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THE CONTRIBUTION OF BANKING FINANCING TO THE QUALITY OF THE ENVIRONMENT IN INDONESIA

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ABSTRACT

The issue behind this research is the increase in temperature due to human activities supported by productive and consumptive financing by banks in Indonesia. This study seeks to ascertain how productive and consumptive financing by banks relates to the environmental quality index in Indonesia. Using a quantitative approach, this study utilizes secondary data. The data was obtained from the official websites of the Financial Services Authority (OJK), the Central Statistics Agency (BPS), and the Ministry of Environment and Forestry (KLHK). Productive Financing Credit (KPP) and Consumptive Financing (KPK) have a significant effect on the Environmental Quality Index (IKLH) both partially and simultaneously. Productive financing affects environmental quality, as can be seen from the large amount of financing involved. For example, purchasing vehicles as a means of product distribution, where the use of these vehicles is frequent, contributes to environmental pollution. Consumptive financing, such as credit for purchasing goods like gadgets, vehicles, or furniture, can negatively reduce the IKLH. For example, consumptive financing makes it easier for people to obtain goods, thereby increasing overall demand. This triggers massive production that requires the extraction of more natural resources such as wood, minerals, and petroleum. The results of the study conclude that productive financing has a significant impact on the IKLH, while consumptive financing has an effect but is not significant on the IKLH. This study is limited to banking financing, so further research can explore in depth the elements that contribute to the Environmental Quality Index outside of banking financing. Future researchers can review in more depth how the production process and use of vehicles affect environmental quality.

Keywords:
Productive Financing, Consumptive Financing, Environmental Quality Index

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1. INTRODUCTION

One of the environmental issues that is often discussed is global warming. The continuous increase in the Earth's temperature has become a concern for many people. According to the European Union's Copernicus Climate Change Service (C3S), November 2023 was the hottest November ever recorded globally, with temperatures ranging from 14.22C to 0.85C. The global average temperature in 2023 was around 1.46°C above pre-industrial levels and 0.13°C higher than the average in 2016. This continuous increase in temperature is caused by human activities, particularly the use of fossil fuel transportation and electricity generation (CCCS).

According to estimates by the Meteorology, Climatology, and Geophysics Agency (BMKG), the average air temperature in Indonesia will be 27.2°C in 2023. This is an increase of 0.4°C compared to the previous year's temperature of 26.6°C (BMKG). Carbon dioxide emissions are one of the main causes of this warming. Based on data from the International Energy Agency (IEA), coal-fired power plants in Indonesia are responsible for 51% of CO2 emissions. Meanwhile, the electricity sector contributes 44% of CO2 emissions, with the transportation, housing, and industrial sectors in second and third place, at 24% and 5% respectively (IEA).

The data shows that one factor contributing to global warming that needs to be considered is transportation. Data from the Indonesian National Police Traffic Corps shows that as of February 9, 2023, there were 153,400,392 motor vehicles in Indonesia. This number includes 147,153,603 private vehicles, consisting of 19,177,264 private cars and 127,976,339 motorcycles. The rest, consisting of 213,788 buses, 5.7 million large cars, and 85,113 special vehicles, are used for transporting people and commodities.

Table 1. Data on the Number of Vehicle Users in Indonesia

Year Number of Vehicles	Year Number of Vehicles
2020	136.137.735
2021	142.001.698
2022	148.261.817
2023	157.080.504

Source: Central Statistics Agency (BPS), 2024

The ease with which people can obtain loans or financing from financial institutions is one of the factors contributing to the widespread use of private transportation in Indonesia. Based on the Indonesian Banking Surveillance Report for the first quarter of 2023, bank credit and financing growth increased by 9.93% compared to the same period last year (6.67%). In addition, credit increased by 0.34%, but this was slower than the previous quarter's growth of 2.37%. BPR credit and financing distribution also increased by 10.87%, with credit/financing growth in the transportation, warehousing, and communication sectors experiencing credit and financing growth of 32.25%, far greater than the previous year's increase of 7.71% (LSPI Quarter 1 2023).

Furthermore, rising temperatures and climate change are also influenced by human and industrial productivity (Febriani Irma, 2024). In Indonesia, the government supports

industrialization, one of which is by disbursing credit for production activities. It was recorded that until the first quarter of 2022, MSME credit distribution increased by 15%, with a total MSME credit distributed of IDR 1,171.8 trillion or 20.03% of all national bank credit distributed (Bank Indonesia).

Based on the above description of the problem, the purpose of this study is to determine how the environmental quality index in Indonesia is influenced by productive and consumptive bank financing. This study is an extension of the study by Dewi Rahmawati Maulidiyah and Ilmiawan Auwalin (2021) on the impact of Islamic banking financing on environmental quality at the provincial level in Indonesia. This study is also based on the recommendations produced by that study, specifically that future studies should use more specific banking financing in relation to financing in the productive and consumptive sectors, rather than just banking financing as a whole (Maulidiyah & Auwalin, 2021).

2. LITERATURE

2.1 Productive financing

Productive financing refers to funding initiatives aimed at increasing trade, investment, and output to meet production needs (Mawadah, 2019). This study uses conventional and Islamic bank financing in the form of productive financing for working capital and investment purposes.

Working capital financing refers to funding aimed at matters related to increasing production, both quantitatively (i.e., quantity of production output) and qualitatively (i.e., quality of production output); trade objectives; or increasing the use or placement of an item. Meanwhile, investment financing is specifically intended to meet the demand for capital products and related facilities (Litriani, 2019).

2.2 Consumer Financing

In addition to productive financing, Islamic banking also includes consumptive financing. To meet their consumption needs, users of money require consumptive financing. In 2017, consumer needs became increasingly diverse. Consumption needs are divided into two categories: primary and secondary needs. Primary needs are food, clothing, shelter, and housing, as well as services such as health and basic education. Secondary needs are known as additional needs that are higher in quantity and quality than primary needs, or more luxurious, and can include products such as food and beverages, ready-to-wear clothing, jewelry, housing, buildings, and cars, as well as services related to health and education, travel, and entertainment. (Pribadi, 2017)

2.3 Environmental Quality Index

In Indonesia, the Environmental Quality Index (IKLH) is a rapid assessment of the state of the environment over a given period of time. The IKLH serves as a tool for measuring environmental management by combining the concepts of the Environmental Performance Index (EPI) and the Environmental Quality Index (EQI). Water quality, air quality, and land cover quality are the three indicators that make up the Environmental Quality Index (EQI),

according to the Ministry of Environment and Forestry (KLHK) of the Republic of Indonesia (Masyruroh & Binyati, 2021). Each indicator has a different calculation weight. The forest cover indicator, which accounts for 40% of the total, is derived from the parameter of forest cover area and is the indicator with the highest weight. Air quality is determined by SO2 and NO2 pollution, which is mainly caused by emissions from motor vehicles, factories, and homes. Meanwhile, the river water quality and air quality indices have the same calculation weight (30%). This water quality index is then assessed using metrics from total phosphate, fecal coli, coliform, suspended solids (TTS), biological oxygen demand (BOD), chemical oxygen demand (COD), and oxygen demand/dissolved oxygen (DO). In an effort to encourage improvements in environmental quality, index figures will be obtained after all indicators have been calculated (Hidayati & Zakianis, 2022).

Table 2. Classification of Environmental Quality Index Predicates

Grade Score	**Grade Score**
Very good	IKLH > 80
Good	70 < IKLH ≤ 80
Fairly good	60 < IKLH ≤ 70
Bad	50 < IKLH ≤ 60
Very bad	40 < IKLH ≤ 50

Source: Ministry of Environment and Forestry

2.4 The Relationship between Productive Financing and the Environmental Quality Index

Based on research (Luhung & Yuniasih, 2023), productive financing has a significant effect on IKLH. This financing takes the form of investment funds used in production by applying modern energy-efficient technology. Other studies conducted by (Sukma & Honggowati, 2025; Zhang et al., 2023; Ullah et al., 2020) also state the same thing, that productive financing has a significant effect on IKLH. In these studies, investment financing in the form of financial development has a positive effect on the environment. Furthermore, research by (Hidayati & Zakianis, 2022) also states that productive financing has a significant effect on IKLH. This is because the increase in Gross Domestic Product (GDP) and Gross National Product (GNP) has a significant relationship with IKLH.

Based on the above views, a hypothesis can be formulated as follows:

H1: Productive financing has a significant effect on the Environmental Quality Index.

2.5 The Relationship between Consumptive Financing and the Environmental Quality Index

Based on previous studies by (Adhitya et al., 2024; Hermala et al., 2025; Maulidiyah et al., 2023), it is stated that IKLH has a good relationship with financing through Islamic banking in the electricity, water, and gas sectors. There is a positive correlation between Islamic banking financing and environmental improvement in the restaurant, hotel, construction, and trade sectors. Meanwhile, IKLH has a poor relationship with the transportation, warehousing, and communication industries (Adhitya et al., 2024; Maulidiyah et al., 2023; Suryadi et al., 2014).

According to (Kim et al., 2022; Mbunai et al., 2024; Mustika et al., 2023), bank financing has a negative impact on environmental quality because as the financial system improves, energy and CO2 use also increase. Meanwhile, research conducted by Nwani & Omoke (2020) concluded that bank financing has a positive effect on environmental quality because bank loans can facilitate clean and low-carbon construction projects in the private sector.

Based on the above perspectives, a hypothesis can be formulated as follows:

H2: Consumptive financing has a significant effect on the Environmental Quality Index.

3. RESEARCH METHODS

Using a quantitative approach, this study utilizes secondary data collected from the official websites of the Financial Services Authority (OJK), Statistics Indonesia (BPS), and the Ministry of Environment and Forestry. The data covers Indonesian statistics from 2020 to 2024. The collected data was analyzed using the Random Effect Model (REM) with Eviews 12.

The operational definitions used as references in this study can be seen in the following table:

Table 3. The Operational Definitions

Variable	Definition	Data Source
Productive Financing Credit	Productive financing is financing used to accelerate the production process (Adellia et al., 2022).	Statistics on Islamic Banking and Statistics on Indonesian Banking for 2020-2023
Consumer Financing Credit	Consumer financing is funding intended to meet personal consumption needs (Pane &	Islamic Banking Statistics and Indonesian Banking

	Syahriza, 2023). Consumer financing credit in this study consists of conventional banking and Islamic banking consumer financing.	Statistics for 2020-2023
The Environmental Quality Index (IKLH)	The Environmental Quality Index assesses the effectiveness of environmental management and protection for all stakeholders by utilizing environmental management indicators. (Ramadhantie et al., 2021).	Indonesian Environmental Statistics 2023 Indonesian Environmental Quality Index Report 2023

4. RESULT

Three model tests, namely the Chow Test and the Lagrange Multiplier Test, were conducted to prove the hypothesis, which then obtained Probability Values of 1.000 (>0.05) and 0.0104 (<0.05), respectively. Based on these two results, the Random Effect Model (REM) became the selected model estimate. The following are the results of panel data regression through Random Effect Model (REM) estimation.

Table 4 (Testing the Effect of Productive Financing Credit and Consumptive Financing Credit

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
C	7.191.133	35.68705	201.5054	0.0000
KPK	2.228E-05	5.77E-06	3.95314	0.0002
KPP	-1.89E-05	7.14E-06	-2.641920	0.0106

Source: Eviews 12 Data Analysis Results

The KPK variable has a t-Statistic value of -3.953 with a Probability Value of 0.0002 (<0.05), so it is stated that the KPK variable has a significant effect on the IKLH variable.

The KPP variable has a t-Statistic value of -2.641 with a Probability Value of 0.0106 (<0.05), so it is stated that the KPP variable has a significant effect on the IKLH variable. Next is the F test to determine the simultaneous effect as follows.

Table 5. F Test of Productive Financing Credit and Consumptive Financing Credit on the Environmental Quality Index

Weighted Statistic			
R-squared	0.550630	Mean dependent var	7204.200
Adjusted R-squared	0.534862	S.D. dependent var	111.3444
S.E. of regression	75.93804	Sum square resid	328695.4

F-statistic	34.92207	Durbin-Watson stat	1.457610
Prob(F-statistic)	0.000000		

Source: Eviews 12 Data Analysis Results

The f-Statistic value is 34.922 with a Prob. f-Statistic value of 0.0000 (<0.05), so it can be concluded that the KPK and KPP variables have a significant simultaneous effect on the IKLH variable.

From this test, it is also known that the Adjusted R Square value is 0.534, so it can be concluded that the contribution of the simultaneous influence of the KPK and KPP variables on IKLH is 53.4%. Meanwhile, the remaining 46.6% is influenced by other variables outside this study.

4.1 DISCUSSION OF ANALYSIS

The results of the study indicate that Productive Financing Credit (KPP) has a significant effect on the Environmental Quality Index (IKLH). This is in line with the hypothesis that Productive Financing Credit (KPP) should have a significant effect on the Environmental Quality Index (IKLH). These results are also consistent with the findings of previous studies conducted by (Pasupuleti & Ayyagari, 2023), (Zhan et al., 2023) (Thanh, 2024), (Luhung & Yuniasih, 2023), (Ullah et al., 2020), and (Hidayati & Zakianis, 2022), which state that Productive Financing Credit (KPP) has a significant effect on the Environmental Quality Index (IKLH). Productive Financing Credit (KPP) in the form of investment used to apply modern and energy-efficient technology has a positive relationship with IKLH, while Productive Financing Credit (KPP) in the form of working capital that increases Gross Domestic Product (GDP) and Gross National Product (GNP) has a negative relationship with IKLH.

The reason why productive financing affects the quality of the environment can be seen from the large amount of financing involved. The funds obtained by the community from productive financing are then used as working capital. For example, to purchase vehicles as a means of product distribution, where the use of these vehicles is frequent, contributing to environmental pollution. Another example is when productive financing is used for investment, which then leads to a production process that generates waste, thereby damaging the environment.

The results of the study indicate that Consumer Financing Credit (KPK) has a significant effect on the Environmental Quality Index (IKLH). This is in line with the hypothesis that Consumer Financing Credit (KPK) should have a significant effect on Environmental Quality (IKLH). Furthermore, these results are also in line with previous studies conducted by (AndSUN, 2025), (Chu et al., 2023) (Hanafy et al., 2025), Kim et al., (2022) and Nwani & Omoke, (2020) which state that consumer credit has a significant effect on environmental quality, where bank credit to the private sector has a significant impact on CO2 emissions in both the short and long term.

Consumer financing, such as credit for purchasing goods such as gadgets, vehicles, or furniture, can negatively reduce IKLH. This occurs because economic mechanisms and spending patterns encourage people to spend more. For example, consumer financing makes it easier for people to obtain goods, thereby increasing overall demand. This triggers massive production that requires the extraction of more natural resources such as wood, minerals, and petroleum. For example, credit for purchasing new cars can increase imports of metal and plastic raw materials, leading to deforestation, soil erosion, and loss of biodiversity. As a result, IKLH indicators such as forest area and soil quality decline due to increased pressure on natural ecosystems. In addition, the manufacturing process for consumer goods such as electronics or clothing often produces CO2 emissions, fine particles, and chemical waste. These factors can cause the IKLH index to decline.

5. CONCLUSION AND SUGGESTIONS

From the results of this study, it can be concluded that productive financing and consumptive financing have a significant effect on the Environmental Quality Index. The implication of this study is that the use of productive financing, especially for production processes and other matters that support economic growth, should be selectively chosen in terms of the technology and energy used so as not to have a negative impact on the environment. Furthermore, the use of consumptive financing also needs to be controlled by the government, as it has a negative impact on environmental quality. This study is limited to banking financing, so further research is needed to explore other factors that contribute to the Environmental Quality Index beyond banking financing. Based on these findings, banks are advised to tighten the requirements for productive financing by requiring an Environmental Impact Assessment (EIA).

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