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# Implementation of Sustainable Banking: Study in Indonesia and Singapore

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**Abstract:** *Currently, ASEAN Banks have sought sustainable banking disclosures by referring to the regulations in their respective countries and the frameworks of various assessment organizations. However, due to the many frameworks, the issue of looming or too many frameworks have to be adopted. This research aims to develop a banking framework by combining various frameworks, namely SUSBA, SASB, GRI G4 FSSS, and UNEP FI, added to the pillars of stakeholder engagement and digital transformation to be a more comprehensive sustainable banking framework. This study uses qualitative methods by conducting interviews and content analysis. Content analysis is carried out by scoring the sustainability reports and/or annual reports 2020 of 26 banks in Indonesia and three banks in Singapore. This study reveals that the pillars of stakeholder engagement and digital transformation need to be disclosed in sustainable banking because they must continue to maintain good relations with stakeholders and use artificial intelligence in bank operations. The unique contribution of this study is the comprehensive sustainable banking framework that mentioned specifically about stakeholder engagement and digital transformation.*

**Keywords:** *ESG, Sustainable Banking, Stakeholder Engagement, Digital Transformation.*

**JEL Codes:** *G21, Q01,Q56*

## 1. Introduction

Sustainability is an issue that many researchers and business activists are looking for nowadays, especially in the increasing number of issues related to the environment and social issues(Kuhlman & Farrington, 2010; Maier et al., 2020; Shaikh, 2021; Tufaner & Türker, 2016). Sustainability assumes that resources are limited and must be used wisely and actively for long-term priorities, taking into account the consequences of how resources are used (Hoang Tien et al., 2020;Nosratabadi et al., 2020). With the motivation to maintain resources for future generations, companies in the world, especially banking, implement activities based on environmental, social, and governance (ESG).

Banking is a financial institution whose primary activity is to collect public funds and distribute them to the public as funding, as well as perform other banking service activities (McLeay et al., 2014). Banking is also integral to any company's source of funds operating in Indonesia. Therefore, bank plays a significant role in supporting the improvement of ESG performances (Scatigna et al., 2022). Banking is one of the most accessible funding sources from outside parties, namely lending (Breitenlechner et al., 2016). Companies do not need to issue debt securities because banks, as lenders of funds, will offer loans for a certain period, and there is a guarantee of company assets.With this process, it is important to apply sustainable finance in order banks assure that all financing put attention on ESG assessment and risk analysis(Ahmed et al., 2018).

ESG emerged from encouraging the above issues, such as climate change and energy, from being applied in environmental aspects (Bătae et al., 2020). Furthermore, there is more attention to ethnic, religious, and racial diversity, human rights, consumer protection or animal welfare, and corporate governance to questions related to responsible investment as social and governance aspects (Kiehne, 2019). Stakeholders, especially investors, pay special attention to the ESG issue to assure that the businesses shift from business as usual to sustainable business as a form to support sustainable development goals (Venturelli et al., 2018). Further, ESG makes investor decisions on investments with social and environmental impacts and economic performance in banking or other industrial sectors to reduce current and future risks (Boffo & Patalano, 2020). By using reports, companies, especially banks, should communicate with investors regarding the implementation of ESG aspects, transparently and materially (Boffo & Patalano, 2020; Durrani & Volz, 2020).

ESG issues are essential for banks because of their significant impact on financing which influence the society and the environment(Zimmermann, 2019). This is because the activities carried out by banks have financial, funding, and investment activities that indirectly impactsociety and the environment, which refer to sustainable finance(Scholtens & van't Klooster, 2019). Sustainable finance is a sign that banking is moving in a direction that is paying attention. Sustainable finance supports the sustainable development of the financial sector in creating a sustainable economy by aligning environmental, economic, and social aspects(Yakovlev & Nikulina, 2019). A Bank asan agent of development is an institution that mobilizes funds for economic development in a country (Bhegawati & Utama, 2020; Epstein, 2009; Liang & Reichert, 2006).

The challenge of sustainability in banking is not only focused on Indonesia but also on the ASEAN level including Singapore. Within ASEAN, there is the term ASEAN - 6 which contains Indonesia, Thailand, Malaysia, the Philippines, Singapore, and Vietnam. The mention of ASEAN – 6 is because it has been more than 20 years as an attractive investment opportunity for multinational companies(Smith, 2014). In other words, these six ASEAN countries have received attention from many other countries due to rapid economic growth with the encouragement of innovation and investment,including Singapore as the center of business in ASEAN (Kuusinen et al., 2019).

World Wide Fund (WWF) has assessed sustainable banking in ASEAN with the annual Sustainable Banking Report using the Sustainable Banking Assessment (SUSBA) guidelines. One of the references used by SUSBA is the Sustainability Accounting Standards Board (SASB) which puts forward an assessment framework (referred to as a materiality map) for each specific industrial sector (Shields & Shelleman, 2020). In addition to SUSBA and SASB, the sustainability guide used by many companies, including banks, is the GRI-G4 Financial Service Sector (FSS) which is an adoption of the United Nations Environment Program Finance Initiative (UNEP FI) (OJK, 2014). In this study, the guidelines used are guidelines from the Sustainable Banking Assessment (SUSBA), Materiality Map according to the Sustainability Accounting Standards Board (SASB), GRI G4 Financial Sector Supplement (FSS), and the United Nations Environment Program Finance Initiative (UNEP FI) which focuses on each. The guidelines for sustainable banking that have been prepared and as a basis continue to use English because the sample in this study is banking from ASEAN. In addition, the comprehensive banking guidelines compiled are expected to be used by banks in ASEAN without any meaning bias due to language changes.In this study, the guidelines used are guidelines from the Sustainable Banking Assessment (SUSBA), Materiality Map according to the Sustainability Accounting Standards Board (SASB), GRI G4 Financial Sector Supplement (FSS), and the United Nations Environment Program Finance Initiative (UNEP FI) which focuses on each. The guidelines for sustainable banking that have been prepared and as a basis continue to use English because the sample in this study is banking from ASEAN. In addition, the comprehensive banking guidelines compiled are expected to be used by banks in ASEAN without any meaning bias due to language changes.

Stakeholder engagement and digital transformation are very important to be added in the sustainable banking guideline because it will relate to decision that made by the managements in the banks. The current frameworks provide detail and specific area of ESG, but they do not include The current stakeholder engagement in the framework is not specifically for the banking area (Venturelli et al., 2018). In addition, along with Industry 4.0 era, digital transformation is very important in banking (Diener & Špaček, 2021). So that, there is important to have a comprehensive sustainable banking framework that mentioning about stakeholder engagement and digital transformation.The novelty in this study is to develop new sustainable banking framework with stakeholder engagement and digital transformation as the new pillar.

The formulation of the main problem in this research is How to develop a sustainable finance index in banking in ASEAN using a comprehensive sustainable banking measurement from this research? From this main research problem,The purpose of this study is to develop sustainable banking tools for the future banking sustainability and help banks to face the dynamic changes. In detail, this study aims to analyze the implementation from 8 approach pillars (a) purpose pillar; (b) policies pillar; (c) processes; (d) products; (e) people; (f) portfolio; (g) stakeholder engagement; (h) digital transformation; to the sustainable finance in Indonesia and Singapore Banking.

## 2. LITERATURE REVIEW

### 2.1. Theory of the Firm

The theory of the firm is used to explain the behavior of companies in carrying out their economic activities (Hall et al., 2014). Management that can react appropriately to price changes will rearrange the factors of production under its management. Within the company, management will also try to reduce the costs incurred due to company activities and become a reference in measuring company performance (Jensen & Meckling, 1976). The use of the Theory of the firm in this study is because banking is a company that provides services, and many parties are involved in it. With the parties involved and the operations in banking, then as a company, banks try to maximize their profits and require management to manage their operations.

### 2.2. Organizational Culture Theory

According to Schein (2004), culture is a pattern of basic assumptions developed or determined in learning how to integrate that has functioned well and is considered new. Culture is essential in measuring the effectiveness of the company's performance, so the more robust the company culture, the more influential the company's performance will be (Schein, 2004). With the existence of management and the values of banking as a company, organizational culture cannot be separated from banking, and it will always be carried by companies, in this case, banking, to their stakeholders. With the same culture in the organization, it will create internal strategies and procedures for channeling corporate values or culture to stakeholders so that company and stakeholder relationships are maintained.

### 2.3. Corporate Bond Theories

The theory of the Firm has derivatives. Corporate Obligation Theories are designed to explain the company's explicit obligations to different groups. They are based on how managers determine company goals, for example, through non-competitive markets or even at the expense of shareholder interests (Boatright, 1996). The theories in this theory are (1) the Stockholder theory, (2) the Social Contract theory, and (3) the Stakeholder theory (Lozano et al., 2015). Corporate Obligation Theory is used in this study because, as a company, it has an obligation and is accountable to stakeholders. These obligations are binding along with the rights and authorities within the company related to its business processes.

### 2.4. Stakeholder Theory

Stakeholder theory states that companies have responsibilities and require companies to consider the impact of their actions on all parties with interest in the company. Parties who can be affected by actions taken by the company either directly or indirectly are referred to as stakeholders (Mints & Kamyshnykova, 2019). Stakeholders are all parties who can be affected or have an impact on the achievements made by the company. Stakeholder theory is closely related to the implementation of sustainability because companies must pay attention to the priorities of all interested parties in the company, from employees to the government (Purwanggono & Rohman, 2015). Considering decisions based on stakeholders, the company cannot run alone. Within the company, stakeholders will be prioritized based on company identification, even though the company provides the same information to all stakeholders (Mints & Kamyshnykova, 2019). Priorities within the company can vary based on the analysis and the company’s state.

### 2.5. Regulation Theory

The theory of regulation was presented by Stigler (1971) who revealed that regulation describes the relationship between the political power of interest groups. Based on the regulatory theory that has emerged and its application as a model that can be used in the financial economics literature, it can be discussed in this study, namely the existence of reporting from banks related to ESG as part of sustainable banking. With the regulation, it is hoped that banks will be more focused in achieving sustainability and also be able to properly follow what is desired by each state regulator and also the world.

## 3. RESEARCH METHODOLOGY

The main objective of this research is to evaluate the implementation of sustainable banking based on a comprehensive sustainability banking index. It is hoped that the compilation of the sustainability banking index will serve as a guideline for measuring banking performance from the ESG and Economic dimensions. In this study, researchers used qualitative methods by collecting and analyzing statements or quantitative data in financial and/or sustainability reports. The population in this study is banking in Indonesia and Singapore. The sample collection method in this research uses purposive sampling based on the researcher's criteria in determining the number of samples. Researchers will use a sample of banks with the following criteria: (1) Commercial Banks in Indonesia and Singapore; (2) Banks with assets equivalent to or equal to banks with core capital between IDR 5 trillion to IDR 30 trillionand banks with core capital starting from IDR 30 trillio in 2020, which will then be seen as a percentage of the country's GDP; (3) Publish a sustainability report (primary) and/or annual report on the company's website or stock exchange in 2020; (4) Publish the sustainability report (primary) and/or the 2020 annual report in English.

The data collection method in this research uses content analysis. Data collection is carried out by conducting content analysis by taking quantitative and qualitative data from annual and commercial banking sustainability reports. Content analysis is research that has an in-depth discussion of the contents of written or printed information in the mass media or reports. This analysis is usually used in qualitative research. The pioneer of content analysis is Lasswell, who pioneered the symbol coding technique by systematically recording symbols or messages and giving interpretations (Tampubolon et al., 2008). Content analysis is defined as a method that includes all analyses related to the content of the text. Still, on the other hand, content analysis is also used to describe a specific analytical approach (Asfar, 2019). Furthermore, the theories used as the basis in this research are the theory of the firm, regulatory theory, organizational culture theory, contained obligation theory, and stakeholder theory. These theories explain and are used later in analyzing the scoring results. Processing of scoring data refers to a comprehensive sustainable banking disclosure formula and scoring category. The percentages are categorized as Not Applied, Limited Disclosed, Partially Applied, Well Applied, and Fully Applied. Element assessment indicator instrument according to the research of Wulolo & Rahmawati (2017) and Raar (2002), which includes quantitative measurements:1 = sentence; 2 = paragraph; = half page A4; 4 = 1 Page A4; 5 ≥ 1 Page A4.

Before assigning categories for scoring results, the results of comprehensive sustainable banking scoring (SPBK) are calculated by the formula:

$CSBDI = \Sigma Xij / Nj \times 100\%$

CSBDI = Comprehensive sustainable banking disclosure index

Nj = number of disclosure items

xij = number of disclosure items by banks

The disclosure interval categories are Not Applied, Limited Disclosed, Partially Applied, Well Applied, and Fully Applied (Nurharjanti et al., 2021), which can be seen in table 1.

**Table1.** *Disclosure Interval*

| No | Percentage Disclosure | Interval Category |
|---|---|---|
| 1 | 0% | Not Applied |
| 2 | 1% - 40% | Limited Disclosure |
| 3 | 41% - 75% | Partially Applied |
| 4 | 76% - 99% | Well Applied |
| 5 | 100% | Fully Applied |

Narrating documents are analyzed based on the conclusions drawn and accompanied by supporting theories to be discussed. With the supporting theory, research is not only based on the thoughts and understanding of a researcher. The theories used to analyze are the theory of the firm, organizational culture theory, constrained obligation theory, stakeholder theory, and regulatory theory.

## 4. Results And Discussion

**Table2**. *Scoring of Comprehensive Sustainable Banking in Indonesia*

| Bank Name | Scoring Result for each Pillar | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | x̄ Purpose | x̄ Policies | x̄ Process | x̄ People | x̄ Product | x̄ Portfolio | x̄ Stakeholder Engagement | x̄ Digital Transformation | x̄ All total Scoring |
| BRI | 50.000% | 44.545% | 57.143% | 41.667% | 45.000% | 33.913% | 62.500% | 19.091% | **41.613%** |
| BCA | 45.000% | 40.909% | 57.143% | 50.000% | 40.000% | 33.043% | 55.000% | 26.364% | **41.774%** |
| Mandiri | 50.000% | 34.545% | 40.952% | 31.667% | 30.000% | 33.043% | 25.000% | 9.091% | 31.290% |
| BNI | 41.667% | 28.182% | 50.476% | 40.000% | 20.000% | 36.522% | 45.000% | 10.000% | 33.548% |
| Danamon | 43.333% | 17.273% | 41.905% | 48.333% | 20.000% | 17.391% | 25.000% | 8.182% | 25.968% |
| Panin | 46.667% | 6.364% | 7.619% | 5.000% | 0.000% | 6.087% | 10.000% | 0.000% | 9.194% |
| CIMB | 55.000% | 46.364% | 58.095% | 43.333% | 40.000% | 43.478% | 60.000% | 14.545% | **43.387%** |
| Bank BTPN | 25.000% | 27.273% | 35.238% | 45.000% | 0.000% | 17.391% | 32.500% | 10.909% | 24.839% |
| Bank BTN | 30.000% | 20.909% | 39.048% | 36.667% | 0.000% | 22.609% | 25.000% | 10.000% | 24.355% |
| Bank Bukopin, Tbk | 33.333% | 13.636% | 36.190% | 35.000% | 0.000% | 19.130% | 42.500% | 7.273% | 22.742% |
| Bank DBS Indonesia | 20.000% | 0.000% | 2.857% | 0.000% | 0.000% | 0.000% | 0.000% | 0.000% | 2.419% |
| Bank HSBC Indonesia | 28.333% | 8.182% | 10.476% | 20.000% | 0.000% | 1.739% | 0.000% | 3.636% | 8.871% |
| Bank UOB Indonesia | 28.333% | 16.364% | 14.286% | 31.667% | 15.000% | 21.739% | 15.000% | 5.455% | 17.581% |
| Bank Mayapada International, Tbk | 30.000% | 18.182% | 37.143% | 28.333% | 0.000% | 16.522% | 25.000% | 6.364% | 20.968% |
| Bank Maybank Indonesia, Tbk | 30.000% | 14.545% | 40.000% | 43.333% | 30.000% | 14.783% | 37.500% | 9.091% | 24.194% |
| Bank Mega, Tbk | 36.667% | 4.545% | 31.429% | 20.000% | 0.000% | 6.957% | 37.500% | 7.273% | 16.613% |
| Bank Mizuho Indonesia | 8.333% | 0.000% | 5.714% | 3.333% | 0.000% | 1.739% | 0.000% | 0.000% | 2.419% |
| Bank OCBC NISP, Tbk | 28.333% | 3.636% | 16.190% | 6.667% | 0.000% | 7.826% | 7.500% | 2.727% | 9.194% |
| Bank Permata | 30.000% | 7.273% | 4.762% | 20.000% | 0.000% | 8.696% | 7.500% | 5.455% | 10.000% |
| Bank Sinarmas, Tbk | 30.000% | 10.000% | 4.762% | 40.000% | 35.000% | 9.565% | 5.000% | 4.545% | 13.387% |
| Bank Woori Saudara Indonesia 1906, Tbk | 41.667% | 22.727% | 10.476% | 36.667% | 10.000% | 13.043% | 5.000% | 4.545% | 13.387% |
| BPD DKI | 38.333% | 4.545% | 2.857% | 30.000% | 0.000% | 7.826% | 5.000% | 4.545% | 17.258% |
| BPD Jawa Tengah | 30.000% | 21.818% | 1.905% | 33.333% | 0.000% | 8.696% | 10.000% | 1.818% | 10.323% |
| BPD Jawa Timur | 41.667% | 10.000% | 3.810% | 45.000% | 0.000% | 2.609% | 7.500% | 2.727% | 13.710% |
| Citibank NA | 38.333% | 20.909% | 25.714% | 20.000% | 10.000% | 12.174% | 0.000% | 1.818% | 10.968% |
| Standard Chartered | 38.333% | 30.000% | 31.429% | 55.000% | 60.000% | 24.348% | 0.000% | 12.727% | 18.548% |
| x̄ | 35.321% | 18.182% | 25.678% | 31.154% | 13.654% | 16.187% | 20.962% | 7.238% | 19.560% |
| Min | 8.333% | 0.000% | 1.905% | 0.000% | 0.000% | 0.000% | 0.000% | 0.000% | 2.419% |
| Max | 55.000% | 46.364% | 58.095% | 55.000% | 60.000% | 43.478% | 62.500% | 26.364% | 43.387% |

Based on the results of the content analysis conducted, comprehensive disclosure of sustainable banking in Indonesia, it can be seen that CIMB Niaga Bank, BCA Bank, and BRI Bankhave partially applied disclosures compared to other banks. The highest scoring value is CIMB Niaga, with a value of 43.387%, followed by BCA, with a score of 41.774%, and BRI with a value of 41.613%, thus making the three banks who obtain partially applied disclosures in total. The meaning of partially applied is that the ESG disclosures made by CIMB Niaga, BCA, and BRI banks are still partially disclosed because many parts have not been disclosed, especially on the digital transformation pillar.

Although the research results show three banks with the highest scoring results in Indonesia, overall, it can be seen that the average scoring results are in the Limited Disclosure category for all pillars. The average scoring result on the purpose pillar became the highest score of 35.321%, followed by the people pillar, with a value of 31.154%. The meaning of the value of the purpose pillar is that there is quite a lot of disclosure because management needs to incorporate ESG into the bank's strategy according to the direction of the OJK through the Action Plan for Sustainable Finance (RAKB). This scoring result is also in line with the results of research by Yakovlev & Nikulina (2019)and Maryanti et al. (2021), which said that the Indonesian government encourages banks to be able to implement ESG in bank business strategies. The digital transformation pillar's disclosure is limited because the OJK Roadmap regarding digital transformation will only be implemented in 2021-2025. No bank in Indonesia discloses the well-applied and fully applied categories.

**Table3**. *Sustainable Banking Comprehensive Scoring in Singapore*

| Bank Name | Scoring Result for each Pillar | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | x̄ Purpose | x̄ Policies | x̄ Purpose | x̄ People | x̄ Purpose | x̄ Portfolio | x̄ Purpose | x̄ Digital Transformation | x̄ Purpose |
| DBS Singapore | 40.000% | 28.182% | 46.667% | 26.667% | 60.000% | 26.957% | 30.000% | 31.818% | 32.419% |
| OCBC Bank | 46.667% | 21.818% | 28.571% | 28.333% | 45.000% | 19.130% | 20.000% | 2.727% | 20.484% |
| UOB Singapore Bank | 25.000% | 22.727% | 19.048% | 35.000% | 15.000% | 20.870% | 17.500% | 8.182% | 23.548% |
| x̄ | 37.222% | 24.242% | 31.429% | 30.000% | 40.000% | 22.319% | 22.500% | 14.242% | 25.484% |
| Min | 25.000% | 21.818% | 19.048% | 26.667% | 15.000% | 19.130% | 17.500% | 2.727% | 20.484% |
| Max | 46.667% | 28.182% | 46.667% | 35.000% | 60.000% | 26.957% | 30.000% | 31.818% | 32.419% |

Based on the results of the content analysis conducted, comprehensive disclosure of sustainable banking in Singapore, it can be seen that all banks in Singapore have overall disclosures with Limited Disclosure intervals. This Limited Disclosure Disclosure means that not all banks in Singapore disclose related to sustainable banking. The highest score was DBS Singapore, with a score of 32,419%, followed by Bank UOB Singapore, with a score of 23.548%, and OCBC Bank, with a score of 20.484%. In banking in Singapore, many banks have stated that the partially applied level is in the product pillar, followed by the people and process pillar. The highest average value for comprehensive sustainable banking is 40,000%, which means it is still in the limited disclosurecategory. Compared to the scoring results in other countries, the sustainable banking disclosure scoring results in Singapore do not have a minimum value of 0.000%, and all of them are in a limited disclosure distribution.Meanwhile, the maximum value above 41% for the partially applied category is in the purpose, process, and product pillars. Disclosure of the product pillar has become more widely disclosed than other pillars due to a grant or grant from the Singapore government related to the issuance of green bonds (Chang, 2019). In addition, banks in Singapore have a disclosure basis for 'complying or explaining' (Ramadhani, 2019), thus enabling banks in the country to provide transparency due to demands from the government and other stakeholders for the products issued.

Based on content analysis conducted, the answers to the research questions are as follows:

**a. The implementation of the purpose pillar in sustainable finance in Indonesia and Singapore Banking**

The application of the Purpose Pillar on sustainable finance in Singapore and Indonesia Banking has been stated in the sustainability report and/or annual report of banks in Singapore and Indonesia.. There are19 banks submitted limited disclosures and none in the not applied section. In the pillar purpose section, banks are asked to disclose that the company's strategy has led to ESG and involves other stakeholders. Most of the disclosure is,“Does the bank explicitly acknowledge the societal and economic risks associated with climate change?”, so it can be concluded that many banks have implemented SDGs as a strategy. Meanwhile, the disclosure section on “Does the bank participate in relevant commitment-based sustainable finance initiatives such as BEI, RSPO, NY Declaration on Forests, EP, and UNEP FI?” is the lowest disclosure in the purpose pillar section. The low disclosure is because banks focus on implementing the banking strategy rather than participating in activities outside banking.

**b. The implementation of the pillars of policies on sustainable finance in Indonesia and Singapore Banking**

Based on the implementation related to the pillars of policies in banking in Singapore and Indonesia, the implementation with the level of limited disclosure is still very much, reaching 25 banks. In comparison, only two other banks disclose partially applied, and two other banks are not applied. In this case, it is confirmed that the disclosure is deficient due to a management policy explaining the existence of important information compared to telling the complete policies. Therefore, because the policy is critical in banking, the policy is not fully explained in the sustainability report. “Many banks disclose the Description of whistleblower policies and procedures”, even though they can fully describe what mechanism is being carried out to run the system. Meanwhile, the lowest part disclosed is “Does the bank requires clients to adhere to international labor standards equivalent to the ILO Fundamental Conventions”, which relates to the standard of employees in the bank.

**c. The implementation of the pillar processes on sustainable finance in Indonesia and Singapore Banking**

Based on the content analysis results from the disclosure process, it can be seen that many banks in ASEAN countries still disclose their complete flow. This is evidenced that as many as 23 banks disclosed in the limited disclose category and six banks in the partially applied category. The two countries whose banks reveal a lot about processes are in the partially applied category.The most widely-disclosed indicator is “Procedure with Specific Environmental and Social Components applied to the Business Line”, which is related to what procedures are carried out specifically related to the environment and society. The process in bank’s activity is really

**d. The implementation of the people pillar in sustainable finance in Indonesia and Singapore Banking**

In the people pillar, it can be seen that the number that discloses the level of disclosure with limited disclosure is 20 banks, eight banks are partially applied in Indonesia, and one bank is in the not applied category in Indonesia. The disclosure of the people pillar inIndonesia is quite a lot of banks revealing the partially applied category. The meaning of this scoring result is that there is a regulation that every employee must be willing to take part in the training conducted by the bank for both new employees and employees who are already working there

The part banks mainly convey “Do senior management's responsibilities include managing climate change risks and opportunities relevant to the bank's activities?”. Banks widely express this because many have implemented the strategy of implementing E&S within the bank and distributing it to employees and divisions. This is also related to banking procedures that will implement ESG in every business process, and of course, it will relate to the employees in it. Meanwhile, “Has the bank put in place an internal control system with three lines of defense to manage E&S issues?” is an indicator of disclosure for the lowest disclosed one.

**e. The implementation of the products pillar in sustainable finance in Indonesia and Singapore Banking**

In the products pillar, as many as 11 banks disclose in the limited disclose category, 14 banks in Indonesia are inthe not applied category, and four banks are in the partially applied category. In Singapore, more banks disclose product pillars at the intermediate level. With medium-level disclosures in Singapore, it means that banks are aware that the products offered by banks can have a positive or negative impact on E&S. In addition, banks also disclose what banks can offer financial products to reduce negative impacts and increase positive impacts. This could be due to knowledge related to sustainability from these banking stakeholders, including clients, making it easy for banks to see the impact of the product.

In its implementation, many banks disclose related to "Does the bank proactively identify clients in environmentally or socially sensitive sectors to support them in reducing negative or enhancing positive impacts?". Meanwhile, the part that was least disclosed "Does the bank hold client outreach events to raise awareness and share good E&S practices (e.g., through joint workshops)". The lack of disclosure could be because not all banks do not yet have or already have but have not disclosed it in its entirety.

**f. The implementation of the portfolio pillar on sustainable finance in Indonesia and Singapore Banking**

Based on the content analysis results from the disclosure of the portfolio pillars, it can be seen that there are still many banks in Indonesia and Singapore that do not disclose these pillars in detail. This is evidenced that as many as 27 banks in the limited disclose category in the portfolio pillar disclosure are compared with one bank forother categories, which discloses the not applied and partially applied categories. If we look at it, only banks in Indonesia reveal the partially applied and not applied categories.

The most widely disclosed indicator in the portfolio pillar is the "Initiative to Improve Financial Literacy" which is related to initiatives for financial literacy education to stakeholders. Meanwhile, "the amount of past due and non-accrual loans qualified for programs designed to promote small business and community development" was the least disclosed. This reveals that not all banks have disclosed the amount of credit that has passed the period set for MSMEs.

**g. The implementation of stakeholder engagement pillars on sustainable finance in Indonesia and Singapore Banking**

Based on the content analysis results from the disclosure of the stakeholder engagement pillar, it can be seen that many banks in Indonesia and Singapore still do not disclose this pillar in detail. This is evidenced that as many as 19 banks are lacking in the disclosure of stakeholder engagement pillars compared to five banks from Indonesian banksthat disclose the partially applied category. Five banks still get the not applied category from Indonesian banks. If you look at it, only banks in Indonesia are the banks that reveal partially applied stakeholder engagement. Many banks, especially in Indonesia, implemented assessments or guidelines related to the disclosure of stakeholder engagement in sustainability reports in 2020.

The most widely disclosed indicator in the stakeholder engagement pillar is that "The bank uses more than ten channels of dialogue" related to the number of channels that can be used as a forum to communicate with stakeholders. In the sustainability report presented by the banking system, the bank conveys in detail what channels are used for dialogue and the materiality of the communication results. Meanwhile, "The bank declares the redemption rate for each channel of dialogue and the number of stakeholders interviewed" being the least disclosed part. This indicates a lack of calculations related to the redemption rate or the percentage of the number of stakeholders who responded and also information on how many stakeholders were interviewed. This could be due to communication to stakeholders through the feedback sheet on the final sheet of the sustainability report being distributed publicly without a definite population and sample, making it difficult to calculate the percentage who returned. The stakeholder engagement pillar is important because banks cannot be separated, and banks need to maintain relationships with stakeholders.

**h. The implementation of the digital transformation pillar in sustainable finance in Indonesia and Singapore Banking**

Based on the content analysis results from the disclosure of the digital transformation pillar, it can be seen that overall there are still many banks in ASEAN countries that do not disclose this pillar in detail. This is evidenced that as many as 26 banks lack disclosure of the digital transformation pillar, and three banks have disclosures in the not applied category.

The indicator expressed the most in the digital transformation pillar is “Identifying and addressing data security risks” relatedto data security risk. Meanwhile, the indicator that was slightly disclosed was “AI could help ensure that youths, women, low-income earners, and small businesses participate in the traditional financial services market where payments, transfers, securities, credit, savings, and other services are offered to many previously excluded persons”. This is because no AIis specifically designed to help the younger generation to small businesses to be able to experience financial features. This is because AI in banking has not yet reached these specific stakeholders.

In Indonesia, the highest and most disclosures in the middle section are on the pillars of purpose, people, and process. The purpose pillar relates to the banking sector's strategic steps, vision, mission, and goals and the relationship between ESG and its stakeholders. Therefore, the purpose will be related to the people pillar because banks will require human resources to alignwith their vision, mission, and goals. In addition, the process will have an effect because the bank prepares plans and evaluates yearly, quarterly, monthly, or even daily for the activities carried out by the bank.

The score for the highest purpose pillar is “Does the bank recognize that its ESG footprint includes the indirect effects arising from its business activities (e.g., financing, underwriting, advising) and portfolio?”. This is because banks in Indonesia pay special attention to the indirect impact on banking business activities. In the people pillar, the part that is most widely disclosed is “Do senior management's responsibilities include management of climate change risks and opportunities relevant to the bank's activities?” Senior management has a vital role in deciding banking activities and is also responsible for decisions given related to the risks and opportunities of climate change. The part most widely disclosed in the process pillar is “Procedure with Specific Environmental and Social Components that are applied to the Business Line.” It can be seen that the vision, mission, and goals in banking are reduced to procedures that become processes in banking activities. Therefore, procedures related to specific environmental and social components applied to the business line are the highest in the process pillar and are related to the purpose and people pillars.

Disclosure of sustainable banking in Singapore has a lot of medium disclosure value in the product and purpose section. In the product pillar, the section that is widely disclosed is “Does the bank offer specific financial products and services (e.g., green bonds, sustainability-linked loans, impact financing) that support the mitigation of E&S issues, e.g., climate change, water scarcity and pollution, deforestation?”. This is because in 2019, the Monetary Authority of Singapore, Singapore’s central bank and regulator for integrated finance, issued a Sustainable Bond Grant Scheme and a Green Finance Action Plan (PwC, 2020; MAS, 2019). Under the Sustainable Bond Grant Scheme, banks can request grants from MAS to assist banks in issuing green, social, sustainability, and sustainability-linked bonds. The grant is in the form of replacing eligible expenses per bond issued up to a maximum of $100,000 or 100%. Bonds can be in multiple currencies using a pre-issuance external review or rating given to bonds based on internationally-recognized green, social, sustainability, and sustainability-linked principles or standards. Thus, it is not surprising that banks in Singapore have the highest disclosure level and purpose on the product pillar.

In 2018, The Association of Banks in Singapore (ABS) (The Association of Banks in Singapore, 2018) issued ABS Guidelines related to Responsible Financing. This guide contains that management positions and organizational support for financing are responsible, along with the strategies they develop. In addition, banks must also publish the commitment of the CEO or Chairman to support and implement responsible financing, and the responsible financing policy framework in the Sustainability/Annual Report found on their website. Therefore, it is not imaginary; the purpose pillar is related to "Is there a clear reference to the Sustainable Development Goals (SDGs) in the bank's strategy or vision?" most expressed. Banking revealed that banks have explicit references related to the implementation of the SDGs in their banking strategy or vision.

Regulatory theory becomes a strong theory in the results of this study because banks that have a lot of sustainable banking disclosures are based on and regulated by government regulations. This means that the regulatory theory supports other theories within the company used in this research, such as organizational culture theory, corporate obligation theory, and stakeholder theory. The regulation can create a banking organizational culture that implements ESG and sustainability and will impact these banking stakeholders. Corporate Obligation theory suggests that banks must be able to fulfill their obligations and, in this case, fulfill obligations to stakeholders. Stakeholders have a role in overseeing the implementation of ESG and provide input and responses related to ESG carried out within the bank, especially the regulator as an external stakeholder of the bank. With this response, banks are trying to find best practices in implementing ESG and putting them into organizational culture, making ESG an obligation that must be carried out by banks, especially in meeting demands from stakeholders(Sucharitakul, 2018; Yakovlev & Nikulina, 2019).

## 5. Conclusion

This study aims to develop a comprehensive sustainable banking index and evaluate its application to banking in ASEAN. The results found are that stakeholder engagement pillars and digital transformation need to be added to the framework used by banks in preparing sustainability reports. The level of bank compliance in Indonesia looks pretty high, which may be seen from compliance with regulations. Banking regulators can add pillars of stakeholder engagement and digital transformation into sustainable banking guidelines in the current technology era.Regulatory theory becomes a strong theory in the results of this study because banks that have a lot of sustainable banking disclosures are based on and regulated by government regulations. The scoring results show the number of banks that disclose the Partially Applied category in the purpose pillar. The regulatory theory supports other theories within the company used in this research, such as organizational culture theory, corporate obligation theory, and stakeholder theory. Corporate Obligation theory suggests that banks must be able to fulfill their obligations and, in this case, fulfill obligations to stakeholders.

## 6. Research Implications, Limitations, and Suggestions

The implications of this research is the results of this study are expected to serve as input in carrying out sustainability practices using comprehensive sustainable banking references. With the unification of the four frameworks and the addition of digital transformation and stakeholder engagement, banks can fully reveal sustainable banking in this digital transformation era.The results of this study also are expected to provide information on evaluating sustainable banking in applying ESG and consideration for investors in choosing banks that fully disclose sustainable banking.The results of this study are expected to be a reference for the government in determining policies related to sustainability, especially the addition of digital transformation pillars and stakeholder engagement. It is expected that banks can report reports related to sustainability that must be reported annually to company stakeholders.

Limitations of this study is research has an element of subjectivity when conducting content analysis, but the confirmation interview has reduced this subjectivity.Limited access to interviews with banking experts in countries other than Indonesia cannot be presented in this study.

Suggestions from this research is banks can use a comprehensive sustainable banking framework as a reference in sustainable banking, especially implementing the digital transformation pillar in the current technological era. Scoring results on comprehensive sustainable banking, there are still many banks that reveal low scores on average on the pillars of stakeholder engagement and digital transformation. Therefore, it is necessary to communicate with stakeholders more intensely to obtain a higher percentage of the redemption rate and be disclosed in the sustainability report or annual report. In the digital transformation pillar, not all indicators, except those related to data security, have been disclosed. Banks in Singapore and Indonesiamust pay attention to digital transformation in the current industrial 4.0 era.Banks in Singapore are expected to convey betterthe portfolio pillars, digital transformation, and stakeholder engagement to cover overall disclosure.Regulators can use this digital transformation pillar as a supplement or addition to regulations related to sustainable banking to compete and be sustainable in the industrial era 4.0.

Future researchers can use the measurements in this study related to sustainable banking and add interviews in each country. In addition, researchers can also use 2021 data as content analysis, especially in Indonesia. Banks already have a team focusing on ESG in banking and have revealed more about sustainable banking. Researchers can use quantitative data and graphical analysis to obtain more data related to comprehensive sustainable banking disclosures.

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