

Environmental Sustainability and CSR Practices by Banks in Indonesia, Malaysia, and Singapore

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Abstract

This paper examines if banks in Indonesia, Malaysia, and Singapore engage in similar corporate social responsibility (CSR) activities regarding environmental sustainability. This exploratory study collected data from eight major banks in each selected country. Mean ranks, Kruskal-Wallis H and Bonferroni tests were used to analyse the data. The findings reveal a significant difference in "Environmental Restoration" ratings among these banks. "Energy Efficiency" garnered the highest median rank, indicating its importance to banks. "Responsible Financing" exhibited the lowest median value, suggesting a lesser priority for banks. "Environmental Education, Conservation, Protection, Waste Reduction, and Philanthropic Activity" displayed similar median values across these banks, indicating a common commitment to environmental sustainability. Bonferroni correction confirms these findings. This paper presents the CSR sustainable activity mapping framework, primarily based on the practices at major banks. Nonetheless, the findings also offer insights into small and medium-sized ASEAN banks by illustrating how CSR strategies can be adapted to their resource limitations. By leveraging resource-efficient initiatives, these banks can align their CSR efforts effectively within their operational capacities. The novelty of this framework lies in the banks' CSR focus/operations, thereby improving the existing concepts' applicability/relevance within this sector.

Keywords: Corporate Social Responsibility (CSR), Environmental Sustainability, Banking Sector, CSR Sustainable Activity Mapping Framework, Indonesia and Malaysia and Singapore.

JEL Classifications: M00, M10, M14, M19, Q01

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1. Introduction

Corporate social responsibility (CSR) initiatives have a substantial impact on businesses and by extension, the society within which they operate, and the environment. CSR-related green initiatives enhance organisational adaptability and responsiveness to environmental changes, including the impact of climate change. From a social perspective, CSR activities that protect the environment can significantly enhance an organisation's public image (Almeida and Wasim, 2023). Moreover, CSR serves as a strategy for organisations to comply with environmental regulations and avoid the financial penalties associated with non-compliance. However, one of the main challenges for many organisations is how to maintain a balance between business growth and creating a positive impact on the environment. While organisations have increasingly adopted environmental initiatives, they also face challenges in designing and implementing CSR initiatives across different countries where they operate (Arenas and Ayuso, 2016). This is particularly significant for the banking sector because CSR activities have important implications for banks' business development, ethical business practices, and financial and non-financial performance (Shabir et al., 2024). To grow sustainably, banks should not only focus on financial performance but also need to contribute to an inclusive and resilient future. According to Abdel Zaher AM and Abdel Zaher DM (2018), there is an association between lack of socially responsible behaviours within firms (for example, environmental issues), and high-risk assessments by auditors. Research on CSR, however, tends to focus less on environmental aspects and more on CSR reporting and disclosure (Menassa and Dagher, 2020). Additionally, environmental risks can significantly influence banks' financial and investment risks (Weber, 2017).

In the context of CSR and environmental sustainability by banks, several research gaps were identified. First, prior studies on CSR activities mainly focus on a single country, and very few comparative research studies explore CSR in different countries, especially in the ASEAN region (Chapple and Moon, 2025). Panda, D'Souza and Blankson (2018) observed that CSR remains relatively unexplored in emerging economies. Jamali and Neville (2011) also highlighted the importance of comparative research on CSR in developing countries, as CSR practices can be influenced by local norms, cultural contexts, regulations, etc. Second, current literature mainly studies CSR in a broad sense without investigating specific types of CSR activities, for example, environmental education, energy efficiency, responsible financing, etc. Hence, it is essential to delve into various CSR activities relating to the environment to gain more insights into their effects. Third, there is a lack of understanding regarding how banks prioritise and practise various CSR activities, given the uniqueness and resources of each bank (Jamali & Neville, 2011). This highlights the need for more research on environmental CSR adoption by the banking sector in developing countries, especially CSR and sustainability has become increasingly important to banks.

This study aims to close the gaps by investigating CSR activities related to environmental sustainability in the banking sector, using data from major banks in Indonesia, Malaysia, and Singapore, and proposes a CSR sustainable activity mapping framework for banks in ASEAN

countries to improve their contributions to environment sustainability. This study focuses on CSR activities in banks across Indonesia, Malaysia, and Singapore—three representative ASEAN nations, due to their unique economic, cultural, and regulatory landscapes. The ASEAN region consists of ten countries, but these three nations were chosen because they collectively represent a significant portion of ASEAN's economic activity, financial development, and banking innovation. Singapore, as a global financial hub, demonstrates advanced Environmental, Social and Governance (ESG) practices, while Malaysia and Indonesia present diverse and emerging CSR adoption scenarios. These differences allow for a meaningful basis for comparative analysis and insights that may apply to other ASEAN countries. Moreover, the three countries share comparable cultural and business practices and similar consumer attitudes and perceptions of CSR. The general sentiments towards environmental sustainability in these countries are still evolving; therefore, studying them presents numerous opportunities for further research on banks and sustainability. Overall, Indonesia, Malaysia, and Singapore offer a representative spectrum of CSR practices, providing valuable perspectives that contribute to a broad understanding of environmental sustainability efforts in the region. In addition, they have well-documented CSR initiatives which are publicly available information which facilitates robust analysis.

The specific objectives of this study are:

- (1) To examine the variations in CSR activities concerning environmental sustainability among banks in Indonesia, Malaysia, and Singapore,
- (2) To present a CSR sustainable activity mapping framework tailored to the banking sector in ASEAN countries, considering the unique environmental priorities and challenges observed in this study.

This study is significant as it is interdisciplinary in nature and enhances the understanding of environmental sustainability and CSR practices in the banking sector. The focus on Indonesia, Malaysia and Singapore offers important insights due to their economic differences and cultural contexts. While it incorporates existing concepts of CSR, management, policies, environmental and social sustainability, the novelty of the proposed framework lies in its focus on banks' operations. This improves the applicability and relevance of the framework as well as providing opportunities for banks to leverage available resources when they embark on CSR benchmarking efforts, while reflecting established and widely accepted activities. This would help banks to utilise their essential resources more effectively and efficiently to achieve positive environmental and financial performance. Since banks serve a large customer base, the implications of the proposed framework extend beyond the banking institutions to the broader business and societal landscape. This pilot study also lays the foundation for further research on CSR practices and environmental sustainability in the selected countries.

2. Literature Review

2.1 Corporate Social Responsibility (CSR)

CSR is defined as a firm's voluntary activities that go beyond legal requirements to achieve social and environmental impact, and meet stakeholders' expectations (Mohammadi and Saeidi, 2022). Carroll (1998) proposed a CSR pyramid encompassing economic, legal, ethical, and philanthropic. The economic aspect refers to an organisation's responsibility to produce desirable goods/services to meet market needs and to generate above-average returns. The legal aspect involves compliance with government legislation and obligations to stakeholders. The ethical aspect covers responsibilities to meet community's ethical expectations in non-legislated areas. Lastly, the philanthropic aspect includes the charitable/voluntary actions taken to give back to society (Carroll and Shabana, 2010). Through the years, concepts of CSR have evolved. While different countries may adopt different frameworks of CSR, Carroll's CSR typology remains the most widely adopted by organisations when formulating CSR strategies to meet their commitments to stakeholders and contribute to sustainability (Azmat and Ha, 2013).

2.2 CSR and Environmental Sustainability in the Banking Sector

As the banking sector is more heavily regulated than other sectors, stakeholders expect banks to exceed the minimum regulatory requirements and actively pursue environmental sustainability (Pratihari and Uzma, 2020). Banks in different countries have implemented different CSR activities to meet the local requirements, and their environmental performance varies. In India, public banks actively pursue environmentally friendly activities, and CSR activities regarding education, community welfare, financial literacy, etc. (Maji and Lohia, 2023); whereas areas, such as environmental protection, are not priorities for other banks. Banks in China have "integrated environmental issues into lending, investing, asset management and project finance" (Weber, 2017, p. 360). Some common CSR initiatives adopted by banks include encouraging corporate volunteering, helping underprivileged communities, promoting community development programmes, supporting education programs, etc. (Rahman et al., 2016).

Murawski (2016) discussed the CSR strategies implemented by the biggest bank group in Japan, the Mitsubishi UFJ Financial Group. The key environmental CSR strategy adopted by this group was the responsible financing of loans, i.e., the loan approval rate was higher for businesses wishing to fund renewable energy projects. The Association of Banks in Singapore set guidelines for its members to align their business activities to CSR principles which require banks to incorporate Environmental, Social and Governance (ESG) issues into their business processes and selection criteria for lending policies (Nguyen et al., 2022). Singapore's government-mandated ESG reporting requirements are among the most stringent in the ASEAN region. This drives higher levels of sustainability reporting and performance among Singaporean banks compared to those in Malaysia and Indonesia. This regulatory environment shapes the emphasis of CSR activities undertaken by banks in Singapore, focusing on energy efficiency, environmental protection, and reduction of waste, which align with government priorities.

Meanwhile, banks in Malaysia and Indonesia adopt activities such as environmental restoration and conservation, influenced by their abundant natural resources and larger land areas. Strict environmental management guidelines apply to banks operating in Malaysia, and the expectation is that banks should meet the highest environmental ethical standards. In Indonesia, banks are required to address climate change issues and proactively adopt operational changes to promote sustainability (UNEP, 2015). These differences highlight the diverse approaches to CSR shaped by each country's regulatory and cultural contexts.

Notably, few banks in ASEAN countries have addressed climate change issues and/or sustainability risks in their business operations. One of the possible reasons suggested for this lack of focus is the lack of stringent supervision by local regulators, resulting in delays in implementing standards, such as ESG policies. Kim et al. (2021) explained that when stakeholders are aware of environmental issues, they are likely to demand action to address these issues.

Key CSR activities undertaken by the major banks in different countries can be categorised into the following groups:

Environmental Education

Environmental education refers to banks' efforts to educate their employees, customers, and the public about environmental issues to improve environmental awareness and foster a deeper understanding of the subject. Environmental education activities include training staff on Environmental and Social Risk Management (ESRM) policies (Citigroup Inc., 2017), organising campaigns to promote recycling habits and more eco-friendly lifestyles (HSBC Holdings Plc., 2021), holding various awareness programs (Malayan Banking Berhad, 2019), and conducting environmentally friendly lifestyle education programs. Common activities in the workplace include education on energy saving (e.g., turning off lights in unused areas), recycling, water-saving campaigns, encouraging video conferencing and using digital tools to conduct meetings and document dispatching (Bank Central Asia, 2019).

Energy Efficiency

Banks also make efforts to reduce energy consumption and develop sustainable energy sources, which can redirect resources to other uses. Examples of such activities include benchmarking electricity consumption, improving energy and water consumption efficiency, engaging in sustainable management and operations, ensuring indoor environmental quality, installing solar panels, and reducing the carbon footprint of the workplace. In Malaysia, banks have adhered to the best energy management practices set by the Malaysian Energy Commission (CIMB Group Holdings Berhad, 2020). Major banks in Indonesia have adopted optimisation of power and fuel, used solar-powered ATMs, organised energy saving campaigns, and implemented a vehicle-sharing system (Bank Negara Indonesia, 2020).

Environmental Conservation

Environmental conservation efforts by banks aim to sustain or rebuild the natural environment. These include recycling drives, volunteer projects, awareness campaigns, and showing support for “Earth Hour” (UOB, 2019). In Malaysia, banks have supported tiger and sea turtle conservation, participated in mangrove restoration and marine conservation projects, and invested in water programs (Malayan Banking Berhad, 2019). In Indonesia, banks have organised river clean-ups, sponsored tree planting activities, released Orangutans back into the forest, conducted Orangutan conservation education and replanted forests (Bank Negara Indonesia, 2020).

Environmental Protection

Environmental protection efforts involve measures taken by banks to reduce their carbon footprint. Common activities undertaken by banks include using video conferencing and online collaboration tools, promoting paperless initiatives, reducing unnecessary air travel, monitoring carbon emissions, implementing digital solutions, (Malayan Banking Berhad, 2019), and incorporating green office building concepts (Bank Rakyat Indonesia, 2019).

Environmental Restoration

Environmental restoration involves efforts taken by banks to renew and/or restore damaged ecosystems. Banks typically do this through commitments to climate action including activities aligned with the Sustainable Development Goals (Citigroup Inc., 2017). Banks assist clients to decarbonise their portfolios, support companies with strategies that can address climate change issues, and plant trees and shrubs. OCBC Bank (2019) has trained individuals to lead long-tailed macaques back to their natural habitats and conducted several outreach programs to promote human-wildlife coexistence.

Reduction in Waste

Reduction of waste refers to efforts taken by banks to reduce and manage the waste produced through their daily operations. Examples of such activities in Singapore include collecting paper waste for recycling, selling/recycling decommissioned desktops and notebooks (HSBC Holdings Plc., 2021), and implementing resource efficiency systems (UOB, 2019). In Malaysia, banks have encouraged appropriate disposal of old IT equipment and proper management of recycled waste (Malayan Banking Berhad, 2019). Banks in Indonesia have made similar efforts to reduce office waste, implement paperless transactions, reduce fuel usage in inter-office transportation, and run programs that focus on the 3R activities (Reduce, Recycle, Reuse) (Bank Central Asia, 2019).

Responsible Financing

Responsible financing refers to the efforts made by banks to establish financial policies that ensure their operations do not adversely impact the environment. Common activities in Singapore

include enhancing innovations in green financial services; launching green credit products and carbon finance products; developing green projects and services, implementing guidelines on responsible financing (DBS Group Holdings Ltd., 2020), helping customers improve their sustainability practices; and facilitating investments in infrastructure and renewable energy (HSBC Holdings Plc., 2019).

In Malaysia, banks' common activities include assisting small businesses through micro-financing and capacity-building, facilitating lending to green technology companies (Malayan Banking Berhad, 2019), funding projects related to environmental sustainability, approving financing to businesses investing in green technology and sustainability activities (CIMB Group Holdings Berhad, 2020).

Banks in Indonesia have also applied green banking concepts by integrating environmental and social aspects into their policies to achieve economic performance (Bank Rakyat Indonesia, 2019), encouraging businesses to adopt a more environmentally conscious investment approach, ensuring that credit and financing focus on businesses that engage in renewable energy, green transportation, energy efficiency, among other sustainable practices. (Bank Central Asia, 2019).

Philanthropic Activities

Philanthropic activities refer to charity works or donations by banks for environmental sustainability or disaster recovery purposes. Banks in Singapore provide grants to support social enterprises, encourage employee volunteer works, and make direct donations (OCBC Bank, 2019). Banks in Malaysia provide support for flood victims, donate to healthcare programs, improve water infrastructure, and provide clean water for rural villages (Malayan Banking Berhad, 2019). In Indonesia, banks provide healthcare services and access assistance and distribute basic commodities to low-income households (Bank Rakyat Indonesia, 2019).

2.3 CSR Related Theories

The earliest CSR related theory by Bowen (1953) emphasised that organisations should implement policies, make decisions, and take actions that conform to societal expectations. However, this theory attracted criticism from businesses that firmly believed the primary purpose of a business was to maximise profit. Two decades later, Carroll (1998) discussed various levels of CSR, and this remains one of the most popular theories of CSR to date. This theory can be applied to the banking sector in the following ways. Economic responsibility refers to the fundamental reason for the creation of banks, i.e., ensuring above-average returns and creating value for their shareholders. Banks can practise their legal responsibility by minimising risk, and this increases consumers' confidence in the financial system. Ethical responsibility requires banks to be fair, honest and accountable in their dealings with stakeholders. Banks are bound by codes of ethics that require them to be transparent, and to exercise integrity in their business operations. Philanthropic responsibility can be performed in various ways, such as charitable donations to a meaningful cause. At the same time, the three pillars of sustainability, namely social, economic, and environmental, should also be balanced (Brundtland, 1987).

The next theory is the ‘Institutional Theory’ made popular by Campbell (2007), where he identified that the level of CSR exercised by an organisation is affected by different economic conditions, such as the organisation’s financial health, market conditions and the level of competition faced in the industry. When the health of the organisation and the market is unfavourable, money/fund needed for CSR activities will be channeled to run the business. However, organisations will likely increase their CSR efforts in the presence of strict regulations, if independent bodies are exercising scrutiny, or if they operate in a society that advocates social responsibility (Campbell, 2007).

Alternatively, the ‘Resource-Based Theory’ (RBT) can be used to justify CSR adoption. Organisations can employ this useful concept when they formulate CSR strategy as it stresses the importance of intangible resources and capabilities as most important for the organisation’s success (Branco and Rodrigues, 2006). These intangible resources are difficult for competitors to imitate and duplicate, thereby creating competitive advantage for organisations (Kuo et al., 2021). CSR activities would be designed and implemented according to the available resources and internal strengths of the organisations.

Finally, ‘Stakeholder Theory’ is another way of understanding the need for CSR. An organisation’s success is largely influenced by its relationships with its stakeholders. If CSR activities are well managed, they can lead stakeholders to develop more trust in the organisation (Poursoleyman et al., 2024). However, negative stakeholder reactions could curtail its success. Thus, organisations must consider the socio-environmental expectations and needs of their stakeholders when making business decisions (Nguyen et al., 2020).

3. Research Method

3.1 Data Collection and Analysis

This study employs an exploratory approach, gathering data from academic and non-academic sources including annual and CSR/sustainability reports, and government reports. The sample consists of 24 banks from Indonesia, Malaysia, and Singapore (eight major banks from each country) identified from the Corporate Finance Institute (CFI) (see Table 1). These banks were selected based on their asset value in the country. The sample size is justified as these banks collectively represent more than 60% of the overall asset value of the banking sector in the three countries. The collated information was carefully cross-checked, and the CSR-related activities of the selected banks were categorised based on related literature.

Non-parametric statistical tests including mean ranks, Kruskal-Wallis H, and Bonferroni tests, were applied to examine the hypotheses.

Table 1. Major Banks in Indonesia, Malaysia, and Singapore

No.	Major Banks in Indonesia	Major Banks in Malaysia	Major Banks in Singapore
1	Bank Mandiri	Maybank	DBS Group Holdings Ltd.
2	Bank Rakyat Indonesia	CIMB Group Holdings Berhad	UOB
3	Bank Central Asia	Public Bank Berhad	OCBC Bank
4	Bank Negara Indonesia	RHB Bank Berhad	Standard Chartered
5	Bank CIMB Niaga	Hong Leong Bank Berhad	Citigroup Inc. (Citibank Singapore Limited)
6	Bank Danamon	AmBank	HSBC Holdings plc.
7	Bank Permata	United Overseas Bank (Malaysia) Bhd	State Bank of India
8	Panin Bank	Bank Rakyat	Barclays Bank

Source: Compiled from CFI (2020a, 2020b, 2020c), Bank Negara Malaysia (2017).

3.2 Theoretical Framework and Hypotheses

The theoretical framework for environmental sustainability by banks was developed from literature on CSR, institutional theory, resources-based theory (RBT), and stakeholder theory (Figure 1).

Environmental sustainability refers to the quality and integrity of the ecosystem and the protection of the natural environment while supporting human life (Mensah, 2019). Many banks have implemented CSR activities to protect the environment, and these activities are incorporated into their CSR strategies. Such activities help mitigate environmental impact and improve corporate reputation and stakeholder trust (Hart, 1995). Institutional theory explains how institutional elements, such as policy framework, organisational culture, and industry practices, affect CSR activities of banks in different countries. RBT expounds how banks can mobilise their unique resources, capabilities and competitive advantages (e.g., financial assets, physical and human capital resources, expertise in green finance, technology adoption) to carry out environment-related responsibilities. Stakeholder theory underscores the need to consider the impact of environmental related activities on stakeholders. Overall, institutional elements, resource availability, and stakeholder expectations influence how banks select and implement environment-related activities to demonstrate their CSR efforts.

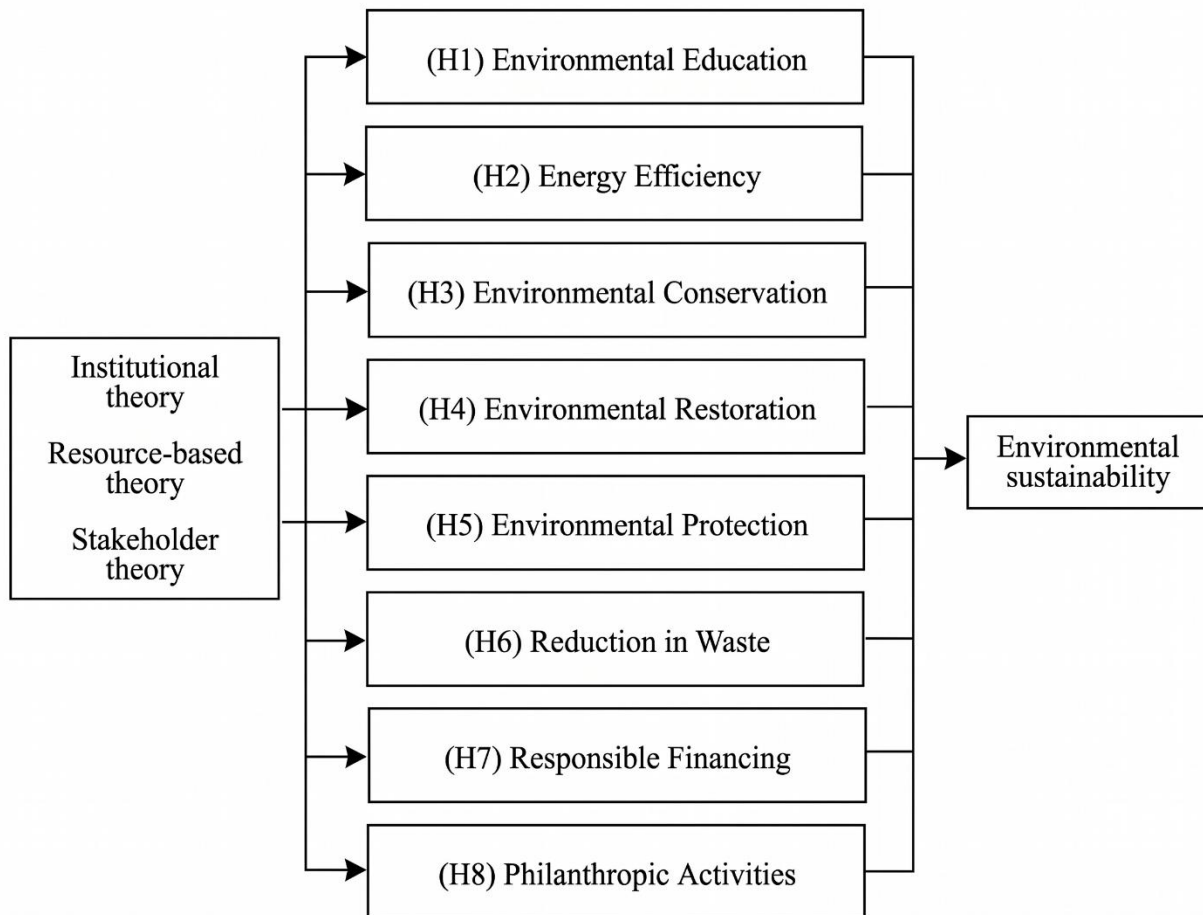


Figure 1. Theoretical framework for environmental sustainability by banks in ASEAN

Source: By the authors.

The following hypotheses were developed based on literature, relevant theories and CSR activities practised by banks. According to Tilbury (2010), environmental education is very important because it can improve stakeholders' awareness and understanding of environmental issues. It can encourage green behaviours and improve the decision-making quality of managers regarding environmental responsibility. Differences in institutional elements, available resources, and stakeholder expectations may influence banks' adoption of environmental education-related activities. Thus, the first hypothesis is:

H1: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in environmental education-related activities.

Energy efficiency and waste management have been identified as one of the CSR practices by banks because they can help them reduce costs and GHG emission, achieving corporate sustainability (Dixon-Fowler et al., 2013). It also helps banks comply with regulations and meet stakeholder expectations (Jiang, 2014). Institutionally, differences in regulations, policies, norms and practices across the selected countries may impact the extent to which banks engage in energy efficiency and green finance initiatives (Matten and Moon, 2008). Stakeholder pressure and resource availability also play a significant role in banks' adoption of environmental activities (Grankvist, 2009). These

factors also apply to environmental conservation, protection and restoration. Therefore, the second to the sixth hypotheses are:

H2: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in energy efficiency-related activities.

H3: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in environmental conservation-related activities.

H4: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in environmental protection-related activities.

H5: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in environmental restoration-related activities.

H6: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in reduction of waste-related activities.

Responsible financing, including responsible lending and borrowing, issuing green bonds, supporting green projects, is a relatively new area of research, particularly for small banks in the ASEAN region (Scholtens, 2009). Financial regulations and sustainability guidelines vary vastly among these countries. This, combined with limited resources and pressures from investors, shareholders, regulatory agencies and other stakeholders, shapes how banks approach responsible financing (Matten and Moon, 2008). Thus, the seventh hypothesis is proposed:

H7: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in responsible financing-related activities.

Finally, philanthropic initiatives, a traditional element of CSR, include donations and support for environment-related programs/campaigns (Seifert et al., 2003). Cultural norms/attitudes, government policies toward philanthropy and the environment, banks' available resources, and stakeholder behaviours and expectation influence banks' engagement in philanthropic-related activities (Campbell, 2007). Hence, the last hypothesis is proposed:

H8: There are no significant differences among banks in Indonesia, Malaysia, and Singapore regarding their engagement in philanthropic-related activities.

4. Analysis of Results

This section presents the data analysis and the findings of the non-parametric statistical analysis, aiming to identify significant differences in environmental ratings among major banks in Indonesia, Malaysia, and Singapore. The analysis encompassed a spectrum of environmental activities including the eight areas stated in Figure 1.

4.1 Mean Rank Analysis

To gain a deeper understanding of the data, a mean rank (MR) analysis was conducted (Table 2).

Table 2. Mean Ranks of Banks' CSR Activities

Activities	Country*	n	Mean Rank of banks in each country	Mean Rank of all banks in 3 countries
Environmental Education	1.00	8	13.50	
	2.00	8	12.00	
	3.00	8	12.00	
	Total	24		12.50
Energy Efficiency	1.00	8	12.50	
	2.00	8	12.50	
	3.00	8	12.50	
	Total	24		12.50
Environmental Conservation	1.00	8	10.50	
	2.00	8	15.00	
	3.00	8	12.00	
	Total	24		12.17
Environmental Protection	1.00	8	11.50	
	2.00	8	11.50	
	3.00	8	14.50	
	Total	24		12.17
Environmental Restoration	1.00	8	16.50	
	2.00	8	12.00	
	3.00	8	9.00	
	Total	24		12.67
Reduction of Waste	1.00	8	12.00	
	2.00	8	12.00	
	3.00	8	13.50	
	Total	24		12.17
Responsible Financing	1.00	8	11.00	
	2.00	8	11.00	
	3.00	8	15.50	
	Total	24		12.17
Philanthropic Activity	1.00	8	12.00	
	2.00	8	13.50	
	3.00	8	12.00	
	Total	24		12.17

Source: By the authors.

The analysis provides valuable insights into how each environmental activity was ranked on average within the three countries. MRs were calculated for the eight categories of banks' CSR activities based on the ranks assigned to individual data points within each category. The MR analysis helps us understand which activities received higher or lower rankings across the three countries. This nuanced perspective enables a more comprehensive evaluation of the environmental sustainability efforts among major banks in Indonesia, Malaysia, and Singapore.

From Table 2, "Environmental Restoration" (MR = 12.67) has the highest MR, followed by "Environmental Education" (MR = 12.50) and "Energy Efficiency" (MR = 12.50). The MR calculations in Table 2 also indicates that "Environmental Conservation," "Environmental Protection," "Reduction of Waste," "Responsible Financing," and "Philanthropic Activity" were rated highly by many companies, i.e., all have the same MR of 12.17. Thus, these activities are suitable for further analysis.

4.2 Kruskal-Wallis H Test

The Kruskal-Wallis H test, a non-parametric statistical test, was employed to rigorously assess whether there were significant variations in environmental ratings across the three countries. This test is especially useful when dealing with non-normally distributed data or small sample sizes, making it suitable for our analysis of CSR-related environmental activities. Each environmental activity underwent individual testing to determine whether statistically significant differences existed in how these activities were rated by major banks in the three countries.

The Kruskal-Wallis H statistics, degrees of freedom (df), and asymptotic significance (Asymp. Sig.) were calculated for each activity to assess the degree of difference and the likelihood of obtaining such differences by random chance. The resulting p-values were compared to a significance level of 0.05 to determine statistical significance.

Table 3. Kruskal-Wallis H Test Statistics^{a,b}

Activities	Kruskal-Wallis H	df	Asymp. Sig.
Environmental Education	.322	2	.851
Energy Efficiency	.000	2	1.000
Environmental Conservation	3.389	2	.184
Environmental Protection	2.300	2	.317
Environmental Restoration	6.112	2	.047
Reduction of Waste	1.045	2	.593
Responsible Financing	3.833	2	.147
Philanthropic Activity	.329	2	0.848

a. Kruskal Wallis Test b. Grouping Variable: Country.

From Table 3, the Kruskal-Wallis H statistic of "Environmental Restoration" is 6.083, with 2 df, and the Asymp. Sig. is 0.048. The p-value (0.048) is less than 0.05, indicating a significant difference in the ratings for "Environmental Restoration" among the countries. In other words, there is a significant difference, at 5% significant level, between the environmental restoration activities of the three countries. The results also suggest that there is no significant in the ratings for other environmental related activities among the three countries.

4.3 Discussion

4.3.1 Difference in Environmental Restoration

The results of the Kruskal-Wallis H test reveal a significant difference in the ratings for "Environmental Restoration" among the three countries (p -value = 0.048). This finding underscores that the approaches taken by banks in Indonesia, Malaysia, and Singapore in the realm of environmental restoration vary significantly. It is important to note that environmental restoration activities encompass a wide range of efforts, and these differences indicate that each country may have distinct policies, practices, or levels of environmental awareness that shape their unique perspectives on, and activities related, to restoration.

4.3.1.1 Exploring Differences Using Pairwise Comparisons

To gain deeper insights into the nature of these distinctions regarding "Environmental Restoration", we conducted pairwise comparisons. Particularly noteworthy is the statistically significant difference we observed between Singapore and Indonesia (in their environmental restoration activity ratings).

The finding from Table 4 implies that the two countries have notably different approaches and effectiveness when it comes to environmental restoration activities. These distinctions may be influenced by factors such as government policies, the availability of natural resources, or varying degrees of corporate responsibility. The identification of this difference calls for a more in-depth exploration to uncover the specific factors contributing to this divergence.

Table 4. Pairwise Comparisons of Environmental Restoration

Sample 1- Sample 2*	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig. ^a
3 - 2	3.696	3.017	1.225	.220	.661
3 - 1	7.188	2.915	2.466	.014	.041
2 - 1	3.491	3.017	1.157	.247	.742

Note: *Country: 1 – Indonesia, 2 – Malaysia, 3 – Singapore

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests as shown below.

4.3.1.2 Statistical Rigor by Using Bonferroni Correction

Importantly, we also applied Bonferroni correction when conducting multiple comparisons. This statistical safeguard was crucial to control the familywise error rate, ensuring that our findings maintain their integrity. The provision of adjusted p -values (See Table 4) aids in the interpretation of significance while minimising the risk of Type I errors, which can occur when conducting multiple tests simultaneously.

Each node in Figure 2 shows the country's sample average rank for environmental restoration. In other words, the Bonferroni correction was applied to control for Type I errors, confirming the findings and providing insights into the nuanced environmental priorities within the banking sector

across these regions. Each node shows the country's sample average rank for environmental restoration.

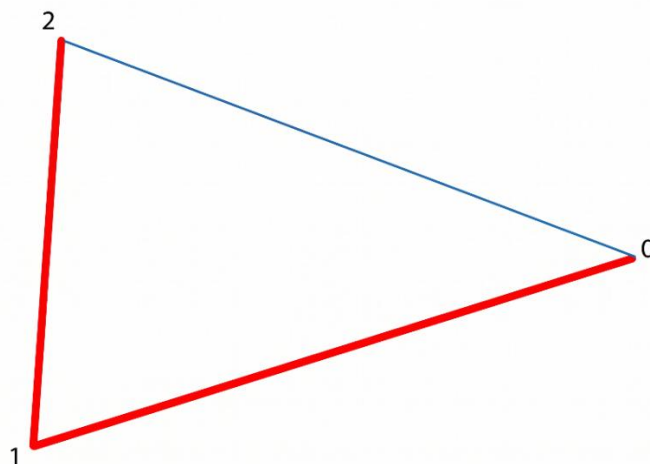


Figure 2. Bonferroni Correction

Source: By the authors.

4.3.2 Uniformity in Other Seven Environmental Categories

In contrast to the significant differences in Environmental Restoration, the Kruskal-Wallis tests did not detect statistically significant differences between the three countries in the remaining environmental categories. These include "Environmental Education", "Energy Efficiency", "Environmental Conservation", "Environmental Protection", "Reduction in Waste", "Responsible Financing", and "Philanthropic Activity." These consistent findings suggest that banks in the three countries generally share similar ratings for these factors. Moreover, the near-equivalent median rankings for these various aspects indicate shared environmental priorities among the surveyed companies. This consistency across multiple categories suggests a regional commitment to sustainability, where these banks align their efforts.

4.3.3 Energy Efficiency Stands Out

It is interesting to note that among the eight environmental categories, "Energy Efficiency" emerged with the highest median rank. This implies that it is perceived as a highly effective and feasible environmental protection measure by major banks in these countries. Energy efficiency measures are often seen as quick wins in environmental sustainability due to their immediate impact on both the environment and cost savings. Conversely, "Responsible Financing" emerged with the lowest median rank among all activities, indicating that it might be an area where there is room for improvement or more focused efforts among the companies surveyed.

Overall, all banks in this study have put in effort to improve environmental protection. Across all banks, the most common activities are reduction of waste, environmental protection, environmental conservation, and responsible financing. These initiatives enable banks not only to improve sustainability but also to enhance their employee engagement and corporate image (Rahman et al., 2016).

While banks in Singapore conduct a variety of environmental protection activities, banks in Malaysia and Indonesia undertake more environmental conservation and restoration activities that may have a more direct impact on the environment. This difference could be due to the geographical factors: Malaysia and Indonesia have larger land and coastal areas compared to Singapore. Indonesia is the world's largest island country and the 14th-largest country by land area, at 1,904,569 square kilometres, whereas Malaysia and Singapore have land areas of 329,847 square kilometres and 725.7 square kilometres, respectively (The World Factbook, 2021a, b, c). Comparatively, the flora and fauna in Indonesia and Malaysia are far more diverse than in Singapore and there are more endangered animals and species found in the natural habitats in Indonesia and Malaysia. Banks in Singapore tend to perform activities that help them comply with the requirements of the government or improve their bottom line. Particularly, there are strong initiatives led by Monetary Authority of Singapore (MAS) that are related to green financing policies. The aggressive push for ESG requirements by the Singapore government have helped to position Singaporean banks, especially in areas, such as energy efficiency, responsible financing and environmental protection. This is evident from the top environmental activities for the country being “Energy efficiency”, “Environmental protection”, “Reduction of waste” and “Responsible financing”. In contrast, the regulatory frameworks of Indonesia and Malaysia is still evolving due to different development priorities and economic contexts. While the Indonesian banks participating actively in most categories of CSR activities, they tend to focus more on complying with fundamental environmental requirements. On the other hand, Malaysian banks try to balance sustainability with economic growth. Such highlights the pertinence of ensuring regulatory support is aligned with country-specific challenges.

“Energy efficiency” and “Environmental protection” initiatives are undoubtedly crucial, but the change in green attitudes and behaviours towards a sustainable future environment is the key vision. As mentioned earlier, banks need to design their CSR activities in a manner that can help them utilise their current resources and capabilities to create intangible resources, such as a reputation for being a socially responsible entity (Branco and Rodrigues, 2006). CSR activities should be planned and implemented based on the organisation’s available resources. Engel (2016) affirmed that intrinsic motivation is important for environmental protection. Therefore, banks can provide some incentives, within their available resources, or have policies that can nudge/encourage consumers and suppliers to be more environmentally aware. Also, smaller banks, which may not have sufficient resources to pursue relevant CSR activities to achieve environmental performance, need to use resources smartly, i.e., adopting CSR activities that are commonly performed by major banks.

While environmental activities are the focus of this study, one should note the critical role that economic sustainability plays in the success of CSR activities. The economic sustainability of the banking sector has serious implications for the entire economy. The immediate consequences of bank failure will be observed/monitored by the bank’s stakeholders. Bank failures have direct repercussions for society and the economy. Also, there is a correlation between environmental impacts and investment (Gellers and Jeffords, 2019). Hence, the economic sustainability of banks is

an integral and fundamental consideration in the planning and management of CSR activities. Necessary resources must be safeguarded and maintained and CSR activities must not compromise this viability. In other words, the scope of environmental activities can be affected by and should be balanced with banks' economic sustainability.

The above findings highlight the differences in environmental focus between the countries, primarily due to varying government policies, environmental conditions, resources, and market conditions. While Indonesia and Malaysia tend to prioritise activities, such as environmental conservation and restoration, Singapore's ESG mandate has enabled its banks to take a leading role in these activities, such "Energy efficiency" and "Environmental protection". Hence, these findings highlight the need to consider a country's context when formulating CSR strategies.

The findings from the study of the major banks, coupled with an understanding of traditional CSR approaches, enable the authors to develop a well-established CSR-sustainable activities mapping framework for banks. This proposed framework is designed to facilitate a systematic approach to CSR activities, particularly those related to environmental sustainability, which can be integrated into banks' overall operations to achieve both improved business performance and benefits for society, economy, and the environment. The following section describes the framework in detail.

4.4 A CSR sustainable activity Mapping Framework for Banks

As shown in Table 5, the framework encapsulates Carroll's four levels of responsibility and the analysis of the CSR activities, incorporating actual CSR activities from banks' practices.

Table 5. A CSR sustainable activity Mapping Framework for Banks

CSR Activities	CSR levels	Contribution to sustainability
Philanthropic Acts	Philanthropic	Social
Environmental Education	Ethical	Social
Environmental Conservation	Ethical	Environment
Environmental Restoration	Ethical	Environment
Energy Efficiency	Legal	Economic, Environment
Environmental Protection	Legal	Environment
Responsible Financing	Legal	Economic
Reduction of Waste	Economic	Economic

Source: By the authors.

The main categories in the framework set the general operating environment in which the banks may function. It provides a strong foundation for banks to determine how they can contribute based on their prevailing local and organisational contexts. The aim of the framework is to illustrate the links between what stakeholders expect (levels of CSR, Stakeholder theory) and what banks can provide/practise (Resource-based theory) to achieve the outcome of environmental sustainability. The CSR sustainable activity mapping framework proposes that banks can implement various CSR activities that are statistically significant and can be classified into one of the four levels of CSR to improve their environmental sustainability. For example, "reduction of waste" is an activity that can improve banks' economic responsibility as well as economic sustainability.

The framework presents a systematic approach that banks may adopt to structure the planning of their CSR activities. It also maps out key aspects of environmental activities based on evidence from empirical findings. These outline an integrated approach towards becoming responsible organisations such that lasting positive environmental impact can be realised. In addition, the framework facilitates benchmarking for banks. As recommended by Kim (2022), banks should design and implement a comprehensive CSR framework that is integrated into their business strategies and governance structures. Accordingly, this framework guides banks to utilise resources in an efficient and effective manner to achieve improved performance both financially and environmentally. The framework hence reflects essential areas which banks, especially small and medium size, need to address in their pursuit of CSR initiatives for environmental sustainability.

Generally, when implementing CSR activities, banks should strive to maintain a balance between social, economic, and environmental sustainability. This balance can be achieved through fulfillment of the banks' economic, legal, ethical, and philanthropic responsibilities (Carroll's CSR pyramid).

5. Implications

5.1 Implications for Theory Development

To the best of our knowledge, there has not been a comprehensive study that collates and compares the environmental sustainability effort of major banks in Indonesia, Malaysia, and Singapore. Thus, the theoretical contribution of the CSR sustainable activity mapping framework is its unique focus on banks' CSR effort, thereby improving the applicability and relevance of existing concepts and frameworks within the banking sector in the region.

While the framework has been proposed and tailored to meet the needs of banks in the selected countries, some CSR activities are more locally relevant than others. Many CSR activities, however, may generally be seen to be globally applicable. This could be due to the scale of the banks, the availability of resources and other variables. Furthermore, not all CSR activities can be conducted by all banks as CSR activities are subject to different contexts, such as socio-cultural, economic, and political contexts. A CSR activity may be relevant or feasible for a bank in one country but not in another; it depends on the unique features of each organisation and the operating environment (Kim, 2022).

The extent of governmental intervention and support affects how vulnerable the banks are to environmental threats, thereby shaping the relevance and adoption of the proposed framework. Additionally, each community or company has a different set of drivers for CSR. The effectiveness of the framework, therefore, depends on the maturity of banks and the features of the market/industry where the banks operate. Nonetheless, adjustments such as technological innovations, redesign of existing approaches and business strategies are required to satisfy the needs and demands of stakeholders.

5.2 Practical Implications

Firstly, besides financial performance, banks need to focus on non-financial aspects such as improving their social and environmental responsibility due to consumer awareness. This helps them respond in a timely manner to external challenges (e.g., climate change and achieving sustainable development goals), and government interventions (e.g., changing environmental laws and regulations).

Secondly, the framework illustrates the link between stakeholders' expectations and what banks can provide/practise to achieve environmental sustainability which can have long-lasting social impacts. The framework provides information to bank managers about which CSR activities have been commonly implemented by major banks. Such information is useful for benchmarking performance and especially beneficial to smaller banks as they may not have sufficient resources and expertise to implement all CSR-related activities. Hence, they can select the activities that are more relevant to them, allowing for more effective resource allocation. This can lead to better integration of sustainability into the business strategies.

Thirdly, while it is crucial for banks to have policies and incentives that promote environmental awareness among employees and consumers, shifts in mindset, attitude, and behaviour are equally important. Therefore, banks should provide training and education on CSR practices and the importance of going green.

Finally, the CSR sustainable activity mapping framework can be used by banks for benchmarking purposes as it reflects the key areas that banks in the region can consider in their pursuit of CSR to drive positive impacts for society. This study highlights that CSR strategies must align with not only local regulatory environments but also the size and resource constraints of individual banks. While large banks may implement large scale CSR projects due to their financial strength, small and medium-sized banks can still engage in meaningful CSR by focusing on cost-effective initiatives given their limited financial and operational resources. For example, green financing, green branches and paperless operations can serve as practical starting points. Moreover, collaborations and partnerships would be helpful in amplifying the impact of their CSR activities. These can be achieved by seeking support from government agencies to co-organise local conservation projects or collaborating with larger banks to co-fund CSR projects. The CSR sustainable activity mapping framework has been adapted to address these differences, providing small and medium-sized banks in ASEAN with a roadmap to implement impactful yet feasible CSR initiatives.

6. Conclusions

This study has reviewed the literature on CSR activities by the banks and discussed the eight clusters/classifications of CSR activities implemented by major banks in Indonesia, Malaysia, and Singapore. While the findings reveal that CSR activities implemented by these major banks have some common focuses, such as energy efficiency, environment protection, and reduction of waste, there are also differentiated focuses, such as responsible financing, environmental conservation, and

environmental restoration. Thus, the selection of CSR activities for environmental sustainability activities is influenced not only by resource availability, but also by the expectations of both internal and external stakeholders and is context-dependent. Drawing on Carroll's CSR theory, institutional theory, resource-based theory, stakeholder theory, and the analysis of CSR initiatives for environmental sustainability among major banks in these countries, this study further presents the CSR sustainable activity mapping framework for the use of banks, especially small and medium-sized banks. Nonetheless, it should be noted that larger banks, with their extensive resources, have better access to technologies and relevant information, enabling them to undertake large-scale CSR projects. Therefore, the strategies and activities pursued by larger banks may not always be suitable or applicable to small and medium-sized banks. However, small and medium-sized players can adopt alternative approaches that align with their limited resources and capacities. More specifically, these banks may start with initiatives, such as paperless banking, digital transformation, and employee-led CSR programs before extending into larger scale environmental projects. In addition, they can leverage government incentives and partnerships to scale their CSR efforts without incurring significant financial burdens. By implementing a strategic and collaborative approach, small and medium-sized banks can still make meaning contributions to sustainable banking in the region.

The proposed framework encapsulates the four levels of responsibility and integrates elements from relevant banks' practices in real life in three ASEAN countries. While the framework reflects the essential CSR areas which banks should focus on to achieve environmental sustainability, it should be highlighted that small and medium-sized banks may need to adopt a phased approach, prioritising higher-impact or lower-cost activities, or seek collaborative opportunities. Overall, larger banks often lead ESG efforts with innovations in responsible financing and energy efficiency, smaller banks can benefit from adopting simplified and scalable CSR practices. This ensures that the proposed framework is adaptable to the diverse needs and resource capabilities of ASEAN banks.

Overall, CSR in ASEAN countries has room for improvement given that it is less mature and under focused than other developed countries. It is time for banks in ASEAN countries to adopt widely recognised and well-established CSR practices to drive environmental sustainability efforts in the region to greater heights.

Limitations of the Study and Future Research Direction

This study extensively examined CSR activities undertaken by major banks in Indonesia, Malaysia, and Singapore. One limitation is the lack of a standardised reporting format and consistency, and updated CSR information in banks' annual and/or sustainability reports. Some banks have only begun publishing these reports in recent years. Furthermore, CSR information is not consistently available on the websites of some banks, which limits the comprehensiveness of this study. This study has relied on single-year ESG reports for its analysis and this may not provide a full picture of a bank's ESG performance. Another limitation is that banks with branches operating in different countries often implement similar CSR initiatives to conform with the groups' norms and standards.

Thus, longitudinal studies to collect the latest information about CSR practices by the banks should address the first limitation, whereas in-depth investigation via surveys and/or interviews may help to address the second limitation. Similarly, analysing ESG reports from consecutive years would allow for a more accurate assessment of banks' ESG performance over time.

Additionally, the difference "Environmental Restoration" practice among banks calls for a more in-depth exploration to uncover the specific factors contributing to this divergence. Meanwhile, incorporating the dimensions of "need for global integration" and "need for local responsiveness" in formulating and implementing appropriate CSR activities may produce interesting insights and challenges in the process of further understanding the best strategy for environmental sustainability. Finally, future research could further explore which CSR activities are relevant to certain contexts, could validate the CSR sustainable activity mapping framework for the banking sector, and explore how banks can avoid greenwashing. Future studies could also focus on validating the framework across the remaining ASEAN countries or exploring strategies to enhance CSR transparency and avoid greenwashing. In addition, researchers might use this framework to further develop a CSR model that can be extended to other sectors.

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