.599). The financial indicators and the economic, social, and environmental scores have complex relationships that are revealed by the correlation matrix analysis. Economic scores show a mixed pattern of correlation: they are negatively correlated with ROA, positively correlated but not significantly with ROE, and negatively correlated with EPS. Social ratings show a variety of relationships, such as a small negative correlation with EPS, a large positive correlation with ROE, and a negligible correlation with ROA. Environmental evaluations exhibit a significant negative relationship with ROE, a significant positive relationship with ROA, and a negative relationship with EPS. The findings highlight the complex relationship that exists within the examined dataset between sustainability metrics and financial performance.

Table 4: Panel Regression: ESE Scores Impact on ROA

Variables	Coefficient	t - value	p-value
Economic Scores	0.096	4.815	.000
Social Scores	0.43	0.543	.593
Environmental Scores	0.053	0.801	.432
r = 0.790			
R^2 = 0.624			
Adjusted R Square = 0.571			
Prob.(F-Statistic) = 0.000			

The results in Table 4 indicate that the independent variables of economic, social, and environmental scores explain 57.1% of the variation in the bank's Return on Assets (ROA) financial performance. Economic scores have a considerable impact on ROA, as evidenced by the p-value of 0.000 and statistical significance at a 95% confidence level. This partially supports the adoption of Hypothesis H_1. Since the p-values for the Social and Environmental scores are 0.593 and 0.432, respectively, and as they are more than 0.05 ($p > 0.05$), hypothesis H_1 is partially rejected. This indicates a positive but small influence on ROA. Therefore, it can be concluded from the results of the table that economic scores significantly affect ROA while social and environmental scores are positively related to ROA but are insignificant to effect it. The possible reasons may be that increasing the number of branches and ATMs and salaries and wages (economic scores) expand the business of the banks while increasing the number of employees and donations (social scores) and fuel expenses & energy consumption (environmental scores) decrease the earnings of the bank.

Table 5: Panel Regression: ESE Scores Impact on ROE

Variables	Coefficient	t - value	p-value
Economic Scores	0.165	1.347	.192
Social Scores	1.034	7.110	.000
Environmental Scores	0.016	0.033	.974
r = 0.871			
R^2 = 0.759			
Adjusted R Square = 0.725			
Prob.(F-Statistic) = 0.000			

The results shown in Table 5 demonstrate that the economic, social, and environmental scores, which are independent factors, are responsible for 72.5% of the variance observed in the bank's financial performance with respect to return on equity (ROE). The statistical significance of the p-value of 0.000

for social scores at a 95% confidence level indicates that economic scores have a noteworthy influence on return on equity. This lends some credence to the adoption of Hypothesis H_2. The economic and environmental scores have p-values of 0.192 and 0.974, respectively, and as they are more than 0.05 ($p > 0.05$), the hypothesis H_2 is partially rejected. This indicates a positive but small influence on ROE. The findings indicate that a significant amount of the variation in the bank's return on equity (ROE) may be explained by the combined effects of economic, social, and environmental ratings. The acceptance of Hypothesis H_2 is supported by the statistically significant impact of social ratings on ROE, showing a noteworthy influence. On the other hand, Hypothesis H_2 is partially rejected due to the non-significant p-values for the environmental and economic scores, which indicate a positive but comparatively small influence on ROE. These findings demonstrate the complex relationship especially when considering return on equity between sustainability criteria and the bank's financial performance. Therefore, it can be concluded from the results of the table that social scores significantly affect ROE while economic and environmental scores are positively related to ROE but are insignificant to affect it.

Table 6: Panel Regression: ESE Scores Impact on EPS

Variables	Coefficient	t - value	p-value
Economic Scores	-0.073	-1.947	.065
Social Scores	0.105	2.365	.028
Environmental Scores	-0.063	-0.439	.665
r = 0.785			
R^2 = 0.616			
Adjusted R Square = 0.561			
Prob.(F-Statistic) = 0.002			

It is evident from Table 6 that the independent variables of social, environmental, and economic scores account for 56.1% of the variation in the financial performance of the bank's profits per share (ROE). The social scores have a statistically significant p-value of 0.028 at a 95% confidence level. In support of Hypothesis H_3, which is largely accepted, this indicates that the social scores have a considerable influence on the ROE. Since both the environmental and economic scores' p-values are more than 0.05 ($p > 0.05$), this suggests a negative and little effect on EPS and helps to partially refute Hypothesis H_3. The combined impact of social, environmental, and economic scores may account for a sisable portion of the variation in the bank's financial performance as indicated by earnings per share (EPS). The statistically significant p-values for the social scores, which show a noteworthy influence on EPS, provide some support for hypothesis H_3. Since the non-significant p-value for the environmental and economic evaluations indicates a negative and little effect on EPS, hypothesis H_3 is partially rejected. These results shed light on the intricate relationships that exist between sustainability metrics and the bank's success in terms of earnings per share. Thus, the table's results indicate that social scores have a substantial impact on EPS, but economic and environmental scores have a negative relationship with EPS but are not statistically significant.

Table 7: Table of Significance for the Dependent and Independent Variables

Variables	Economic Scores	Social Scores	Environmental Scores
Return on Assets (ROA)	+	Insignificant	Insignificant
Return on Equity (ROE)	Insignificant	+	Insignificant
Earnings per Share (EPS)	Insignificant(-)	+	Insignificant (-)

The study's general findings are briefly described in Table 7. According to the table, ROA is positively impacted by economic scores, whereas ROE and EPS are only marginally impacted. The social ratings also have a minor effect on ROA but a favourable, large influence on ROE and EPS. Similar to how they affect ROE and ROA, the environmental ratings also have a negligible negative influence on EPS.

Table 8: Status of Hypotheses

Hypothesis	Status
H_1	Verified True (partly)
H_2	Verified True (partly)
H_3	Verified True (partly)

5. Conclusion and Policy Recommendations

The UN's Sustainable Development Goals are interconnected, and this study presents that money might be a key factor in achieving the SDGs through the impact value chain. In particular, Since China has the most advanced manufacturing sector in the world, it needs sustainable financing to fulfil its responsibilities as a major power and advance the SDGs. A significant component of China's financial system is commercial banks. The financial system should incorporate SMEs and the general public, and in order to adhere to international standards, the sustainable financing unit should keep getting stronger. Banks are essential to China's technological improvement, economic restructuring, and the attainment of worldwide sustainable development since they are a significant source of funding for both individuals and enterprises. The environment, society, and our future are all impacted by the way banks conduct business. The banking industry has developed in recent years to recognize environmental, social, and governance (ESG) risks more widely, and loan decisions and business plans have taken this knowledge into consideration. The "Equator Principles," which have grown into an international standard for addressing ESG risks in project finance, have been largely embraced by international financial institutions.

The functioning of the economy depends on finance. It facilitates strategic decision-making by allocating resources to the most advantageous consumers and purposes. There are instances where it is possible to show a connection between sustainable investment and financial performance. Sustainable investment prioritizes economic, social, and environmental factors above all else in order to satisfy the needs of present and future generations. In China's financial system, commercial banks are quite important. China's sustainable financial development is based on its commercial banks. China's economy depends heavily on its banking industry, which provides financial services to people, businesses, and organisations. Analyzing the effect of sustainable investment on the financial performance of China's banking industry is therefore a crucial first step in understanding the role that banks play in the country's economic growth. The ranking of the Banker's Top 100 Chinese banks for 2023 served as the source of the sample for this study. The best five commercial banks from the 2018–2022 ranking make up the research sample.

The relationship between the financial performance of China's banking industry and the sustainability of the nation's economy, society, and environment has been tried to be explored in this study. In particular, it aims to address a few major questions about the country's banking sector's performance, namely how environmental, social, and economic sustainability affects overall financial performance. The study's objectives were met by regressing the dependent variables (EPS, ROA, and ROE) on the independent factors (social, environmental, and economic scores). Over the course of a five-year research period, the study's results show that the economic, social, and environmental scores had a significant impact on the ROA, ROE, and EPS of China's banking sector. The research findings offer significant perspectives that the Chinese banking sector might employ to promote ethical business practices and sustainable growth. Prospective investors may find the study's conclusions useful, but lawmakers and regulators should also be able to use them to improve and develop China's banking regulations addressing sustainable investments. This study investigates the correlation between return on equity, earnings per share, and return on assets in China's banking sector and social, economic, and environmental sustainability. The analysis's primary focus is China's commercial banks' financial results. Further studies can focus on other Chinese economic sectors and subsectors and offer additional details about how other businesses could adopt a

quantitative approach to encourage the development of sustainable finance in China and assist the SDGs of the UN.

To improve its economic, social, and environmental sustainability, it is recommended that China's banking industry better incorporate sustainable finance methods in light of the study's conclusions. In order to comply with international standards, commercial banks should aggressively include SMEs and the general public in the financial system while also fortifying their sustainable finance divisions. In order to promote ethical financial practices, legislators and regulators are urged to create and improve banking legislation that particularly target sustainable investments. Furthermore, continuous attempts to extend the reach of sustainability concerns outside the banking sector to other businesses will help the UN Sustainable Development Goals and develop sustainable finance in China as a whole.

References

1. Aggarwal, P. (2013). *Impact of the sustainability performance of the company on its financial performance: A study of listed Indian companies.* Global Journal of Management and Business Research (C: Finance) Volume, 13.
2. Akhtar, A., Ur Rehman, S., Ul Haq, I., & Qureshi, S. K. (2020). *Impact of Environmental, Social and Governance (ESG) Investment on Financial Performance: Evidence from the Emerging Market*. Environmental Science and Pollution Research, 27(2), 1767-1781.
3. Anderson, J., & Khan, A. (2018). *Theories Linking Capital Structure with Financial Performance 2018.*Australian Academy of Accounting and Finance Review. 5(7). 793-807
4. Beisenbina, M., Fabregat-Aibar, L., Barberà-Mariné, M. and Sorrosal-Forradellas, M. (2022). *The burgeoning field of sustainable investment: Past, present and future*. Sustainable Development. *3*(1), 133-153.
5. Bergset, L., 2017. *Green start-up finance – where do particular challenges lie?* International Journal of Entrepreneurial Behavior & Research, 24(2), pp. 451-575.
6. Brammer, S., Brooks, C., & Pavelin, S. (2006). *Corporate social performance and stock return UK evidence from disaggregate measures*. Financial Management, 35(3), 97–116.
7. Chen, H., Yao, M. and Chong, D., 2019. Research on Institutional Innovation of China's Green Insurance Investment. Journal of Industrial Integration and Management, 04(01), p. 1950003.
8. Daly, H. E., & Farley, J. (2011). *Ecological economics: principles and applications*. Island Press, Washington DC.
9. Diamastuti, E., Muafi, M., Fitri, A., & Faisaty, N. E. (2021). *The Role of Corporate Governance in the Corporate Social and Environmental Responsibility Disclosure*. Journal of Asian Finance, Economics and Business, 8(1), 187–198.
10. Dikau, S., & Volz, U. (2021). *Central bank mandates, sustainability objectives and the promotion of green finance*. Ecological Economics, 184, 107022.
11. Durrani, A., Rosmin, M., & Volz, U. (2020). *The role of central banks in scaling up sustainable finance–what do monetary authorities in the Asia-Pacific region think?Journal of sustainable finance & investment*, *10*(2), 92-112.
12. Durrani, A., Rosmin, M., & Volz, U. (2020). *The role of central banks in scaling up sustainable finance–what do monetary authorities in the Asia-Pacific region think?* Journal of Sustainable Finance & Investment, 10(2), 92-112.
13. Falcone, P. M., & Sica, E. (2019). *Assessing the opportunities and challenges of green finance in Italy: An analysis of the biomass production sector*. *Sustainability*, *11*(2), 517.
14. Florea, L.; Cheung, Y.H.; Herndon, N.C. (2013) *For all good reasons: Role of values in organisational sustainability*. J. Bus. Ethics, 114, 393–408.
15. Franco, E. G. (2020, January). *The Global Risks Report 2020*. World Economic Forum.
16. (Kimberley Long (2023). *The Bankers Top 100 Chinese Banks 2023.* The Banker. Published on September 01, 2023, Accessed on February 12, 2024 https://www.thebanker.com/The-Banker-s-Top-100-Chinese-Banks-2023-1693552964

17. Lopez, M. V., Garcia, A., & Rodriguez, L. (2007). *Sustainable development and corporate performance: A study based on the Dow Jones sustainability index.* Journal of Business Ethics, 75(3), 285–300.
18. Munir, S., Irfan, M. & Malik, M.S. (2022). *Impact of Sustainable Finance on the Firm Performance: A Study on the Pakistani Banking Sector*. Indian Journal of Economics and Business. 21(2). 150.
19. Nyachanchu, T. O., & Cheruiyot, T. K. (2017). *Role of Leadership Behaviour in Sustainability: Financial Services Sector Players*. Journal of Economics and Sustainable Development, 8(22).
20. Ozcelik & Avci Ozturk, B. (2014). *Evaluation of Banks' Sustainability Performance in Turkey with Grey Relational Analysis.* Journal of Accounting & Finance, (63).
21. Raworth, K. (2017), *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist.* Random House Business Books, London.
22. Schaltegger, S., & Synnestvedt, T. (2002). The link between 'green and economic success: environmental management as the crucial trigger between environmental and economic performance. Journal of Environmental Management, 65(4), 339-346.
23. Schoenmaker, D. (2018). *A framework for sustainable finance*. Available at SSRN 3106807.
24. Schoenmaker, D., & Schramade, W. (2018). *Principles of sustainable finance*. Oxford University Press
25. Scholtens, B. (2006). *Finance as a driver of corporate social responsibility.* Journal of Business Ethics, 68(1), 19-33.
26. Scholtens, B. (2006). *Finance as a driver of corporate social responsibility*. Journal of Business Ethics, 68(1), 19-33.
27. Sherman, H. D. and Gold, F. (2014) "Bank branch operating efficiency: Evaluation with Data Envelopment Analysis," *Manag. Sci. Lett*, 9, pp. 297–315
28. Stoddart, H., Schneeberger, K., Dodds, F., Shaw, A., Bottero, M., Cornforth, J., & White, R. (2011). *A pocket guide to sustainable development governance.* Stakeholder Forum 2011
29. Tang, Z., Hull, C. E., & Rothenberg, S. (2012). *How corporate social responsibility engagement strategy moderates the CSR-financial performance relationship.* Journal of Management Studies, 49(7), 1274–1303.
30. Tawfik, O. I., Kamar, S. H., & Bilal, Z. O. (2021). *The effect of sustainable dimensions on the financial performance of commercial banks: A comparative study in emerging markets.* The Journal of Asian Finance, Economics and Business, 8(3), 1121-1133.
31. Tianqi Luo (2022). Analyses of. Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022). Advances in Economics, Business and Management Research. 211.
32. Woo, C. *et al*. (2015) "The static and dynamic environmental efficiency of renewable energy: A Malmquist index analysis of OECD countries," *Renewable and Sustainable Energy Reviews*, 47, pp. 367–376. doi: 10.1016/j.rser.2015.03.070.
33. Volz, U. (2019). *"Fostering Green Finance for Sustainable Development in Asia."* Rutledge Handbook of Banking and Finance in Asia, edited by U. Volz, P. Morgan, and N. Yoshino, 488–504. London: Routledge.
34. Zafar, K. M. (2020). ARDL–Analysis of the Relationship among Exports, FDI, Current Account Deficit and Economic Growth in Pakistan. Iranian Economic Review, 24(2), 393-414.
35. Zhao, H. Y. and Zhuang, X. M. (2016) "Research on the ownership structure of commercial banks and corporate governance performance: An empirical analysis based on listed commercial banks in China," *North. Econ. Trade*, 6, pp. 98–101.
36. Zhou, J., Xiong, S., Zhou, Y., Zou, Z. and Ma, Xiaoming. (2017). *Research on the Development of Green Finance in Shenzhen to Boost the Carbon Trading Market.* IOP Conference Series: Earth and Environmental Science, 81, p.01207

Appendices

Table 1: Financial Summary of Bank of China from 2018-2022 (In RMB millions)

I**tem**	**2018**	**2019**	**2020**	**2021**	**2022**
Total Assets	21,267,275	22,769,744	24,402,659	26,722,408	28,913,857
Net interest income	359,706	374,250	415,918	425,142	460,678
Operating Income	503,806	550,010	567,647	605,717	619,139
Equity attributed to equity holders	180,086	187,405	192,870	216,559	227,439
earnings per share	0.59	0.61	0.61	0.70	0.73
Net cash per share generated	5.14	5.61	5.98	6.47	6.99
Operating expenses	176,979	198,269	202,411	226,355	231,196
General operating and Administrative Expenses	45,896	46,103	46,337	47,403	45,647
Total Profit	229,643	250,645	246,378	276,620	284,595
Net Profit	192,435	201,891	205,096	227,339	237,504
Branches	10,726	10,652	10,487	10,382	11,439
other establishments	26,044	30,425	31,960	32802	33792
ATMs	41,723	37,331	33,314	27,729	25,393
Employees	26,044	309,384	309,084	306,322	306,182
Staff Cost	85,391	90,762	89,334	99,317	102,756
Donation	87.35	117.60	162	98.54	89.085

Source: Bank of China, Annual Reports from 2018-2022

Table 2: Financial Summary of China Construction Bank from 2018-2022 (In RMB millions)

Item	**2018**	**2019**	**2020**	**2021**	**2022**
Total Assets	23,222,693	25,436,261	28,132,254	30,253,979	34,601,917
Net interest income	486,278	510,680	575,909	605,420	643,064
Operating Income	633,772	678,001	714,224	764,706	758,155
Equity attributed to equity holders	254,655	266,733	271,050	302,513	323,861
earnings per share	1.00	1.05	1.06	1.19	1.28
Net cash per share generated	7.65	8.39	9.06	9.95	10.87
Operating expenses	174,764)	188,132	188,574	219,182)	222,314
General operating and Administrative Expenses	218,270	218,674	218,980	219,182	222,314
Total Profit	308,160	326,597	336,616	378,412	382,017
Net Profit	255,626	269,222	273,579	303,928	323,166
branches	14,977	14,912	14,741	14,510	14,356
other establishments	542	561	595	597	613
ATMs	92,225	86,767	79,144	69,030	66,943
Employees	345,971	347,156	349,671	351,252	352,588
Staff Cost	36,213	39,075	35,460	40,998	49,355
Donation	89.41	298	449	119	128

Source: China Construction Bank, Annual Reports from 2018-2022

Table 3: Financial Summary of Industrial and Commercial Bank of China(ICBC)from 2018-2022 **(**In RMB millions)

Item	**2018**	**2019**	**2020**	**2021**	**2022**
Total Assets	27,699,540	30,109,436	33,345,058	35,171,383	39,609,657
Net interest income	572,518	606,926	646,765	690,680	693,687
Operating Income	725,121	776,002	800,075	860,880	841,441
Equity attributed to equity holders	297,676	312,224	315,906	348,338	360,483
earnings per share	0.82	0.86	0.86	0.95	0.97
Net cash per share generated	6.30	6.93	7.48	8.15	8.81
Operating expenses	194,203	207,776	206,585	236,227	240,884
General operating and Administrative Expenses	201,899	212,908	213,298	236,227	240,884
Total Profit	372,413	391,789	392,126	424,899	422,565
Net Profit	298,723	313,361	317,685	350,216	361,038
branches	16,820	16,605	16,623	16,590	16,456
other establishments	130	132	132	133	133
ATMs	89,646	82,191	73,059	66,563	60,204
Employees	449,296	445,106	440314	434,089	427,587
Staff Cost	121,074	126,950	126,572	139,363	143,501
Donation	104.251	206.220	358.15	114.81	128.63

Source: ICBC, Annual Reports from 2018-2022

Table 4: Financial Summary of Bank of Communications from 2018-2022 **(**in RMB millions)

Item	**2018**	**2019**	**2020**	**2021**	**2022**
Total Assets	9,531,17	9,905,600	10,697,616	11,665,757	12,992,419
Net interest income	130,908	144,083	153,336	161,693	169,937
Operating Income	213,055	232,857	246,724	269,748	273,528
Equity attributed to equity holders	698,405	793,247	866,607	964,647	1,023,409
earnings per share	0.96	1.00	0.99	1.10	1.14
Net cash per share generated	8.60	9.34	9.87	10.64	11.43
Operating expenses	64,040	66,560	66,004	74,545	76,825
General operating and Administrative Expenses	28,497	28,613	28,785	29,621	28,861
Total Profit	86,067	88,200	86,425	93,959	98,215
Net Profit	73,630	77,281	78,274	87,581	92,149
branches	3241	3079	3929	4267	4849
other establishments	201	207	208	276	301
ATMs					
Employees	89,542	88000	90,716	90,238	91,823
Staff Cost	29,995	32,927	22,920	25,383	26,918
Donation	35.0662	43.347	110.967	51.935	60.438

Source: Bank of Communications, Annual Reports from 2018-2022

Table 5: Financial Summary of Agricultural Bank of China from 2018-202

(in RMB millions)

Item	**2018**	**2019**	**2020**	**2021**	**2022**
Total Assets	22,609,471	24,878,288	27,205,047	29,069,155	33,927,533
Net interest income	477,760	486,871	545,079	577,987	589,966
Operating Income	602,557	629,350	659,332	721,746	725,499
Equity attributed to equity holders	1,670,294	1,948,355	2,204,789	2,414,605	2,668,412
earnings per share	0.59	0.59	0.59	0.65	0.69
Net cash per share generated from operating activities	0.30	1.01	0.17	0.68	3.78
Operating Cost	213,963	224,096	229,897	260,275	274,023
General operating and Administrative Expenses	59,678	59,901	61,332	61,558	61,861
Total Profit	251,674	266,576	265,050	295,880	306,216
Net Profit	202,631	212,924	216,400	241,936	258,688
Branches	23,381	23,149	22,938	22,807	22,788
other establishments	19494	19268	19124	19011	19005
ATMs	41,723	37,331	33,314	27,729	25,393
Employees	473,691	464,011	459,000	455,174	452,258
Staff Cost	105,509	106,807	108,708	119,750	127,374
Donation	9.86	10.32	11.93 billion	1.60	1.07

Source: Agricultural Bank of China, Annual Reports from 2018-2022