

ICMC 2023**The 3rd International Conference on Management and Communication****STRUCTURE OF COMMERCIAL BANKS IN INDONESIA
DURING THE COVID-19 PANDEMIC**

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(b) Universitas Trisakti, Jl. Kyai Tapa No. 1 Grogol, Jakarta Barat, Indonesia,
nirdukita.ratnawati@trisakti.ac.id**Abstract**

This study aims to determine the market structure of commercial banks in Indonesia. The data is sourced from commercial banks listed on the Indonesia Stock Exchange in 2018-2021. The method of analysis is descriptive using the Concentration Ratio (CR), the Herfindahl Hirschman Index (HHI), and the Minimum Efficient Scale (MES). The results show that the profitability of CR 4 commercial banks in Indonesia in 2018-2021 is in the loose oligopoly category because it has an average of 0.5357. The Hirschman Herfindahl market share profitability index is also included in the oligopoly market structure because it has an average value of 0.1157. Barriers to entry to the banking industry market in Indonesia are still relatively high because it has a Minimum Efficient Scale value of 0.1770. In this condition, the actions taken by commercial banks often have to anticipate the actions of their closest competitors, resulting in interdependence and influence between a commercial bank and other competitors, which makes collusion between producers very likely to occur. However, the COVID-19 pandemic can in fact result in a weakening of market concentration and market barriers, which will have an impact on reducing the profitability of commercial banks. For this reason, the banking industry so that its profitability does not decrease, it is necessary to carry out various strategies using various alternatives in order to obtain additional income from the services provided which are carried out efficiently using digital technology.

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Keywords: Commercial Banks, Market Structure, Market Concentration, Market Barriers, Profitability

1. Introduction

Indicators of a country's progress can be reflected in the progress of its financial sector, especially banking (Ito & Kawai, 2018). This is inseparable from its function as an intermediary institution and a driving force for the economy (Mishkin, 2001). For this reason, the Government in Indonesia implemented the October 1988 Package policy, in order to accelerate the development of national banking (Harahap et al., 2020). This policy made it easier for investors to be able to set up banks, resulting in the rise of bank establishments in Indonesia (McLeod, 1999). The 1997 monetary crisis had an impact on many banks in Indonesia which collapsed (Rusliani, 2018). This condition, due to the poor performance of the bank, makes it vulnerable to the phenomena that occur. In 2008, the world economy again experienced a crisis which resulted in the shaking of banks in many countries. This situation indicates that there was an error in financial regulation, because monetary policy was implemented to overcome a recession, there is an opportunity for financial sector risks to arise, which resulted in the vulnerability of the banking sector (Houben et al., 2004). This condition indicates the importance of maintaining financial system stability (Horváth & Vaško, 2016). Therefore, in order to maintain banking existence, the Basel Committee on Banking Supervision (BCBS) issued a global financial reform package (Basel III), by providing additional protection requirements that require banks to have a minimum general equity and general liquidity ratio (Suryanto, 2019).

Banking plays a major role in maintaining the stability of the country's economy, so it needs to be maintained by improving its performance. Bank conditions can directly affect the structure and level of competition in the banking industry (Mulyaningsih & Daly, 2012). This results in good or bad performance of a market depending on the market structure that occurs. The Structure Conduct Performance (SCP) approach reveals that a decrease in the level of concentration in a market has a positive impact on market efficiency (Shaffer, 1994). This condition is caused because the more concentrated the market will result in the greater the company's ability to raise prices above marginal cost. As for its meaning, the market power it gets is getting bigger. For this reason, the level of market power is indicated as the level of competition.

The market structure is the shape of the entire industrial market. The structure of an industry will affect the conduct of the industry and have an impact on the performance of the industry (Mason, 1939). The market structure has three main elements, namely market share, market concentration, and barriers to entry. Market behavior consists of policies adopted by market participants as well as their competitors. The performance of an industry is measured, among others, by the degree of innovation, efficiency and profitability (Rekarti & Nurhayati, 2016). On the other hand, concentration is a combination of market shares from oligopolistic companies where there is interdependence between these companies. The combination of the market share of these companies forms a level of concentration in the market (Jaya, 2001). There are two conflicting approaches to analyzing the relationship between market structure and performance. The Structure Conduct Performance (SCP) paradigm approach focuses more on market collusion and the efficiency hypothesis approach places more emphasis on high operational efficiency. The level of market concentration has a positive influence on the level of competition in the industry, regardless of whether a company is efficient. Thus, more concentrated companies will generate higher

profits (for reasons of collusion or monopoly) compared to less concentrated or less concentrated companies, regardless of their efficiency.

In analyzing an industry, individual bank behavior cannot be separated from its market structure. Market concentration is one of the determinants of profitability (Yu & Neus, 2005). Banking profitability depends on its ability to win the competition and implement sustainable financial performance. However, the COVID-19 pandemic has changed people's behavior a lot and affected bank performance, especially its impact on profitability. After the outbreak of the COVID-19 pandemic, it had an impact on extreme fluctuations in banking profitability in Indonesia. In 2019-2021, the average profitability growth for Commercial Banks in Indonesia is 16.39 percent with a standard deviation of 14.57 percent. At the start of the COVID-19 outbreak, profitability growth in 2019-2020 increased significantly from 5.94 percent to 33.04 percent. However, after that in 2020-2021 its profitability growth also decreased significantly from 33.04 percent to 10.20 percent (Figure 1).

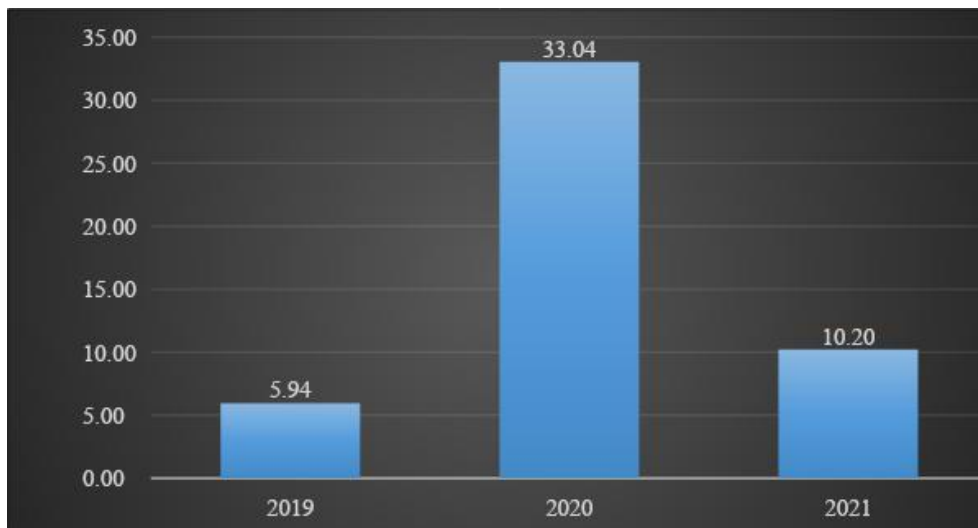


Figure 1. Profitability Growth of the Banking Industry in Indonesia in 2019-2021 (Percent)
Source: Financial Services Authority (Data processed, 2022)

The existence of banking is very important in maintaining the stability of a country's economy. Internal and external turmoil have a significant effect on bank performance (Soeharjoto et al., 2020). The COVID-19 pandemic has resulted in bank profitability in Indonesia having a fluctuating trend, due to changes in people's behavior. All of this, can result in a shift in market structure. Even though the existing market structure plays a major role in bank performance. For this reason, it is necessary to conduct research on the market structure of commercial banks in Indonesia during the COVID-19 pandemic era.

2. Method

The banking industry has a Structure Conduct Performance with different basic characteristics. Banking as an agent of development is always required to be in good health. Banking performance can be determined based on the bank's internal behavior and market structure. For this reason, the good or bad performance of a market is very dependent on the shape of the market structure that occurs. The indicator

that is often used to measure bank performance is Profitability. This study uses descriptive analysis using the Concentration Ratio (CR), the Herfindahl Hirschman Index (HHI), and the Minimum Efficient Scale (MES). The data used is secondary data from commercial banks listed on the Indonesia Stock Exchange in 2018-2021.

2.1. Market structure approach

2.1.1. Market share

Each company has a different market share, which is between 0 percent and 1 percent of its total profitability. Market share can be calculated using the following formula:

$$S = \left(\frac{S_i}{Sttl} \right)$$

Where :

MS_i: Bank market share i. S_i: Bank profitability i.

Total: The total profitability of the entire company.

2.1.2. Concentration ratio (CR)

An analysis tool to find out the degree of concentration of the four biggest buyers from a market area, so as to be able to know in general the picture of the balance of the bank's bargaining position against customers. Concentration ratio numbers range from zero to one and are usually expressed as a percentage. A concentration value that is close to zero indicates that a number of N companies have a relatively small market share. On the other hand, a concentration ratio that is close to one indicates a relatively high level of concentration. That is, the higher the CR number, the less competitive (more concentrated) the market will be (Rekarti & Nurhayati, 2016). The following is the formula for calculating CR₄ (Church & Ware, 2000):

$$R4 = \left(\frac{S_1 + S_2 + S_3 + S_4}{Sttl} \right)$$

Where :

CR₄: Degree of concentration of the four largest profitability of a market area.

S₁, S₂, S₃, S₄: The profitability of the company chosen because it has the largest bank profitability share level 1 to 4.

Stotal: Overall share level of bank profitability.

The criteria used in determining the concentration ratio are as follows:

0 < CR < 0.4: Affective competition or monopolistic competition.

0.4 ≤ CR < 0.6: Loose oligopoly or monopolistic competition.

0.6 ≤ CR: Tight oligopoly or dominant firm with a monopoly.

2.1.3. Indeks Hirschman Herfindahl (IHH)

This analysis tool aims to determine the degree of concentration of buyers in a market area, so that a general picture of the balance of the bargaining position of farmers against traders can be known. The Hirschman Herfindahl index focuses on the proportion of a certain market share in an industry. The results shown by the Hirschman Herfindahl Index have an identical pattern to the concentration ratio analysis approach. The formula for the Herfindahl Index is as follows:

$$IHH = \frac{S_1^2 + S_2^2 + \dots + S_n^2}{S^2}$$

Where :

IHH: Hirschman Herfindahl index.

n : The number of traders in a potato market area.

Si: The share of commodity purchases from the ith traders (i = 1,2,3,...,n).

The criteria:

IHH = 1: leads to monopoly/monopsony. IHH = 0: leading to perfect competition. $0 < IHH < 1$: leads to oligopoly/oligopsony.

2.1.4. Minimum efficient scale (MES)

Apart from using concentration measures, industrial structure can also be identified through barriers to market entry. The analytical tool that can be used for this is the Minimum Efficient Scale (MES). One way to look at barriers to market entry is to measure the economies of scale that are approached through the output of companies that dominate the market of more than 0.5. The formula is as follows:

$$ES = \left(\frac{gst\ pn\ utput}{tl\ utput} \right)$$

A number of producers who enter and exit the market will influence other existing producers, including influencing market behavior. This influence can be negative if the old company cannot survive, so it will reduce the level of profit earned. MES measurement helps to understand where companies are in the industry. MES value that is greater than 0.1 illustrates high barriers to market entry in the industry (Khavidhurrohmaningrum, 2013).

3. Discussion

In 2018-2021, the average standard deviation of bank market share in Indonesia is 0.0081 with an increasing trend. The COVID-19 pandemic has had an impact on changes in human behavior. For this reason, in order to overcome the outbreak of the COVID-19 Pandemic, the government issued a policy of Imposing Restrictions on Community Activities (PPKM) in all regions of Indonesia. However, this policy had the consequence of a decline in national economic activity, resulting in an increase in the

performance gap between banks and resulted in a more diverse bank profitability. This can happen because banks that are ready in digital technology or are already close to the community, their performance can survive and even increase rapidly, but for those who don't they will experience setbacks.

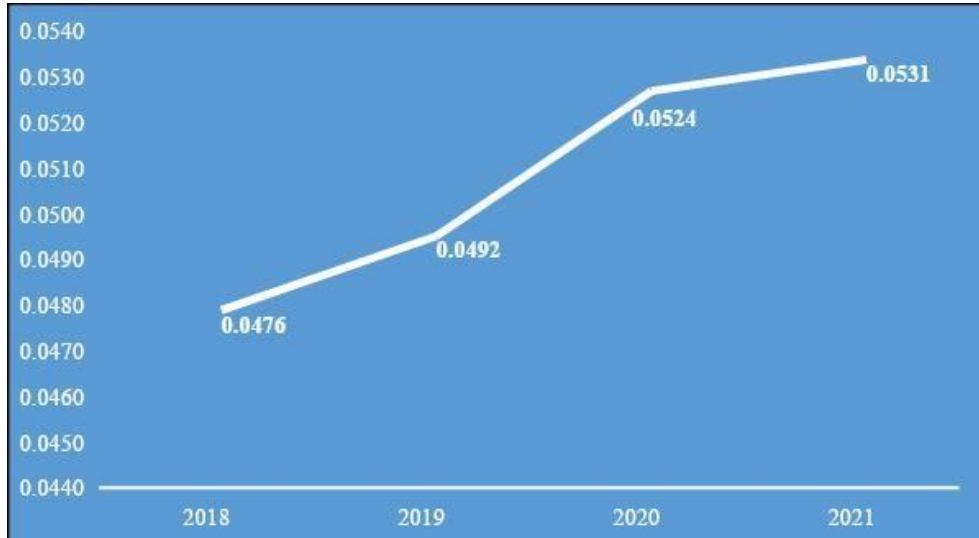


Figure 2. Standard deviation of bank market share in Indonesia in 2018-2021
Source: Financial Services Authority (Data processed), 2022

Figure 2 explain that in 2018, the bank's market share has a standard deviation of 0.0476 with the highest Bank Rakyat Indonesia market share value of 0.1879 and the lowest Bank of India Indonesia of 0.0006. The bank's market share standard deviation in 2019 was 0.0492 with the highest Bank Rakyat Indonesia market share value of 0.1937 and the lowest Bank of India Indonesia of 0.0005. After the outbreak of the COVID-19 pandemic, it resulted in a significant increase in the standard deviation of market share to 0.0523 with the highest Bank Rakyat Indonesia market share value of 0.1655 and the lowest of Bank of India Indonesia of 0.0004. In subsequent developments, there was a slight increase in the bank's market share standard deviation in 2021 to 0.0531, with the largest market share value of Bank Mandiri of 0.1609 and the lowest of Bank of India Indonesia of 0.0004. The development of market share during 2018-2021 with the COVID-19 pandemic is very interesting because there has been a change in the market share of the highest bank during 2018-2020 from Bank Rakyat Indonesia to Bank Mandiri in 2021, but for the market share of the lowest bank during 2018-2021 it has not changed. This condition indicates that banking is already attached to the community if it is not balanced with the development of digital technology with various generations of people within a certain period of time it will be left behind by banks that keep abreast of technological developments. This is reasonable because the impact of the COVID-19 pandemic has changed people's behavior to be able to live more practically, so that they can still make transactions with banks at any time and without having to leave other activities.

The degree of concentration of the four largest profitability of a market area (CR 4) of banks in Indonesia in 2018-2021 has an average of 0.5357, with an increasing trend in 2018-2019, but with the COVID-19 pandemic resulting in a decreasing trend significantly in 2020-2021. However, the standard deviation during this period has continuously experienced an increasing trend. In 2018, banks in Indonesia had a CR 4 of 0.5855 with a standard deviation of 0.0406, while in 2019 there was an increase

in CR 4 to 0.6142 with a standard deviation of 0.0460. However, after the outbreak of the COVID-19 pandemic, in 2020 the CR 4 decreased to 0.4809 with a standard deviation of 0.0524. In 2021, CR 4 will again decrease to 0.4621 with a standard deviation of 0.0566.

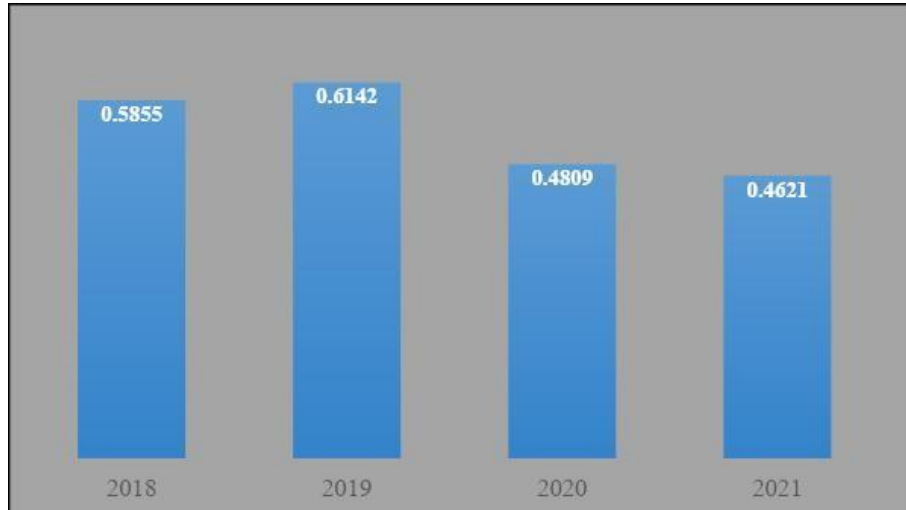


Figure 3. CR4 Banks in Indonesia in 2018-2021 Source: Financial Services Authority (Data processed), 2022

During the 2018-2021 period, banks in Indonesia have an average CR 4 value between 0.4 and 0.6 (Figure 3). This also applies every year during that period. This condition indicates that the market share of CR 4 in Indonesia is in the category of loose oligopoly. In 2018 and 2019, the 4 banks that have the largest market share include Bank Rakyat Indonesia, Bank Mandiri, Bank Negara Indonesia, Bank Central Asia. In 2020, CR 4 with a market share of Bank Rakyat Indonesia, Bank Mandiri, Bank Central Asia, Bank Negara Indonesia. However, in 2021 CR 4 the highest market share will change to Bank Mandiri, Bank Rakyat Indonesia, Bank Central Asia, Bank Tabungan Negara.

The average Hirschman Herfindahl market share index for bank profitability in Indonesia in 2018-2021 is experiencing an increasing trend. The average value is 0.1157 with a standard deviation of 0.0093. Figure 4 shown that in 2018, the Hirschman Herfindahl Index was 0.1056 with a standard deviation of 0.0081. The Hirschman Herfindahl index was 0.1109 in 2019 with a standard deviation of 0.0091. In 2020, the Hirschman Herfindahl Index increased again to 0.1219 with a standard deviation of 0.0098. Then, the Hirschman Herfindahl Index increases in 2021 to 0.1243 with a standard deviation of 0.0102. Every year the market share of bank profitability in Indonesia for 4 years, has a Hirschman Herfindahl Index value between 0 to 1. This means that banking in Indonesia has an oligopoly market structure.

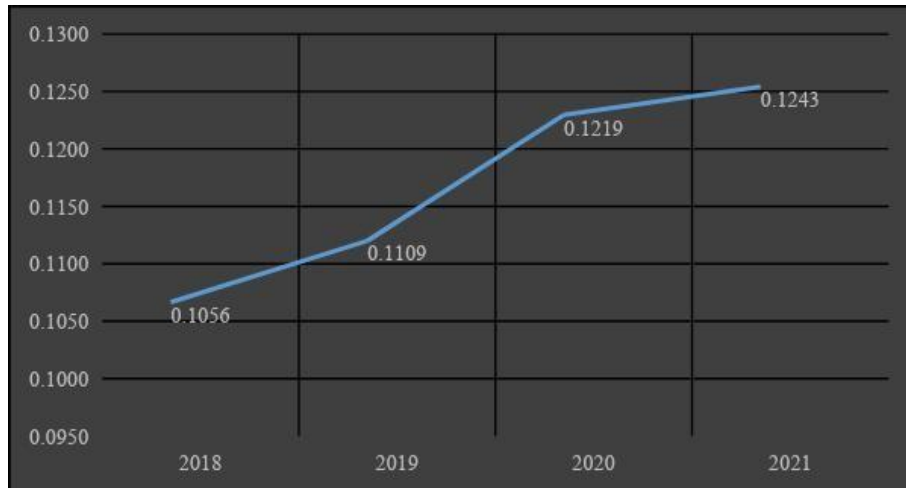


Figure 4. Hirschman Herfindahl Index of Banking in Indonesia in 2018-2021 source; Financial Services Authority (Data processed), 2022

Barriers to market entry can be analyzed using the Minimum Efficient Scale (MES). The results of an analysis of the banking industry in Indonesia obtained an average MES value in 2018-2021 of 0.1770 with a small standard deviation of 0.0162. In 2018 it had an MES value of 0.1879 and increased in 2019 to 0.1937. However, then the presence of COVID-19 caused the MES to fall to 0.1655 in 2020 and then in 2021 it fell again to 0.1609 (Figure 5). This indicates that the barrier to entry for the banking industry market in Indonesia is still relatively high because it has an MES value of above 0.1. This finding further confirms that the banking industry is included in the oligopoly market type, where there is market concentration and high barriers to entry. Barriers are complex where large obstacles can strengthen the market power of a dominant commercial bank. New competitors will not enter, unless they are sure that they will make a profit after entering the market. If MES is large relative to the market, new commercial banks will not be able to open businesses that operate efficiently without increasing industrial output. Commercial banks that enter the market under MES conditions will not be able to compete with commercial banks that are already on the market (Khavidhurrohmaningrum, 2013).

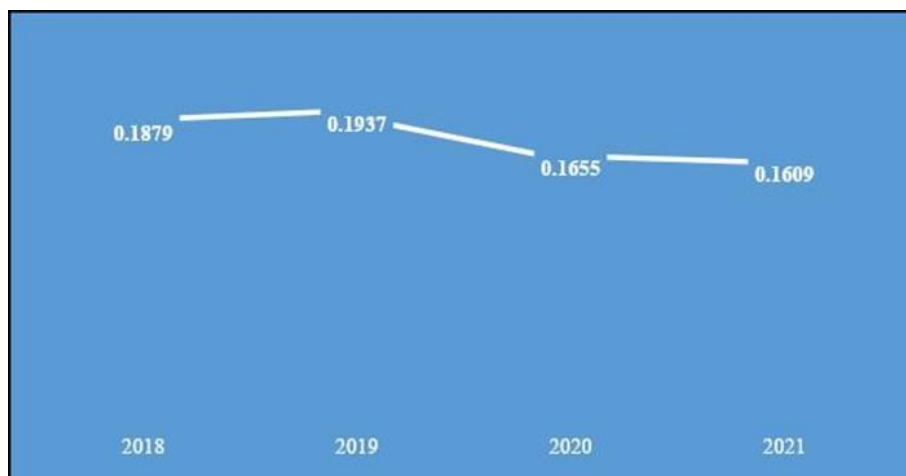


Figure 5. Minimum Efficient Scale of Banking in Indonesia in 2018-2021 Source: Financial Services Authority (Data processed), 2022

The behavior of commercial banks in an industry will be interesting to observe if commercial banks are in an industry that has an imperfect market structure. Market behavior is used to determine everything related to the operational activities of commercial banks. In an oligopoly market, there are several commercial banks that lead the market with a combined market share of over 46 percent. For this reason, the behavior of any commercial bank will be difficult to predict in this market condition. This is because the actions taken by commercial banks often have to anticipate the actions of their closest competitors. As for the impact, in this market there is interdependence and influence between a commercial bank and other competitors, so that collusion between producers is very likely to occur. This action will harm consumers, because commercial banks can set high prices on their products (Khavidhurrohmaningrum, 2013). Even though there is a positive relationship between market concentration and profit levels with moderate barriers to entry (Bain, 1956). Thus, the presence of barriers to entry that are high enough to concentrate the company will create extra profits for the company. The existence of the COVID-19 pandemic, in fact, also resulted in a weakening of market concentration and market barriers which ultimately had an impact on reducing the profitability of commercial banks.

4. Conclusion

Research on the market structure of commercial banks in Indonesia during the COVID-19 Pandemic era used a descriptive analysis method using the Concentration Ratio (CR), Herfindahl Hirschman Index (HHI), and Minimum Efficient Scale (MES) approaches. As for the results, the profitability of CR 4 commercial banks in Indonesia in 2018 was 0.5855, 2019 was 0.6142, 2020 was 0.4809, and 2021 was 0.4621, so it is included in the loose oligopoly market structure category. The Hirschman Herfindahl market share index for profitability in 2018 was 0.1056, 2019 was 0.1109, 2020 was 0.1219, and 2021 was 0.1243, so the market structure is an oligopoly. The Minimum Efficient Scale score in 2018 was 0.1879, 2019 was 0.1937, 2020 was 0.1655, and 2021 was 0.1609, so that barriers to market entry for the banking industry in Indonesia are still relatively high. The COVID-19 pandemic has resulted in a weakening of market concentration and market barriers. For further research, it should be possible to use market structure measurements and other indicators. Apart from that, it is also necessary to link the existing market structure with its impact on commercial bank customers, so that the actions taken do not harm small scale commercial banks and their customers.

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