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# Value Chain and ESG Performance as Determinants of Sustainable Lending in Commercial Bank: A Systematic Literature Review

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**ABSTRACT**

Currently, the topic of sustainability is increasingly discussed, including in lending activities in commercial banks about environmental, social, and governance (ESG) aspects. The positive influence of economic aspects on sustainability is generally accepted, but the influence of ESG aspects on sustainability still has no consensus. These opinions address ESG-oriented credit products and lending activities. This paper has two aims related to research questions. The first aim is to identify the factors that play a role in sustainable lending in commercial banks through the value chain concept; the second aim is to elucidate the relationship between factors that play a role in sustainable lending. To achieve this goal, a systematic literature review (SLR) of 1,073 articles from various scientific journals was conducted. There are 18 articles relevant to the banking industry related to credit (bank lending) that are selected and become references for knowing the determinant factors in sustainable lending. Based on the systematic review, there are 8 value chain articles, 9 ESG performance articles, and 1 economic performance article related to sustainable lending. A total of 15 articles show the potential and positive influence of sustainability, consisting of 7 value chain articles regarding the potential to encourage sustainability and 8 ESG performance articles regarding a positive relationship with sustainability. The review revealed that a value chain and ESG performance are the two dominant factors in sustainable lending. The review also found the influence of ESG aspects on sustainability; some argue that there is a positive influence or the opposite, and some argue that they do not see the influence. This review has not been able to explain the causal relationship between these two factors and sustainable lending, so further research is also required.



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## 1. INTRODUCTION

Sustainable finance is one of the most discussed topics today. Public attention to the idea of sustainability began with the Club of Rome report ”Limits to Growth” in 1972. This idea was further recognized with the emergence of the term sustainable development in the World Commission on Environment and Devel-

opment report "Our Common Future" or Brundtland Report" in 1987. Discussions on a sustainable financial system arise as the sector's response to sustainable development challenges. The consensus is that a sustainable financial system should account for the impacts of ESG (Environmental, Social, Governance) factors on finance and financial decisions. A financial system that acknowledges and integrates social and environmental considerations is deemed sustainable [1]. In 2015, 190 countries incorporated into the United Nations made a global framework agreement (known as the Paris Agreement) to avoid the dangers of climate change by limiting global warming by 1.50 C and targeting zero emissions by 2050.

Environmental, social and governance (ESG) concerns not only support sustainable development goals (SDGs) but also respond to policies issued by governments and regulators. The central bank and financial services authority together with the government issued various provisions governing the implementation of sustainable finance and governance implementation for banks, which also includes lending activities.

In line with the above developments, there is an increase in business people's awareness of environmental and social aspects, which encourages interest in sustainable lending distribution and at the same time opens up opportunities to obtain incentives for debtors and more stable investments for investors. These things show that stakeholders really hope that banks will increase their attention to environmental, social and governance aspects in encouraging sustainable lending distribution. As an institution that plays a role in financial intermediation, one of functions of the banks is lending activities. The banking industry is the dominant source of funds to support the development of the business world. Lending activities constitute the largest portion of bank assets and are still the largest contributor to bank income. Therefore, banks have enormous potential as a driver in achieving sustainable development goals through environmentally friendly financing, with social awareness and upholding governance.

Even though sustainable lending activities have developed, there is no agreement among researchers regarding this definition. One definition state that environmentally sustainable lending is a lending activity that is consistent with sustainable financial goals, namely the distribution of credit to finance sustainable environmentally friendly economic activities [2]. The Accenture states that sustainable lending is an investment activity that considers environmental, social and governance or ESG aspects (which play an important role in decision making) [3]. This definition is in line with The Luxembourg Banker's Association [4], according to the statement of sustainable investment, sustainable lending that is oriented towards Environmental, Social, and Governance (ESG) factors needs to be considered as part of the credit process and decision. Based on the various definitions above, the mean of sustainable lending in this paper is the bank's activities in distributing credit product financing by considering economic, social, environmental, and governance aspects while still achieve economic value. There are three main factors in this definition, namely those related to bank activities, the three pillars of environment, social and governance, and economic performance.

It is generally accepted that bank activities that produce economic performance have an influence on business sustainability, unlike the influence of ESG performance, where there are still differences in views. Some argue that social, environmental and governance aspects encourage business sustainability. However, some argue that certain aspects have a negative effect or have no effect on sustainability. This condition raises the following questions:

RQ1. What are the factors that play a role in sustainable lending?

RQ2. What is the relationship between factors that play a role in sustainable lending?

This review aims to answer the two research questions above by identifying the factors that play a role and their relationship in sustainable lending in commercial banks using a value chain concept approach and ESG insight. The results of this review can then be used as an entry point to research the influence of value chains and ESG insights on sustainable lending and to find out the key determinants in encouraging sustainable lending.

To achieve this goal, a description stage was prepared which was preceded by an explanation of the review method used, an explanation of PRISMA (the preferred reporting items for Systematic Review and Meta-Analysis) as a guideline for SLR. The next section presents the results of the review related to the research questions. The next stage is a discussion of the results of the review, along with the resulting thinking concepts and closing with the delivery of conclusions and suggestions.

## 2. METHODOLOGY

### 2.1. Research Method

This review article seeks the factors that influence sustainable lending, as well as the relationship between these factors from previous research articles, and then elaborates on them in this article to find some of the most influential factors. For this purpose, the Publish or Perish application is used to search for articles that best match the required keywords. This software gathers data and indicators of journal productivity, as well as citations from authors, institutions, and journals (metadata), and organizes them into a detailed and structured format [5], then the selection of these articles carries out using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method [6]. The benefit in utilizing SLR is its capacity to play down subjective and one-sided conclusions, improving the investigatory nature of the talk by relieving scholastic inclinations in test fabric determination [7]. The steps in the process of interpreting articles using the PRISMA method consist of several stages [6].

1. Identification: Search all relevant articles from the selected database.
2. Screening: Selecting articles based on a set of established criteria for inclusion or exclusion.
3. Eligibility: Ensure that all articles screened meet the eligibility criteria.
4. Inclusion and Exclusion: Carry out the final selection of articles that meet the requirements for analysis.

The steps in the process of interpreting articles using the PRISMA method comprise several stages ensuring clarity and transparency in the review process, facilitating rigorous evaluation of research and inclusion of relevant, high-quality articles. An in-depth search of papers and articles was conducted on Scopus (www.scopus.com) to evaluate the existing literature. In line with previous research [8], Science Direct was selected due to its broad coverage across disciplines, not just economics, and the inclusion of scientific journals covering a wide range of ranking levels rather than focusing solely on top-tier journals. In addition to the representation of Science Direct as a source of top-tier journals, the Google Scholar and Semantic databases were selected. These two databases were chosen because of the limited number of literature sources that specifically mention factors affecting sustainable lending in commercial banks, thus broadening the scope of articles obtained.

### 2.2. Article Interpretation Patterns

To find articles that match the topic of discussion, they are searched through three database sources, namely Google Scholar, Science Direct and Semantic Scholar. The topics and keywords used are ”Value Chain” and ”Sustainable lending”, ”ESG performance”, ”Sustainable credit financing”, ”Commercial bank”. In each database, the search query in the Publish or Perish application is in Table 1 below.

Table 1. Query keywords in this article

| Database | Search String |
|---|---|
| Scopus | “Value Chain” AND (“Sustainable lending” OR “Sustainable credit financing”) AND “Commercial bank” AND (“ESG” OR “Performance”) |
| Google Scholar | “Value Chain” AND (“Sustainable lending” OR “Sustainable credit financing”) AND “Commercial bank” AND (“ESG” OR “Performance”) |
| Semantic Scholar | “Value Chain”, “Sustainable lending”, “Sustainable credit financing”, “Commercial bank”, “ESG”, “Performance” |

The keyword selection is based on the following guidelines, looking at various possible sources of keywords related to the main theme, including online thesaurus, keywords used in previous research, suggestions from Scopus, and input from subject matter experts

### 2.3. Selection of Eligible Articles

Article searches were conducted from September to November 2023. After obtaining articles from 3 databases, indexing was carried out in the Microsoft Excel application. The next process is to remove duplicate articles from the results, then proceed to the eligible phase to find articles that are eligible for this systematic review. The selection of eligible articles aims to answer the research question, namely how the factors that play a role and influence sustainable lending in conventional banks through the value chain concept approach. Inclusion and exclusion criteria as listed in Table 2.

Table 2. Criteria used for screening

| Criteria | Inclusion | Exclusion |
|---|---|---|
| Document type | Article | Book chapter, confer paper, Book, Book series, trade Journal, report |
| Source type | Journal | - |
| Publication stage | Final | Article in press |
| Year of published | Year 2019 – 2023 | Out of range |
| Language | English | Non-English |
| Value chain | Porter, 1985 | Non-Porter |
| Bank | Commercial bank | Non-commercial bank |

### 2.4. Determination of Included Articles

This systematic literature review uses the PRISMA approach or the Preferred Reporting Items for Systematic Review and Meta-Analysis [6], with four stages, such as identification, screening, eligibility and inclusion which includes various items including article title, abstract, introduction, methods, results, discussion and flow diagram of the systematic review process. Furthermore, the article data to be included includes information about the researcher's name, the year of publication, article title, a country where the research was conducted, journal name, variables, and results. The articles were reviewed related to empirical research in banking, methods, variables and research indicators used as determinants and research results related to their influence on sustainable lending.

In the final stage, carried out a comprehensive assessment of the full-text articles from the initial selection. This assessment involved reading the abstract and full content of each article. Then checks again whether the complete article contains environment, social, and governance, also aspect of Porter's value chain and sustainable lending. Besides the three database sources, articles were also carried out through manual interpretation by selectively searching for articles from reference journals. Articles are identified primarily through the title and then selected to avoid duplication from various sources.

## 3. RESULTS

### 3.1. Selection Process

Based on the identification results, there were 1,073 articles from three database sources (Google Scholar, Science Direct and Semantic). After screening to avoid duplication from several sources, 854 articles were obtained. Furthermore, article selection was carried out through screening with research questions and 185 articles were downloaded and reviewed for eligibility. Of the 185 articles, 32 had the topic of lending, but of the 32 articles, there were 17 articles that did not meet the criteria for lending activities, and finally 15 articles were obtained that could meet the criteria for articles included in the systematic literature review. Then, hand searching was also carried out which found 3 eligible articles. In the end, 18 articles were found to be referred to as study material in this article. The process of identifying articles until the selection of articles that can be included in the systematic literature review following the PRISMA method is presented in Figure 1.

### 3.2. Characteristics of the Article

Based on researching published articles presented in Figure 2, the author observes research trends related to sustainable credit distribution and its relationship with ESG, value chain and entrepreneurship economic performance. In 2023, there will be a very high number of articles discussing this research theme compared to previous years, namely 2019, there are 10 articles. It can be concluded that currently research on sustainable credit distribution is being widely discussed.

There are 15 selected articles in the research were published in high-ranking journals indexed by Scopus, the majority of which came from journals ranked Q1 to Q3. Some of these articles were published in the following journals: Sustainability (3), Environmental Science and Pollution Research (1), Corporate Governance and Sustainability Review (1), Corporate Governance (1), Economic Analysis and Policy (1), Poznan Journal of Law, Economics and Sociology (1), PLOS ONE (1), Energy Economics (1), Economic Analysis and Policy (1), Journal of Multinational Financial Management (1), Resources Policy (1), Systems (1), Renewable and Sustainable Energy Reviews (1), Journal of Asian Finance, Economics and Business (1),

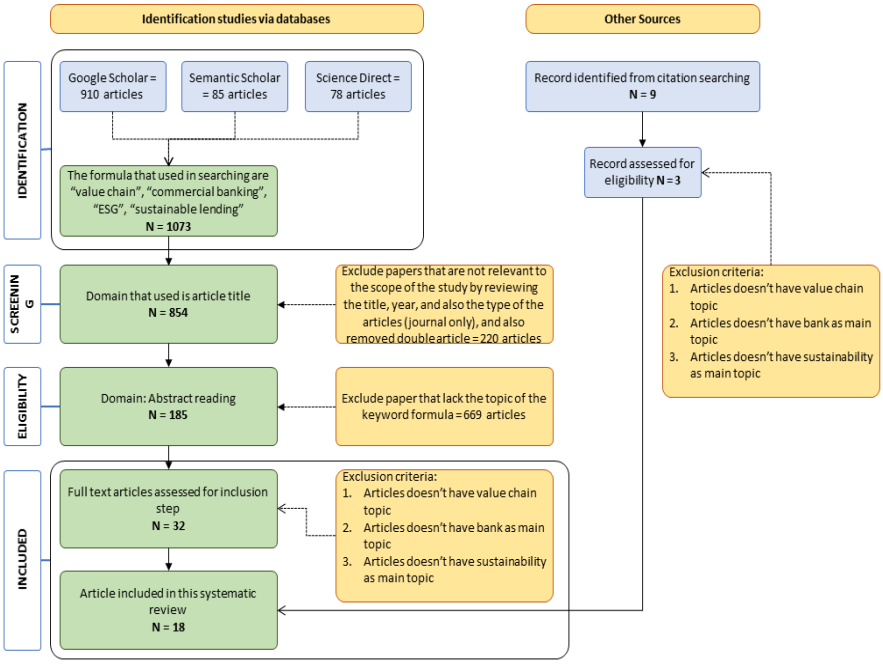


Figure 1. The PRISMA Method was used in the research

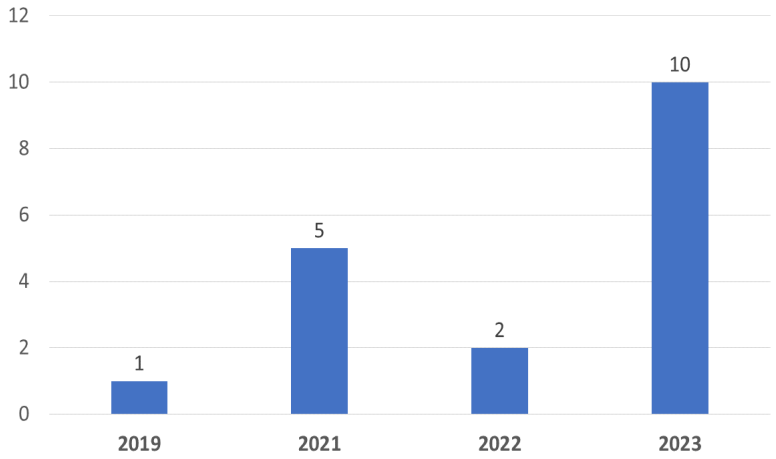


Figure 2. Distribution of years of publication of articles in discussion of SLR

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies (1), and Journal of Cleaner Production (1).

The most articles used in the review came from the People's Republic of China with 4 articles, followed by multi-country with 3 articles, followed by Vietnam, United Arab Emirates, India, Bangladesh, Italy, Lithuania, Indonesia, Middle East and North Africa (MENA), Poland, Nigeria and Malaysia (2 countries in 1 article) 1 article each. Of the 18 articles reviewed, there were 17 articles that researched private banks and only 1 state-owned bank. This condition shows that research into sustainable lending in South East Asia and in state-owned banks is still limited.

### 3.3. Factors Playing a Role in Sustainable Credit Distribution

Based on the results of the review of the article, there are several determinant factors in sustainable credit distribution activities using a value chain approach, which comprises main activities and supporting activities as well as performance in the form of financial and non-financial performance or ESG performance, as presented in Table 3. The value chain has a role in economic performance as well as sustainability performance, as reflected through ESG performance. The role of the value chain can be seen in credit portfolio indicators [9]; green financial products [10]; liquidity [2, 11–13]; Risk Management [14]; technology and human resources [11, 14, 15]. Generally, these indicators are dominated by supporting activities.

The influence of the concept of value chain elements on sustainability and economic performance is also included. Strakova et al. [16] concluded through their research that value chains can be used as the basis for business models, which can increase the value of the organization. The generic value chain concept consisting of main activities and supporting activities generates margin as financial performance. In terms of sustainability, there needs to be a link between generic value chains and sustainable value chains. Sustainable value chain (SVC) is an extension of the original value chain concept developed by Porter [17]. Wu et al. [18] argue that the SVC model enhances the capabilities of companies that are not adequately addressed by traditional value chains. Supply chains align and link resources identified through selected generic strategies with environmental, social, and governance to ensure sustainable development by achieving not only financial benefit but also competitive advantage [19]. These are some of the research results that highlight this systematic review, to search and discover more broadly the value chain elements and ESG aspects that can improve sustainable lending performance.

Apart from the value chain, ESG performance also plays a role in sustainable lending, which can be seen from its role as a whole or individually. Individually, there is environmentally related performance in the form of providing green loan [20–22]; emission and waste reduction [23]; social aspect in the form of enhancement of the bank's image, establishment of trust, stakeholder's engagement plans, promotion of brand awareness, provision of better customers' satisfaction, and provision of more employee benefits [24]; product responsibility [23]; social aspect in the form of social activities such as corporate social responsibility [25]; and governance aspect [25, 26]. Overall, ESG performance plays a role in sustainability as indicated by ESG considerations [26], ESG practice [23], and ESG pillars of banks [25]. ESG can increase profitability and reduce financial risks, among which sustainable lending is key. Study results indicate that two ESG pillars significantly impact these areas: the social and environmental pillars [27]. The results of Rajesh and Rajendran's study [28] show that ESG scores can be used as an indicator of a company's sustainable performance. Measuring the performance of sustainable credit distribution using ESG scores shows that banks that have good ESG performance will reduce the NPL level in these banks [29]. In addition, ESG performance has a positive and significant impact on company profitability [30].

There are other factors that play a role, namely economic performance, which is visible from macroeconomic conditions in relation to growth and lending quality [31]. Compared with value chain and ESG performance, there are far fewer articles discussing economic performance related to sustainability. This condition is generally caused by economic performance, which is an inevitability in carrying out business activities. In addition, the interests of stakeholders are now increasingly paying attention to sustainability aspects. Even though it is not given much attention in the discussion, it is still an important thing to pay attention to in creating profits, which is one pillars of the triple bottom line [32].

### 3.4. Value Chain and ESG Performance in Sustainable Lending

The review of 18 articles on sustainable lending in commercial banks shows that 8 articles discuss the value chain, 9 articles discuss the topic of ESG performance and only 1 article discusses economic performance. Based on this, the discussion of the determinants of sustainable lending focuses on the value chain and ESG performance. When viewed in more depth, the value chain indicators in Table 3 are related to two things, namely related to economic performance and ESG performance. Table 4 shows the number of articles that discuss the value chain relationship with economic performance and ESG performance.

There are 4 articles that discuss the relationship between the value chain and economic performance. Indicators or elements of the value chain that have the potential to drive economic performance consist of a credit portfolio [9], capital [2], technology [11], and lending risk [12]. There are 7 articles that discuss the relationship between the value chain and ESG performance. Indicators or elements of the value chain that have the potential to drive ESG performance consist of credit portfolio [9]; green product [10]; liquidity [2, 11];

Table 3. Determinant Factor of Sustainable Lending

| Domain | Indicator | Author |
|---|---|---|
| | Value Chain | |
| Support Activities | Credit portfolio | Rahat B, Nguyen P (2023) |
| Support Activities | The availability of green financial products and services<br>The development of innovations leading to a green economy<br>The promotion of green education | Lapinskienė G, Danilvičienė I (2023) |
| Support Activities | Bank Capital<br>Liquidity | Jiang H, Xu S, Cui J, Subhani G (2023) |
| Support Activities | Technology<br>Human resources<br>Liquidity | Mirza N, Umar M, Afzal A, Firdousi SF (2023) |
| Primary Activities<br><br><br><br>Support Activities | Financial capacity<br>Marketing strategy<br>Management risk<br>Support policy<br>Banking IT<br>Quality of Human Resource | Huy NQ and Loan NT (2022) |
| Primary Activities<br>Support Activities | Operational<br>Liquidity | Olalere O, Islam MDA, Yusoff W, Ariffin KHK, Kamruzzaman M (2021) |
| Support Activities | Liquidity<br>Firm size | Yin W, Kırkulak-Uludağ ZB, and Zhu Y (2021) |
| Support Activities | Digital Technology Transformation | Zhu Y, Jin S (2023) |
| | ESG Performance | |
| ESG | Green Loans | Al-Qudah AA, et al. (2023) |
| ESG | ESG consideration - On environmental and social aspect<br>On governance aspect | Saxena D, Dhall N, Malik R (2021) |
| Social | Enhancement of the bank's image<br>Establishment of trust<br>Stakeholder's engagement plans<br>Promotion of brand awareness<br>Provision of better customers' satisfaction<br>Provision of more employee benefits | Zheng, G.-W.; Siddik, A.B.; Masukujjaman, M.; Fatema, N. (2021) |
| ESG<br>Environment<br>Social | ESG practice (policy)<br>Emission and Waste reduction<br>Product responsibility | Menicucci E, Paolucci G (2023) |
| ESG | ESG pillars of banks<br>Environment pillar<br>Social pillar<br>Governance pillar | Gutiérrez-Ponce H, Wibowo SA (2023) |
| ESG | ESG Risk | Pyka I, Nocoń A (2023) |
| Environmental | Green Credit | Bao J, He M (2022) |
| Environmental<br>Social | Corporate Environmental Performance<br>Corporate Social Performance | Salim H, Dsil M, Adam NG, Dewandaru G, Nkoba MA (2023) |
| Environmental | Green Credit | Luo S, Yu S,Zhou G (2021) |
| | Economic Performance | |
| Macroeconomics | Loan growth and management quality | Nizam E, et al. (2019) |

human resources [11, 14]; risk management [14], information technology [10, 15].

Based on the number of articles that discuss the relationship between value chain and performance, it shows that the number of articles that discuss the relationship between value chain and ESG performance is more numerous. This indicates that environmental, social and governance-related performance is highly relevant in sustainable lending. However, economic performance is representative enough to be considered in the discussion of sustainable lending.

Table 4. Value chains that have the potential to drive economic performance and sustainability

| **Factors that drove entrepreneurship economic performance** | **Factors that drive sustainable performance** | **Country** | **Author** |
|---|---|---|---|
| 1. Credit portfolio influence credit quality | 1. Credit portfolio influence ESG score | World Wide | Rahat B, Nguyen P (2023) |
| | 2. The availability of green financial products and services affect green banking performance | World Wide | Lapinskienė G, Danilvičienė I (2023) |
| 2. Higher capital ratio positively affects bank lending growth | 3. Funding liquidity positively and significant on sustainable bank lending | MENA Countries | Jiang H, Xu S, Cui J, Subhani G (2023) |
| 3. Technology have positive relationship with profitability | 4. Human resources determined green lending | Europe | Mirza N, Umar M, Afzal A, Firdousi SF (2023) |
| | 5. Financial capacity, risk management, Banking IT, quality of human resource has positive impact on green credit | Vietnam | Huy NQ and Loan NT (2022) |
| 4. Credit risk is significantly positive with firm value while liquidity risk, operational risk, market risk and solvency risk have a significant negative effect on firm value | | Nigeria | Olalere O, Islam MDA, Yusoff W, Ariffin KHK, Kamruzzaman M (2021) |
| | 6. Banks with higher profitability tend to give more green credit | China | Yin W, Kirkulak-Uludag ZZB, and Zhu Y (2021) |
| | 7. Digital technology transformation improved efficiency and promoted ESG performance | Multi-countries | Zhu Y, Jin S (2023) |

The determinant factors of ESG performance show their influence on sustainability, whether positive, negative or no influence, as shown in Table 5. There are 8 articles that discuss the positive influence of ESG performance on sustainability. This positive thing can be seen from the use of environmental and social aspects as the main consideration in facing sustainability issues [26], improves the revenue and market share of bank [24], emission and waste reduction [23], social pillar on ROA and ROE [25], ESG risk in sustainable finance [33], green credit for sustainable development [21, 22], corporate social performance for financial product safety [34]. Apart from the positive influence, there are 4 articles that discuss the influence of ESG performance on sustainability, which is the green loan on NPL ratio [20], ESG practice (policy) on operational performance [23], governance pillars on TQ [25], corporate environmental performance for bank stability [34]. There are also 3 articles which show that there is no influence of ESG performance on sustainability, namely where governance aspects have not been taken into consideration [26], environmental pillar on financial performance

[25], and corporate social performance with bank stability [34].

Table 5. The Effect of ESG Performance on Sustainability

| Positive effect | Negative effect | Has no effect | Country | Author |
|---|---|---|---|---|
| | 1. Green loans have negative impact on the NPL ratio | | Uni Emirates Arab | Al-Qudah AA, Hamdan A, Al-Okaily M, Alhaddad L (2023) |
| 1. ESG as primary consideration in sustainability issues | | 1. ESG has not yet been considered | India | Saxena D, Dhall N, Malik R (2021) |
| 2. Improves the revenue and market share of bank and y decreases the operational expenditure of bank. | | | Bangladesh | Zheng, G.-W.; Siddik, A.B.; Masukujjaman, M.; Fatema, N. (2021) |
| 3. Emission and Waste reduction has positive and significant impact on financial and operating performance also better product responsibility decrease accounting performance | 2. ESG practice (policy) negatively affect operational and market performance | | Italy | Menicucci E, Paolucci G (2023) |
| 4. Social pillar has a significant positive effect on ROA and ROE | 3. ESG pillars of banks negatively related to ROA, ROE, and TQ, also significant negative effect on TQ | 2. Environment pillar has no significant impact on financial performance | Indonesia | Gutiérrez-Ponce H, Wibowo SA (2023) |
| 5. ESG risk increases banking institutions involvement in the implementation of sustainable finance. | | | Poland | Pyka I, Nocoń A (2023) |
| 6. Green credit can promote green sustainable development | | | China | Bao J, He M (2022) |
| 7. Green Credit has a significant effect on the overall bank competence | | | China | Luo S,Yu S,Zhou G (2021) |
| 8. Corporate social performance has a relationship with financial product safety. | 4. Corporate environmental performance has negatively related to bank stability as measured by NPL | 3. Corporate social performance no significant relationship with bank stability | Multi-countries | Salim K, Disli M, Adam NG, Dewandaru G, Nkoba MA (2023) |

## 4. DISCUSSION

Systematic review of 18 selected articles from various countries shows that value chain and ESG performance are the most dominant factors related to sustainable lending activities. Value chain shows its relationship with sustainable lending through supporting activities and main activities, while ESG performance through environmental, social and governance aspects.

### 4.1. Value Chain

The company's internal factors that play a role in growth are reflected in the value chain, which is a concept that explains all activities carried out by the company to produce products in the form of goods or services. Thanks to the utilization of various resources in the main activity and supporting activities will provide a margin known as the value chain concept developed by Michael Porter [17]. The main and supporting activities do not operate in isolation, but cohesively as a system linked to each other. It is through the linkage of each activity in the value chain that drives competitive advantage through cost efficiency, differentiation, or focus [17]. The main activities in the value chain concept are activities that are directly related to operational activities, while supporting activities are an activity that supports operational activities in a company and plays a role in the main activity to generate margins [17].

Based on the review, the most dominant value chain activities that drive performance, both economic performance and ESG performance, are supporting activities. Supporting activities to encourage economic performance in terms of maintaining credit quality [9], credit growth [2], profitability [11], and firm value [12]. Supporting activities show more encouragement for ESG performance than economic performance, which is related to the ESG score [9], green banking performance [10], sustainable banking lending [2], determine green lending [11], finance green credit [12], give more green credit [13].

### 4.2. ESG Performance

The sustainability of a business hinges on balancing economic, environmental, and social performance on a grand scale. The convergence of social, environmental, and economic pursuits can motivate organizations to engage in activities that positively affect not just the natural environment but also society, aligning with the principles of the triple bottom line concept [35]. The economic dimension is relate to the company's ability to generate profits; the social dimension is relate to the company's contribution to social aspects such as the welfare of the surrounding community; and the environmental dimension is relate to the company's involvement in maintaining environmental sustainability by using renewable resources or green products. Continuing the three-bottom line (TBL) concept, there is the idea of environment, social and governance (ESG). The term ESG was first introduced by the United Nations in the article "Who Cares Wins" which explains whether a product contributes positively to the environment, social and organizational governance [36]. In this concept, apart from social and environmental aspects as in the TBL concept, there are governance aspects which are a series. The aspects of governance play a crucial role in value creation by ensuring accountability, compliance, and transparency. [37]. Hence, ESG represents a commitment to sustainable and integrated development that considers economic, environmental, social, and governance advantages. It is an investment approach focused on the growth of long-term value and serves as a detailed, practical method of governance [38].

Empirical research in the field of sustainability using primary data is quite limited, mostly used secondary data. Menicucci and Paolucucci [23] conducted a study analyzing the relationship between ESG dimensions and bank performance using data collected from the Refinitiv database during the period 2016-2020, involving 105 banks in Italy. The independent variables in this study included ten ESG dimensions, and the dependent variables comprised four performance indicators. These were examined using three panel regression models. The findings indicate that ESG policies have a negative impact on both operating and market performance in the banking sector. Further research indicates that each dimension of ESG influences bank performance. Specifically, the environmental aspect, focusing on emission and waste reduction, significantly enhances both financial and operational performance. This suggests that banks can be seen as effectively utilizing their resources and addressing environmental concerns related to their operations. One dimension of social product responsibility is significantly correlated with profitability and specifically seems to constrain financial performance (ROE and ROA). This suggests that better or more attractive products and information offered by financial institutions to customers will improve profitability. Another ESG dimension regarding corporate governance (management and supervision) has a positive effect on banking performance. As a consequence, banks should invest in ESG activities so that directors have a willingness to reduce agency costs. Sustainable lending can also be linked to ESG performance, as banks and financial institutions will consider this factor in assessing lending risk. In addition to financial performance, credit assessment also considers the feasibility of projects related to emissions and waste reduction. Banks should implement product liability to protect customers and bank management to avoid conflicts of interest in lending decisions.

There is a relationship between ESG performance both overall and individually and aspects of sustainability, but with different results. As presented in Table 4, there are times when governance aspects have a

positive effect on sustainability [25]. However, in contrast, research shows that sustainability issues have not been taken into consideration [26]. There is research that shows the effect of the overall social aspect shows that it significantly increases bank revenues and market share [24]. However, on the other hand, there are other studies which show that corporate social performance has no significant relationship with bank stability [34].

Table 5 shows the influence of ESG performance elements which clearly states what ESG elements contribute positively, negatively or have no effect based on existing articles. For a positive influence can be seen in the article Menicucci dan Paolucci [23] which states that reducing emissions and waste (environmental aspects) has a positive and significant impact on financial and operational performance. In contrast, the study of Gutiérrez-Ponce and Wibowo [25] states that the Environmental pillar does not have a significant impact on financial performance. Both studies were conducted in different countries, Menicucci and Paolucucci's [23] research was conducted in Italian banks, Gutiérrez-Ponce and Wibowo [25] was conducted in Indonesian banks. The differences in research locations can affect different research results, which are influenced by local regulations and awareness of the banking industry in each country. Other research on ESG pillars revealed that ESG pillars increase banking institutional involvement in sustainable finance by Pyka and Nocon [33], but Gutiérrez-Ponce and Wibowo [25] research showed that the ESG pillars of banks have a negative correlation with financial performance. Gutiérrez-Ponce and Wibowo [25] conclusion regarding the ESG report of banks differs from Pyka and Nocon [33] who suggest that ESG is associated with ESG risks in Poland. The study showed that the performance results of ESG were varied based on the location and dimensions of the ESG.

### 4.3. Sustainable Lending

The approach relating to sustainable lending refers to stakeholder theory developed by Freeman [39]. This theory is a concept of thought in the application of strategic management that aims to fulfill the interests of stakeholders. The theory states that the success of a company rests on the fulfillment of all stakeholders, not only those who are likely to benefit as shareholders. Nowadays, the role of business organizations is evolving due to new societal norms and expectations that reflect increasing public concern for environmental and governance issues. As investors and consumers become more mindful about aligning their investments and purchases with their personal values, ESG reporting and ratings serve as tools to extend corporate accountability beyond the boardroom, fostering socially responsible investments. This, in turn, impacts stakeholder values [40].

Lending is part of overall banking activities. The stakeholder theory above is a reference source for establishing principles relevant to sustainable credit distribution. Through mapping of value chain activities, ESG-oriented performance and sustainable credit distribution, there is a transformation from a generic value chain to a sustainable value chain. Based on the relationship between determinant factors, theory and previous research, a conceptual framework was developed for a sustainable value chain in lending, as presented in Figure 3.

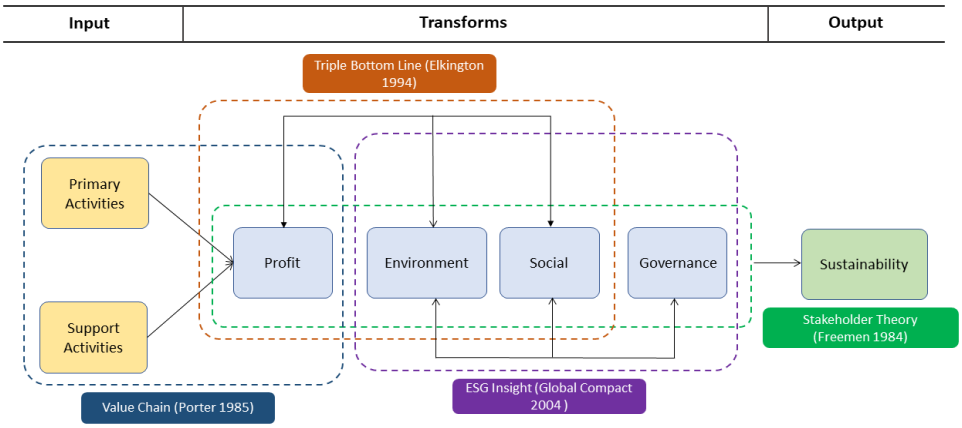


Figure 3. Sustainable value chain conceptual framework for lending

This conceptual framework by connecting value chain theory and ESG performance with sustainable finance can serve as a basis for developing sustainable business model for commercial loan in banks or financial institutions.

## 5. CONCLUSION AND SUGGESTION

### 5.1. Conclusion

This review aimed to identify factors influencing sustainable lending in commercial banks and to elucidate their relationship using a value chain concept approach and insights from ESG performance. Analysing 18 articles, it was found that both the value chain and ESG performance are determinant factors in sustainable lending. Various indicators within the value chain play crucial roles. However, research outcomes regarding the impact of ESG performance on sustainable lending differ, with some suggesting positive effects and others finding no or negative significant correlation. Overall, while recognizing the importance of both factors, the review highlights the need for further research to understand their complex relationship and its implications for sustainable lending practices.

### 5.2. Suggestions for Future Research

There is still limited research on sustainable lending in the Southeast Asia region and research conducted in state-owned banks, so further research needs to be carried out in the region and type of bank. In addition to the findings, it is recommended to conduct more specific empirical research aimed at testing the causal relationship between value chains, ESG performance, and sustainable lending, potentially utilizing primary data from banks actively implementing sustainable lending practices. Furthermore, future studies should investigate how technology and innovation can bolster value chains and enhance ESG performance in sustainable lending. This is especially pertinent given the dynamic nature of financial technology (fintech), which could greatly impact lending methodologies. Such investigations are crucial for advancing our understanding of the mechanisms driving sustainable lending and for informing the development of effective strategies and policies in the realm of sustainable finance.

## 6. DECLARATIONS

### 6.1. Author Contributions

Conceptualization: K.A.A.M.; Methodology: H.S.; Software: I.F; Validation: D.B.H and H.S.; Formal Analysis: K.A.A.M. and D.B.H; Investigation: K.A.A.M.; Resources: I.F; Data Curation: I.F and K.A.A.M.; Writing Original Draft Preparation: K.A.A.M. and H.S.; Writing Review and Editing: I.F. and D.B.H.; Visualization: K.A.A.M.; All authors, K.A.A.M., H.S., I.F, and D.B.H., have read and agreed to the published version of the manuscript.

### 6.2. Data Availability Statement

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

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

### 6.4. Institutional Review Board Statement

Not applicable.

### 6.5. Informed Consent Statement

Not applicable.

### 6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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