

SUSTAINABLE FINANCE PORTFOLIO ANALYSIS IN ISLAMIC BANK (SEGMENT PERSPECTIVE)

LUCKY NUGROHO*

Universitas Mercu Buana, Jakarta Indonesia

ERIK NUGRAHA

Universitas Sangga Buana YPKP, Bandung Indonesia

AHMAD BADAWI

Universitas Mercu Buana, Jakarta Indonesia

*Correspondence author: lucky.nugroho@mercubuana.ac.id

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Abstract

The purpose of this study is to analyze the distribution of financing at Bank Syariah Mandiri (BSM) based on the segments included in the sustainable finance category in 2019. The method used is quantitative, which is to analyze based on secondary data published in 2019 with research questions: (i) How much is the distribution of retail segment financing to BSM, and how much is included in the sustainable finance category in 2019?; (ii) How big is the distribution of corporate segment financing in BSM, and how much is included in the sustainable finance category in 2019?; (iii) What is the ratio of the distribution of financing included in the category of sustainable financing in the retail segment to the corporate segment in 2019?. The findings of this study are (i) the distribution of financing to the wholesale segment contributed 63% to the sustainable finance; (ii) the distribution of the funding to the retail segment contributed 37% to the sustainable finance; (iii) The portion of BSM financing distribution included in the sustainable finance category in 2019 was 47%.

Keywords: Sustainable Finance, Islamic Bank, Wholesale Segment, Retail Segment

JEL Code: G20, G21, G23, G32

1. Introduction

Global warming has become a problem and concern with the worldwide community. The impacts of global warming are climate change, which includes changes in rainfall intensity, temperature increases, extreme weather events, climate anomalies, floods, drought, storms, and other disasters that threaten human life (Arafah, Nugroho, Takaya, & Soekapdjo, 2018; Masten & Obradovic, 2008; Nugroho, Utami, Akbar, & Arafah, 2017). Climate change has caused huge losses and has even threatened the sustainability of life on Earth (Beniston et al., 2007; Trenberth, 2008).

Global warming caused by human activities to meet the needs of human life is called economic activity. This economic activity stimulated rapid industrial growth (Nugroho, 2014; Stiglitz, 1996). Furthermore, industrial and transportation operations use fossil materials containing hydrocarbons such as coal, petroleum, and natural gas. Hydrocarbons are a source of electrical energy and heat generated from combustion. However, the results of incomplete combustion will cause damage and environmental pollution because carbon monoxide gas is poisonous, which makes air pollution (John & Feyisayo, 2013). The industrialization process in various fields that uses fossil fuels and the overexploitation of natural resources on earth due to the pursuit of economic growth impacts the increase of carbon gas for decades. This phenomenon of carbon gas has increased and caused climate change (Marland et al., 2003).

Nevertheless, based on the macroeconomic perspective that climate change is a market failure to control greenhouse gas emissions that are produced as a residue in the production process of goods and services (Andrew, 2008). One indicator of the impact of climate change on the economy is the decline in Gross Domestic Product (GDP). GDP is the value of goods and services in a country, produced by the production factors belonging to the citizens of that

country and foreign citizens (Dincer, 1997). Climate change due to global warming will cause global GDP per capita to be 23% lower than global warming. A report by Citigroup found that global GDP losses could be reduced by \$ 50 trillion if global temperatures could be lowered to 2.7° F (1.5° C) in the next few decades. Other research suggests that productivity peaks when the temperature in a region averages 55° F (13° C), meaning that a rise in temperature could increase productivity in cold northern countries while lowering productivity in tropical countries. This shows that steady temperature increases will not affect the world equally (Worland, 2015).

Moreover, on a micro-level perspective, climate change causes a decrease in productivity and increased company operating costs. The survey conducted by the Carbon Disclosure Project shows indications of the impact of climate change on productivity and operating costs. A total of 2,000 companies surveyed found that 44% of them experienced production disruptions due to rain and drought. Meanwhile, 31% experienced additional production costs. If this happens in the long term, a decrease in productivity will likely occur globally and detrimental (Liverman & Glasmeier, 2014).

Indonesia is expected to experience a climate departure, which is a condition in which the lowest average temperature has become higher than the previous highest average temperature in 2029 for most regions such as Java and Sumatra, even Papua can already experience it in 2020. On average, countries in the world will experience a climate departure in 2047. The economic sector in Indonesia most affected by climate departure is the food sector. Every one degree Celsius increase in the lowest average temperature in Indonesia will cause rice yields to decrease by up to 10%. Drought and hot temperatures are alleged to be one of the leading causes of reduced harvests, as happened in the Aceh region in 2015. Drought will result in reduced crop production by up to 1.5 tonnes per hectare. Fish catches in the Indonesian Exclusive Economic Zone are also estimated to decline by up to 40% (Wahyudewi, 2016). The above conditions are a real warning that cannot be ignored due to the dangers of global warming and climate change, considering that agriculture and fisheries are the two largest commodities that contribute to Indonesia's GDP. If this continues, it is estimated that the prices of various agricultural and fishery commodities will soar that it will reduce people's purchasing power. Indonesia can experience a phenomenon called Dutch Disease, which is the slow growth of economic development in a country with abundant natural resources (Andrew, 2008; Gerelmaa & Kotani, 2016).

Indonesia, as one of the G20 countries, has shown its commitment to reduce greenhouse gas emissions by 2020. At the Pittsburgh Summit in 2009, Indonesia committed to reducing 26% of greenhouse gas emissions by itself and 41% with international assistance. These contributions have been translated into the National Action Plan for the Greenhouse Movement. The Indonesian government is currently facing challenges in managing natural resources as the basis for development and anticipating the impacts of climate change, which is better known as pro-growth policies; pro-poor; pro-job; and pro-environment (Masruro Pimada, 2018). This response is manifested in the Master Plan for the Acceleration and Expansion of Indonesia's Economic Development 2011-2025, issued by the Coordinating Ministry for Economic Affairs. The masterplan contains a long-term policy strategy to promote high, inclusive, and sustainable economic growth (Bappenas, 2011). The master plan policy for preparing the 2015-2019 Medium Term Development Plan (RPJM) is an effort to realize Sustainable Finance. The environmental aspect is one of the pillars of sustainable development, which is new in the 2015-2019 RPJM, which is not found in the 2010-2014 RPJM. Sustainable development will be realized if harmony and balance are created between social, economic, and environmental aspects, and are implemented in business activities oriented towards profit, people, and the planet (Nugroho, Utami, Doktorlina, & Husnadi, 2017). These three aspects must be supported by elements of good institutional governance or good. Sustainable development does not only focus on economic aspects alone but also pays attention to environmental and social factors (Hermes & Hudon, 2018; Hidayah, Badawi, Nugroho, & Moetopo, 2020). Ecological damage and social disparities will occur if action is only to pursue economic growth (Stiglitz, 2000).

The Financial Services Industry is one of the supporters of sustainable development because realizing the Master Plan for the Acceleration and Expansion of Indonesia's Economic Development 2011-2025 requires a massive investment mobilization. Estimates of the annual investment required are around the US \$ 300-530 billion. Most of this investment is needed to build critical infrastructure and environmentally sensitive areas such as agriculture, forestry, energy, mining, and waste. Also, financing for Micro, Small, and Medium Enterprises (MSMEs) and the industry is essential to create jobs and increase productivity (Nugroho, 2020a; Nugroho, Lubis, et al., 2020; Nugroho & Nugraha, 2020). Through its business activities, the financial services industry can play a role by providing support

for programs such as financing and sustainable investment in biogas projects, micro-hydro, hydropower, organic agriculture, and so on. The implementation of sustainable finance is crucial in the banking industry because the banking industry contributes 79.8% of total national financial assets. At the same time, most banks have not considered environmental, social, and governance factors in the lending or investment process as the primary consideration so that it will become a threat to Indonesia's long-term economic development (Volz, 2015).

According to Nugroho, Badawi, & Hidayah (2019), researched the implementation of sustainable finance in the Financial Industry with a case study on Bank Syariah Mandiri (BSM), with The research title "Discourses of sustainable finance implementation in Islamic bank (Cases studies in Bank Mandiri Syariah 2018)." The research was conducted when implementing sustainable finance (SF) at BSM was not required to apply the regulations from the Financial Services Authority No.51/ POJK.3/2017. The results of research with secondary data on the period of implementing sustainable finance for financial products from BSM in the 2017-2018 period have reached a portion of 29.56%, especially the financing portfolio in December 2018. Thus, the implementation of sustainable finance at BSM is quite good.

Regarding the description above, this research is a continuation of previous research conducted by Lucky Nugroho, Ahmad Badawi & Nurul Hidayah. Furthermore, this research focuses on the financing or credit segment portfolio in BSM. Therefore, the formulation of research questions in this study are as follows: (i) How much is the distribution of retail segment financing to BSM, and how much is included in the sustainable finance category in 2019? (ii) How big is the distribution of corporate segment financing in BSM, and how much is included in the sustainable finance category in 2019? (iii) What is the ratio of the distribution of financing included in the category of sustainable financing in the retail segment to the corporate segment in 2019? Based on the problem formulation above, the objectives of this study are: (i) To investigate the size of the corporate segment financing portfolio in BSM in 2019; (ii) To investigate the size of the retail segment financing portfolio at BSM in 2019; (iii) To analyze the comparison of sustainable finance implementation in BSM based on the corporate and retail financing segments in 2019.

2. Literature Review

The primary function of the bank is to collect and channel public funds. The bank collects funds from people who have more money. Then these funds are channeled back to people who are short of funds, banks channel fund to solving financial problems experienced by individuals and business entities. More specifically, the functions of the bank are as follows according to Nugroho & Harnovinsah (2020), the existence of a sharia bank is, of course, inseparable from a purpose. The purpose is also often referred to as *maqhasid*. This is following Al-Syatibi using different words related to *al-maqasid*. The terms are *maqasid al-syariah*, *al-maqasid al-syar'iyah*, and *maqasid min syar'i al-hukum*. However, some of the meanings of the word sharia have the same understanding that is the purpose of the law revealed by Allah SWT. Islamic Shariah was revealed by Allah SWT to create human well-being as a whole. Furthermore, the purpose of Shariah or *Maqhasid Shariah* makes benefits for the ummah (Arafah & Nugroho, 2016b; Nugroho, 2020b; Syafii, Sanrego, & Taufiq, 2012).

Furthermore, according to Febriadi (2017) and Nugroho, Meiwanto Doktoralina, Indriawati, Safira, & Yahaya (2020), the primary purpose of sharia is to encourage human welfare, which lies in the protection of faith (*dîn*), soul (*nafs*), reason (*'aql*), offspring (*nasl*), and property (*mâl*). The guarantee of these five cases means that it will fulfill the public interest and the welfare of all society, which is the ultimate goal of development. The reflection and responsibility of Islamic banking towards the public and community interests have an impact on the vital role of Islamic banking in the development and national economy. Sustainable development aims to improve people's welfare and equitable development between the present and future generations (Holden, Linnerud, & Banister, 2017). The reasons for economic growth must be sustainable, namely first regarding moral reasons in preserving and protecting natural resources, secondly maintaining ecological and environmental values, thirdly maintaining the economic welfare of the community (Balmford et al., 2002). In principle, sustainable development is broken down into three aspects, namely, first, economic sustainability in producing goods and services, second, environmental sustainability in maintaining natural resources that include economic resources, and third, social sustainability as a system capable of achieving equality, justice and welfare, and even accountability (Blackman & Rivera, 2011; Kulig, Kolfoort, & Hoekstra, 2010; Moldan, Janoušková, & Hák, 2012). Sustainable development is the development process that aims to balance the economy and the environment, has a close relationship with *maqashid sharia* values in protecting the future generations (Julia & Kassim, 2019; Nugroho, 2015).

Also, according to (Choudhury, 2010; Nugroho, Meiwanto Doktoralina, et al., 2020; Pratiwi, 2016; Wajdi Dusuki, 2008), Islamic banks based on the Qur'an and Hadith by Tawhid String Relation (TSR) has the same characteristics as the purpose of sustainable finance. Islamic banks that have the foundation of Islamic law are the foundation of the Muslim community to implement the teachings of their religion in fulfilling daily life in totality (Kaffah) (Aziz, 2012; Nugraha, Nugroho, Lindra, & Sukiati, 2020). The needs in human life in the Islamic perspective are divided into daruriyat, hajiyat, and tahsiniyat. Furthermore, in fulfilling the needs of human life, the goal is to benefit society. Human existence is to become a caliph, a blessing for the entire ummah (maslahah) (Arafah & Nugroho, 2016a; Dwi Sari, Alwi, & Doktoralina, 2019; Nugroho, 2017). Therefore, to realize this condition, every human being must have faith implemented to carry out Allah's commands and stay away from His prohibitions. Furthermore, the purpose of the life of every Muslim is to get the blessing of Allah SWT, which is to seek happiness in the world and the hereafter (Falah) (Asutay, 2008; Nugroho, Badawi, & Hidayah, 2019b; Nugroho, Hidayah, Badawi, & Mastur, 2020). The combination of the Maqasid principles of sharia, Maslahah, and Falah is an implementation of the concept of sustainable finance, which includes profit, people, planet, and prophet (4P) under the teachings of Islam. Thus, the principles of sharia implemented in fair Islamic banks which prohibit transactions that contain Maghrib: maysir (gambling), gharar (uncertainty), and Riba (risk-transfer) embody bank prudence (customer satisfaction, business strategy, risk management, bank operation, human capital & community development). Based on Maghrib principles, bank prudence and 4P is the concept of "Sustainable Finance in Islamic Banking Principle." Therefore, the illustration of Islamic bank operations that are in line with sustainable finance is as follows (Figure 1):

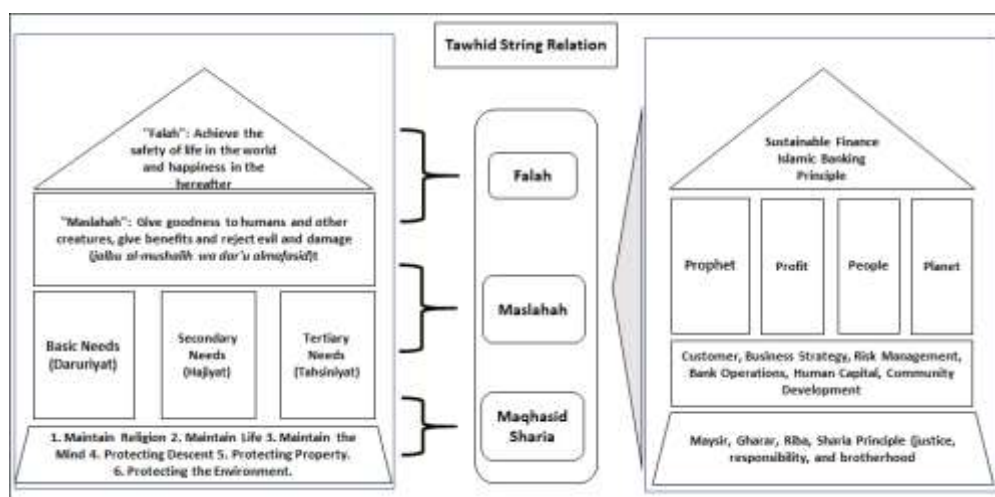


Figure 1. Islamic Banking Principles and Sustainable Finance Relation

Source: (Nugroho et al., 2019a)

In managing their products and services, Islamic banks make products and services based on specific segments. Segments are a strategy for marketing and selling products to groups of people who have similarities such as income, age, etc. The concepts of product differentiation and market segmentation have long been discussed in the literature. One of the pioneers is Shaw (1912), which states that the product differentiation strategy is a way to find out human wants more accurately than not to win the competition (Dickson & Ginter, 1987). Besides, product differentiation aims to differentiate goods or services from those sold based on the buyer's preferences. Buyer preferences can be analyzed from differences in product, packaging, distribution, or the prestige of trademarks and trade names (for example, Coca-Cola, Calvin Klein, etc.). Segmentation, according to Jonker, Piersma, & Van Den Poel (2004), is one way of marketing to sell goods or services that are right on a predetermined target or target. However, according to Floh, Zauner, Koller, & Rusch (2014), segmentation is a way of dividing the population of customers and society or a heterogeneous market based on clusters with the same characteristics and characteristics (homogeneous). Meanwhile, the purpose of implementing segmentation in companies or banks is to optimize the benefits that can be

achieved (Baesens et al., 2004; Buckinx, Verstraeten, & Van den Poel, 2007; Nugroho, 2020c; Van den Poel & Larivière, 2004).

The application of the segmentation strategy by Markowitz Portfolio Theory helps find a balance between the results obtained and the possible risks (Finisterra Do Paço, Barata Raposo, & Filho, 2009). Thus, selecting the right segmentation in a bank can improve bank performance. Furthermore, the segmentation in Islamic banks is divided into two segments, namely the wholesale segment and the retail segment (BSM, 2016). The Bank has carried out a segmentation process aimed at increasing the volume of the Bank's business by classifying existing market potentials that have the same characteristics (desire, power, and purchasing power). This will facilitate the Bank in making marketing and promotion strategies and making appropriate products so that segmentation will strengthen the Bank's positioning in the industry (Zineldin, 1996). The grouping in this segment aims to improve the Bank's performance to focus on customer characteristics and eliminate risks (Aldás-Manzano, Lassala-Navarré, Ruiz-Mafé, & Sanz-Blas, 2009). Furthermore, if described, the application of segmentation in BSM is as follows:



Figure 2. Segmentation in Islamic Banking

Source: (Nugroho, 2020c)

- Consumer Banking, consumer banking is a work unit that manages and distributes financing to individual customers for consumptive/multipurpose purposes without any financing ceiling limits.
- Business Banking, business banking is a work unit that manages and distributes financing to customers:
 - a) Financing to individuals or private business entities for productive purposes with a financing ceiling of more than 200 million to IDR 5 billion;
 - b) Financing to private individuals or business entities for productive purposes (not members of the financing borrower group and excluding specific criteria for customers in the commercial segment):
 - 1) Cooperative financing (including for members with productive & consumptive purposes) with a financing ceiling of more than 200 million to IDR 5 billion;
 - 2) Financing to Sharia Microfinance Institutions (Linkage) with a financing ceiling of more than 200 million to IDR 5 billion;
 - 3) A Sharia Rural Bank (BPRS) with a financing ceiling of more than 200 million to IDR 5 billion;
 - 4) Program financing (non-micro) with a financing ceiling of more than 200 million to IDR 5 billion.
- Micro Banking, micro banking is a work unit that manages and distributes financing to customers:
 - a) Individual financing for productive purposes with a financing ceiling of up to IDR 200 million;
 - b) Financing to individuals for multipurpose purposes with a financing limit of up to IDR 200 million;
 - c) Micro program financing with a financing ceiling of up to IDR 200 million.

Furthermore, for the wholesale segment, strategies for channeling financing include:

- Commercial Banking, commercial banking is a work unit that manages and distributes financing to customers:
 - a) Financing for private business entities with a financing ceiling of more than IDR 5 billion to IDR 50 billion;
 - b) Financing for private business entities for productive purposes (not members of the financing borrower group and not including particular criteria for customers in the corporate segment) without any financing ceiling limits addressed to:
 - 1) Regional Owned Enterprises (BUMD) and its subsidiaries;

- 2) Local Government;
 - 3) Multifinance
 - 4) Financing to subcontractors through a supply chain financing pattern.
- Corporate Banking, corporate banking is a work unit that manages and distributes financing to customers:
 - a) Financing for private enterprises with a financing ceiling of more than IDR 50 billion;
 - b) Financing for private business entities for productive purposes without a financing ceiling limit aimed at:
 - 1) State-Owned Enterprises (BUMN) and its subsidiaries;
 - 2) Multinational Company;
 - 3) Go Public Company;
 - 4) Ministries, State Institutions, and Work Units under The Ministries/State Institutions.

3. Methodology

This research is follow-up research that has previously been conducted by Nugroho et al. (2019a). The object of research in this conceptual paper is Bank Syariah Mandiri (BSM) in the implementation of sustainable finance based on the perspective of financing segmentation. The method used is quantitative by analyzing the retail and wholesale segment financing portfolios in the sustainable finance category. The financing portfolio, which is the object of observation, is the financing portfolio in 2019.

4. Results and Discussion

4.1. Sustainable Finance in Wholesale Segment

During the 2017-2019 period, BSM has distributed financing to the wholesale segment of IDR 30.756 trillion with the following details:

**Table 1. Wholesale Segmen Portfolio Financing
In Million Rupiah**

Wholesale Segment Financing	2019	Growth (%)	2018	Growth (%)	2017
Corporate Banking	22,353,676	6%	21,122,561	5%	20,178,333
Commercial banking	8,223,959	23%	6,670,770	14%	5,870,885
Total	30,577,635	10%	27,793,331	7%	26,049,218

Source: (BSM, 2019a)

Based on the trend from 2017 to 2019, the distribution of financing in the wholesale segment experienced a significant increase, namely 10%, which was dominated by the Commercial Banking unit with a growth of 23%. Commercial Banking is a work unit that distributes loans with a nominal value of Rp. 5 billion to Rp. 50 billion. However, the portfolio in the wholesale segment is the distribution of financing to the corporate banking unit. Corporate banking is a distribution of funding with a ceiling of more than IDR 50 billion. The allocation of the funding included in the category of sustainable finance in the wholesale segment is as follows:

**Table 2. Wholesale Segmen Portfolio in Sustainable Finance
In Million Rupiah**

Sustainable Financing Sector	Total Sustainable Financing	Corporate Banking	Commercial Banking	A portion of Corporate Banking	A portion of Commercial Banking
Infrastructure	1,974,000	888,300	1,085,700	4%	5%
Education	3,241,000	1,944,600	1,296,400	9%	6%
Health	9,297,000	5,857,110	3,439,890	26%	15%

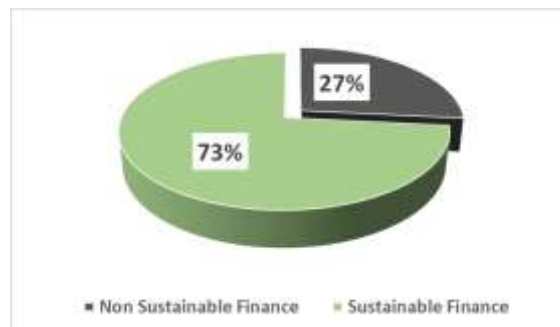
Sukuk-based Project	7,926,000	5,627,460	2,298,540	25%	10%
Total	22,438,000	14,317,470	8,120,530	64%	36%

Source: (BSM, 2019b)

Furthermore, based on table 2 above, it is known that the distribution of financing to the wholesale segment, which is included in the sustainable finance category is amounting to Rp22.438 trillion. The main contributor to funding based on the sustainable finance category was the corporate banking unit amounting to 14.317 trillion, with the primary sector being the health sector. If further analyzed, the portion of financing distribution that is included in sustainable finance in the corporate segment is as follows:

**Table 3. Wholesale Segmen Portfolio in Sustainable Finance VS Non-Sustainable Finance
In Million Rupiah**

Wholesale Segment	Portion	Portfolio
Non Sustainable Finance	27%	8,139,635
Sustainable Finance	73%	22,438,000
Total	100%	30,577,635



**Figure 3. Wholesale Segmen Portfolio in Sustainable Finance VS Non-Sustainable Finance
Source: (BSM, 2019b)**

Furthermore, based on table 3 and figure 3 above, the distribution of the wholesale segment, which is included in the sustainable finance category, has reached above 50% or 73%. The total distribution amounted to IDR 30.577 trillion in absolute terms. The health sector is a mainstay in the wholesale segment because BSM focuses on disbursing financing to the health sector. After all, the risk in this sector is low and in line with government programs. Based on these conditions, the achievement of distribution of wholesale segment financing to BSM, which is included in the sustainable finance category, is already on track.

4.2. Sustainable Finance in Retail Segment

The distribution of financing to the retail segment in BSM should be a priority. This is because the third mission of BSM is to Prioritize raising cheap funds and channeling funding to the retail segment (BSM, 2020). This is shown during the 2017 to 2018 period, and the distribution trend has increased significantly, namely 13%, according to table 4 below:

**Table 4. Retail Segmen Portfolio Financing
In Million Rupiah**

Retail Segment Financing	2019	Growth (%)	2018	Growth (%)	2017
Business Banking	7,979,607	-7%	8,595,213	-4%	8,950,378
Micro Banking	3,796,198	-13%	4,344,973	2%	4,266,141
Consumer Banking	30,204,558	24%	24,310,583	29%	18,833,848
Pawning	2,985,861	10%	2,708,697	15%	2,358,308
Total	44,966,224	13%	39,959,466	16%	34,408,675

Source: (BSM, 2019a)

Furthermore, referring to table 4 above, it can be analyzed that the increase in the distribution of financing to the retail segment was contributed by the consumer banking unit that distributes loans to the public for consumptive purposes. However, the work units channeling loans to micro, small and medium enterprises (business banking & micro banking) tend to decline. Thus, the decline in the distribution of financing to micro and small entrepreneurs indicates that this sector is not a priority for BSM. Meanwhile, according to Nugroho, Chandra Husnadi, Utami, & Hidayah (2017), Islamic banks are pro to micro and small business actors so that services and products to micro and small entrepreneurs are a priority. The retail segment distribution portfolio, which is included in the sustainable finance category, is as follows:

Table 5. Retail Segmen Portfolio in Sustainable Finance

Sustainable Financing Sector	Total Sustainable Financing	Business Banking	Micro Banking	Consumer Banking	A portion of Business Banking (%)	A portion of Micro Banking (%)	A portion of Consumer Banking (%)
Home for low income	3,969,000	-	-	3,969,000	-	-	30%
Green Small Entrepreneur	3,307,500	3,307,500	-	-	25%	-	-
Green Micro Entrepreneur	5,953,500	-	5,953,500	-	-	45%	-
Total	13,230,000	3,307,500	5,953,500		25%	45%	30%

Source: (BSM, 2019b)

The distribution of financing to the retail segment with the most considerable contribution to sustainable finance is the micro sector, represented by a portion of 45% (table 5). Even though micro-entrepreneurs have the smallest amount in the distribution of retail segment financing (Table 4), they have an enormous contribution to sustainable finance. Therefore, BSM must be concerned about micro funding so that the portion of sustainable finance can be even better. The total distribution of the financing for the retail segment was Rp.44.966 trillion. However, the allocation of the funding for the new retail segment was Rp.13.230 trillion, so that the achievement was only 29%. In detail can be seen in table 6 and figure 4 below:

**Table 6. Retail Segmen Portfolio in Sustainable Finance VS Non-Sustainable Finance
In Million Rupiah**

Retail Segment	Portion	Portfolio
Non Sustainable Finance	71%	31,736,224
Sustainable Finance	29%	13,230,000
Total	100%	44,966,224

Source: (BSM, 2019b)

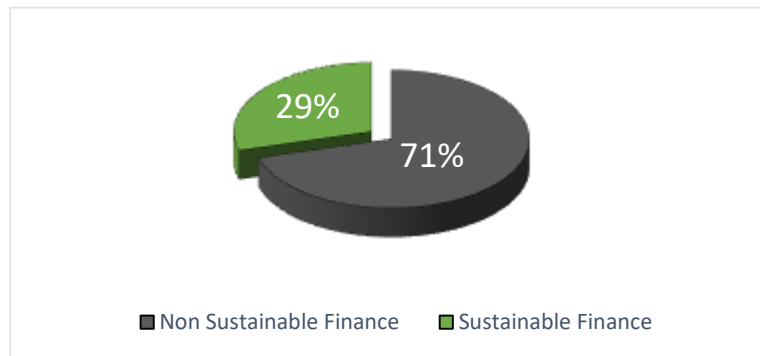


Figure 4. Retail Segmen Portfolio in Sustainable Finance VS Non-Sustainable Finance

Source: (BSM, 2019b)

Therefore, based on figure 4 and table 5 above, the distribution of financing to the retail segment, which is included in the sustainable finance category, has only reached 29% or IDR 13.230 trillion. The main contributor is the distribution of financing to the micro sector or green micro-entrepreneurs. Thus, it is necessary to increase the distribution of sustainable finance in the retail segment so that its achievement can be more than 50% of the total allocation of financing in the retail segment.

4.3. Comparison Sustainable Finance in Wholesale Segment and Retail Segment

Distribution of financing to BSM in 2019 amounted to IDR 75.543 trillion with total disbursements in the sustainable finance category of IDR 35.668 trillion or 47%. The detailed data are in table 7 and figure 5 below:

Table 7. Total Sustainable Finance VS Non-Sustainable Finance in BSM

BSM Financing	Portion	Portfolio
Non Sustainable Finance	53%	39,875,859
Sustainable Finance	47%	35,668,000
Total	100%	75,543,859

Source: (BSM, 2019b)

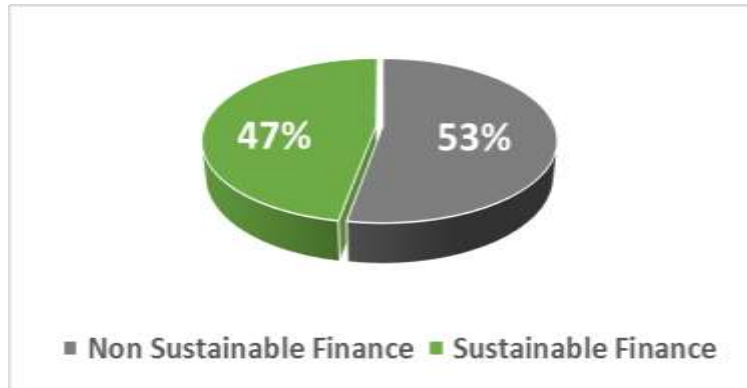


Figure 5. Total Sustainable Finance VS Non-Sustainable Finance in BSM
Source: (BSM, 2019b)

Therefore, based on table 7 and figure 5 above, the distribution of BSM financing in the sustainable finance category in 2019 by 47% has increased compared to 2018, which was 29.56% (Nugroho, Badawi, & Hidayah, 2019). The figure for the increase in the implementation of sustainable finance in BSM can be seen in figure 6 below:

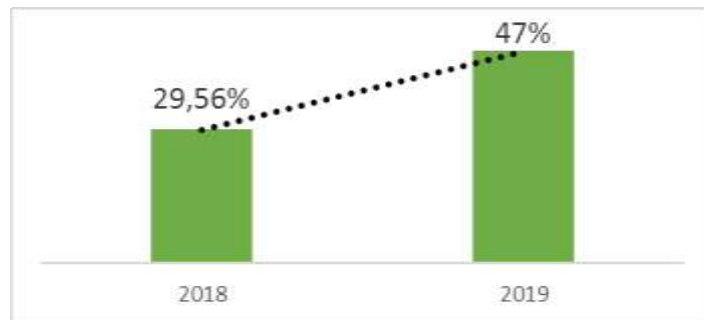


Figure 6. Sustainable Finance Implementation in BSM 2018-2019
Source: (BSM, 2019b)

Also, based on the financing segment in BSM, the implementation of sustainable finance is as follows:

Table 8. Total Sustainable Finance in Financing Segment in BSM

Sustainable Finance	Portion	Portfolio
Wholesale Segment	63%	22,438,000
Retail Segment	37%	13,230,000
Total	100%	35,668,000

Source: (BSM, 2019b)

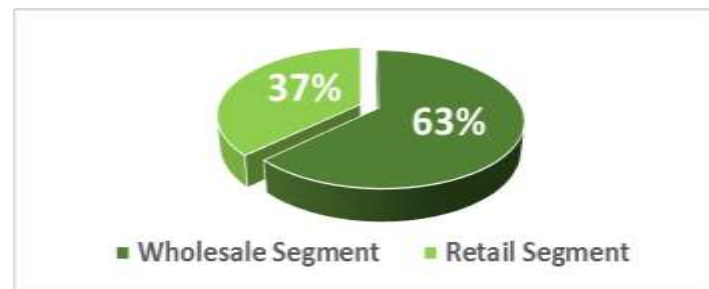


Figure 7. Total Sustainable Finance in Financing Segment in BSM
Source: (BSM, 2019b)

Therefore, referring to table 8 and figure 7, it is the wholesale segment that has a significant contribution to the implementation of sustainable finance when compared to the distribution of financing in the retail segment. Furthermore, in the wholesale segment, which makes a vital contribution is a distribution to the health sector. Allocation to the health sector and its derivatives such as medical devices and pharmaceuticals will be the focus of BSM in 2019, which is in line with government programs in improving the quality of health of Indonesian people. The implementation of sustainable finance in the retail segment is contributed by channeling financing to green micro-entrepreneurs. This is in line with the policy of the government on the prohibition of using plastic bags in both supermarkets and traditional markets so that micro-entrepreneurs no longer use plastic bags to wrap merchandise sold to consumers. Besides, currently, micro-entrepreneurs have also provided garbage basket at their shops. Thus, the distribution of financing in the sustainable finance category is not only a concern of the management of Islamic banks (BSM) but will be more effective if it is supported by regulations from the government, which are in line. Therefore, there is a need for better synergy between practitioners and regulators to realize the sustainable finance movement applied properly to financial institutions, including Islamic banks..

5. Conclusion

The implementation of sustainable finance in Islamic banks is necessary because sharia principles are in line with sustainable finance. BSM, as the largest bank in Indonesia and as a leader in market share in the Islamic banking industry, has implemented sustainable finance since 2018. The results are as follows:

- The distribution of financing to the wholesale segment contributed 63% or Rp. 22,438 trillion, the majority of which was contributed by financing the health sector;
- The distribution of financing to the retail segment contributed 37% or Rp. 13,230 trillion, the majority of which was contributed by financing to green micro-entrepreneurs;
- The portion of BSM financing distribution included in the sustainable finance category in 2019 was 47%, experiencing a significant increase compared to the percentage of sustainable finance in 2018, 29.56%.

However, the implementation of sustainable finance by Islamic banks will be more effective if there is support from policies and regulations from the government that are supportive and in line.

References

- Aldás-Manzano, J., Lassala-Navarré, C., Ruiz-Mafé, C., & Sanz-Blas, S. (2009). The role of consumer innovativeness and perceived risk in online banking usage. *International Journal of Bank Marketing*, 27(1), 53–75. <https://doi.org/10.1108/02652320910928245>
- Andrew, B. (2008). Market failure, government failure and externalities in climate change mitigation: The case for a carbon tax. *Public Administration and Development*, 28(5), 393–401. <https://doi.org/10.1002/pad>
- Arafah, W., & Nugroho, L. (2016a). Ethics Commitment in Microfinance and Shariah Microfinance Institution. *International Journal of Research in Business Studies and Management* (Vol. 3). Retrieved from <https://www.researchgate.net/publication/306347206>

- Arafah, W., & Nugroho, L. (2016b). Maqhashid Sharia in Clean Water Financing Business Model at Islamic Bank. *International Journal of Business and Management Invention (IJBMI)*, 5(2), 22–32.
- Arafah, W., Nugroho, L., Takaya, R., & Soekapdjo, S. (2018). Marketing Strategy for Renewable Energy development In Indonesia Context Today. *International Journal of Energy Economics and Policy*, 8(5), 181–186.
- Asutay, M. (2008). *Islamic Banking and Finance: Social Failure*. New Horizon, 168(January), 1–3. <https://doi.org/10.2139/ssrn.1735674>
- Aziz, R. M. (2012). New Paradigm on Sinlammim Kafah in Islamic Economics. *Signifikan*, 1(2), 139–148.
- Baesens, B., Verstraeten, G., Van den Poel, D., Egmont-Petersen, M., Van Kenhove, P., & Vanthienen, J. (2004). Bayesian network classifiers for identifying the slope of the customer lifecycle of long-life customers. *European Journal of Operational Research*, 156(2), 508–523. [https://doi.org/10.1016/S0377-2217\(03\)00043-2](https://doi.org/10.1016/S0377-2217(03)00043-2)
- Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R. E., ... Turner, R. K. (2002). Ecology: Economic reasons for conserving wild nature. *Economic Reasons for Conserving Wild Nature*, 297(5583), 950–953. <https://doi.org/10.1126/science.1073947>
- Beniston, M., Stephenson, D. B., Christensen, O. B., Ferro, C. A. T., Frei, C., Goyette, S., ... Woth, K. (2007). Future extreme events in European climate: An exploration of regional climate model projections. *Climatic Change*, 81(SUPPL. 1), 71–95. <https://doi.org/10.1007/s10584-006-9226-z>
- Blackman, A., & Rivera, J. (2011). Producer-Level Benefits of Sustainability Certification. *Conservation Biology*, 25(6), 1176–1185. <https://doi.org/10.1111/j.1523-1739.2011.01774.x>
- BSM. (2016). Annual Report | Bank Syariah Mandiri. Retrieved January 30, 2020, from <https://www.mandirisyariah.co.id/index.php?/tentang-kami/company-report/annual-report>
- BSM. (2019a). Annual Report BSM (Memberikan Nilai Tambah Melalui Pengembangan Kapabilitas Internal).
- BSM. (2019b). Strengthening Synergy as Company Excellence. Sustainability Report.
- BSM. (2020). Visi & Misi | Bank Syariah Mandiri. Retrieved September 17, 2020, from <https://www.mandirisyariah.co.id/tentang-kami/visi-misi>
- Buckinx, W., Verstraeten, G., & Van den Poel, D. (2007). Predicting customer loyalty using the internal transactional database. *Expert Systems with Applications*, 32(1), 125–134. <https://doi.org/10.1016/j.eswa.2005.11.004>
- Choudhury, M. A. (2010). Islamic Perspective of Socioeconomic Development. *Journal of Islamic Economics, Banking, and Finance*, 6(3), 37–54.
- Dickson, P. R., & Ginter, J. L. (1987). Market Segmentation, Product Differentiation, and Marketing Strategy. *Journal of Marketing*, 51(2), 1. <https://doi.org/10.2307/1251125>
- Dincer, I. (1997). Energy and GDP analysis of OECD countries. *Energy Conversion and Management*, 38(7), 685–696. [https://doi.org/10.1016/S0196-8904\(96\)00075-1](https://doi.org/10.1016/S0196-8904(96)00075-1)
- Dwi Sari, M., Alwi, A., & Doktoralina, C. M. (2019). The Concept and Principles of Personality Measurement in Islam. *Journal of Social and Political Sciences*, 2(2), 269–275. <https://doi.org/10.31014/aior.1991.02.02.68>
- Febriadi, S. R. (2017). Aplikasi Maqashid Syariah Dalam Bidang Perbankan Syariah. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah*, 1(2), 231–245. <https://doi.org/10.29313/amwaluna.v1i2.2585>
- Finisterra Do Paço, A. M., Barata Raposo, M. L., & Filho, W. L. (2009). Identifying the green consumer: A segmentation study. *Journal of Targeting, Measurement and Analysis for Marketing*, 17(1), 17–25. <https://doi.org/10.1057/jt.2008.28>

- Floh, A., Zauner, A., Koller, M., & Rusch, T. (2014). Customer segmentation using unobserved heterogeneity in the perceived-value-loyalty-intentions link. *Journal of Business Research*, 67(5), 974–982. <https://doi.org/10.1016/j.jbusres.2013.08.003>
- Gerelmaa, L., & Kotani, K. (2016). Further investigation of natural resources and economic growth: Do natural resources depress economic growth? *Resources Policy*, 50(October), 312–321. <https://doi.org/10.1016/j.resourpol.2016.10.004>
- Hermes, N., & Hudon, M. (2018). Determinants of the Performance of Microfinance Institutions: a Systematic Review. *Journal of Economic Surveys*, 32(5), 1483–1513. <https://doi.org/10.1111/joes.12290>
- Hidayah, N., Badawi, A., Nugroho, L., & Moetopo. (2020). Human Capital And The Use Of Information Technology To Enhance Sustainable Competitive Advantages. *Archives of Business Research*, 8(6), 239–249. <https://doi.org/10.14738/abr.86.8536>
- Holden, E., Linnerud, K., & Banister, D. (2017). The Imperatives of Sustainable Development. *Sustainable Development*, 25(3), 213–226. <https://doi.org/10.1002/sd.1647>
- John, K. S., & Fejisayo, K. (2013). Air Pollution by Carbon Monoxide (CO) Poisonous Gas in Lagos Area Southwestern Nigeria. *Atmospheric and Climate Sciences*, 03(04), 510. <https://doi.org/10.4236/acs.2013.34053>
- Jonker, J. J., Piersma, N., & Van Den Poel, D. (2004). Joint optimization of customer segmentation and marketing policy to maximize long-term profitability. *Expert Systems with Applications*, 27(2), 159–168. <https://doi.org/10.1016/j.eswa.2004.01.010>
- Julia, T., & Kassim, S. (2019). Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework. *Journal of Islamic Marketing*, 11(3), 729–744. <https://doi.org/10.1108/JIMA-10-2017-0105>
- Kulig, A., Kolfoort, H., & Hoekstra, R. (2010). The case for the hybrid capital approach for the measurement of the welfare and sustainability. *Ecological Indicators*, 10(2), 118–128. <https://doi.org/10.1016/j.ecolind.2009.07.014>
- Liverman, D., & Glasmeier, A. (2014). What Are the Economic Consequences of Climate Change? - The Atlantic. Retrieved September 15, 2020, from <https://www.theatlantic.com/business/archive/2014/04/the-economic-case-for-acting-on-climate-change/360995/>
- Marland, G., Pielke, R. A., Apps, M., Avissar, R., Betts, R. A., Davis, K. J., ... Xue, Y. (2003). The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. *Climate Policy*, 3, 149–157. [https://doi.org/10.1016/S1469-3062\(03\)00028-7](https://doi.org/10.1016/S1469-3062(03)00028-7)
- Masruro Pimada, L. (2018). Economic Development in Indonesia: Integrated Model of Islamic Financial Inclusion. In 1st International Conference Postgraduate School Universitas Airlangga: Implementation of Climate Change Agreement to Meet Sustainable Development Goals (Vol. 98, pp. 314–319). <https://doi.org/10.2991/icpsuas-17.2018.67>
- Masten, A. S., & Obradovic, J. (2008). Disaster preparation and recovery: Lessons from research on resilience in human development. *Ecology and Society*, 13(1). <https://doi.org/10.5751/ES-02282-130109>
- Moldan, B., Janoušková, S., & Hák, T. (2012). How to understand and measure environmental sustainability: Indicators and targets. *Ecological Indicators*, 17, 4–13. <https://doi.org/10.1016/j.ecolind.2011.04.033>
- Nugraha, E., Nugroho, L., Lindra, C., & Sukiati, W. (2020). Maqashid Sharia Implementation in Indonesia and Bahrain. *Etikonomi*, 19(1), 155–168. <https://doi.org/10.15408/etk.v19i1.14655>
- Nugroho, L. (2014). Central Bank Regulation and Its Impact on Green Microfinance. *Universite Libre de Bruxelles*.

- Nugroho, L. (2015). Islamics Principles versus green microfinance. *European Journal of Islamic Finance*, 3, 1–10. Retrieved from <http://www.ojs.unito.it/index.php/EJIF>
- Nugroho, L. (2017). Challenges Sharia Microfinance Institutions : Evidence from Indonesia. *European Journal of Islamic Finance*, 1(December), 1–6. <https://doi.org/10.13135/2421-2172/793>
- Nugroho, L. (2020a). Eksistensi Dan Tantangan Usaha Mikro, Kecil Dan Menengah (UMKM) Pada Era Globalisasi. In Sumitro, A. Suroso, & S. Nurhayati (Eds.), *Manajemen Hasil Pemikiran dari Para Dosen Perguruan Tinggi di Indonesia* (Vol. First, pp. 172–187). Sumatera Utara: Sihawit Labuhan Batu. <https://doi.org/10.1017/CBO9781107415324.004>
- Nugroho, L. (2020b). Sejarah Perkembangan Bank Syariah di Indonesia. In *Pengantar Perbankan Syariah: Konsep, Regulasi dan Praktis* (1st ed., pp. 89–106). Bandung: Widina Bhakti Persada Bandung.
- Nugroho, L. (2020c). Strategi Sumber Dana, Pembiayaan dan Jasa Bank Syariah. In U. Saripudin (Ed.), *Pengantar Perbankan Syariah* (pp. 177–192). Widina Bhakti Persada Bandung. <https://doi.org/10.1017/CBO9781107415324.004>
- Nugroho, L., Badawi, A., & Hidayah, N. (2019a). Discourses of sustainable finance implementation in Islamic bank (Cases studies in Bank Mandiri Syariah 2018). *International Journal of Financial Research*, 10(6), 108–117. <https://doi.org/10.5430/ijfr.v10n6p108>
- Nugroho, L., Badawi, A., & Hidayah, N. (2019b). Indonesia Islamic Bank Profitability 2010-2017. *Shirkah Journal of Economics and Business*, 4(1), 75–99.
- Nugroho, L., Chandra Husnadi, T., Utami, W., & Hidayah, N. (2017). Masalah and Strategy To Establish a Single State-Owned Islamic Bank in Indonesia. *Tazkia Islamic Finance and Business Review*, 10(1), 17–33.
- Nugroho, L., & Harnovinsah. (2020). Konsep Dasar Perbankan Syariah. In *Pengantar Perbankan Syariah: Konsep, Regulasi dan Praktis* (1st ed., pp. 67–83). Widina Bhakti Persada Bandung.
- Nugroho, L., Hidayah, N., Badawi, A., & Mastur, A. A. (2020). The urgency of Leadership in Islamic Banking Industries Performance. In *The 1st Annual Conference Economics, Business, and Social Sciences* (pp. 1–7). <https://doi.org/10.4108/eai.26-3-2019.2290681>
- Nugroho, L., Lubis, C., Fitrianti, T., Sukmadilaga, C., Akuntansi, M., & Padjajaran, U. (2020). Peluang Pengusaha Mikro dan Kecil (UMK) Menggunakan Layanan Digital Lembaga Keuangan Mikro Syariah. *JURNAL AL-QARDH*, 5(1), 56–68.
- Nugroho, L., Meiwanto Doktorlina, C., Indriawati, F., Safira, S., & Yahaya, S. (2020). Microeconomics and Tawhid String Relation Concept (TSR). *International Journal of Economics and Business Administration (IJEBA)*, 8(3), 293–306. <https://doi.org/10.35808/ijebe/516>
- Nugroho, L., & Nugraha, E. (2020). The Role of Islamic Banking and E-Commerce for The Development of Micro, Small, and Medium Entrepreneur Businesses. *Business, Economics and Management Research Journal - BEMAREJ*, 3(1), 11–24.
- Nugroho, L., Utami, W., Akbar, T., & Arafah, W. (2017). The challenges of microfinance institutions in empowering micro and small entrepreneur to implementating green activity. *International Journal of Energy Economics and Policy*, 7(3).
- Nugroho, L., Utami, W., Doktorlina, C. M., & Husnadi, T. C. (2017). Islamic Banking Capital Challenges To Increase Business Expansion (Indonesia Cases). *International Journal of Commerce and Finance*, 3(2), 1–10.
- Pratiwi, A. (2016). Islamic banking contribution in sustainable socioeconomic development in Indonesia: An epistemological approach. *Humanomics*, 32(2), 98–120. <https://doi.org/10.1108/H-12-2015-0085>
- Shaw, A. W. (1912). Some Problems in Market Distribution. *The Quarterly Journal of Economics*, 26(4), 703. <https://doi.org/10.2307/1883802>

- Stiglitz, J. E. (1996). Some lessons from the East Asian miracle. *World Bank Research Observer*, 11(2), 151–177. <https://doi.org/10.1093/wbro/11.2.151>
- Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. *World Development*, 28(6), 1075–1086. [https://doi.org/10.1016/S0305-750X\(00\)00006-1](https://doi.org/10.1016/S0305-750X(00)00006-1)
- Syafii, M., Sanrego, Y. D., & Taufiq, M. (2012). An Analysis of Islamic Banking Performance: Maqashid Index Implementation in Indonesia and Jordania. *Journal of Islamic Finance*, 1(1), 12–29.
- Trenberth, K. E. (2008). The Impact of Climate Change and Variability on Heavy Precipitation, Floods, and Droughts. *Encyclopedia of Hydrological Sciences*. <https://doi.org/10.1002/0470848944.hsa211>
- Van den Poel, D., & Larivière, B. (2004). Customer attrition analysis for financial services using proportional hazard models. In *European Journal of Operational Research* (Vol. 157, pp. 196–217). North-Holland. [https://doi.org/10.1016/S0377-2217\(03\)00069-9](https://doi.org/10.1016/S0377-2217(03)00069-9)
- Volz, U. (2015). Towards a Sustainable Financial System in Indonesia The UNEP Inquiry Into the Design of a Sustainable Financial System In partnership with The Association for Sustainable and Responsible Investment in Asia (ASrIA) and the The partners. Retrieved from www.ojk.go.id
- Wahyudewi, P. (2016). Perubahan Iklim Ternyata Berdampak pada Kerugian Ekonomi Dunia. Retrieved September 16, 2020, from <https://www.idntimes.com/business/economy/putri-wahyudewi/dampak-perubahan-iklim-ternyata-dapat-merugikan-perekonomian-dunia/full>
- Wajdi Dusuki, A. (2008). Banking for the poor: The role of Islamic banking in microfinance initiatives. *Humanomics*, 24(1), 49–66. <https://doi.org/10.1108/08288660810851469>
- Worland, J. (2015). Climate change growth: How Global Warming Affects Economy | Time. Retrieved September 14, 2020, from <https://time.com/4082328/climate-change-economic-impact/>
- Zineldin, M. (1996). Bank strategic positioning and some determinants of bank selection. *The International Journal of Bank Marketing*, 14(6), 12–22.