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COMPARISON OF FINANCIAL AND SOCIAL PERFORMANCE IN CONVENTIONAL AND ISLAMIC BANKING IN INDONESIA

Dini Hasanah[1], Ascarya, Murniati Mukhlisin[3]

[1]Universitas Islam Tazkia, Bogor, dinihasanahbsi@gmail.com
[2]Universitas Islam Tazkia, Bogor, dr.ascarya@gmail.com
[3]Universitas Islam Tazkia, Bogor, murniati@tazkia.ac.id

Abstract. *This study examines the comparison of financial and social efficiency between Islamic and conventional banks in Indonesia during the 2012–2020 period. Using a quantitative descriptive approach, the study applies Data Envelopment Analysis (DEA) with two models: the intermediation approach for financial efficiency and the production approach for social efficiency. The sample consists of 10 Islamic banks and 31 conventional banks selected from institutions consistently reporting CSR realization. The results indicate that Islamic banks demonstrate higher technical efficiency (TE) and pure technical efficiency (PTE) than conventional banks in both financial and social performance. However, financial efficiency values are consistently higher than social efficiency values for both banking types, indicating a stronger orientation toward financial performance. Scale efficiency (SE) in social performance shows conventional banks outperforming Islamic banks. The findings highlight the need for both banking systems to enhance social efficiency to achieve balanced two-dimensional efficiency aligned with sustainable finance principles.*

Keywords: *Islamic banking, conventional banking, financial efficiency, social efficiency, DEA*

Abstrak. *Penelitian ini menganalisis perbandingan efisiensi keuangan dan sosial antara bank syariah dan bank konvensional di Indonesia selama periode 2012–2020. Dengan menggunakan pendekatan deskriptif kuantitatif, penelitian ini menerapkan metode Data Envelopment Analysis (DEA) melalui dua model, yaitu pendekatan intermediasi untuk mengukur efisiensi keuangan dan pendekatan produksi untuk mengukur efisiensi sosial. Sampel penelitian terdiri dari 10 bank syariah dan 31 bank konvensional yang secara konsisten melaporkan realisasi CSR. Hasil penelitian menunjukkan bahwa bank syariah memiliki tingkat technical efficiency (TE) dan pure technical efficiency (PTE) yang lebih tinggi dibandingkan bank konvensional, baik dalam aspek kinerja keuangan maupun sosial. Namun demikian, nilai efisiensi keuangan secara konsisten lebih tinggi daripada efisiensi sosial pada kedua jenis bank, yang mengindikasikan orientasi yang lebih kuat terhadap kinerja finansial. Sementara itu, scale efficiency (SE) pada kinerja sosial menunjukkan bahwa bank konvensional lebih unggul dibandingkan bank syariah. Temuan ini menegaskan perlunya kedua sistem perbankan untuk meningkatkan efisiensi sosial guna mencapai keseimbangan efisiensi dua dimensi yang selaras dengan prinsip keuangan berkelanjutan.*

Kata Kunci : *perbankan syariah, perbankan konvensional, efisiensi keuangan, efisiensi sosial, DEA*

Introduction

The banking system in Indonesia implements a dual banking system, namely conventional and Islamic, which began with the establishment of Bank Muamalat in 1992, but became effective after the enactment of Law No. 10 of 1998 concerning Amendments to Law No. 7 of 1992 concerning Banking. With regard to Islamic banks, in 2021 the market share of Islamic banks in Indonesia will still be at 6.59% when compared to the total national banking (OJK, 2021). The development of the market share of Islamic banks in Indonesia is slow compared to other countries, including in ASEAN countries, such as the market share of Islamic banks in Brunei Darussalam which has reached more than 60% and in Malaysia which has almost reached 30% (IFSB, 2021).

There are a number of factors that influence the share of the banking market, including government support (Yanikkaya and Pabuccu, 2017), the total Muslim population (Cham, 2018), the level of popularity and experience of banks (Souiden and Rani, 2015) and consumer behavior (Hati, et.al, 2022). In addition, the market share of the banking industry is also determined by controlling operational costs which has an impact on increasing business. So that when operational costs can be controlled, the banking market share is predicted to increase.

In terms of the ratio of operating costs to operating income or the banking efficiency ratio, conventional commercial banks in Indonesia in 2020 reached 86.58% (OJK, 2020), while Islamic commercial banks reached 85.55% (OJK, 2021). Referring to the soundness rating system for commercial banks based on Islamic (*syari'ah*) principles issued by Bank Indonesia through Circular Letter No. 9/24/DPbS of 2007, the efficiency ratio of both conventional and Islamic commercial banks in Indonesia in 2020 shows that the efficiency of Islamic commercial banks is higher than conventional commercial banks. Meanwhile, based on the Return on Assets (ROA) ratio, conventional commercial banks in Indonesia will achieve an ROA of 1.59% in 2020 (OJK, 2020), while Islamic commercial banks will reach 1.40% (OJK, 2021). Related to this, Kasmir (2004) emphasized that the greater the ROA in a bank, the greater

the level of profit achieved by the bank and the better the bank's position in terms of asset use. The more efficient use of bank assets, the bank's profit (profit) will increase resulting in an increase in bank market share, or in other words, consumer behavior towards banks will be more positive. Thus it can be said that financial efficiency analysis of banking is important to do in order to increase bank productivity and improve customer service, so that customer interest in investing can increase.

Another approach that can be used to study market share or consumer behavior towards banks is the social efficiency of the bank itself. The social efficiency referred to is more focused on market-based social aspects to show social content based on social values that enter the market (Gutierrez, San-Jose & Retoalaza, 2017). This obligation to social responsibility received a positive response from the banking industry sector in Indonesia by implementing an ESG (Environmental, Social and Governance)-based investment system as an operational standard that refers to three main criteria in measuring the sustainability and impact of an investment (Aziz, 2022) one of which is social criteria for building social relationships especially with employees, products, and impact on society.

The rationale for this study is that in order to determine the clear differences in the level of performance efficiency between conventional banking and Islamic banking it is deemed necessary to conduct a study on the efficiency of the financial and social performance of the two types of banking in a comprehensive manner, so that from a financial standpoint it can be seen that management's ability to minimize costs and maximizing profits, while from a social perspective it can be seen the role of the banking industry in social functions that are beneficial to society in general. On this basis, this research was conducted to examine the comparison of financial and social performance in Islamic and conventional banking in Indonesia in the 2012-2020 period using the DEA method through an intermediation approach to financial efficiency and a production approach to social efficiency.

The subsequent discussion in this paper is structured as follows: The second section covers literature review related to the financial and social efficiency of conventional and Islamic banking, the third section focuses on explaining the methodology used, the fourth section presents the findings and discussion, and the last section includes conclusions and conclusions. recommendation.

Literature Review

Banking business efficiency can be analysed from two perspectives, namely the financial point of view, which can be measured using input-oriented measures and output-oriented measures (Coelli, 2005); production approach and operational approach, intermediation approach, and asset approach or a modern approach (Freixas and Rochet, 1998) and the point of view of social efficiency in terms of the bank's Corporate Social Responsibility program concerned.

2.1 The concept of efficiency

Producer theory, which is a study of microeconomics, reveals how a company increases profits or minimizes costs by analyzing the relationship between inputs and outputs in the production process which is known as productivity and is depicted diagrammatically with frontier lines (Coelli, 2005). The productivity of companies that are on this frontier line shows that the company is technically efficient. Meanwhile, Farrell (1957) emphasized that company efficiency is divided into two, namely technical efficiency (TE) and allocative efficiency (AE). Technical efficiency (TE) reflects a company's ability to obtain maximum output from a certain set of inputs, while allocative efficiency (AE) reflects a company's ability to use inputs in optimal proportions by looking at the price of each input and production technology. The combination of these two actions will result in total company economic efficiency (OE) or economic efficiency.

Technical efficiency (TE) itself consists of two types, namely Pure Technical Efficiency (PTE) which diagnoses the source of inefficiency as a lack

of input conversion into the output process and Scale Efficiency (SE) which allows analyzing sources of inefficiency from performance with inappropriate measures (Coelli, 2005).

2.2 Approaches to measure efficiency

There are two approaches that can be used to analyse the level of efficiency, namely: (1) Input-oriented measure that focuses on reducing input (Coelli, 2005) as an input-oriented measurement by calculating various inputs that can be reduced without changing the output produced, so this calculation focuses on reducing resources used rather than increasing output; and (2) Output oriented measure as output oriented measurement by calculating various outputs that can be increased without changing the amount of input.

With regard to these inputs and outputs, Freixas and Rochet (1998) suggest that there are several approaches used by financial institutions to explain them, namely: (1) Production approach or operational approach which sees financial institutions as producers of savings and credit accounts. The input of this approach is calculated from the amount of labor, capital expenditure on fixed assets and other materials, while the output is calculated from the number of related accounts or transactions. This production approach is used to explain banking operations as a production process to depositors and creditors by using accessible production factors, such as labor and fixed assets; (2) Intermediation approach which views financial institutions as intermediaries in which financial institutions change and transfer financial assets from units that have excess funds to units that lack funds. This intermediation approach describes banking activities as intermediaries who are responsible for converting money borrowed from depositors into money lent to creditors. This approach defines inputs as financial equity, including deposits raised and funds borrowed and outputs as volumes of outstanding loans and investments; and (3) Asset approach or a modern approach which sees financial institutions as creators of credit loans. This modern approach aims to improve the production and intermediation approach through the integration of risk management and information processing which causes the

possibility of differences in profit maximization behavior between bank managers and owners.

The consequence of the three approaches in measuring the efficiency level of a bank is that there are different approaches in determining inputs and outputs. The most visible thing is treating savings as input and output variables in the intermediation approach and production approach. In the intermediation approach, the savings are placed in the input variable because the deposits collected by the bank will be channeled into productive assets, especially loans. Meanwhile, in the production approach, savings are placed as an output variable because savings are services generated (produced) from bank activities.

2.3 Banking social responsibility

The implementation of the social function of banking, both Islamic and conventional banking in Indonesia is based on different legal bases. Some of the legal bases used include:

(1) Law no. 40 of 2007 concerning Limited Liability Companies article 74 which emphasizes that corporate social and environmental responsibility is the company's commitment to participate in sustainable economic development in order to improve the quality of life and a beneficial environment.

(2) Government Regulation No. 47 of 2012 concerning social and environmental responsibility of limited liability companies whereby the company is morally committed to being responsible for continuing to create harmonious and balanced corporate relationships with the environment and the local community in accordance with the values, norms and culture of the community.

(3) OJK Regulation No. 51/POJK.03/2017 concerning the implementation of sustainable finance for financial service institutions, issuers and public companies.

(4) ISO 26000 which covers governance of social responsibility, human rights, employment, environment, fair operations, fulfillment of customer and community interests.

(5) Law No. 23 of 2011 concerning zakat for Islamic banks and PER-02/MBU/04/2020 concerning the Partnership and Community Development Program for State-Owned Enterprises (BUMN).

Especially for Islamic banks, the legal basis used is also different, but they still try to show social content based on social values that enter the market (Guitierrez-Goiria, San-Jose & Retolaza, 2017).

Sources of social funding for Islamic banking in Indonesia are generally taken from third party funds, labor costs, as well as administrative and general costs (Rusydiana, 2019). This refers to the *Fatwa* of the MUI National Sharia Council No. 123/DSN-MUI/XI/2018 concerning Use of Funds That May Not Be Recognized as Income for Islamic Financial Institutions, Islamic Business Institutions and Islamic Economic Institutions.

Unlike the case with conventional banking, which already has standards for implementing CSR funds, although it is difficult to determine the benefits because no one can guarantee that if a company has implemented CSR properly, it will receive certainty about its benefits (Kartini, 2009), sources and use of social funds in Islamic banking. in Indonesia is not yet uniform. However, the obligation of Islamic banking institutions to meet the demands of social responsibility must still be carried out.

2.4 Islamic foundation in banking

In terms of sharia (*syari'ah*), it is defined as the rules and laws that have been established by Allah SWT which are imposed on Muslims to obey (Al-Qardhawi, 2007). The meaning of the concept of sharia covers all comprehensive aspects of human life (*al-syumul*), starting from aspects of worship, family, business, law and justice, as well as relations between countries. Thus sharia can be interpreted as the teachings of Islam itself.

With regard to the world of economics and banking, Islamic economics as a branch of economics is aimed at realizing human welfare through the allocation and distribution of resources in accordance with Islamic teachings without overly limiting individual freedom and realizing a sustainable macroeconomic and ecological balance which in the end can solve problems

economic problems in ways that are in accordance with the principles of Islamic law.

Referring to Qur'an [10]: 55 which confirms "Remember, to Allah belongs what is in the heavens and on earth. Remember, Allah's promise is true, but most of them do not know (it)", it is clear that everything that exists in this universe is essentially the absolute property of Allah (The Exalted). As for humans, they are given personal rights to the results of their efforts, energy, and thoughts to be utilized and managed, as Allah (The Exalted) has said. in Qur'an [2]: 195, "And spend (your wealth) in the way of Allah, and do not throw yourself into destruction, and do good, for verily Allah loves those who do good". This verse emphasizes that Islam highly respects human private property rights while at the same time maintaining a balance between personal, collective and state rights. The understanding that the nature of property belongs to Allah (The Exalted). important in Islam because Islam strongly encourages philanthropic activities.

The value of justice in every economic activity is based on the belief that Islam highly values individual rights to equal rights and rewards, including equality in obtaining and utilizing economic property. Part of the excess assets obtained from the results of this economic effort, in Islamic law, must be spent as much as possible for the benefit of the people in order to achieve the principles of justice as determined by Allah (The Exalted). in Qur'an [2]: 267, "You who believe, spend (in the way of Allah) some of the results of your good efforts and some of what We remove from the earth for you, and do not choose what bad things and then you spend from it, even though you yourself don't want to take it except by squinting at it, and know that Allah is Rich, Most Praised". In addition, Islam also teaches Muslims to always carry out economic activities by paying attention to the spiritual balance among fellow believers.

Referring to the basic values of Islamic economy, it can be concluded that each individual's assets, especially Muslims, must be controlled so that they are not "stacked" (monopolized) to a person/a party, but continue to flow productively into the economic activities of the community at large. According

to Muljawan, et al. (2020), economic activity in an Islamic perspective must always be encouraged to develop the real sector such as trade, agriculture, industry and services, on the other hand, the Islamic economy does not tolerate non-real economic activities such as money trading, *ribawi* system banking, and others. According to this basic principle, financial transactions only occur if there are real sector transactions that need to be facilitated by financial transactions.

In an effort to meet the demands of the Islamic economy for the people in Indonesia, the Islamic banking system as an Islamic financial institution plays a role in helping to achieve the socio-economic goals of a society where the majority are Muslims. In practice, Islamic financial institutions implement Islamic principles and values in every element of the financial system as a substitute for things that are forbidden to achieve benefit. Muljawan, et al. (2020) states that one of the limitations of sharia in finance is freedom from the element of contract uncertainty (gharar) associated with a contract or agreement that puts one or both parties in a state of uncertainty, which can harm one of the parties. In addition, it is also stated that Islamic finance must be free from elements of usury to encourage the smooth flow of investment so that it is not hampered by interest rates as the cause of increasing investment costs (Muljawan, et al., 2020). So that all potential businesses have equal access to the capital offered by potential investors.

With regard to the implementation of Islamic banking, as is the case with conventional banking, efficiency is a concern of management. Fuad Mas'ud (Cholik, 2013) argues that it is because of this efficiency that there are many fraudulent practices. Just because it aims to use the minimum possible resources to obtain the maximum results, the principle of efficiency is often interpreted as something that is value-free. Even though as a principle, efficiency contains a concept that will be influenced by the values and ideology that view it (worldview).

Efficiency in the Islamic view is known through several understandings, one of which is the understanding of trying to achieve the best results.

Rasulullah saw. always teach friends to always do all the work (charity) as effectively and efficiently as possible. He has shown his high authority by emphasizing the words ihsan (generosity) and itqan (perfection), as confirmed in a hadith narrated from Shaddad ibn Aws that the Prophet (PBUH) said, "Allah (The Exalted) has made *ihsan* obligatory for everything" (Narrated by Muslim).

The Prophet Muhammad (PBUH) judge the obidience of a Muslim when a Muslim is able to optimize his personality as efficiently as possible by doing all the work that is useful and leaving work that is a waste of time that is not useful, as he said, "Among the goodness of one's Islam is leaving things that are not useful" (Narrated by Ahmad, Abu Ya'la, and Tirmidhi).

The affirmation of these hadiths implies that the meaning of efficiency according to the Islamic view is not the same as the view of conventional economic theory. Cholik (2013) argues that it is very possible that the implementation of Islamic efficiency is not in accordance with conventional efficiency or vice versa. If the limitations of conventional economics are legality and the rule of criminal law, as long as the applicable law is in accordance with sharia, then it is also in accordance with Islamic views.

Thus, it can be understood that economic efficiency in the view of Islam is basically aimed at maximizing the welfare of society in economic activities without harming anyone. Likewise in the world of banking, sharia values form the basis of its implementation, including in implementing banking efficiency itself where banks do not only care about the interests of shareholders (stakeholders), but also care about the interests of wider stakeholders, namely Allah (The Exalted), humans, and nature.

Method

The research aimed at analyzing the financial efficiency and social efficiency of banks with data sources in the form of financial report data for Islamic banks and conventional banks in Indonesia was designed by applying a quantitative descriptive research method. This study employs Data

Envelopment Analysis (DEA) to measure the financial and social efficiency of Islamic and Conventional Banks in Indonesia. This approach is used to evaluate bank performance. By applying DEA approach, efficiency measurement does not require production initial assumptions. The assumption used is that there is no random error, deviation from the frontier is indicated as inefficiency.

The DEA method includes two efficiency measurement models, namely the Constant Return to Scale (CRS) model which produces an evaluation of overall efficiency in the form of Technical Efficiency (TE) values and the Variable Return to Scale (VRS) model which differentiates efficiency values into two values, namely Pure Technical Efficiency (PTE) and Scale Efficiency (SE) values. Thus, the DEA method is considered appropriate for measuring Technical Efficiency (TE), Pure Technical Efficiency (PTE) and Scale Efficiency (SE) of financial performance and social performance of Islamic banks and conventional banks.

There are two DEA models used in this study, namely an intermediation approach to analyze financial efficiency and a production approach to analyze social efficiency (Freixas and Rochet, 2008). The intermediation approach sees financial institutions as intermediaries. Financial institutions change and transfer financial assets from units that have excess funds to units that lack funds. Meanwhile, the production approach views banking activities as providing services to depositors and borrowers using all available factors of production, such as labour and physical capital. Therefore, this approach is considered appropriate for analysing the social efficiency of banking.

The input and output variables in assessing the financial and social performance of conventional and Islamic banking defined in this study refer to the results of various previous studies where the input variables for financial efficiency include third party funds, labor costs, and fixed assets; while the output variables include total credit/financing and other income (Boadi, Dziwornu and Osarfo, 2022). Meanwhile, the input variables for social efficiency include other assets, labor costs, and fixed assets, while the output variables are social funds (Rusydiana & Marlina, 2019).

The banks used as samples in this study were taken from a population of 109 conventional banks and Islamic banks in Indonesia, namely 41 banks that consistently reported the realization of Corporate Social Responsibility during the research year (2012-2020) by determining the number of samples using the Slovin formula. The determination of the timeframe for the research period between 2012-2020 is based on the consideration that before 2012 the availability of banking financial report data was very limited, whereas after 2020 there were three Islamic banks merging into one. Meanwhile, bank financial statements, bank annual reports and sustainability reports for each bank are the main data sources in this study.

The banks that were sampled in this study consisted of 4 state-owned commercial banks, 21 national private banks and 16 regional development banks. Meanwhile, bank branch offices domiciled abroad are not included in this study because they do not report CSR realization consistently. Of the 41 banks studied, 10 banks are Islamic banks and 31 banks are conventional banks.

With regard to the data analysed in this study obtained from secondary data through literature and documentation studies of a number of journals both national and international journals, relevant handbooks, as well as documentation of scientific seminars. Meanwhile, empirical data was obtained from documents owned by each bank that was the subject of the research and the Financial Services Authority (OJK).

Results and Discussion

Measurement of banking efficiency in this study was carried out by implementing the Data Envolpement Analysis (DEA) approach which includes three efficiency measurements, namely: Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE); where TE is the product of PTE and SE.

4.1 Results

Banks can achieve technical efficiency when they can state that there is a relationship between inputs and outputs in a production process. This means

that when the use of a certain number of inputs can produce the maximum output or can produce a certain number of outputs, the minimum number of inputs is required.

4.1.1 Financial Efficiency

Based on the results of data processing, it was found that in terms of technical efficiency, TE of Islamic Banks in the 2012-2014 period experienced a slight increase to 60.82% which fluctuated until 2018, and only experienced a significant increase in the 2019-2020 period, respectively reached 70.34% and 72.97%. The increase in TE at Islamic banks was largely supported by an increase in PTE (figure 1).

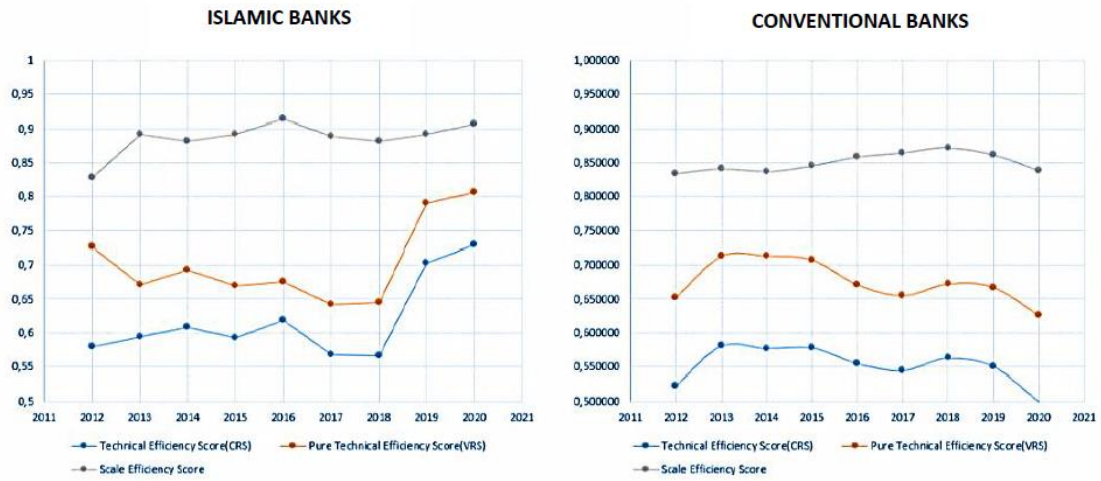

Figure 1. Financial efficiency of Islamic and conventional banks

Source: Authors' processing result, 2022.

Meanwhile, the TE of conventional banks in the 2012-2020 period fluctuated between 49.88% - 58.06%. Meanwhile, based on the level of TE, it appears that the level of efficiency in Islamic banks is more efficient than the level of efficiency of conventional banks throughout the 2012-2020 period. Likewise with the level of pure technical efficiency (PTE), Islamic banks show a more efficient level than conventional banks in the 2012-2020 period.

ISLAMIC BANKS

BANK SYARIAH-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	0,00	0,00	-0,01	0,00	0,00	0,00	0,00	0,00	0,00
ASET TETAP	0,00	0,00	-0,05	-0,06	-0,08	-0,06	-0,11	-0,04	-0,02
BIAYA TENAGA KERJA	-0,51	-0,07	-0,03	-0,06	-0,05	-0,02	-0,02	-0,07	-0,04
JUMLAH PEMBIAYAAN	3,96	0,50	0,48	0,52	0,52	0,61	0,60	0,11	0,30
PENDAPATAN OPERASIONAL LAINNYA	32,04	7,79	15,62	14,34	11,89	10,23	2,35	5,48	5,07
BANK SYARIAH - MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,26	-0,31	-0,32	-0,34	-0,34	-0,38	-0,37	-0,22	-0,20
ASET TETAP	-0,26	-0,31	-0,34	-0,38	-0,39	-0,41	-0,42	-0,24	-0,21
BIAYA TENAGA KERJA	-0,29	-0,37	-0,36	-0,36	-0,36	-0,38	-0,40	-0,28	-0,23
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	1,79	3,61	11,79	13,39	10,75	6,22	1,36	4,34	3,91

CONVENTIONAL BANKS

BANK KONVENSIONAL-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,01	-0,01	-0,01	0,00	0,00	0,00	0,00	0,00	-0,01
ASET TETAP	-0,02	-0,01	-0,01	-0,07	-0,14	-0,13	-0,12	-0,10	-0,11
BIAYA TENAGA KERJA	-0,08	-0,09	-0,08	-0,08	-0,09	-0,06	-0,04	-0,04	-0,03
JUMLAH PEMBIAYAAN	0,64	0,48	0,50	0,49	0,57	0,65	0,62	0,68	0,80
PENDAPATAN OPERASIONAL LAINNYA	5,84	8,02	6,25	4,47	3,87	3,44	3,19	4,25	4,78
BANK KONVENSIONAL - MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,37	-0,30	-0,30	-0,30	-0,34	-0,36	-0,34	-0,34	-0,40
ASET TETAP	-0,37	-0,30	-0,30	-0,34	-0,41	-0,42	-0,39	-0,39	-0,44
BIAYA TENAGA KERJA	-0,41	-0,36	-0,35	-0,36	-0,40	-0,40	-0,36	-0,37	-0,41
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	3,98	5,88	5,24	4,07	3,12	1,84	2,07	2,45	2,46

Figure 2. Potential Improvement of Financial Performance Based on PTE

Source: Authors' processing result, 2022.

Based on the PTE assumptions for the 2012-2020 period, both Islamic banks and conventional banks must improve their financial performance in several variables, namely fixed assets, labor costs and other operating income (figure 2).

Potential Improvement Kinerja Finansial Bank Syariah (CCR/CRS/TE)

BANK SYARIAH - MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,26	-0,31	-0,32	-0,34	-0,34	-0,38	-0,37	-0,22	-0,20
ASET TETAP	-0,26	-0,31	-0,34	-0,38	-0,39	-0,41	-0,42	-0,24	-0,21
BIAYA TENAGA KERJA	-0,29	-0,37	-0,36	-0,36	-0,36	-0,38	-0,40	-0,28	-0,23
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	1,79	3,61	11,79	13,39	10,75	6,22	1,36	4,34	3,91
BANK SYARIAH - MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,42	-0,41	-0,40	-0,41	-0,38	-0,43	-0,43	-0,30	-0,27
ASET TETAP	-0,42	-0,41	-0,40	-0,41	-0,40	-0,45	-0,48	-0,33	-0,29
BIAYA TENAGA KERJA	-0,45	-0,43	-0,41	-0,42	-0,39	-0,44	-0,44	-0,33	-0,28
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	5,48	9,65	17,41	15,24	17,92	9,48	4,09	7,75	6,59

Potential Improvement Kinerja Finansial Bank Konvensional (CCR/CRS/TE)

BANK KONVENSIONAL - MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,37	-0,30	-0,30	-0,30	-0,34	-0,36	-0,34	-0,34	-0,40
ASET TETAP	-0,37	-0,30	-0,30	-0,34	-0,41	-0,42	-0,39	-0,39	-0,44
BIAYA TENAGA KERJA	-0,41	-0,36	-0,35	-0,36	-0,40	-0,40	-0,36	-0,37	-0,41
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	3,98	5,88	5,24	4,07	3,12	1,84	2,07	2,45	2,46
BANK KONVENSIONAL - MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPK	-0,48	-0,42	-0,42	-0,42	-0,44	-0,46	-0,44	-0,45	-0,50
ASET TETAP	-0,49	-0,42	-0,42	-0,45	-0,49	-0,52	-0,48	-0,49	-0,55
BIAYA TENAGA KERJA	-0,50	-0,45	-0,45	-0,45	-0,48	-0,49	-0,45	-0,47	-0,52
JUMLAH PEMBIAYAAN	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,00
PENDAPATAN OPERASIONAL LAINNYA	13,34	16,67	15,72	14,57	4,85	3,91	2,97	4,69	6,80

Figure 3. Potential improvement of financial performance based on TE

Source: Authors' processing result, 2022.

In terms of the TE assumptions, the financial performance of these two types of banks must improve the DPK (Third-Party Funds) variables, fixed assets, labor costs and other operating income. Regarding the potential improvement in the financial performance of conventional banks based on TE, in 2015-2020 there was also an increase in inefficiency in the TPF variable, while inefficiency in TPF in the potential improvement of conventional bank financial performance based on PTE did not occur in the same year (figure 3).

4.1.2 Social Efficiency

In terms of social performance from 2012 to 2019, the TE values of Islamic banks and conventional banks fluctuated quite intensely. Only in 2020 will there be a difference between Islamic banks and conventional banks where

the TE value of Islamic banks tends to be constant while the TE value of conventional banks has increased. However, when compared between Islamic banks and conventional banks as a whole, it appears that the value of technical efficiency (TE) and the value of pure technical efficiency (PTE) of Islamic banks is higher than that of conventional banks throughout the 2012-2020 period (figure 4).

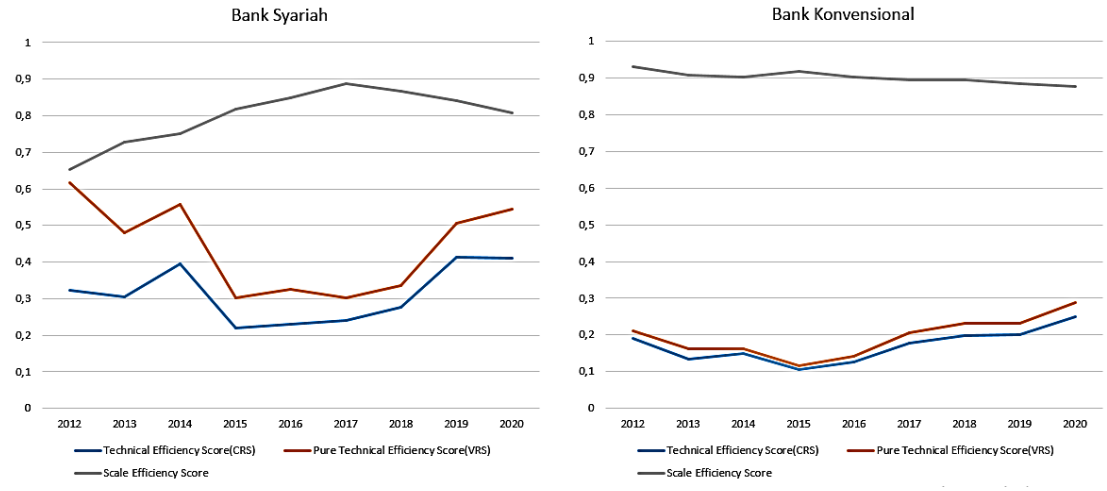

Figure 4. Social efficiency of Islamic and conventional banks

Source: Authors' processing result, 2022

Meanwhile, based on the assumption of pure technical efficiency (PTE), the common problem in increasing the potential social performance of Islamic banks throughout the 2012-2020 period lies in fixed assets, in 2013-2014 lies in labor costs, and in 2015-2020 lies in other assets.

Potential Improvement Kinerja Sosial
Bank Syariah (BCC/VRS/PTE)

BANK SYARIAH-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,20	-0,25	-0,25	-0,15	-0,13	-0,19	-0,24	-0,13	-0,23
ASET LAINNYA	0,00	0,00	0,00	-0,11	-0,06	-0,16	-0,10	-0,35	-0,25
BIAYA TENAGA KERJA	0,00	-0,04	-0,06	0,00	0,00	0,00	-0,01	0,00	0,00
DANA SOSIAL	4,88	65,52	1,50	9,97	7,14	6,26	7,72	3,59	3,79
BANK SYARIAH-MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,35	-0,51	-0,49	-0,61	-0,62	-0,66	-0,63	-0,47	-0,47
ASET LAINNYA	-0,34	-0,46	-0,38	-0,71	-0,68	-0,75	-0,69	-0,59	-0,52
BIAYA TENAGA KERJA	-0,33	-0,44	-0,42	-0,59	-0,61	-0,63	-0,59	-0,42	-0,39
DANA SOSIAL	0,00	0,17	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Potential Improvement Kinerja Sosial
Bank Konvensional (BCC/VRS/PTE)

BANK KONVENSIONAL-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,16	-0,17	-0,19	-0,25	-0,45	-0,44	-0,45	-0,47	-0,45
ASET LAINNYA	-0,08	-0,09	-0,11	-0,09	-0,04	-0,11	-0,12	-0,06	-0,11
BIAYA TENAGA KERJA	-0,01	-0,02	-0,03	-0,04	-0,07	-0,07	-0,07	-0,07	-0,06
DANA SOSIAL	44,34	48,28	27,78	45,72	37,95	25,16	23,59	16,00	15,60
BANK KONVENSIONAL-MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,76	-0,81	-0,82	-0,87	-0,89	-0,86	-0,85	-0,85	-0,79
ASET LAINNYA	-0,77	-0,83	-0,83	-0,87	-0,85	-0,80	-0,78	-0,77	-0,73
BIAYA TENAGA KERJA	-0,74	-0,80	-0,79	-0,85	-0,84	-0,79	-0,77	-0,77	-0,71
DANA SOSIAL	0,05	0,05	0,00	0,01	0,01	0,00	0,00	0,00	0,00

Figure 5. Potential improvement of social performance based on PTE

Source: Authors' processing result, 2022

ISLAMIC BANKS

BANK SYARIAH-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	20
ASET TETAP	-0,18	-0,19	-0,27	-0,15	-0,16	-0,22	-0,25	-0,12	-0,
ASET LAINNYA	0,00	0,00	-0,02	-0,07	-0,14	-0,24	-0,14	-0,29	-0,
BIAYA TENAGA KERJA	-0,05	-0,04	-0,05	0,00	0,00	0,00	0,00	0,00	0,(
DANA SOSIAL	9,72	73,14	2,54	11,98	8,25	7,05	8,93	4,49	5,5
BANK SYARIAH-MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	20
ASET TETAP	-0,71	-0,73	-0,69	-0,80	-0,79	-0,78	-0,75	-0,60	-0,(
ASET LAINNYA	-0,68	-0,69	-0,61	-0,80	-0,81	-0,83	-0,79	-0,70	-0,(
BIAYA TENAGA KERJA	-0,69	-0,72	-0,65	-0,78	-0,77	-0,76	-0,72	-0,59	-0,5
DANA SOSIAL	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,(

CONVENTIONAL BANKS

BANK KONVENSIONAL-MAX OUTPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,16	-0,16	-0,16	-0,22	-0,41	-0,38	-0,40	-0,41	-0,40
ASET LAINNYA	-0,12	-0,13	-0,13	-0,12	-0,04	-0,11	-0,09	-0,06	-0,08
BIAYA TENAGA KERJA	-0,01	-0,01	-0,01	-0,01	-0,01	0,00	0,00	0,00	0,00
DANA SOSIAL	59,16	52,69	30,26	49,19	46,84	27,02	25,08	17,94	17,44
BANK KONVENSIONAL-MIN INPUT	2012	2013	2014	2015	2016	2017	2018	2019	2020
ASET TETAP	-0,83	-0,88	-0,86	-0,91	-0,93	-0,89	-0,88	-0,87	-0,83
ASET LAINNYA	-0,84	-0,89	-0,86	-0,90	-0,87	-0,85	-0,81	-0,89	-0,75
BIAYA TENAGA KERJA	-0,81	-0,87	-0,85	-0,89	-0,87	-0,82	-0,80	-0,80	-0,75
DANA SOSIAL	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Figure 6. Potential improvement of social performance based on TE

Source: Authors' processing result, 2022

In addition, in terms of increasing the potential for social performance based on the assumptions of TE, the variables of fixed assets, other assets, and labor costs are sources of inefficiency. For Islamic banks, other asset variables in the 2012-2013 period and labor costs in the 2015-2020 period are not a source of inefficiency. Whereas for conventional banks, the variable labor costs in the 2017-2020 period is not a source of inefficiency (figure 6).

4.2 Discussion

Measurement of banking efficiency is carried out by measuring three efficiency measurement variables, namely: Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE).

4.2.1 Financial efficiency

In terms of technical efficiency, in the 2012-2014 period, the TE of Islamic Bank experienced a slight increase that fluctuated until 2018, and only experienced a significant increase in the 2019-2020 period. Meanwhile, the TE of conventional banks in the 2012-2020 period were fluctuated.

This fact indicates that Islamic banking in Indonesia is able to optimize the use of every resource it has to maximize the output it produces. This is in line with what was revealed by Muhammad (2015) that production efficiency in an institution such as an Islamic bank in issuing costs in the form of investment financing, is a form of bank production mechanism in order to produce the highest output from an investment. Furthermore, Sherman & Zhu (2006) explained, "A bank is said to be technically efficient if it is producing the

maximum output from the minimum quantity of inputs, such as labour, capital, and technology".

In both Islamic and conventional banks, the movement in the value of technical efficiency (TE) is largely contributed by the value of pure technical efficiency (PTE). This shows that the bank's managerial capabilities have maximized the use of existing inputs to produce maximum output. This finding is consistent with the results of research by Fukuyama (1996) who analyzed the efficiency of banks in Japan, that the main factor contributing to overall technical efficiency is purely technical efficiency, not scale efficiency. This fact shows that bank size is not an important factor to achieve a level of efficiency.

Even though the value of technical efficiency (TE) and pure technical efficiency (PTE) is higher, the financial efficiency of Islamic banking based on scale (SE) in the 2012-2020 period when banks can operate on a scale of results that runs constantly, is still lower than with conventional banking. This condition indicates that conventional banking is more capable of operating on a yield scale. In this regard, Herman & Zhu (2006) emphasized, "A unit is scale efficient when its size of operations is optimal so that any modifications on its size will render the unit less efficient".

Referring to the RTS (return to scale) value, financially the number of Islamic banks has increased and decreased in an almost balanced manner every year in the period between 2012-2020, except in 2012, the number of Islamic banks which experienced an increase was far more than that which experienced a decrease. . Meanwhile, many conventional banks experienced a decline in their financial performance in the same year.

Meanwhile, taking into account the PTE assumptions in the 2012-2020 period, both Islamic banks and conventional banks must improve their financial performance, especially with regard to fixed assets, labor costs and other operating income. Meanwhile, taking into account the assumptions of TE, the financial performance of these two types of banks must improve their financial performance with respect to DPK (Third-Party Funds), fixed assets, labor costs and other operating income.

4.2.2 Social efficiency

As is the case with measuring financial efficiency, the measurement of social banking efficiency in this study is also based on Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE) values. Social efficiency in this case is more directed at market-based social aspects that can be used, at least to show social content based on social values that enter the market. More simply, Rusydiana (2019) emphasizes how banks also have a real social impact on customers, the environment and society in addition to their attention to financial aspects. Furthermore, Rusydiana (2019) argued that in fact, even though the purpose of banking is to allow access to funds for anyone. Banking will not be able to achieve this goal without sustainable profitability. So that the bank must be efficient in both aspects to achieve the goal of "two dimensional efficiency". This is the importance of banking attention to the level of social efficiency.

The value of technical efficiency (TE) and pure technical efficiency (PTE) of Islamic banks is higher than conventional banks throughout the 2012-2020 period can be interpreted that Islamic banking in Indonesia has quite good social empowerment capabilities. This is understandable, considering that Islamic banks have relatively greater opportunities for improvement compared to conventional banks (Rusydiana, 2019). In addition, Islamic banks are also supported by their socially concerned orientation (community empowerment), achievement concern, and welfare concern (assistance for small and medium enterprises).

If we pay attention to the relationship between input and output from the constant return to scale (CRS) assumption method, the technical efficiency to be achieved does not reflect efficient economies of scale. Likewise with the input and output relationship using the variable return to scale (VRS) method, the efficiency achieved does not even describe efficiency in economies of scale. This means that technically inefficient banks are also inefficient on an economic scale, technically efficient banks are also efficient on an economic scale (Murtianingsih, 2012). This was revealed mainly from the inefficiencies in the

potential improvement of the financial performance of conventional banks based on TE which in 2015-2020 there was also an increase in inefficiencies in the DPK (Third-Party Funds) variable.

Meanwhile, the variables of fixed assets, other assets, and labor costs are a source of inefficiency whereas for Islamic banks, other asset variables and labor costs are not a source of inefficiency. Whereas for conventional banks, variable labor costs are not a source of inefficiency. These three variables must be a concern for Islamic banks to be able to improve their social performance. Therefore, Noor, et.al (2022) emphasized, "Islamic banks should improve the quality of services, so that they can compete and contribute to the economy". Moreover, Islamic banks in Indonesia must pay attention to the acquisition of assets in accordance with sharia, such as *mudharabah, musyarakah, murabahah, salam, istishna, ijarah, sharf,* and others, as well as their use for things that are not prohibited by sharia, such as *infaq, waqf, shadaqah, zakat*, and others. Conventional banks also experience the same problem in increasing the potential for social performance throughout the 2012-2020 period which lies in the variables of fixed assets, other assets, and labor costs.

Based on the entire discussion above, it is revealed that the financial and social efficiency of Islamic banks is better than conventional banks. The value of efficiency between financial and social, the value of financial efficiency is greater in both conventional and Islamic banks. This shows that both conventional and Islamic banks are very concerned about their financial performance compared to their social performance. Islamic banks and conventional banks focus on activities that provide benefits to shareholders but not enough for the surrounding environment. This is in line with research conducted by Rusydiana and Marlina (2019) which states that the value of the financial efficiency of Islamic banks is greater than the value of social efficiency.

Meanwhile, the efficiency of the social performance of Islamic banks is better than conventional banks, because in addition to company zakat which is a source of CSR funds, Islamic banks also get a source of funds from collecting ZISWAF and benevolence funds, while conventional banks are really from the

company's profit allowance to distribute CSR. Referring to the DSN-MUI *Fatwa* No. 123IDSN-MUYXV2018, the *fatwa* expressly states that there are several forms of funds that may not be recognized as income (TBDSP) for Islamic financial institutions, namely: (1) transactions not in accordance with sharia principles that cannot be avoided, including interest income (*usury*) ; (2) sharia transactions whose conditions and limitations (*rukun* and/or conditions) are not met; (3) sanctions (fines) for not fulfilling obligations according to the agreement ('*adam al-wafa' bi al-iltizam*); and (4) funds whose owner is unknown, known to the owner but not found, or known to the owner but the return fee is greater than the amount of the funds. Meanwhile, the distribution of social funds from TBDSP must also be used and channeled directly for the benefit of Muslims and the public interest that is not contrary to sharia principles, and may not be used for corporate interests, such as for the promotion of the bank concerned; employee training; payment of taxes, *zakat* and *waqf* of the bank concerned; and settlement/payment of arrears of customers/end-users.

Thus, it can be said that the efficiency level of the banking business, both from a financial and social perspective, is vital for attention. Business efficiency can have a positive effect on increasing banking market share as confirmed by Kasmir (2004) that the greater the level of business efficiency at a bank, the greater the level of profit achieved by the bank and the better the bank's position in terms of asset use. The more efficient the use of bank assets, the bank's profit will increase resulting in an increase in bank market share, or in other words, consumer behavior towards banks will be more positive. That is why the study of financial performance and social performance in conventional banks and Islamic banks is very crucial to understand the problems faced as well as a solution in efforts to improve banking performance in Indonesia which adheres to two banking systems, namely conventional banking and banking based on Islamic sharia. especially for Islamic banks which offer many products with social nuances.

Conclusion

In general, the financial and social efficiency of Islamic banks is better than that of conventional banks, with financial efficiency consistently exceeding social efficiency in both banking systems. During the 2012–2020 period, the level of financial technical efficiency (TE) of Islamic banks was higher than that of conventional banks. Similarly, pure technical efficiency (PTE) of Islamic banks surpassed conventional banks in 2012, 2016, 2019, and 2020. In terms of scale efficiency (SE), Islamic banks demonstrated higher efficiency than conventional banks during 2013–2020. Regarding social performance, Islamic banks also showed higher technical efficiency and pure technical efficiency throughout the observation period, although social scale efficiency indicates that conventional banks outperformed Islamic banks in several years. The financial efficiency condition of Islamic banks reflects a relatively balanced pattern of increasing and decreasing returns, whereas conventional banks experienced more declining conditions annually during 2012–2020. Meanwhile, social efficiency in both banking types tended to experience more increasing returns than decreasing ones.

Based on the BCC model, fixed assets, labor costs, and other operating income represent crucial areas for improvement for both Islamic and conventional banks. Under the TE model, third-party funds (DPK), fixed assets, labor costs, and other operating income require significant enhancement throughout the study period. In terms of social performance, fixed assets and other assets are key improvement points for Islamic banks, while for conventional banks, fixed assets, other assets, and labor costs demand particular attention. Overall, both banking systems need to strengthen their social efficiency, as it remains significantly lower than their financial efficiency, indicating a stronger focus on financial performance. This study emphasizes that evaluating banking performance should not rely solely on financial indicators but must also incorporate social dimensions to generate broader societal impact. Furthermore, the Financial Services Authority (OJK) is encouraged to standardize CSR reporting, as current disclosures vary across

banks. Future research may explore different variables, methods, objects, and time periods, particularly in Islamic banking, which offers a wider range of socially oriented products.

References

Aziz, A. (2022) *Mengukur Pengaruh Investasi ESG pada Perbankan di Indonesia, dan Bagaimana Peran Kebijakan Fiskal: Analisis Data Panel*. Policy Paper Fiscal Policy Agency. Jakarta: Ministry of Finance of the Republic of Indonesia.

Cham, T. (2018) Determinants of Islamic Banking Growth: An Empirical Analysis. Internati*onal Journal of Islamic and Middle Eastern Finance and Management.* 11(1). pp. 18–39. doi:10.1108/imefm-01-2017-0023.

Cholik, A.A. (2013) Teori Efisiensi dalam Ekonomi Islam. *Islamic Economics Journal*. 1(2). pp. 167-182.

Coelli, T.J., Rao, D. S. P., O'Donnell, C., J., and Battese, G. E. (2005) *An Introduction to Efficiency adn productivity analysis*. 2nd ed. New York, NY, United States: Springer. doi.org/10.1007/b136381

Dendawijaya, L. (2003) *Manajemen Perbankan*. Jakarta: Bumi Aksara.

Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society. Series A (General),* 120(3), p. 253. doi:10.2307/2343100

Freixas, X. and Rochet, J.C. (2008) *Microeconomics of Banking*. 2nd ed. Cambridge, Massachusetts, London: The MIT Press.

Fukuyama (1996) Returns to Scale and Efficiency of Credit Associations in Japan: A Nonparametric Frontier Approach. *Japan and The World Economy*. 8. pp. 259–77.

Gutierrez-Goiria, J., San-Jose, I. & Retoalaza, J.I. (2017) Social Efficiency in Microfinance Institution: Identifying How to Improve It. *International Journal of International Development*. 29(2). pp. 259-280.

Gutierrez-Goiria, J., San-Jose, I. & Retoalaza, J.I. (2017) Social Efficiency in Microfinance Institution: Identifying How to Improve It. *International Journal of International Development*. 29(2). pp. 259-280.

Hati, S.R.H., *et.al* (2022) Brand Familiarity vs Profit-Sharing Rate: Which Has A Stronger Impact on Muslim Customers' Intention to Invest in An Islamic Bank? *Journal of Islamic Marketing*. 13(8). pp. 1703-1727. https://doi.org/10.1108/JIMA-08-2020-0247

IFSB (2021) *Islamic Financial Services Industry Stability Report 2021*. https://www.ifsb.org/sec03.php

Kasmir (2004) *Manajemen Perbankan*. Jakarta: PT. Raja Grafindo Persada.

Muhammad (2015) *Manajemen Dana Bank Syariah*. Jakarta: Rajawali Press.

Muljawan, dkk. (2020) *Ekonomi Syariah*. Jakarta: Department of Economics and Sharia Finance of Bank Indonesia.

Murtianingsih (2012) Pengaruh Determinan Struktur Modal terhadap Nilai Perusahaan: Studi Kasus pada Perusahaan Properti di Bursa Efek Indonesia. *Jurnal Manajemen Bisnis*. 2(2). hlm. 140-152.

Noor, M.H.H.M., *et.al* (2022) Efficiency Analysis of Islamic Banks in Indonesia. *Journal of Positive School Psychology*. 6(3). pp. 495-504.

OJK (2020) *Statistik Perbankan Indonesia - Desember 2020*. https://www.ojk.go.id/id/kanal/perbankan/data-dan-statistik/statistik-perbankan-indonesia/Pages/Statistik-Perbankan-Indonesia---Desember-2020.aspx.

OJK (2021) *Laporan Perkembangan Keuangan Syariah Indonesia 2020*. Jakarta: Financial Services Authority (OJK) - Sharia Economics.

Rusydiana, A., & Marlina, L. (2019). Financial and Social Efficiency on Indonesian Islamic Banks: A Non-Parametric Approach. *Journal of Islamic Monetary Economics and Finance*. 5(3). pp. 579-602. https://doi.org/10.21098/jimf.v5i3.1154

Rusydiana, A.S. (2019) Efisiensi Sosial dan Finansial Bank Syariah di Indonesia: Pendekatan Nonparametrik. *Jurnal Riset Akuntansi dan Keuangan*. 4(1). hlm. 13-24.

Sherman, H.D., & Zhu, J. (2006) *Service Productivity Management: Improving Service Performance Using Data Envelopment Analysis (DEA).* New York: Springer.

Souiden, N. and Rani, M. (2015) Consumer Attitudes and Purchase Intentions Toward Islamic Banks: The Influence of Religiosity. *International Journal of Bank Marketing*. 33(2). pp. 143-161.

Yanīkkaya, H. dan Pabuçcu, Y.U. (2017) Causes and Solutions for The Stagnation of Islamic Banking in Turkey. *ISRA International Journal of Islamic Finance*. 9(1). pp. 43-61. https://doi.org/10.1108/IJIF-07-2017-005