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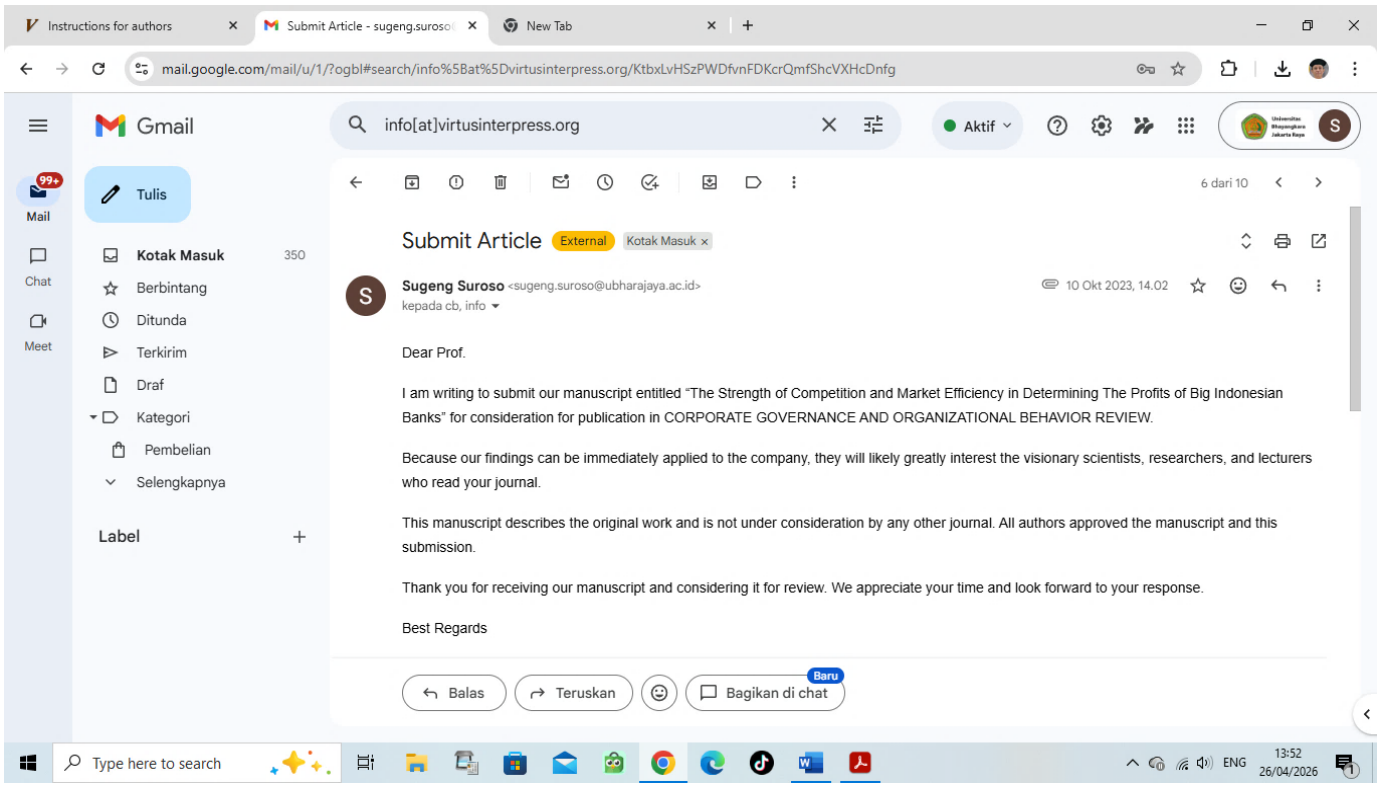

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THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING THE PROFITS OF BIG INDONESIAN BANKS

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ABSTRACT

Paying attention to developments in market competition, efficiency and banking profitability is very important because it will update industry information so that it can be utilized by the EWS (early warning system). Market competition is important in business management, so this research is very interesting for the public. This research aims to determine how the strength of competition, differentiation strategy, efficiency and company size positively synergize banking profitability at

large banks in Indonesia. The theoretical basis for problem-solving will use Organizational Industry thinking, which focuses on the SCP-ESH theory. The research object uses 12 samples of conventional banks in Indonesia, which are included in the top 10 banking asset categories during 2017-2021 (quarterly data). The analysis tool uses Static Panel Data Regression Analysis. A positive synergy exists between market share and operational cost management efficiency and the intermediation function on banking profitability. However, company size has a negative synergy on banking profitability.

Keywords: market share, market competition, efficiency, profitability, big banks.

JEL : M21,G10,G21,G24,G31

Authors' individual contribution: Conceptualization — SS and CMFM; Methodology — SS and CMFM.; Validation — SS and CMFM.; Formal Analysis — SS and CMFM.; Investigation — SS and CMFM.; Resources — SS and CMFM.; Data Curation — SS and CMFM.; Writing — Original Draft — SS.; Writing — Review & Editing — SS and CMFM.; Visualization — SS.; Supervision — CMFM.; Project Administration — SS and CMFM.

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INTRODUCTION

Competition, efficiency, and profitability in the banking sector have become essential aspects that require more attention. Efficiency is the best alternative to maintain banks' existence amid tough competition. Furthermore, efficiency can result in more feasible quality and price of banking products so that the banks will obtain sufficient profits to enhance stability through bank capital adequacy. For this reason, Berger and Young (1997) suggested that they should be seen from a micro and macro perspective.

From a micro perspective, Weill (2003) argued that banks should ensure efficiency in all operations. Inefficient banks will likely exit the market because they no longer provide competitive prices, products, and service quality. Meanwhile, from a macro perspective, an efficient banking industry will lead to lower financial intermediary costs and higher financial system stability. With high efficiency, banks can allocate their financial resources more effectively for economic growth.

Based on data for 2017-2021, there was significant asset growth in the Indonesian banking sectors. However, asset distribution remained concentrated. Indonesian FSA (Financial Services Authority) records show that the number of conventional banking assets from 2017 to 2021 increased significantly. In 2017, the total assets were only 7,099,564 billion Rupiahs. The total assets continued to grow until 2021, reaching 9,670,515 billion Rupiahs, an increase of 1,362 times. Asset growth per year (YoY) was always positive. Growth assets were 8.364% (average), with the largest of 10.134% (2021) and the smallest of 5.947% (2019). The market concentration rose, and the LI (lender index) decreased.

2017-2012, the market concentration index, as indicated by CR10 and CR4, increased. CR10 = 70.80% (average) and CR4 = 54.674% (average), meaning that the majority of all conventional banking assets in Indonesia (115-109 banks) were still concentrated in the large banks, where the 10 largest banks control around 70,800% of the national assets, and the 4 largest banks hold about 54.674% of the assets. Meanwhile, the LI indicator was 14.130% (average), which showed a decreasing trend—indicating that the banking sector's market power decreased due to increasingly tight market competition.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of 10 big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR (loan to deposit ratio), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660 (% (2020), and the average of 86.734%. Furthermore, ROA (return on assets) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

Competition, which aims to increase market share and generate excess profits, should promote banking efficiency and trigger innovation that yields more variety of products, lower prices, broader access to finance, and better service (Kocabay, 2009). The competence inherent among the big banks in Indonesia should also bring a positive effect toward a more efficient market. Meanwhile, the results of the previous studies tell a different story. In short, profitability as an indicator of banking performance could result from collusion in an industry or a company's differentiation and efficiency strategy. The question is, what about the banking performance of big banks in Indonesia? Is it the impact of a collusive market or efficiency?

According to Simatele (2015) and Tan (2016a), the market structure of the banking industry was monopolistic, while Gavurova et al. (2017) found that the market structure of the banking industry in the European Union until 2013 was still concentrated. Still, the market structure was negatively related to banking performance. Specifically in Serbia, Bukvic (2020) and Duranovic & Filipovic (2021) found that the banking market in Serbia is an oligopoly.

Some studies examining the relationship between market structure and profitability in commercial banks in Indonesia, such as Chaerani et al. (2019), found that market share positively affects banking profitability. This finding indicated that banking profitability is achieved because the banks can diversify their products instead of maximizing monopoly power. Meanwhile, Irawati (2017) showed that collusive behaviour in the SCP hypothesis in the national banking industry in Indonesia could not be confirmed because the coefficient of market-concentration interaction with a market share on bank performance was not positive. In this case, market share was used as a moderating variable in the relationship between market concentration and banking performance. Likewise, Nisa et al. (2019) also found evidence of collusive behaviour in the SCP hypothesis in the national banking industry in Indonesia because the coefficients of the market concentration and market-share variables on banking performance were insignificant.

As for the relationship between competition, efficiency, and profitability among Indonesian Banks, a study by Cristian et al. (2020) found that competition in the credit and deposit markets does not affect ROA and NIM. However, market competition for FBI products (fee-based income) has a negative effect on ROA and NIM. Meanwhile, Munawar (2017), from an IRF (impulse response function) analysis, found that an increasingly competitive banking industry encourages banking efficiency in Indonesia. Furthermore, Widiasari (2015) found that bank

profitability is influenced by the intensity of competition in the banking market, but high competition intensity can reduce bank profitability and stability.

Concerning how operating efficiency influences banking profitability in Indonesia, Fithriyanto (2020) found that management effectiveness in managing operating costs synergies to strengthen ROA. In contrast, according to Cristian et al. (2020), operating efficiency does not affect the ROA and NIM of Indonesian banks. Research on the effect of intermediary efficiency on profitability conducted by Douglas et al. (2020) in Brazil showed that efficiency is associated with profitability, indicating a more significant impact on ROE than ROA. The previous study conducted in Latin America (Georgios et al., 2009) found that efficiency, especially efficiency of scale, appears to be the main driving force for increasing profitability in most Latin American countries.

Concerning the influence of firm size on banking profitability, Acaravci and Calim (2013) found that large banks tend to have a high level of product diversification compared to small banks. In addition to higher diversification potential, economies of scale can also be found in large banks. Diversification reduces risk and economies of scale that lead to increased operational efficiency. Thus, firm size has a positive effect on profitability. However, according to Dietrich and Wanzenried (2009), an extensive bank can cause a negative relationship between size and profitability caused by agency costs, bureaucratic processes, and other factors. The research question in this study is: what about the big banks in Indonesia? Does competition, differentiation strategy, efficiency and firm size provide positive synergy to banking profitability.

LITERATURE REVIEW

Theoretically, the problem of the relationship between market structure and banking performance can be answered more precisely using SCP theory and its developments. According to Gilbert (1984), the SCP school (structure, conduct, and performance) views the relationship between S, C, and P attributes as linear, while the RE (relative efficiency/ESH) school views the relationship between S, C, and P attributes, not linear but causal.

The RE School refutes the SCP-theory assumption, where efficiency is seen as a key factor that makes a company's margin (performance) high so that it has the potential to increase market share. Thus, S (market structure) only sometimes significantly affects Performance. This hypothesis is supported by Demsetz (1973) in ESH theory, which states that S (market structure) is the result of the role of the level of efficiency followed by P (Performance).

The other theory is the QLH (Quiet Life Hypothesis), first proposed by Hicks (1935). QLH analyzes how market concentration relates to the company's efficiency level. With more outstanding market power, the company needs to be more efficient in performing its business activities.

(1). Market share, market concentration, and banking profitability

According to Lubis et al. (2017), dominant firms are business actors with large market shares in the industry. They act as price setters due to their considerable market power. According to Kim (2018), banks with immense market power can take more liquidity risk, thereby reducing competition, which can result in the fragility of the financial system.

Meanwhile, Relative Market Power or RMP Theory entails that companies with large market shares with differentiated products can determine output prices and generate excess profits (super regular profits). Therefore, Belkhaoui et al. (2014) confirmed that the larger the market share, the greater the funds from the public that banks can use to increase bank activities. It can eventually increase profits, for example, by increasing investment and lending. Furthermore, Ejoh and Sackey (2014) found a significant positive effect of market share on bank profitability.

(2). Lerner index and banking profitability

As for the relationship between competition and profitability, Tan (2016b) concludes that the market's competitive power is lower in a concentrated market where the total market share is concentrated in several big banks. Furthermore, Whish and Bailey (2012) found that an increasingly competitive market can lead to more minor market power in the banking sector. Marquez (2002) also found that when the competition strengthens, each bank will compete to fight for customers, and sometimes banks reduce loan requirements. Consequently, NPLs increase, and the level of efficiency declines in banks. Other efforts to attract customers are usually by offering loans with low interest, which can decrease bank efficiency.

The results of the other studies, Tan (2013) and Hope et al. (2013), found that banking competition significantly negatively affects profitability because profits from monopolies are reduced. Meanwhile, Beck (2011) suggested that competition can encourage financial inclusion, thereby expanding the bank's customer base, diversifying risks, and increasing bank profitability.

(3). Efficiency and banking profitability

The theory of profit efficiency suggests that companies that run efficiently generate excess profits (super-expected profits) Navila & Sujianto (2022). Meanwhile, according to the "efficiency hypothesis theory", companies with a higher efficiency level than their competitors (low-cost structure) can implement two strategies to maximize profits. Firstly, they can maintain the price level and firm size; secondly, they can reduce prices and expand the firm size. If they implement the second strategy, their efficiency and market share will increase, which in turn will stimulate the market penetration process. This efficiency hypothesis emphasizes operational technical efficiency, which can reduce AC (average cost) due to increased output. Some studies in the USA found that efficiency has become the dominant variable in explaining the profitability among banks in the USA (Lloyd et al., 1994).

(4). size and banking profitability

According to Sahul Hamid (2021), larger banks will benefit from economies of scale and income diversification. However, a negative relationship can also occur if the banks experience diseconomies of scale and inefficient management. Meanwhile, according to Shalit & Sankar (1977), firm size also exerts essential effects such as economies of scale, access to capital markets, profitability, diversification, regulation, company balance sheet, research and development (R&D), and technological innovation.
Research explaining the effect of firm size on profitability conducted by Astutiningsih & Baskara (2019) showed that firm size positively impacts profitability. Meanwhile, another study conducted by Asri & Suarjaya (2018) and Yusuf (2017) showed that firm size partially has no significant effect on profitability.

RESEARCH METHODOLOGY

Data and Sampling.

The sample in this study is conventional banks in Indonesia that have entered the Top 10 based on asset criteria, totalling 12 banks. We are using quarterly data for the 2012-2021 period.

Regression Model analysis.

The regression model that will be used adapts the research of Smirlock (1985), Samad (2008), Bhatti and Hussain (2010) and Jumono et al., (2018), as follows:

$$\pi_{i,t} = a_0 + a_1 MS_{i,t} + a_2 CR4_t + a_3 MSCR_{i,t} + a_4 LI_{i,t} + a_5 CIR_{i,t} +$$

$$a_6 SEFF_{i,t} + a_7 TEFF_{i,t} + a_8 Size_{it} + e_{it}$$

where, π_(i,t) is banking profitability, which is proxied by NIM (Net Interest Margin); ROA (Return on Assets); ROE (Return on Equity): Meanwhile MSi,t = Market Share of bank -i, in year t ; CR4 = Market Concentration Ratio, in year t; MSCRi,t = multiplication between MS and CR4 bank -i, in year t; LI = Lerner Index; Size= Ln(Total Assets); SEFF =Scale Efficiency; and TEFF= Technical Efficiency;

BLUE Test. The Hausman Test will give the best panel data model result between the fixed effect model and the random effect model. The BLUE test will be the next test that aims to detect whether there are multicollinearity, heteroscedasticity, and autocorrelation problems in the model.

Robust and GLS Test. After the selected model passes the BLUE Test, it will be known whether the variables in the study are free from multicollinearity, heteroscedasticity, and autocorrelation problems. If it passes, it means that the selected model is used, but if it has not passed, then a robust alternative or GLS will be used to interpret the results of the analysis and discussion.

Interpretation. The selected regression analysis model analyses and interprets the relationship between market structure and profitability. In this study, the performance will lead to hypothesis testing, which one is proven, whether the traditional hypothesis, the differentiation hypothesis or the efficiency hypothesis. For this purpose, four stages of interpretation of the regression results were carried out, namely:
A restriction is applied to test whether banks in Indonesia support the traditional SCP hypothesis. The variable coefficient MS = 0
To test whether banks in Indonesia support the differentiation hypothesis, a restriction is made: the efficiency of the market concentration variable, CRx, = 0
To test whether the banking under study supports the efficiency hypothesis, the regression is performed without restricting the MS and CRx variables being regressed together. If profit is more because it results from efficiency, then MS and CRx do not affect profit; the coefficient

CRx = 0 and the coefficient MS = 0 because the relationship between market share and concentration on profitability is false.
The MS*CR variable is used to prove further whether it is true that profit is the result of collusion. The research results of this variable are used to confirm the rejection or acceptance of the traditional hypothesis. If profit is the result of collaboration, the MS*CR coefficient > 0 (positive) means that profit sharing will increase according to the proportion of market share to industry concentration. And if collusion does not occur in an industry, then the MS*CR coefficient <= 0 (zero/negative).

The operational definitions of research variables in this study were based on modified concept definitions based on objective conditions commonly used in previous studies, of course, adapted to the banking conditions in Indonesia.

Table 1. Definition of Operating Variable, and Measurement

	Variable		**Definition/ Formula**	Notation	Direction
	Performance	Banking Profitability	▪ Net Interest Margin/Earning Assets (%) ▪ Operating Profit /Asset (%) ▪ Profit After Tax/Equities	NIM ROA ROE	
	Structure	Banking Industry Structure	▪ Asset bank-i / Total Market Assets Industry (%)	MS	+
			▪ Total Assets 4 Largest banks / Total Assets Industry (%)	CR4	+/-
			▪ (Price/unit asset-Marginal Cost)/ Price/unit asset (%)	LI	+/-
	ALMA	Operating Efficiency bank	Cost / Income Ratio (%)	CIR	+
		Capital Adequacy	Equity / Assets (%)	TETA	+
		Size of firm	Ln of Total Assets bank-i	Size	+
		Intermediary Efficiency bank	Output/Input, DEA approach	SEFF	+
			Output/Input,DEA approach	TEFF	+

RESULT

Table 2 illustrates the effect of variables of banking market structure (MS, CR4, MSCR4, & LI), variables of efficiency (CIR, TEFF & SEFF), and firm size (LnTA) on banking profitability (NIM, ROA & ROE). Overall, the results of this study indicated that banking profitability was significantly influenced by market share (MS) in a positive direction, but the coefficients of the variables concentration ratio (CR4) and Lerner index (LI) were not positive, but zero/negative.

Table 2. Result of Impact Competition and Efficiency on Banking Profitability

Variable	Banking profitability					
	NIM		ROA		ROE	
	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.
MS	0.464*** 0.000	0.448*** 0.000	0.284*** 0.0000	0.258*** 0.0000	3.429*** 0.0000	3.170*** 0.0000
CR4	-0.0034 0.216	-0.021 0.427	0.0112** 0.0301	0.011** 0.0497	-0.140*** 0.0086	-0.136*** 0.007
MSCR4	-0.847*** 0.000	-0.81*** 0.001	-0.390*** 0.0000	-0.324*** 0.0000	-4.756*** 0.0000	-4.023*** 0.0000
LI	0.0231 0.956	-1.140 0.733	-0.468*** 0.0000	-0.479*** 0.0000	-3.028*** 0.0003	-3.556*** 0.0000
CIR	-0.033*** 0.000	-0.038*** 0.000	-0.074*** 0.0000	-0.074*** 0.0000	-0.3182*** 0.0000	-0.332*** 0.0000
SEFF	0.0009 0.773		0.0023*** 0.0000		0.0307*** 0.0000	
TEFF		0.006*** 0.006		0.0016*** 0,0001		0.0296*** 0.0000
Size (LnTA)	0.394* 0.051	0.334* 0.078	-0.456*** 0.0000	-0.501*** 0.0000	-3.970*** 0.0000	-4.781*** 0.0000
C	1.3940	2.1912	15.99***	16.976***	117.40***	134.39***
	0.6764	0.4623	0.0000	0.0000	0.0000	0.0000
R^2	0.268	0.272	0.964	0.9633	0,887	0.884
Adjusted R^2	0.257	0.262	0.963	0.9627	0.885	0.882
Pr (Rn^2, F-Stat)	0.000	0.000	0.000	0.0000	0.000	0.000
Observation	480	480	480	480	480	480
Panel Model:	**LS, Ro**	**LS, Ro**	**EGLS**	**EGLS**	**EGLS**	**EGLS**

Informations: LS,Ro = Least Squre Robust, EGLS = EGLS (Cross-section SUR);
, **, * indicates significance at the 10%, 5% and 1% levels*

Variables of operating cost efficiency proxied by CIR (cost to income ratio) had a negative (significant) effect. Meanwhile, the banking intermediary-efficiency variables proxied by scale efficiency (SEFF) and technical efficiency (TEFF) have a positive (significant) impact on banking profitability. Firm size even had a significant negative effect on banking profitability.

The statistical analysis results above can be interpreted from an industrial economic perspective. Based on the result, Indonesia's big banks (top ten assets) have played an efficient intermediary function. Nevertheless, they face disruptions from diseconomies of scale.

DISCUSSION

Banking efficiency in this study describes the behaviour of bank management in implementing differentiation strategies, operating costs, and intermediation banking efficiency. Statistically, banking efficiency as a successful result of the differentiation strategies is shown by a positive coefficient on the MS (market-share) variable. As for the implementation of intermediation, efficiency is indicated by a positive coefficient on the TEFF (technical efficiency) and SEFF (scale efficiency) variables. Meanwhile, the negative coefficient of variable CIR (cost-to-income ratio) indicates the operating cost efficiency concerning NIM, ROA, and ROE (banking profitability).

1.Impact market share and market concentration on banking profitability.

The success of the banking differentiation strategy, which is indicated by market share that positively synergizes with banking profitability, becomes the initial indication to accept the ESH (Efficiency Structure Hypothesis) concept. Furthermore, more evidence is needed to get the ESH's validity convincingly. This study showed that banking performance results from market efficiency instead of market collusion. Thus, whether positive or not, the MSCR4 coefficient should be further checked. If the MSCR4 coefficient is positive, the market is collusive, but if not, it works efficiently.

From the results of this research analysis, the MSCR4 coefficient was zero and negative, not positive. This result means that the market is efficient. This finding strengthens acceptance of the ESH concept because banking profitability results from the role of an efficient market, not because of a collusive market. The market concentration formed by big banks in Indonesia is only an efficient collection of market shares, reflecting the differentiation strategy's success. With such a strategy, they naturally earn excess profit.

These findings support Chaerani et al. (2019), who found that market share positively affects banking profitability, proving that banking profitability is not achieved by maximizing monopoly power but rather by a bank's ability to diversify products. In addition, according to Belkhaoui et al. (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between market share and bank profitability. Supports the findings of Nisa et al. (2019) and Irawati (2017) that collusive behaviour in the SCP hypothesis in the national banking industry in Indonesia is not confirmed.

2. *Impact Lerner Index on banking profitability*

The results of this study showed that market -concentration has no positive but negative effect on banking profitability. This negative effect shows that the market competition level and banking profitability move in the opposite directions. The sharper the market concentration decreases, the higher the market competition level, as indicated by a decreasing LI (lerner index). However, banking profitability tends to increase. Statistically, this can be seen in the negative coefficient of LI (Lerner index) on ROA and ROE.

This finding provide support for Zhao et al. (2022), Sahul Hamid & Ibrahim (2021), Căpraru et al., (2020) Ju & Tang, (2022), Li & Li (2022) and Apriadi et al., (2017). Competition strengthens financial performance and enhance service and technology facilities that in turn increases bank profitability. However, this result is in contrast with Khattak & Ali (2021), Rakshit (2022), and Rakshit & Bardhan (2022) that indicated higher competition results in lower profitability. Furthermore, Tan et al., (2017) found that in commercial banks in China, competition tends to reduce financial performance as measured by profitability.

3. *Impact Efficiency towards banking profitability*.

The results of this study indicate that banking efficiency synergies to strengthen banking profitability. Efficiency comes from success in carrying out the differentiation strategy, intermediary function, and operating costs. Efficiency is resulted from the success in the differentiation strategies as explained in impact market share, and market concentration towards banking profitability.

The success of efficiency in managing operating costs strengthens banking profitability. The statistical evidence can be seen in the negative CIR coefficient, which shows that the lower the CIR, the more efficient the bank's operational financing. Thus, efficiency provides positive synergy to banking performance.

The banks managed to serve the banking intermediary function. The statistical evidence can be seen in the positive coefficients of TEFF and SEFF. This shows if the score-TEFF and score-SEFF increase, the efficiency of bank intermediation increases, thereby providing positive synergy in banking profitability as well.

The findings of the negative effect of CIR on banking profitability, which shows that profitability is affected by operating cost efficiency, support Tan et al., 2017(b), and Chamberlain et al., (2020) who found that low CIR reflects an increase in profit margin. Meanwhile, a high CIR indicates that a bank is inefficient or has poor management quality.

The findings of the positive influence of technical efficiency (TEFF) and scale efficiency (SEFF) on banking profitability support the efficiency hypothesis as stated by Lloyd et al, 1994. The finding also supports the findings of Georgios et al., (2009), which indicated banking efficiency (especially scale efficiency) appears to be the main driving force for increasing profitability in most Latin American countries.

4. *Impact of firm size on banking profitability*.

The results of this study showed that the larger firm size actually results in decreased banking profitability. Statistically, this can be seen in the negative coefficient of the firm size variable (lnTA). This is an indication of “diseconomies of scale”, especially in terms of capacity. The size of the firm that has exceeded the optimal point of economies of scale can create diseconomies of scale. A continuously expanding size of the banks creates inefficiency, indicated by an increase in AC & MC (average cost and marginal cost) so that profits/unit assets decrease.

The findings of this study provide support for Lingerih Zerihun (2021), which showed a negative and significant effect of bank size on ROA, and Lestari (2021), bank size has a negative effect on ROE. However, the result of this study contradicts the findings of Budhathoki et al., (2020) that showed increasing assets can provide benefits for banks to expand and develop more variety of products so that banks can benefit from a scale and scope economy. Budhathoki's research is in line with Mishra et al (2021), Hutauruk et al (2022), Takarini & Pratiwi (2022), Sahyouni & Wang (2018), and Ruslan et al (2019) which proves a positive effect of bank size on ROA.

CONCLUSION

The results of the analysis in this study show that the ESH concept is valid and applicable to the big banks in Indonesia. The findings support the validity of ESH theory. First, there was a positive effect of market share on profitability. The larger market share compared to other banks is due to the success of the efficiency in creating differentiation strategies in synergy to strengthen profitability. Thus, the market concentration is actually a collection of market shares

from efficient market behavior, not from collusion. Such market concentration can become a market power industry.

Second, a decreased market concentration can be interpreted as increased competition that leads to a decrease in banking profitability, and vice versa. Statistically, this can be seen from the positive coefficient of the MS variable and the negative coefficient of the LI, as an indicator showing the positive influence of market share (MS), and the negative effect of the Lerner index (LI) on bank profitability.

In this study, it is also proven that banking profitability is influenced by efficiency which comes from operating cost management and the intermediary function. Statistically, this can be seen from the negative coefficient of CIR and the positive coefficient of the TEFF and SEFF variables on banking profitability (NIM, ROA, and ROE). However, banks were detected to experience diseconomies of scale which can increase the marginal cost (MC) and average cost (AC). Consequently, profit/unit assets decline. The increase in the firm size actually has a negative effect on banking profitability.

REFERENCES

1. Asri, N. N., & Suarjaya, A. A. (2018). Pengaruh Dana Pihak Ketiga, Capital Adequacy Ratio, Likuiditas, and Ukuran Perusahaan Terhadap Profitabilitas. E-Jurnal Manajemen Unud, Vol. 7, No. 6, 3384-3411.
2. Astutiningsih, K. W., & Baskara, I. G. (2019). Pengaruh CAR, Dana Pihak Ketiga, Ukuran Bank, and LDR terhadap profitabilitas Bank Perkreditan Rakyat. E-Jurnal Manajemen Universitas Udayana, Vol. 8, No. 3, 1608 - 1636.
3. Acaravci, S.K. and Çalim, A. E. (2013) Turkish Banking Sector's Profitability Factors. International Journal of Economics and Financial Issues, 3(1).
4. Apriadi, Intan et all. 2017. "Kompetisi and Stabilitas perbankan di Indonesia". Jurnal Manajemen IPB. 21 (01), 33-54.
5. Allen N. Berger & Loretta J. Mester, 1997. "Efficiency and productivity change in the U.S. commercial banking industry: a comparison of the 1980s and 1990s," Working Papers 97-5, Federal Reserve Bank of Philadelphia.
6. Bhatti GA, Hussain H (2010) Evidence on structure conduct performance hypothesis in Pakistani commercial banks. Int J Bus Manag 5(9):174
7. Bain, J. S. (1951). Relation of profit rate to industry concentration: American manufacturing, 1936–1940. The Quarterly Journal of Economics, 65(3), 293-324.
8. Beck, T., De Jonghe, O., and Schepens, G. 2011. "Bank Competition and Stability: Cross-country Heterogenity." Working Papers of Faculty of Economics and Business Administration, Ghent University, Belgium.
9. Belkhaoui, S., Lakhal, L., Lakhal F., and Hellara S. 2014. "Market Structure, Strategic Choices and Bank Performance: a Path Model", Journal of Managerial Finance, Vol. 40, No. 6, pp. 538- 564.
10. Berger, A. N., & Mester, L. J. (1997). Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions? Journal of Banking and Finance, 21, 895-947. http://dx.doi.org/10.1016/S0378-4266(97)00010-1.

11. Berger, A.N. 1995. “The Profit Structure Relationship in Banking Test of Market Power and Efficient Structure Hypothesis.” Journal of Money, Credit, and Banking, Vol.27, pp. 404- 431
12. Budhathoki, P. B., Rai, C. K., Lamichhane, K. P., Bhattarai, G., & Rai, A. (2020). The Impact of Liquidity, Leverage, and Total Size on Banks’ Profitability: Evidence from Nepalese Commercial Banks. Journal of Economics and Business, 3(2). https://doi.org/10.31014/aior.1992.03. 02.219
13. Bukvic, Rajko M. 2020. Concentration and Competition in Serbian Banking Sector in the Period 2016- 2018. Economica, 66 (2), 17 – 35
14. Căpraru, B., Ihnatov, I., & Pintilie, N.-L. (2020). Competition and diversification in the European Banking Sector. Research in International Business and Finance, 51, 100963. https://doi.org/10.1016/j.ribaf.2018.09.014
15. Chaerani, N., Cotoro, M., & Achmad, D. (2019). Struktur pasar and kinerja: Studi kasus pada bank umum di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375–384. https://doi.org/https://doi.org/10.36226/jrmb.v4i3.276
16. Chamberlain, T., Hidayat, S., & Khokhar, A. R. (2020). Credit risk in Islamic banking: evidence from the GCC. Journal of Islamic Accounting and Business Research, 11(5), 1055-1081. https://doi.org/10.1108/JIABR-09-2017-0133
17. Cristian, E., Leonarsan, W., & Kim, S. S. (2020). The impacts of compe[1]tition, efficiency, and risk towards bank’s performance in Indonesia. Jurnal Keuangan and Perbankan, 24(4), 407-419. https://doi.org/10.26905/jkdp.v24i4.4903
18. DePamphilis, D. M. (2019). The Regulatory Environment. In Mergers, Acquisitions, and Other Restructuring Activities (pp. 35–63). Elsevier. https://doi.org/10.1016/B978-0-12- 815075-7.00002-4
19. Dietrich, A., & Wanzenried, G. (2009, April). What determines the profitability of commercial banks? New evidence from Switzerland. In 12th conference of the Swiss society for financial market researches, Geneva (Vol. 2, p. 39).
20. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348
21. Douglas JosÃ© MendonÃ§a, JÃºlia Alves e Souza, Francisval de Melo Carvalho, Gideon Carvalho de Benedicto, 2020. "Relationship between Efficiency and Profitability in Banks of Brazil," Journal of Finance and Economics Research, Geist Science, Iqra University, Faculty of Business Administration, vol. 5(1), pages 1-17, March.
22. Duranovic, Gordana and Filipovic, Sanja. 2021. The Impact of Market Concentration on Competitiveness of the Banking Sector in Serbia. Industrija, 49 (3/4), 25 - 454.
23. Ejoh, N.O., and Sackey, J.A. 2014. “The Impact of Market Share on Deposit Money Banks’ Profitability in Nigeria.” European Journal of Business and Management, Vol.6, No.19.
24. Fithriyanto, nur, The Determinant Factors of Bank Profitability in Indonesia (September 3, 2020). Available at SSRN: https://ssrn.com/abstract=3736551 or http://dx.doi.org/10.2139/ssrn.3736551

25. Gavurova, Beata et. al. 2017. The Structure – Conduct – Performance Paradigm in the European Union Banking. Economics and Sociology, 10 (4), 99 - 112.
26. Georgios E. Chortareas & Jesus G. Garza-Garcia & Claudia Girardone, 2009. "Banking Sector Performance in Latin America: Market Power versus Efficiency," Working Papers 0905, Department of Accounting, Economics and Finance, Bristol Business School, University of the West of England, Bristol.
27. Ha, V. D. (2020). Does bank capital affect profitability and risk in Vietnam? Accounting, 6(3), 273–278. https://doi.org/10.5267/j.ac.2020.2.00 8
28. Hicks, J.R. (1935), "Annual Survey of Economic Theory: The Theory of Monopoly." Econometrica.
29. Hutauruk, C. M., Muchtar, S., & Paragina, A. B. (2022). Pengaruh Manajemen Risiko Kredit and Faktor Spesifik Bank terhadap Kinerja Keuangan Bank Konvensional di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–16. https://doi.org/10.31932/jpe.v7i3.211 0
30. Irawati, D. (2017). Struktur pasar, efisiensi, and kinerja perbankan Indonesia (Doctoral dissertation, Universitas Gadjah Mada).
31. Ju, S., & Tang, H. (2022). Competition and operating efficiency of manufacturing companies in E-commerce environment: Empirical evidence from Chinese garment companies. Applied Economics, 0(0), Article 0. https://doi.org/10.1080/00036846.2022.2102126
32. Jumono, S., Sugiyanto, & Mala, C. M. F. (2019). Determinants of Profitability in Banking Industry: A Case Study of Indonesia. Asian Economic and Financial Review, 9(1), 91–108. https://doi.org/10.18488/journal.aefr.2019.91.91.108
33. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348
34. Kim, J. (2018). Bank Competition and Financial Stability: Liquidity Risk Perspective. Contemporary Economic Policy, 36(2), 337–362. https://doi.org/10.1111/coep.12243
35. Lloyd-William, D.M., Molyneux, P. & Thornton, J. 1994.Market Structure and Performance in Spanish Banking . Journal of Banking and Finance, 18(3): 433-443.
36. Lestari, H. S. (2021). The Effect of Liquidity, Leverage and Bank's Size on Bank's Profitability of Indonesian Listed Bank. Jurnal Manajemen, 12(2), 26. https://doi.org/10.32832/jmuika.v12i2.3946
37. Lingerih Zerihun, H. (2021). Effect Of Bank Specific Factors On Profitability Of Commercial Banks In Ethiopia. Journal of Finance and Accounting, 9(2), 23. https://doi.org/10.11648/j.jfa.2021090 2.11
38. Lubis, A. F., Anggraini, A. maria T., Toha, K., Kagramanto, L. B., Hawin, M., Sirait, N. N., Prananingtyas, P., Sukarmi, Maarif, S., & Silalahi, U. (2017). Hukum Persaingan Usaha.
39. Marquez, R. (2002). Competition, adverse selection, and information dispersion in the banking industry. Rev. Financial Stud, 901–926.
40. Mishra, A. K., Kandel, D. R., & Aithal, P. S. (2021). Profitability in Commercial Bank – A Case Study of Nepal. International Journal of Case Studies in Business, IT, and Education, 5(1), 61–77. https://doi.org/10.47992/ijcsbe.2581.6 942.0101

41. Munawar, Yusuf. 2017. “Kompetisi And Efisiensi Bank Umum Di Indonesia Periode 2008-2013”.Bina ekonomi Center for Risk Management Studies Indonesia. 21 (1), 1-12.
42. Navila, N., & Sujianto, A. E. (2022). Pengaruh Modal Pinjaman and Volume Usaha Terhadap Sisa Hasil Usaha Dengan Total Aset Sebagai Variabel Intervening. JAE (Jurnal Akuntansi Dan Ekonomi), 7(3), 134-144. https://doi.org/10.29407/jae.v7i3.18310
43. Nisa, C., Mukri, C., & Djamil, A. (2019). Struktur Pasar And Kinerja: Studi Kasus Pada Bank Umum Di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375 - 384. DOI: https://doi.org/10.36226/jrmb.v4i3.276
44. Rakshit, B. (2022). Does Bank Competition Necessarily Contribute to Higher Profits? The Case of Indian Banking. Asian Economics Letters, 3(3), 35526. https://doi.org/10.46557/001c.35526
45. Rakshit, B., & Bardhan, S. (2022). An empirical investigation of the effects of competition, efficiency and risk-taking on profitability: An application in Indian banking. Journal of Economics and Business, 118, 106022. https://doi.org/10.1016/j.jeconbus.2021.106022
46. Sahyouni, A., & Wang, M. (2018). The Determinants of Bank Profitability: Does Liquidity Creation Matter? SSRN Electronic Journal, 2(2), 61– 85. https://doi.org/10.2139/ssrn.3125714
47. Samad A (2008) Market structure, conduct and performance: evidence from the Bangladesh Banking Industry. J Asian Econ 19(2):181–193
48. Shalit, S. S., & Sankar, U. 1977. The Measurement of Firm Size. The Review of Economics and Statistics. 59(3): 290-298
49. Sahul Hamid, F., & Ibrahim, M. H. (2021). Competition, diversification and performance in dual banking: A panel VAR analysis. Economic Research-Ekonomska Istraživanja, 34(1), 194–220. https://doi.org/10.1080/1331677X.2020.1782242
50. Simatele, M. (2015). Market Structure and Competition in the South African Banking Sector. Procedia Economics and Finance, 30(15), 825–835. https://doi.org/10.1016/s2212- 5671(15)01332-5.
51. Takarini, N., & Pratiwi, N. D. (2022). Analisis Faktor-Faktor yang Mempengaruhi Profitabilitas pada Perusahaan Subsektor Makanan and Minuman yang Terdaftar di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–13. https://doi.org/10.31932/jpe.v7i3.190 2
52. Tan, A. and Floros, C. 2013. “Market Power, Stability and Performance in the Chinese Banking Industry.” Journal of Economic Issues, Vol. 18, No. 2, pp. 65-90.
53. Tan, Y. (2016a). Conclusion. In Efficiency and Competition in Chinese Banking (pp. 167–176). Elsevier. https://doi.org/10.1016/b978-0-08- 100074-8.00007-8
54. Tan, Y. (2016b). Literature Review on Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 67–91). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00004-2
55. Tan, Y. (2016c). Theory of Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 45–66). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00003-0

56. Tan, Y., Floros, C., & Anchor, J. (2017a). The profitability of Chinese banks: Impacts of risk, competition and efficiency. Review of Accounting and Finance, 16(1), 86– 105. https://doi.org/10.1108/RAF-05-2015-0072
57. Tan, Y., Floros, C., & Anchor, J. (2017b). The profitability of Chinese banks: Impacts of risk, competition and efficiency. Review of Accounting and Finance, 16(1), Article 1. https://doi.org/10.1108/RAF-05-2015-0072
58. Tan, Y.; Floros, C. Risk, Competition and Efficiency in Banking: Evidence from China. Glob. Financ. J. 2018, 35, 223–236. [CrossRef]
59. Tang, H.W., & Chen, A. (2020). How do market power and industry competition influence the effect of corporate governance on earnings management? Quarterly Review of Economics and Finance, 78, 212–225.
60. Widiasari, F. W., & PANGESTUTI, I. R. D. (2015). Pengaruh Struktur Pasar, Kompetisi, Diversifikasi, Kapitalisasi, Risiko Kredit, and Size Terhadap Profitabilitas Bank (Doctoral dissertation, UNDIP: Fakultas Ekonomika and Bisnis).
61. Whish, Richard and Bailey, David. (2012). Competition Law Seventh Edition. New York: Oxford University Press
62. Yusuf, M. (2017). Dampak Indikator Rasio Keuangan terhadap Profitabilitas Bank Umum Syariah di Indonesia. Jurnal Keuangan and Perbankan, Vol. 13, No. 2, 141-151.
63. Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. Journal of International Money and Finance, 122, 102552. https://doi.org/10.1016/j.jimonfin.2021.102552.

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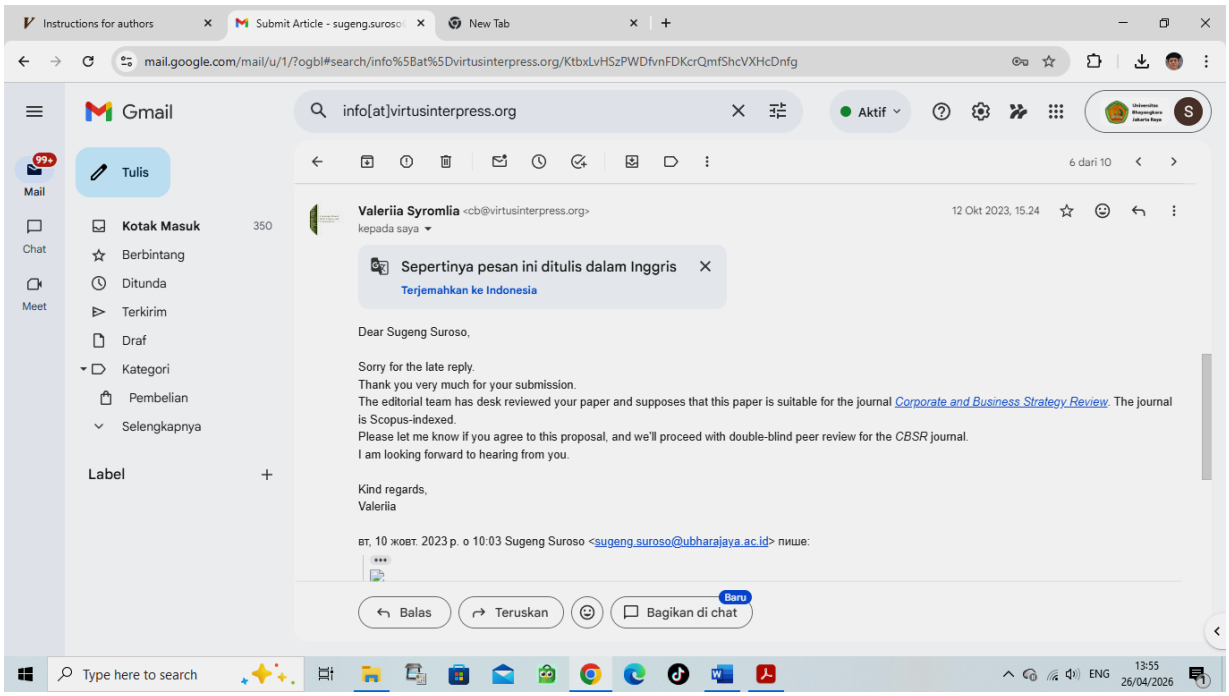

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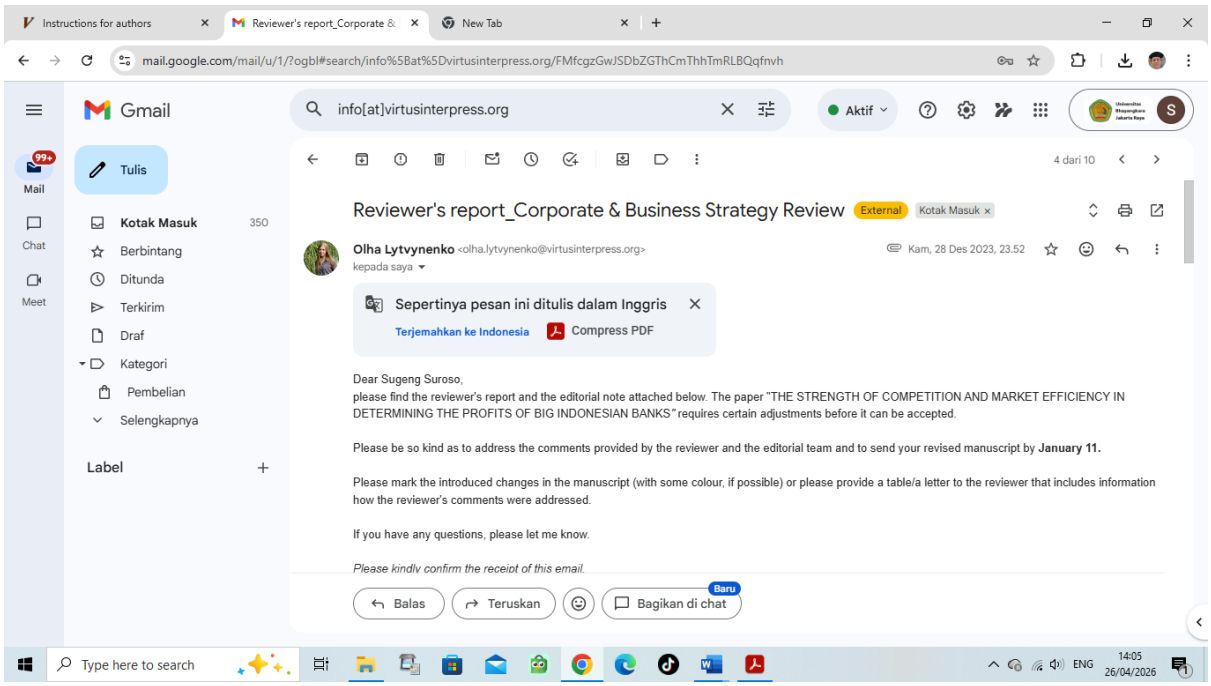

Editorial Note

1) The editorial team of the journal suggests to use the following title of the article: "THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING THE PROFITS OF BIG BANKS" in order to increase the readability of your paper and the citation rate.

2) In order to enhance the readability of the manuscript, please add in the section «Abstract» a short description of the main findings of the paper, conclusion, relevance of the paper. The appropriate length would be 150-200 words.

3) It is preferable that the „Abstract" contains 1-2 in-text citations of the sources mentioned in the list of references that the research is based on or that the research contributes to.

4) Each section and subsection should be numerated.

5) In the Introduction, is it recommended to indicate literature gap(s), research aim(s) and question(s), the theoretical/conceptual framework applied, relevance and significance of the study, research methodology used, main findings/contributions.

6) In the "Introduction" section please add one more paragraph describing in detail the general structure of the paper. *(e.g. The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research on...)*

7) As for the section "Literature Review", it is important to add a few more references of the recent years (20192023) in order to make the paper more citable.

8) "Research Methodology" section should also contain description of alternative methods that would be suitable for conducting the research.

9) We recommend specifying more deeply why this paper is important for future research (section "Conclusion") and whether there are some limitations of the research.

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Reviewer's Report

Journal:	Corporate & Business Strategy Review		
Title of the paper:	THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING THE PROFITS OF BIG INDONESIAN BANKS.		
Date of the Review completion:	28 December 2023		
Please choose options that can characterize the paper:			
Originality and importance of the paper to the field of research:	Low		
The structure of the paper:	Needs to be slightly corrected		
Please tick relevant for the abstract	The abstract provides an accurate summary of the manuscript (including aim, methods, key results and relevance of the study)	☐yes	☒ no
	The abstract contains unnecessary information (please explain)	☐yes	☒ no
	Is the abstract of appropriate size? (150-200 words)	☒yes	☐ no
Please tick relevant for the introduction	Does the introduction identify the purpose of the paper or hypothesis and set the paper within the broader research perspective?	☒yes	☐ no
	The introduction puts the rest of the paper into perspective (explains paper's structure)	☐yes	☒ no
Methods used in the paper:	Suit the aim of the research		
	Does the methodology part allow replicating or reproducing results (to check them or to perform a similar study)?	☒yes	☐ no
	If empirical study: is the sample size large enough and was selected in an appropriate way (leave blank if not acceptable)?	☐yes	☒ no
Results and discussion:	Are the interpretations provided by the author(s) supported by the findings obtained in the study?	☐yes	☒ no
Are there any figures or tables that have to be corrected / deleted?	No, everything is fine		
	Are the figures and/or tables clear and you can understand their essence?	☒yes	☐ no
Conclusions:	Should be revised		
	Conclusions are supported by the findings, analysis and interpretations of the author(s)	☒yes	☐ no
	Does the conclusion section repeat the abstract of the paper?	☐yes	☒ no
References	Are all references in the list used in the paper?	☐yes	☒ no
	Are the number, relevance and "age" of the citations appropriate?	☐yes	☒ no

Language of the paper:	Is low, majour revisions needed
Length of the paper:	Is appropriate
What is your main verdict?	Accept paper with majour revisions
Field for the comments of the reviewer:	

The study is quite relevant and speaks volume about the profits determined by the Indonesian Banks. The analysis is great and well charted in figures and tables. This paper can further be enhanced to a more model based paper in near future. The paper needs serious proof reading.

Abstract:

- The abstract is too short and does not represent the whole intent of the paper.
- The time lapse of the sample stated in the abstract is different from the one stated in the data sampling see Pages (1&5)

Introduction:

Although the introduction states the intent of the research it lacked the following:

- Proper citation to the findings based on the data collected by researcher, between pages 1&2.
- The variables were identified without structure, for example which will affect which and in what manner. For example; X is an independent, moderating, or mediating that will affect Y the dependent positively, negatively, will not (null), or even just testing the relations. This kind of explanation did not exist.
- The introduction did not provide significance to the study.

Literature Review:

- Fundamental theoretical citations were outdated.
- In the previous case, when citing a theory, we need to find a recent paper (piece of work) that has based its methodology on the same theory to ensure its validity, and that it is not outdated. Then you can cite the theory in the newer citation. for example, Gilbert (1984) cited in XYZ (2015).
- The literature did not provide gap of research. It could be the sector itself.
- No formal Hypothesis could be found.
- A conceptual diagram would have added depth to the paper.

Research Methodology:

- What is the source of data: company records, survey analysis?
- The illustration of the regression model should be revised and the reason behind using this method was not to be found.
- The citations are not correct see page (5) citation to BLUE test.
- The HOW for all tests is found but not the WHY.
- The section needs to be revisited and arranged in a scientific manner.
- The only thing that was clear is the operational definition, I advise the researcher to write the section and analyze it in the same manner.

Results:

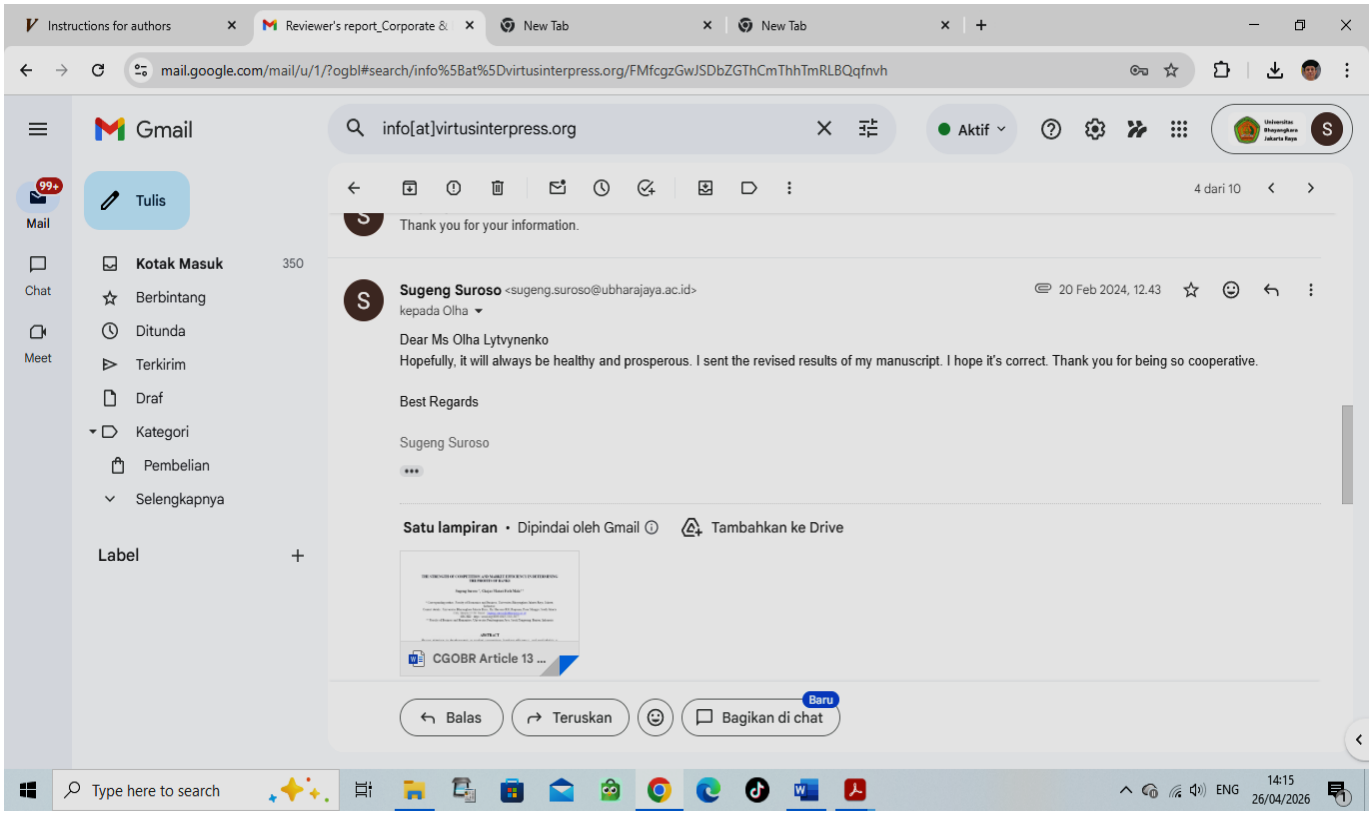
The statistical results are not correctly represented in terms of:

- What is the type of software used to get these results.
- The type of time line: cross sectional, multiple cross-sectional, or longitudinal.
- Did you have any intervention as a researcher in the process of the research?
- Where there any special circumstances (type of environment) when conducting the research? What is the comparison reference?

Discussions:

- Missing formal hypothesis or even the part of the regression model that represents each relation. Citations in discussions are not represented in literature.
- When linking findings to previous work, the paper needs to be stated in the literature first. This didn't happen.
- New citations were listed in the discussions with no apparent location in the literature.

4. Bukti revisi pertama dan artikel yang di *resubmit*



Bukti Hasil Perbaikan Artikel

THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING THE PROFITS OF BANKS

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ABSTRACT

Paying attention to developments in market competition, banking efficiency, and profitability is very important because it will update industry information so that it can be utilized by the EWS (early warning system). Market competition is important in business, so this research is interesting for the public. This research aims to find out the impact of competition and efficiency provides positive synergy on banking profitability. The theoretical basis for problem-solving will use Industrial Organization Thinking, which focuses on the SCP-ESH theory

(Abbas & Sheikh, 2023). The research object uses 12 samples of conventional banks in Indonesia, which are included in the top 10 categories of a set of banks during 2012–2021 (quarterly data). The analysis uses panel data regression and statistical analysis. From the research results, it was found that there is a positive synergy between market spread operational cost management efficiency and the intermediation function in banking profitability. However, company size has a negative impact on banking profitability. This research is relevant to the research of Gavurova et al. (2017), who found that the market structure of the banking industry in the European Union was still concentrated. However, market structure is negatively related to banking performance.

Keywords: market share, market competition, efficiency, profitability, big banks.

JEL : M21,G10,G21,G24,G31

Authors' individual contribution: Conceptualization — SS and CMFM; Methodology — SS and CMFM.; Validation — SS and CMFM.; Formal Analysis — SS and CMFM.; Investigation — SS and CMFM.; Resources — SS and CMFM.; Data Curation — SS and CMFM.; Writing — Original Draft — SS.; Writing — Review & Editing — SS and CMFM.; Visualization — SS.; Supervision — CMFM.; Project Administration — SS and CMFM.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Competition, efficiency, and profitability in the banking sector are important aspects that need more attention. Efficiency is the best alternative to maintain the existence of banks amidst intense competition (Begum et al., 2023; Keqa, 2021). Apart from that, efficiency can also produce more appropriate quality and prices of banking products so that banks will obtain sufficient profits to increase stability through bank capital adequacy. Therefore, Berger and Mester (1997) suggest looking at it from a micro and macro perspective.

Based on data for 2017-2021, there was significant asset growth in the Indonesian banking sectors. However, asset distribution remained concentrated. Indonesian FSA (Financial Services Authority) records show that the number of conventional banking assets from 2017 to 2021 increased significantly. In 2017, the total assets were only 7,099,564 billion Rupiahs. The total assets continued to grow until 2021, reaching 9,670,515 billion Rupiahs, an increase of 1,362 times. Asset growth per year (YoY) was always positive. Growth assets were 8.364% (average), with the largest of 10.134% (2021) and the smallest of 5.947% (2019). The market concentration rose, and the LI (lender index) decreased.

2017-2021, the market concentration index, as indicated by CR10 and CR4, increased. CR10 = 70.80% (average) and CR4 = 54.674% (average), meaning that the majority of all conventional banking assets in Indonesia (115-109 banks) were still concentrated in the large banks, where the 10 largest banks control around 70,800% of the national assets, and the 4 largest banks hold about 54.674% of the assets. Meanwhile, the LI indicator was 14.130%

(average), which showed a decreasing trend—indicating that the banking sector's market power decreased due to increasingly tight market competition.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of 10 big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR (loan to deposit ratio), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660 (% (2020), and the average of 86.734%. Furthermore, ROA (return on assets) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

This research was conducted because of gaps in previous research. Several studies have examined the relationship between market structure and profitability in commercial banks in Indonesia. For example, Chaerani et al. (2019) found that market share has a positive effect on banking profitability. These findings indicate that banking profitability is achieved because banks can diversify their products rather than maximize monopoly power. The limitation of the research conducted by Chaerani et al. (2019) is that it used data for only one year, so it only represents events over a short period. Our study will bridge this gap by expanding the research period to 5 (five) years from 2017 to 2021, resulting in a total of 480 firm-year observations. It is believed that a larger observation size will be able to produce better regression results (Heckmann et al., 2014). Research by Nisa et al. (2019) produced insignificant coefficients for the variables of market concentration and market share on banking performance, which means that there is collusive behavior in the SCP hypothesis in the banking industry.

Meanwhile, research by Ejoh and Sackey (2014) found a significant positive effect of market share on bank profitability. From this research, there are research gaps that need to be re-examined by researchers. This research is important considering the increasingly tight level of banking competition, so this research can be used as a basis for determining policies in global competition.

The research question in this study is: what about the big banks in Indonesia? Do competition, differentiation strategy, efficiency, and company size provide positive synergy to banking profitability? .

This paper is structured as follows: after the introduction in Part 1, Part 2 of this paper reviews the literature on market efficiency and competition's effects on banking profitability. Section 3 discusses the methodology used in this research. Section 4 presents the results and discussion of the findings from this research. Finally, Section 5 summarizes the findings on the impact of competition and market efficiency on large banks' profits.

2. LITERATURE REVIEW

As an industry, the analysis of individual bank behaviour and the market structure in which banks operate are intimately intertwined. The study of microeconomic banking frequently focuses on examining bank rivalry and efficiency. This research can involve bank behaviour in price competition, such as decisions on deposit interest rates and credit interest rates, in addition to the non-price competition, such as differentiation of banking products and optimization of customer service. According to Phan et al. (2019), efficiency analysis is typically linked to revenue maximization, profit maximization, and cost minimization. Many academic works discuss the relationship between the efficiency of monetary policy and its transmission mechanisms at the macroeconomic empirical level. Unfortunately, not much research explicitly examines Indonesian banking practices at the industry level, both before and after the crisis.

Bank actions, for example, those related to assessing credit output or deposit interest rates, are closely related to the type of market in which the bank functions (Sudrajat & Rosid, 2022).

There are three thoughts in analyzing the relationship between market structure and performance using the Structure Conduct Performance (SCP) paradigm (Khan & Hanif, 2019). First, the traditional hypothesis is based on the preposition which states that market concentration will encourage collusion between companies in an industry which will then increase profits. Second, the differentiation hypothesis, which is based on the proposition which states that the market share obtained is the result of product differentiation behavior carried out, and third, the efficiency hypothesis, which is based on the proposition which states that efficiency will increase market share and will ultimately increase market concentration as well. However This increase in market share and concentration is the result of efficient behavior so that ultimately it will increase profits.

Theoretically, the problem of the relationship between market structure and banking performance can be answered more precisely using SCP theory and its developments. According to Abbas & Sheikh (2023), the SCP school (structure, conduct, and performance) views the relationship between S, C, and P attributes as linear, while the RE (relative efficiency/ESH) school views the relationship between S, C, and P attributes, not linear but causal.

The RE School refutes the SCP-theory assumption, where efficiency is seen as a key factor that makes a company's margin (performance) high so that it has the potential to increase market share. Thus, S (market structure) only sometimes significantly affects Performance. This hypothesis is supported by Belkhaoui, S. at al. (2014) in ESH theory, which states that S (market structure) is the result of the role of the level of efficiency followed by P (Performance).

Another theory is QLH (Quiet Life Hypothesis), which Hicks first put forward; QLH analyzes how market concentration is related to the level of company efficiency. With greater market power, companies need to be more efficient in carrying out their business activities.

Stulz, (2019) argued that banks should ensure efficiency in all operations. Inefficient banks will likely exit the market because they no longer provide competitive prices, products, and service quality. Meanwhile, from a macro perspective, an efficient banking industry will lead to lower financial intermediary costs and higher financial system stability. With high efficiency, banks can allocate their financial resources more effectively for economic growth.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of 10 big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR (loan to deposit ratio), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660 (% (2020), and the average of 86.734%. Furthermore, ROA (return on assets) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

Competition, which aims to increase market share and generate excess profits, should promote banking efficiency and trigger innovation that yields more variety of products, lower prices, broader access to finance, and better service (Jumono at al.,2009). The competence inherent among the big banks in Indonesia should also bring a positive effect toward a more efficient market. Meanwhile, the results of the previous studies tell a different story. In short, profitability

as an indicator of banking performance could result from collusion in an industry or a company's differentiation and efficiency strategy. The question is, what about the banking performance of big banks in Indonesia? Is it the impact of a collusive market or efficiency?.

According to Simatele (2015) and Tan (2016a), the market structure of the banking industry was monopolistic, while Gavurova et al. (2017) found that the market structure of the banking industry in the European Union until 2013 was still concentrated. Still, the market structure was negatively related to banking performance. Specifically in Serbia, Bukvic (2020) and Duranovic & Filipovic (2021) found that the banking market in Serbia is an oligopoly.

As for the relationship between competition, efficiency, and profitability among Indonesian Banks, a study by Cristian et al. (2020) found that competition in the credit and deposit markets does not affect ROA and NIM. However, market competition for FBI products (fee-based income) has a negative effect on ROA and NIM. Meanwhile, Munawar (2017), from an IRF (impulse response function) analysis, found that an increasingly competitive banking industry encourages banking efficiency in Indonesia. Furthermore, Widiasari (2015) found that bank profitability is influenced by the intensity of competition in the banking market, but high competition intensity can reduce bank profitability and stability.

Concerning how operating efficiency influences banking profitability in Indonesia, Fithriyanto (2020) found that management effectiveness in managing operating costs synergies to strengthen ROA. In contrast, according to Cristian et al. (2020), operating efficiency does not affect the ROA and NIM of Indonesian banks. Research on the effect of intermediary efficiency on profitability conducted by Douglas et al. (2020) in Brazil showed that efficiency is associated with profitability, indicating a more significant impact on ROE than ROA. The previous study conducted in Latin America (Georgios et al., 2009) found that efficiency, especially efficiency of scale, appears to be the main driving force for increasing profitability in most Latin American countries.

Concerning the influence of firm size on banking profitability, Acaravci and Calim (2013) found that large banks tend to have a high level of product diversification compared to small banks. In addition to higher diversification potential, economies of scale can also be found in large banks. Diversification reduces risk and economies of scale that lead to increased operational efficiency. Thus, firm size has a positive effect on profitability. However, according to Dietrich and Wanzenried (2009), an extensive bank can cause a negative relationship between size and profitability caused by agency costs, bureaucratic processes, and other factors. The research question in this study is: what about the big banks in Indonesia? Does competition, differentiation strategy, efficiency and firm size provide positive synergy to banking profitability.

1. Efficiency towards banking profitability

According to Navila & Sujianto (2022), companies that run efficiently produce super-expected profits. Meanwhile, according to the "efficiency hypothesis theory" (Lloyd et al., 1994), companies with a higher level of efficiency than their competitors can implement two strategies to maximize profits. First, they can maintain price levels and company size; second, they can lower prices and expand the size of the company. If they implement the second strategy, their efficiency and market share will increase, which in turn will stimulate the market penetration process. This efficiency hypothesis emphasizes operational technical efficiency, which can reduce AC (average costs) due to increased output. Several studies in America found that

efficiency is the dominant variable in explaining profitability in American banks (Shanko et al., 2019).

2. Firm size on banking profitability

Research explaining the influence of company size on profitability conducted by Astutiningsih & Baskara (2019) shows that company size has a positive effect on profitability. Meanwhile, other research conducted by Asri & Suarjaya (2018) and Yusuf (2017) shows that partial company size does not have a significant effect on profitability.

According to Sahul Hamid (2021), larger banks will benefit from economies of scale and income diversification. However, a negative relationship can also occur if the bank experiences diseconomies of scale and inefficient management. Meanwhile, according to Shalit & Sankar (1977) and Khan & Hanif, (2019), company size also has important influences such as economic scale, access to capital markets, profitability, diversification, regulation, company balance sheet, research and development (R&D), and technological innovation.

3. Market share, and market concentration on banking profitability

According to Lubis et al. (2017), dominant firms are business actors with large market shares in the industry. They act as price setters due to their considerable market power. According to Kim (2018), banks with immense market power can take more liquidity risk, thereby reducing competition, which can result in the fragility of the financial system.

Meanwhile, Relative Market Power or RMP Theory entails that companies with large market shares with differentiated products can determine output prices and generate excess profits (super regular profits). Therefore, Belkhaoui et al. (2014) confirmed that the larger the market share, the greater the funds from the public that banks can use to increase bank activities. It can eventually increase profits, for example, by increasing investment and lending. Furthermore, Ejoh and Sackey (2014) found a significant positive effect of market share on bank profitability.

4. Lerner Index on banking profitability

Research by Beck (2011) suggests that competition has a positive relationship with bank profitability because it can encourage financial inclusion, thereby expanding the bank's customer base, diversifying risks, and increasing bank profitability. While the results of other studies, Tan (2013) and Hope et al. (2013) found that banking competition significantly negatively affects profitability because profits from monopoly are reduced.

In the relationship between competition and profitability, Tan (2016b) concluded that market competitiveness is lower in concentrated markets where the total market share is concentrated in a few large banks. Furthermore, Whish and Bailey (2012) found that an increasingly competitive market can lead to smaller market power in the banking sector. Marquez (2002) also found that when competition becomes tighter, each bank will compete for customers, and sometimes banks reduce loan terms. As a result, NPLs increase, and banking efficiency levels decrease. Another effort to attract customers is usually by providing loans with low interest, which can reduce bank efficiency.

Hypothesis

H1: Market efficiency, as proxied by Cost-income ratio (CIR), Scale Efficiency (SEFF), and Technical Efficiency (TEFF), has a positive impact on company profitability.

H2: Firm Size (Ln TA) has a positive impact on profitability.

H3: Strategy Differentiation as proxied by Market Share of Bank (MS), Market Concentration Ratio (CR) has a positive impact on company profitability.

H4: Lerner Index (LI) has a positive impact on company profitability.

3. RESEARCH METHODOLOGY

3.1. **Data and Sampling**.

The sample in this study are conventional banks in Indonesia that have entered the Top 10 based on asset criteria. Using quarterly data for the 2012-2021 period. Data was taken from bank financial reports published on the Financial Services Authority's (OJK) website and from various sources needed to complete this research.

3.2. Regression Model analysis**.**

The regression model that will be used adapts the research of Jumono et al., (2018), as follows:

$$\pi_{i,t} = a_0 + a_1 MS_{i,t} + a_2 CR4_t + a_3 MSCR_{i,t} + a_4 LI_{i,t} + a_5 CIR_{i,t} +$$

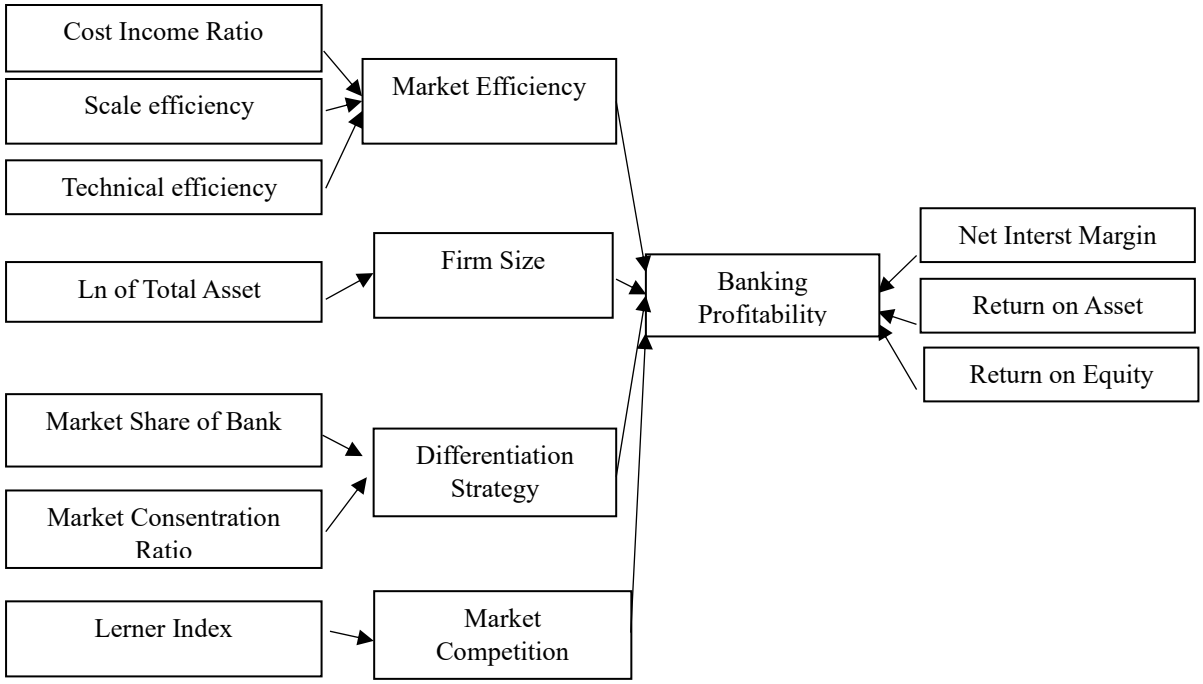
$$a_6 SEFF_{i,t} + a_7 TEFF_{i,t} + a_8 Size_{it} + e_{it}$$

where, π_(i,t) is banking profitability, which is proxied by NIM (Net Interest Margin); ROA (Return on Assets); ROE (Return on Equity): Meanwhile MSi,t = Market Share of bank -i, in year t ; CR = Market Concentration Ratio, in year t; MSCRi,t = multiplication between MS and CR bank -i, in year t; LI = Lerner Index; Size= Ln(Total Assets); SEFF =Scale Efficiency; and TEFF= Technical Efficiency;

3.3. Research Model

The research model in this study is presented as follows :

Image 2 : Research Model



Research variable

Banking Profitability as a Dependent variable proxied by NIM (Net Interest Margin); ROA (Return on Assets); ROE (Return on Equity):

Market Efficiency is the independent variable 1 with CIR (cost-to-income ratio), SEFF (scale efficiency), and TEFF (Technical efficiency).

Firm Size as Independent Variable 2 with proxy Ln of Total Assets

Differentiation strategy as independent variable 3 with MS proxy (Bank Market Share); CR (Market Concentration Ratio);

Market Competition as independent variable 4 with LI proxy (Lerner Index)

Table 1. Definition of Operating Variable, and Measurement

Variable	Proxies	Notation	Maesurement	Directions
Market Efficiency	Cost Income Ratio	CIR	Cost / Income Ratio (%)	+
	Scale Efficiency	SEFF	Output/Input, DEA approach	+
	Technical efficiency	TEFF	Output/Input,DEA approach	+
Firm Size	Size	Size	Ln of Total Assets bank-i	+
Strategy Differentiation	Market Share of bank	MS	Asset bank-i / Total Market Assets Industry (%)	+
	Market Concentration Ratio	CR	Total Assets Largest banks / Total Assets Industry (%)	+/-

Market Competition	Lerner Index	LI	(Price/unit asset-Marginal Cost)/ Price/unit asset (%)	+/-
Banking Profitability	Net Interest Margin	NIM	Net Interest Margin/Earning Assets (%)	
	Return on Asset	ROA	Operating Profit /Asset (%)	
	Return on Equity	ROE	Profit After Tax/Equities	

The analysis model chosen is a regression analysis model. This model is used because it can better interpret the relationship between the structure of the variables used as the basis for analysis. Basically, in this research, interpretation will lead to testing the hypothesis, which is proven. For this reason, four stages of interpretation of the regression results are carried out, namely:

(1) To test whether banks in Indonesia support the traditional SCP hypothesis, a limitation is applied, namely the variable coefficient MS=0

(2) To test whether banks in Indonesia support the differentiation hypothesis, we limit the efficiency of the market concentration variable, CRx=0

(3) To test whether the banks studied support the efficiency hypothesis, the regression was carried out without any restrictions on the MS and CRx variables being regressed simultaneously. If profits are greater because they are the result of efficiency, then MS and CRx do not really affect profits, the CRx coefficient = 0 and the MS coefficient = 0, because the relationship between market share and concentration on profitability is wrong.

(4) The MS*CR variable is used to further prove whether profits are the result of collusion. The research results of this variable are used to confirm the rejection or acceptance of the traditional hypothesis. If profits are the result of collusion, the MS*CR coefficient > 0 (positive) means that profit sharing will increase according to the proportion of market share to industry concentration. And if there is no collusion in an industry, the MS*CR coefficient <= 0 (zero/negative).

4. RESULT AND DISCUSSION

4.1.Result

The data processed is panel data, which is tested using the Housman Test. There are three models in panel data, namely pool less squares, fixed effect model, and random effect model. The Hausman test will provide the best panel data model results between the fixed effect model and the random effect model. From the Housman test, it was concluded that this model would be better using a fixed effect model. The BLUE test will be the next test which aims to detect whether there are multicollinearity, heteroscedasticity and autocorrelation problems in the model. From the BLUE test, the results show that there is no multicollinearity, heteroscedasticity and autocorrelation in this model.

Table 2 illustrates the effect of variables of banking market structure (MS, CR, MSCR, & LI), variables of efficiency (CIR, TEFF & SEFF), and firm size (LnTA) on banking profitability

(NIM, ROA & ROE). Overall, the results of this study indicated that banking profitability was significantly influenced by market share (MS) in a positive direction, but the coefficients of the variables concentration ratio (CR) and Lerner index (LI) were not positive, but zero/negative.

Table 2. Result of Impact Competition and Efficiency on Banking Profitability

Variable	**Banking profitability**					
	NIM		ROA		ROE	
	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.
MS	0.464*** 0.000	0.448*** 0.000	0.284*** 0.0000	0.258*** 0.0000	3.429*** 0.0000	3.170*** 0.0000
CR	-0.0034 0.216	-0.021 0.427	0.0112** 0.0301	0.011** 0.0497	-0.140*** 0.0086	-0.136*** 0.007
MSCR	-0.847*** 0.000	-0.81*** 0.001	-0.390*** 0.0000	-0.324*** 0.0000	-4.756*** 0.0000	-4.023*** 0.0000
LI	0.0231 0.956	-1.140 0.733	-0.468*** 0.0000	-0.479*** 0.0000	-3.028*** 0.0003	-3.556*** 0.0000
CIR	-0.033*** 0.000	-0.038*** 0.000	-0.074*** 0.0000	-0.074*** 0.0000	-0.3182*** 0.0000	-0.332*** 0.0000
SEFF	0.0009 0.773		0.0023*** 0.0000		0.0307*** 0.0000	
TEFF		0.006*** 0.006		0.0016*** 0,0001		0.0296*** 0.0000
Size (LnTA)	0.394* 0.051	0.334* 0.078	-0.456*** 0.0000	-0.501*** 0.0000	-3.970*** 0.0000	-4.781*** 0.0000
C	1.3940	2.1912	15.99***	16.976***	117.40***	134.39***
	0.6764	0.4623	0.0000	0.0000	0.0000	0.0000
R^2	0.268	0.272	0.964	0.9633	0,887	0.884
Adjusted R^2	0.257	0.262	0.963	0.9627	0.885	0.882
Pr (Rn^2, F-Stat)	0.000	0.000	0.000	0.0000	0.000	0.000
Observation	480	480	480	480	480	480
Panel Model:	**LS, Ro**	**LS, Ro**	**EGLS**	**EGLS**	**EGLS**	**EGLS**

Informations: LS,Ro = Least Squre Robust, EGLS = EGLS (Cross-section SUR);
, **, * indicates significance at the 10%, 5% and 1% levels*

Variables of operating cost efficiency proxied by CIR (cost to income ratio) had a negative (significant) effect. Meanwhile, the banking intermediary-efficiency variables proxied by scale efficiency (SEFF) and technical efficiency (TEFF) have a positive (significant) effect on banking profitability. Firm size even had a significant negative effect on banking profitability.

The results of the statistical analysis above can be interpreted from an industrial economic perspective. Based on the result, Indonesia's big banks (top ten assets) have played an efficient intermediary function. Nevertheless, they just face disruptions from diseconomies of scale.

Banking efficiency in this study describes the behavior of bank management in implementing differentiation strategies, operating costs, and intermediation banking efficiency. Statistically, banking efficiency as a successful result of the differentiation strategies is shown by a positive coefficient on the MS (market-share) variable. As for the implementation of intermediation

efficiency, it is indicated by a positive coefficient on the TEFF (technical efficiency) and SEFF (scale efficiency) variables. Meanwhile, the operating cost efficiency is indicated by the negative coefficient of variable CIR (cost-to-income ratio) in relation to NIM, ROA, and ROE (banking profitability).

4.2.Discussion

4.2.1 Impact Efficiency towards banking profitability.

The results of this study indicate that banking efficiency synergies to strengthen banking profitability. Efficiency comes from success in carrying out the differentiation strategy, intermediary function, and operating costs. Efficiency is resulted from the success in the differentiation strategies as explained in 4.1. Impact market share, and market concentration towards banking profitability.

The success of efficiency in managing operating costs strengthens banking profitability. The statistical evidence can be seen in the negative CIR coefficient, which shows that the lower the CIR, the more efficient the bank's operational financing. Thus, efficiency provides positive synergy to banking performance.

The banks managed to serve the banking intermediary function. The statistical evidence can be seen in the positive coefficients of TEFF and SEFF. This shows if the score-TEFF and score-SEFF increase, the efficiency of bank intermediation increases, thereby providing positive synergy in banking profitability as well.

The findings of the negative effect of CIR on banking profitability, which shows that profitability is affected by operating cost efficiency, support Tan et al., 2017(b), and Chamberlain et al., (2020) who found that low CIR reflects an increase in profit margin. Meanwhile, a high CIR indicates that a bank is inefficient or has poor management quality.

The findings of the positive influence of technical efficiency (TEFF) and scale efficiency (SEFF) on banking profitability support the efficiency hypothesis as stated by Lloyd et al, 1994. The finding also supports the findings of Georgios et al., (2009), which indicated banking efficiency (especially scale efficiency) appears to be the main driving force for increasing profitability in most Latin American countries.

4.2.2 Impact of firm size on banking profitability.

The results of this study showed that the larger firm size actually results in decreased banking profitability. Statistically, this can be seen in the negative coefficient of the firm size variable (lnTA). This is an indication of “diseconomies of scale”, especially in terms of capacity. The size of the firm that has exceeded the optimal point of economies of scale can create diseconomies of scale. A continuously expanding size of the banks creates inefficiency, indicated by an increase in AC & MC (average cost and marginal cost) so that profits/unit assets decrease.

The findings of this study provide support for Lingerih Zerihun (2021), which showed a negative and significant effect of bank size on ROA, and Lestari (2021), bank size has a negative effect on ROE. However, the result of this study contradicts the findings of Budhathoki et al., (2020) that showed increasing assets can provide benefits for banks to expand and develop more variety of products so that banks can benefit from a scale and scope economy.

Budhathoki's research is in line with Mishra et al (2021), Hutauruk et al (2022), Takarini & Pratiwi (2022), Sahyouni & Wang (2018), and Ruslan et al (2019) which proves a positive effect of bank size on ROA.

4.2.3 Impact market share, and market concentration on banking profitability.

The success of the banking differentiation strategy which is indicated by market share that positively synergizes with banking profitability becomes the initial indication to accept the ESH (Efficiency Structure Hypothesis) concept. Furthermore, to convincingly accept the validity of the ESH more evidence is needed. This study result showed that banking performance is the result of market efficiency instead of market collusion. Thus, the MSCR coefficient should be further checked, whether it is positive or not. If the MSCR coefficient is positive, it means the market is collusive, but if it is not positive it means the market is working efficiently.

From the results of this research analysis, the MSCR coefficient was zero and negative, not positive. This result means that the market is efficient. This finding strengthens acceptance of the ESH concept, because banking profitability is the result of the role of an efficient market, not because of a collusive market. The market concentration formed by big banks in Indonesia is only an efficient collection of market shares, which reflects the success of the differentiation strategy. With such a strategy they naturally earn excess profit.

These findings support Chaerani et al., (2019) who found that market share has a positive effect on banking profitability, which proves that banking profitability is not achieved by maximizing monopoly power, but rather by a bank's ability to diversify products. In addition, according to Belkhaoui et al., (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between market share and bank profitability. This supports the findings of Nisa, et al., (2019) and Irawati (2017) that collusive behavior in the SCP hypothesis in the national banking industry in Indonesia is not confirmed.

4.2.4 Impact Lerner Index on banking profitability

The results of this study showed that market -concentration has no positive but negative effect on banking profitability. This negative effect shows that the market competition level and banking profitability move in the opposite directions. The sharper the market concentration decreases, the higher the market competition level, as indicated by a decreasing LI (lerner index). However, banking profitability tends to increase. Statistically, this can be seen in the negative coefficient of LI (Lerner index) on ROA and ROE.

This finding provide support for Zhao et al. (2022), Sahul Hamid & Ibrahim (2021), Căpraru et al., (2020) Ju & Tang, (2022), Li & Li (2022) and Apriadi et al., (2017). Competition strengthens financial performance and enhance service and technology facilities that in turn increases bank profitability. However, this result is in contrast with Khattak & Ali (2021), Rakshit (2022), and Rakshit & Bardhan (2022) that indicated higher competition results in lower profitability. Furthermore, Tan et al., (2017) found that in commercial banks in China, competition tends to reduce financial performance as measured by profitability.

5 CONCLUTION

This research analysis shows that the ESH concept is valid and can be applied to large banks in Indonesia. These findings support the validity of the ESH theory. First, there is a positive influence of market share on profitability. The larger market share compared to other banks is due to successful efficiency in creating synergistic differentiation strategies to strengthen profitability. Thus, market concentration is a collection of market shares from efficient market behavior, not collusion. This kind of market concentration can become an industrial market strength.

Second, decreasing market concentration can be interpreted as increasing competition, which leads to a decrease in banking profitability and vice versa. Statistically, this can be seen from the positive coefficient of the MS variable and the negative coefficient LI as indicators that show the positive influence of market share (MS) and the negative influence of the Lerner index (LI) on bank profitability.

This research is very useful for readers, especially in the banking industry, because it is proven that banking profitability is influenced by the efficiency of managing operational costs and the intermediation function. Statistically, this can be seen from the negative CIR and the positive coefficients of the TEFF and SEFF variables on banking profitability (NIM, ROA, and ROE). However, banking has been detected to experience diseconomies of scale, which can increase marginal costs (MC) and average costs (AC). As a result, profit/unit of assets decreases. Increasing company size hurts banking profitability.

The limitation of this research is that it only examines large banks and does not cover all banks in Indonesia.

REFERENCES

1. Abbas, A., & Sheikh, M. R. (2023). Structure-Conduct-Performance (SCP) Paradigm: A VAR and VECM-based Granger Causality Analysis. *Journal of Policy Research*, *8*(4), 125–136. https://doi.org/10.5281/zenodo.7593037

2. Asri, N. N., & Suarjaya, A. A. (2018). Pengaruh Dana Pihak Ketiga, Capital Adequacy Ratio, Likuiditas, and Ukuran Perusahaan Terhadap Profitabilitas. E-Jurnal Manajemen Unud, Vol. 7, No. 6, 3384-3411.

3. Astutiningsih, K. W., & Baskara, I. G. (2019). Pengaruh CAR, Dana Pihak Ketiga, Ukuran Bank, and LDR terhadap profitabilitas Bank Perkreditan Rakyat. E-Jurnal Manajemen Universitas Udayana, Vol. 8, No. 3, 1608 - 1636.

4. Acaravci, S.K. and Çalim, A. E. (2013) Turkish Banking Sector's Profitability Factors. International Journal of Economics and Financial Issues, 3(1).

5. Apriadi, Intan et all. (2017). "Kompetisi and Stabilitas perbankan di Indonesia". Jurnal Manajemen IPB. 21 (01), 33-54.

6. Allen N. Berger & Loretta J. Mester, (1997). "Efficiency and productivity change in the U.S. commercial banking industry: a comparison of the 1980s and 1990s," Working Papers 97-5, Federal Reserve Bank of Philadelphia.

7. Bhatti GA, Hussain H (2010) Evidence on structure conduct performance hypothesis in Pakistani commercial banks. Int J Bus Manag 5(9):174

8. Beck, T., De Jonghe, O., and Schepens, G. (2011). “Bank Competition and Stability: Cross-country Heterogenity.” Working Papers of Faculty of Economics and Business Administration, Ghent University, Belgium.
9. Begum, F., Islam, K. S., Saroni, S. A., Rahman, M. K., Sarker, B. B., & Omar, N. (2023). Short-term determinants of banking profitability and financial sustainability of banks in Bangladesh: An empirical study of COVID-19 effects. *Corporate Ownership and Control*, *20*(3), 61–74. https://doi.org/10.22495/cocv20i3art4
10. Belkhaoui, S., Lakhal, L., Lakhal F., and Hellara S. (2014). "Market Structure, Strategic Choices and Bank Performance: a Path Model", Journal of Managerial Finance, Vol. 40, No. 6, pp. 538- 564.
11. Berger, A. N., & Mester, L. J. (1997). Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions? Journal of Banking and Finance, 21, 895-947. http://dx.doi.org/10.1016/S0378-4266(97)00010-1.
12. Berger, A.N. (1995). “The Profit Structure Relationship in Banking Test of Market Power and Efficient Structure Hypothesis.” Journal of Money, Credit, and Banking, Vol.27, pp. 404- 431
13. Budhathoki, P. B., Rai, C. K., Lamichhane, K. P., Bhattarai, G., & Rai, A. (2020). The Impact of Liquidity, Leverage, and Total Size on Banks’ Profitability: Evidence from Nepalese Commercial Banks. Journal of Economics and Business, 3(2). https://doi.org/10.31014/aior.1992.03. 02.219
14. Bukvic, Rajko M. (2020). Concentration and Competition in Serbian Banking Sector in the Period 2016- 2018. Economica, 66 (2), 17 – 35
15. Căpraru, B., Ihnatov, I., & Pintilie, N.-L. (2020). Competition and diversification in the European Banking Sector. Research in International Business and Finance, 51, 100963. https://doi.org/10.1016/j.ribaf.2018.09.014
16. Chaerani, N., Cotoro, M., & Achmad, D. (2019). Struktur pasar and kinerja: Studi kasus pada bank umum di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375–384. https://doi.org/https://doi.org/10.36226/jrmb.v4i3.276
17. Chamberlain, T., Hidayat, S., & Khokhar, A. R. (2020). Credit risk in Islamic banking: evidence from the GCC. Journal of Islamic Accounting and Business Research, 11(5), 1055-1081. https://doi.org/10.1108/JIABR-09-2017-0133
18. Cristian, E., Leonarsan, W., & Kim, S. S. (2020). The impacts of compe[1]tition, efficiency, and risk towards bank’s performance in Indonesia. Jurnal Keuangan and Perbankan, 24(4), 407-419. https://doi.org/10.26905/jkdp.v24i4.4903
19. DePamphilis, D. M. (2019). The Regulatory Environment. In Mergers, Acquisitions, and Other Restructuring Activities (pp. 35–63). Elsevier. https://doi.org/10.1016/B978-0-12- 815075-7.00002-4
20. Dietrich, A., & Wanzenried, G. (2009), April). What determines the profitability of commercial banks? New evidence from Switzerland. In 12th conference of the Swiss society for financial market researches, Geneva (Vol. 2, p. 39).

21. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348

22. Douglas JosÃ© MendonÃ§a, JÃºlia Alves e Souza, Francisval de Melo Carvalho, Gideon Carvalho de Benedicto, (2020). "Relationship between Efficiency and Profitability in Banks of Brazil," Journal of Finance and Economics Research, Geist Science, Iqra University, Faculty of Business Administration, vol. 5(1), pages 1-17, March.

23. Duranovic, Gordana and Filipovic, Sanja. (2021). The Impact of Market Concentration on Competitiveness of the Banking Sector in Serbia. Industrija, 49 (3/4), 25 - 454.

24. Ejoh, N.O., and Sackey, J.A. (2014). "The Impact of Market Share on Deposit Money Banks' Profitability in Nigeria." European Journal of Business and Management, Vol.6, No.19.

25. Fithriyanto, nur, (2020) The Determinant Factors of Bank Profitability in Indonesia. Available at SSRN: https://ssrn.com/abstract=3736551 or http://dx.doi.org/10.2139/ssrn.3736551

26. Gavurova, Beata et. al. (2017). The Structure – Conduct – Performance Paradigm in the European Union Banking. Economics and Sociology, 10 (4), 99 - 112.

27. Georgios E. Chortareas & Jesus G. Garza-Garcia & Claudia Girardone, (2009). "Banking Sector Performance in Latin America: Market Power versus Efficiency," Working Papers 0905, Department of Accounting, Economics and Finance, Bristol Business School, University of the West of England, Bristol.

28. Ha, V. D. (2020). Does bank capital affect profitability and risk in Vietnam? Accounting, 6(3), 273–278. https://doi.org/10.5267/j.ac.2020.2.00 8

29. Heckmann, T., Gegg, K., Gegg, A., & Becht, M. (2014). Sample size matters: Investigating the effect of sample size on a logistic regression susceptibility model for debris flows. *Natural Hazards and Earth System Sciences*, *14*(2), 259–278. https://doi.org/10.5194/nhess-14-259-2014

30. Hutauruk, C. M., Muchtar, S., & Paragina, A. B. (2022). Pengaruh Manajemen Risiko Kredit and Faktor Spesifik Bank terhadap Kinerja Keuangan Bank Konvensional di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–16. https://doi.org/10.31932/jpe.v7i3.211

31. Izzo, T., Risaliti, G., & Evangelista, L. (2023). *The banking management of sustainability: Assessing the integration of ESG factors at governance level*. 61–65. https://doi.org/10.22495/cgaiop13

32. Ju, S., & Tang, H. (2022). Competition and operating efficiency of manufacturing companies in E-commerce environment: Empirical evidence from Chinese garment companies. Applied Economics, 0(0), Article 0. https://doi.org/10.1080/00036846.2022.2102126

33. Jumono, S., Sugiyanto, & Mala, C. M. F. (2019). Determinants of Profitability in Banking Industry: A Case Study of Indonesia. Asian Economic and Financial Review, 9(1), 91–108. https://doi.org/10.18488/journal.aefr.2019.91.91.108

34. Keqa, F. (2021). The determinants of banks' capital adequacy ratio: Evidence from western balkan countries. *Journal of Governance and Regulation*, *10*(2 Special Issue), 352–360. https://doi.org/10.22495/JGRV10I2SIART15

35. Khan, M. ul H., & Hanif, M. N. (2019). Empirical evaluation of 'structure-conduct-performance' and 'efficient-structure' paradigms in banking sector of Pakistan. International Review of Applied Economics, 33(5), 682–696. https://doi.org/10.1080/02692171.2018.1518411

36. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348

37. Kim, J. (2018). Bank Competition and Financial Stability: Liquidity Risk Perspective. Contemporary Economic Policy, 36(2), 337–362. https://doi.org/10.1111/coep.12243

38. Lloyd-William, D.M., Molyneux, P. & Thornton, J. (1994).Market Structure and Performance in Spanish Banking . Journal of Banking and Finance, 18(3): 433-443.

39. Lestari, H. S. (2021). The Effect of Liquidity, Leverage and Bank's Size on Bank's Profitability of Indonesian Listed Bank. Jurnal Manajemen, 12(2), 26. https://doi.org/10.32832/jmuika.v12i2.3946

40. Lingerih Zerihun, H. (2021). Effect Of Bank Specific Factors On Profitability Of Commercial Banks In Ethiopia. Journal of Finance and Accounting, 9(2), 23. https://doi.org/10.11648/j.jfa.2021090 2.11

41. Lubis, A. F., Anggraini, A. maria T., Toha, K., Kagramanto, L. B., Hawin, M., Sirait, N. N., Prananingtyas, P., Sukarmi, Maarif, S., & Silalahi, U. (2017). Hukum Persaingan Usaha.

42. Marquez, R. (2022). Competition, adverse selection, and information dispersion in the banking industry. Rev. Financial Stud, 901–926.

43. Mishra, A. K., Kandel, D. R., & Aithal, P. S. (2021). Profitability in Commercial Bank – A Case Study of Nepal. International Journal of Case Studies in Business, IT, and Education, 5(1), 61–77. https://doi.org/10.47992/ijcsbe.2581.6 942.0101

44. Munawar, Yusuf. (2017). "Kompetisi And Efisiensi Bank Umum Di Indonesia Periode 2008-2013".Bina ekonomi Center for Risk Management Studies Indonesia. 21 (1), 1-12.

45. Navila, N., & Sujianto, A. E. (2022). Pengaruh Modal Pinjaman and Volume Usaha Terhadap Sisa Hasil Usaha Dengan Total Aset Sebagai Variabel Intervening. JAE (Jurnal Akuntansi Dan Ekonomi), 7(3), 134-144. https://doi.org/10.29407/jae.v7i3.18310

46. Nisa, C., Mukri, C., & Djamil, A. (2019). Struktur Pasar And Kinerja: Studi Kasus Pada Bank Umum Di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375 - 384. DOI: https://doi.org/10.36226/jrmb.v4i3.276

47. Pasha, R., & Elbages, B. (2022). Green Banking Practices: The Impact Of Internet Banking On Bank Profitability In Egypt. *Corporate and Business Strategy Review*, *3*(2), 65–75. https://doi.org/10.22495/cbsrv3i2art6
48. Phan, H. T., Anwar, S., Alexander, W. R. J., & Phan, H. T. M. (2019). Competition, efficiency and stability: An empirical study of East Asian commercial banks. North American Journal of Economics and Finance, 50, 100990. https://doi.org/10.1016/j.najef.2019.100990
49. Rakshit, B. (2022). Does Bank Competition Necessarily Contribute to Higher Profits? The Case of Indian Banking. Asian Economics Letters, 3(3), 35526. https://doi.org/10.46557/001c.35526
50. Rakshit, B., & Bardhan, S. (2022). An empirical investigation of the effects of competition, efficiency and risk-taking on profitability: An application in Indian banking. Journal of Economics and Business, 118, 106022. https://doi.org/10.1016/j.jeconbus.2021.106022
51. Sahyouni, A., & Wang, M. (2018). The Determinants of Bank Profitability: Does Liquidity Creation Matter? SSRN Electronic Journal, 2(2), 61– 85. https://doi.org/10.2139/ssrn.3125714
52. Samad A (2008) Market structure, conduct and performance: evidence from the Bangladesh Banking Industry. J Asian Econ 19(2):181–193
53. Shanko, T., Abera TIMBULA, M., & University, J. (2019). Factors Affecting Profitability: An Empirical Study On Ethiopian Banking Industry. International Journal of Commerce and Finance, 5(2), 87–96.
54. Shalit, S. S., & Sankar, U. (1977). The Measurement of Firm Size. The Review of Economics and Statistics. 59(3): 290-298
55. Sahul Hamid, F., & Ibrahim, M. H. (2021). Competition, diversification and performance in dual banking: A panel VAR analysis. Economic Research-Ekonomska Istraživanja, 34(1), 194–220. https://doi.org/10.1080/1331677X.2020.1782242
56. Simatele, M. (2015). Market Structure and Competition in the South African Banking Sector. Procedia Economics and Finance, 30(15), 825–835. https://doi.org/10.1016/s2212- 5671(15)01332-5.
57. Sylos Labini, S., & Donofrio, F. (2021a). Banks' compensation policies under the global pandemic: Evidence from the European banking sector. *Journal of Governance and Regulation*, *10*(1), 74–82. https://doi.org/10.22495/jgrv10i1art8
58. Stulz, R. M. (2019). FinTech, BigTech, and the Future of Banks. Journal of Applied Corporate Finance, 31(4), 86–97. https://doi.org/10.1111/jacf.12378
59. Sudrajat, C., & Rosid, J. M. (2022). Analysis Of Structure – Conduct - Performance (SCP) on The Merger of State-Owned Enterprise Islamic Banks Based on The Assets Value. 1(2), 283–294.
60. Takarini, N., & Pratiwi, N. D. (2022). Analisis Faktor-Faktor yang Mempengaruhi Profitabilitas pada Perusahaan Subsektor Makanan and Minuman yang Terdaftar di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–13. https://doi.org/10.31932/jpe.v7i3.190

61. Tan, A. and Floros, C. (2013). “Market Power, Stability and Performance in the Chinese Banking Industry.” Journal of Economic Issues, Vol. 18, No. 2, pp. 65-90.

62. Tan, Y. (2016a). Conclusion. In Efficiency and Competition in Chinese Banking (pp. 167–176). Elsevier. https://doi.org/10.1016/b978-0-08- 100074-8.00007-8

63. Tan, Y. (2016b). Literature Review on Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 67–91). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00004-2

64. Tan, Y. (2016c). Theory of Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 45–66). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00003-0

65. Tan, Y., Floros, C., & Anchor, J. (2017a). The profitability of Chinese banks: Impacts of risk, competition and efficiency. Review of Accounting and Finance, 16(1), 86– 105. https://doi.org/10.1108/RAF-05-2015-0072

66. Tan, Y.; Floros, C. Risk, Competition and Efficiency in Banking: Evidence from China. Glob. Financ. J. 2018, 35, 223–236. [CrossRef]

67. Tang, H.W., & Chen, A. (2020). How do market power and industry competition influence the effect of corporate governance on earnings management? Quarterly Review of Economics and Finance, 78, 212–225.

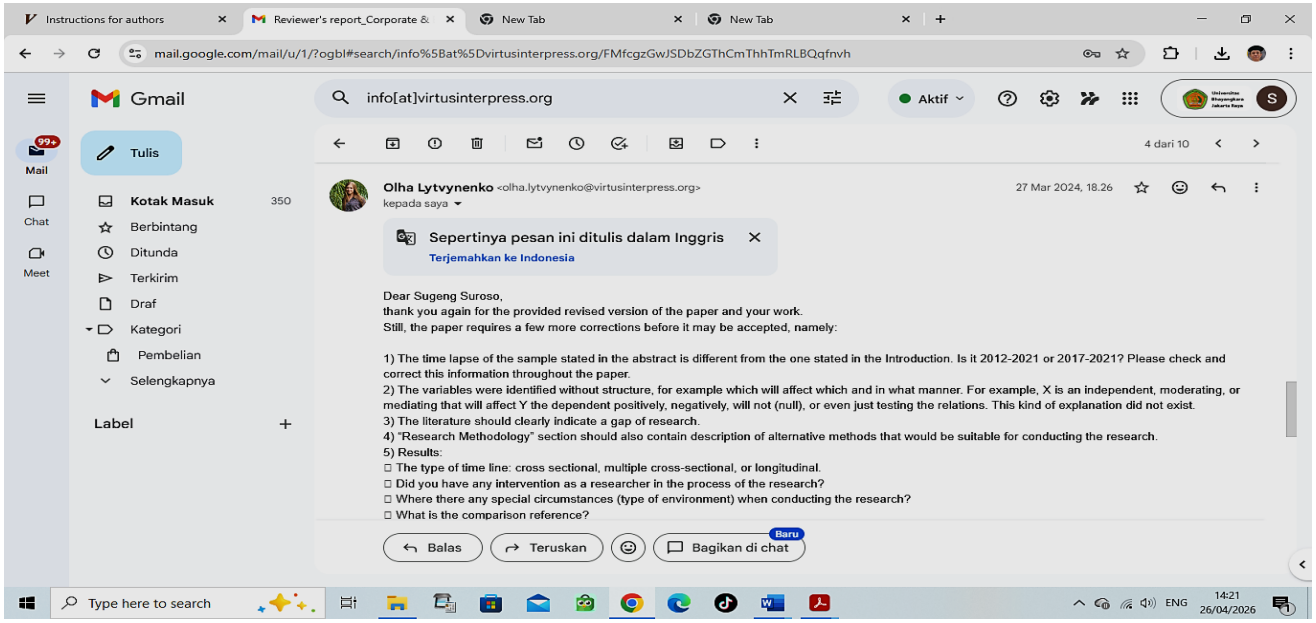
68. Widiasari, F. W., & PANGESTUTI, I. R. D. (2015). Pengaruh Struktur Pasar, Kompetisi, Diversifikasi, Kapitalisasi, Risiko Kredit, and Size Terhadap Profitabilitas Bank (Doctoral dissertation, UNDIP: Fakultas Ekonomika and Bisnis).

69. Whish, Richard and Bailey, David. (2012). Competition Law Seventh Edition. New York: Oxford University Press

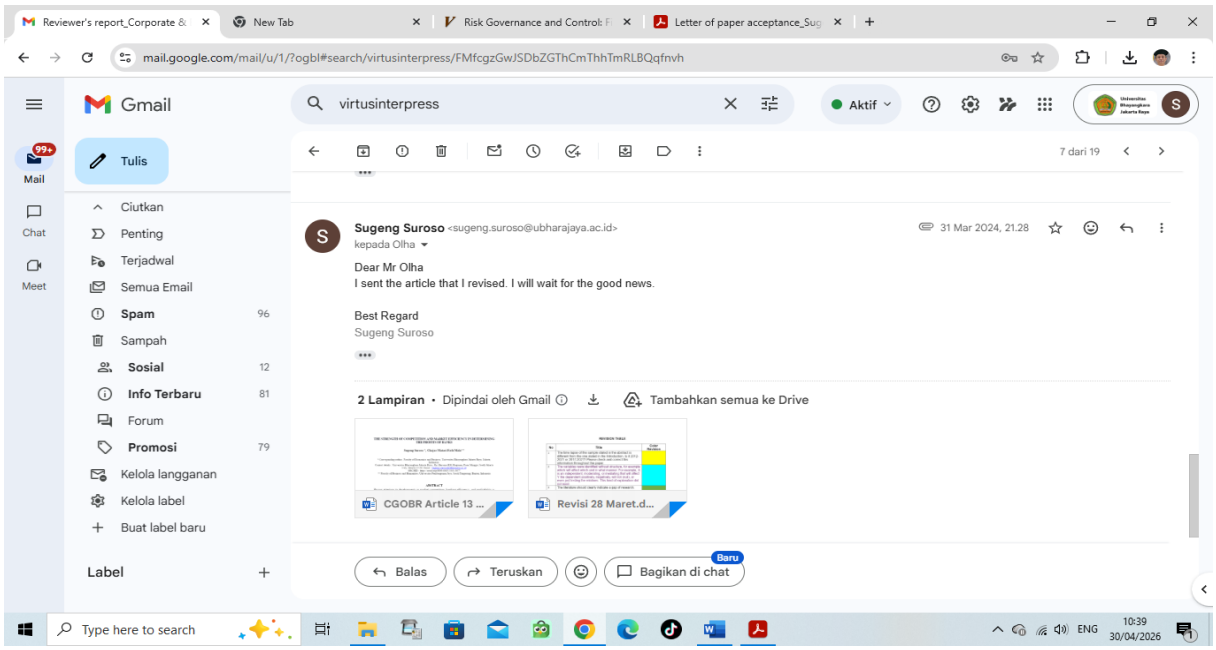
70. Yusuf, M. (2017). Dampak Indikator Rasio Keuangan terhadap Profitabilitas Bank Umum Syariah di Indonesia. Jurnal Keuangan and Perbankan, Vol. 13, No. 2, 141-151.

71. Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. Journal of International Money and Finance, 122, 102552. https://doi.org/10.1016/j.jimonfin.2021.102552

5. Bukti Review untuk Revisi Kedua



6. Bukti hasil revisi kedua dan artikel yang di *resubmit*



REVISION TABLE

No	Title	Color Revision
1	The time lapse of the sample stated in the abstract is different from the one stated in the Introduction. Is it 2012-2021 or 2017-2021? Please check and correct this information throughout the paper.	
2	The variables were identified without structure, for example which will affect which and in what manner. For example, X is an independent, moderating, or mediating that will affect Y the dependent positively, negatively, will not (null), or even just testing the relations. This kind of explanation did not exist.	
3	The literature should clearly indicate a gap of research.	
4	“Research Methodology” section should also contain description of alternative methods that would be suitable for conducting the research	
5	Results: • The type of time line: cross sectional, multiple cross-sectional, or longitudinal. • Did you have any intervention as a researcher in the process of the research? • Where there any special circumstances (type of	

	environment) when conducting the research? • What is the comparison reference?	
6	Citations in discussions are not represented in literature. • When linking findings to previous work, the paper needs to be stated in the literature first	
7	We recommend specifying more deeply why this paper is important for future research (section “Conclusion”). In general, please, provide more detailed conclusions and implications of the results, because currently they are quite short.	
8	The list of references and all the in-text citations should be formatted in APA styl	

THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING THE PROFITS OF BANKS

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ABSTRACT

Paying attention to developments in market competition, banking efficiency, and profitability is very important because it will update industry information so that it can be utilized by the EWS (early warning system). Market competition is important in business, so this research is interesting for the public. This research aims to find out the impact of competition and efficiency provides positive synergy on banking profitability. The theoretical basis for problem-solving will use Industrial Organization Thinking, which focuses on the SCP-ESH theory (Abbas & Sheikh, 2023). The research object uses 12 samples of conventional banks in Indonesia, which are included in the top 10 categories of a set of banks during 2012–2021 (quarterly data). The analysis uses panel data regression and statistical analysis. From the research results, it was found that there is a positive synergy between market spread operational cost management efficiency and the intermediation function in banking profitability. However, company size has a negative impact on banking profitability. This research is relevant to the research of Gavurova et al. (2017), who found that the market structure of the banking industry in the European Union was still concentrated. However, market structure is negatively related to banking performance.

Keywords: market share, market competition, efficiency, profitability, big banks.

JEL : M21,G10,G21,G24,G31

Authors' individual contribution: Conceptualization — SS and CMFM; Methodology — SS and CMFM.; Validation — SS and CMFM.; Formal Analysis — SS and CMFM.; Investigation — SS and CMFM.; Resources — SS and CMFM.; Data Curation — SS and CMFM.; Writing — Original Draft — SS.; Writing — Review & Editing — SS and CMFM.; Visualization — SS.; Supervision — CMFM.; Project Administration — SS and CMFM.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

7. INTRODUCTION

Competition, efficiency, and profitability in the banking sector are important aspects that need more attention. Efficiency is the best alternative to maintain the existence of banks amidst intense competition (Begum et al., 2023; Keqa, 2021). Apart from that, efficiency can also produce more appropriate quality and prices of banking products so that banks will obtain sufficient profits to increase stability through bank capital adequacy. Therefore, Berger and Mester (1997) suggest looking at it from a micro and macro perspective.

Based on data for 2012-2021, there was significant asset growth in the Indonesian banking sectors. However, asset distribution remained concentrated. Indonesian FSA (Financial Services Authority) records show that the number of conventional banking assets from 2012 to 2021 increased significantly. In 2012, the total assets were only 7,099,564 billion Rupiahs. The total assets continued to grow until 2021, reaching 9,670,515 billion Rupiahs, an increase of 1,362 times. Asset growth per year (YoY) was always positive. Growth assets were 8.364% (average), with the largest of 10.134% (2021) and the smallest of 5.947% (2019). The market concentration rose, and the LI (lender index) decreased.

The market concentration index, as indicated by CR10 and CR4, increased. CR10 = 70.80% (average) and CR4 = 54.674% (average), meaning that the majority of all conventional banking assets in Indonesia (115-109 banks) were still concentrated in the large banks, where the 10 largest banks control around 70,800% of the national assets, and the 4 largest banks hold about 54.674% of the assets. Meanwhile, the LI indicator was 14.130% (average), which showed a decreasing trend—indicating that the banking sector's market power decreased due to increasingly tight market competition.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of 10 big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR (loan to deposit ratio), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660 (% (2020), and the average of 86.734%. Furthermore, ROA (return on assets) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

This research was conducted because of gaps in previous research. Several studies have examined the relationship between market structure and profitability in commercial banks in Indonesia. For example, Chaerani et al. (2019) found that market share has a positive effect on

banking profitability. These findings indicate that banking profitability is achieved because banks can diversify their products rather than maximize monopoly power. The limitation of the research conducted by Chaerani et al. (2019) is that it used data for only one year, so it only represents events over a short period. Our study will bridge this gap by expanding the research period to 5 (five) years from 2017 to 2021, resulting in a total of 480 firm-year observations. It is believed that a larger observation size will be able to produce better regression results (Heckmann et al., 2014). Research by Nisa et al. (2019) produced insignificant coefficients for the variables of market concentration and market share on banking performance, which means that there is collusive behavior in the SCP hypothesis in the banking industry.

Meanwhile, research by Ejoh and Sackey (2014) found a significant positive effect of market share on bank profitability. From this research, there are research gaps that need to be re-examined by researchers. This research is important considering the increasingly tight level of banking competition, so this research can be used as a basis for determining policies in global competition.

The research question in this study is: what about the big banks in Indonesia? Do competition, differentiation strategy, efficiency, and company size provide positive synergy to banking profitability? .

This paper is structured as follows: after the introduction in Part 1, Part 2 of this paper reviews the literature on market efficiency and competition's effects on banking profitability. Section 3 discusses the methodology used in this research. Section 4 presents the results and discussion of the findings from this research. Finally, Section 5 summarizes the findings on the impact of competition and market efficiency on large banks' profits.

8. LITERATURE REVIEW

As an industry, the analysis of individual bank behaviour and the market structure in which banks operate are intimately intertwined. The study of microeconomic banking frequently focuses on examining bank rivalry and efficiency. This research can involve bank behaviour in price competition, such as decisions on deposit interest rates and credit interest rates, in addition to the non-price competition, such as differentiation of banking products and optimization of customer service. According to Phan et al. (2019), efficiency analysis is typically linked to revenue maximization, profit maximization, and cost minimization. Many academic works discuss the relationship between the efficiency of monetary policy and its transmission mechanisms at the macroeconomic empirical level. Unfortunately, not much research explicitly examines Indonesian banking practices at the industry level, both before and after the crisis. Bank actions, for example, those related to assessing credit output or deposit interest rates, are closely related to the type of market in which the bank functions (Sudrajat & Rosid, 2022).

There are three thoughts in analyzing the relationship between market structure and performance using the Structure Conduct Performance (SCP) paradigm (Khan & Hanif, 2019). First, the traditional hypothesis is based on the preposition which states that market concentration will encourage collusion between companies in an industry which will then increase profits. Second, the differentiation hypothesis, which is based on the proposition which states that the market share obtained is the result of product differentiation behavior carried out, and third, the efficiency hypothesis, which is based on the proposition which states that efficiency will increase market share and will ultimately increase market concentration as well.

However This increase in market share and concentration is the result of efficient behavior so that ultimately it will increase profits.

Theoretically, the problem of the relationship between market structure and banking performance can be answered more precisely using SCP theory and its developments. According to Abbas & Sheikh (2023), the SCP school (structure, conduct, and performance) views the relationship between S, C, and P attributes as linear, while the RE (relative efficiency/ESH) school views the relationship between S, C, and P attributes, not linear but causal.

The RE School refutes the SCP-theory assumption, where efficiency is seen as a key factor that makes a company's margin (performance) high so that it has the potential to increase market share. Thus, S (market structure) only sometimes significantly affects Performance. This hypothesis is supported by Belkhaoui, S. at al. (2014) in ESH theory, which states that S (market structure) is the result of the role of the level of efficiency followed by P (Performance).

Another theory is QLH (Quiet Life Hypothesis), which Hicks first put forward; QLH analyzes how market concentration is related to the level of company efficiency. With greater market power, companies need to be more efficient in carrying out their business activities.

Stulz, (2019) argued that banks should ensure efficiency in all operations. Inefficient banks will likely exit the market because they no longer provide competitive prices, products, and service quality. Meanwhile, from a macro perspective, an efficient banking industry will lead to lower financial intermediary costs and higher financial system stability. With high efficiency, banks can allocate their financial resources more effectively for economic growth.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of 10 big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR (loan to deposit ratio), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660 (% (2020), and the average of 86.734%. Furthermore, ROA (return on assets) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

Competition, which aims to increase market share and generate excess profits, should promote banking efficiency and trigger innovation that yields more variety of products, lower prices, broader access to finance, and better service (Jumono at al.,2009). The competence inherent among the big banks in Indonesia should also bring a positive effect toward a more efficient market. Meanwhile, the results of the previous studies tell a different story. In short, profitability as an indicator of banking performance could result from collusion in an industry or a company's differentiation and efficiency strategy. The question is, what about the banking performance of big banks in Indonesia? Is it the impact of a collusive market or efficiency?.

According to Simatele (2015) and Tan (2016a), the market structure of the banking industry was monopolistic, while Gavurova et al. (2017) found that the market structure of the banking industry in the European Union until 2013 was still concentrated. Still, the market structure was negatively related to banking performance. Specifically in Serbia, Bukvic (2020) and Duranovic & Filipovic (2021) found that the banking market in Serbia is an oligopoly.

As for the relationship between competition, efficiency, and profitability among Indonesian Banks, a study by Cristian et al. (2020) found that competition in the credit and deposit markets does not affect ROA and NIM. However, market competition for FBI products (fee-based income) has a negative effect on ROA and NIM. Meanwhile, Munawar (2017), from an IRF (impulse response function) analysis, found that an increasingly competitive banking industry encourages banking efficiency in Indonesia. Furthermore, Widiasari (2015) found that bank profitability is influenced by the intensity of competition in the banking market, but high competition intensity can reduce bank profitability and stability.

Concerning how operating efficiency influences banking profitability in Indonesia, Fithriyanto (2020) found that management effectiveness in managing operating costs synergies to strengthen ROA. In contrast, according to Cristian et al. (2020), operating efficiency does not affect the ROA and NIM of Indonesian banks. Research on the effect of intermediary efficiency on profitability conducted by Douglas et al. (2020) in Brazil showed that efficiency is associated with profitability, indicating a more significant impact on ROE than ROA. The previous study conducted in Latin America (Georgios et al., 2009) found that efficiency, especially efficiency of scale, appears to be the main driving force for increasing profitability in most Latin American countries.

Concerning the influence of firm size on banking profitability, Acaravci and Calim (2013) found that large banks tend to have a high level of product diversification compared to small banks. In addition to higher diversification potential, economies of scale can also be found in large banks. Diversification reduces risk and economies of scale that lead to increased operational efficiency. Thus, firm size has a positive effect on profitability. However, according to Dietrich and Wanzenried (2009), an extensive bank can cause a negative relationship between size and profitability caused by agency costs, bureaucratic processes, and other factors. The research question in this study is: what about the big banks in Indonesia? Does competition, differentiation strategy, efficiency and firm size provide positive synergy to banking profitability.

1. Efficiency towards banking profitability

According to Navila & Sujianto (2022), companies that run efficiently produce super-expected profits. Meanwhile, according to the "efficiency hypothesis theory" (Lloyd et al., 1994), companies with a higher level of efficiency than their competitors can implement two strategies to maximize profits. First, they can maintain price levels and company size; second, they can lower prices and expand the size of the company. If they implement the second strategy, their efficiency and market share will increase, which in turn will stimulate the market penetration process. This efficiency hypothesis emphasizes operational technical efficiency, which can reduce AC (average costs) due to increased output. Several studies in America found that efficiency is the dominant variable in explaining profitability in American banks (Shanko et al., 2019).

Tan et al. (2017) and Chamberlain et al. (2020) found that a low CIR reflects increased profit margins. Meanwhile, a high CIR indicates a bank is inefficient or has poor management quality. The finding of the negative influence of CIR on banking profitability shows that profitability is influenced by operational cost efficiency.

Research conducted by Lloyd et al. (1994). supports the findings of Georgios et al. (2009), indicating that banking efficiency (especially scale efficiency) is the main driving force for

increasing profitability in most Latin American countries. This research positively influences technical efficiency (TEFF) and scale efficiency (SEFF) on banking profitability.

2. Firm size on banking profitability

Research explaining the influence of company size on profitability conducted by Astutiningsih & Baskara (2019) shows that company size has a positive effect on profitability. Meanwhile, other research conducted by Asri & Suarjaya (2018) and Yusuf (2017) shows that partial company size does not have a significant effect on profitability.

According to Sahul Hamid (2021), larger banks will benefit from economies of scale and income diversification. However, a negative relationship can also occur if the bank experiences diseconomies of scale and inefficient management. Meanwhile, according to Shalit & Sankar (1977) and Khan & Hanif, (2019), company size also has important influences such as economic scale, access to capital markets, profitability, diversification, regulation, company balance sheet, research and development (R&D), and technological innovation.

Research by Lingerih Zerihun (2021) found that bank size has a negative and significant effect on ROA, and in Lestari (2021), bank size hurts ROE. However, the results of this research contradict the findings of Budhathoki et al. (2020), which show that increasing assets can benefit banks to expand and develop more diverse products so that banks can benefit from the scale and scope of the economy. Budhathoki's research is in line with Mishra et al. (2021), Hutauruk et al. (2022), Takarini & Pratiwi (2022), Sahyouni & Wang (2018), and Ruslan et al. (2019) proving that there is a positive influence of bank size on bank size.

3. Market share, and market concentration on banking profitability

According to Lubis et al. (2017), dominant firms are business actors with large market shares in the industry. They act as price setters due to their considerable market power. According to Kim (2018), banks with immense market power can take more liquidity risk, thereby reducing competition, which can result in the fragility of the financial system.

Meanwhile, Relative Market Power or RMP Theory entails that companies with large market shares with differentiated products can determine output prices and generate excess profits (super regular profits). Therefore, Belkhaoui et al. (2014) confirmed that the larger the market share, the greater the funds from the public that banks can use to increase bank activities. It can eventually increase profits, for example, by increasing investment and lending. Furthermore, Ejoh and Sackey (2014) found a significant positive effect of market share on bank profitability.

Chaerani et al. (2019) found that market share positively affects banking profitability; this proves that banking profitability is not achieved by maximizing monopoly power but rather by the bank's ability to diversify its products. In addition, according to Belkhaoui et al. (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between market share and bank profitability.

4. Lerner Index on banking profitability

Research by Beck (2011) suggests that competition has a positive relationship with bank profitability because it can encourage financial inclusion, thereby expanding the bank's customer base, diversifying risks, and increasing bank profitability. While the results of other

studies, Tan (2013) and Hope et al. (2013) found that banking competition significantly negatively affects profitability because profits from monopoly are reduced.

In the relationship between competition and profitability, Tan (2016b) concluded that market competitiveness is lower in concentrated markets where the total market share is concentrated in a few large banks. Furthermore, Whish and Bailey (2012) found that an increasingly competitive market can lead to smaller market power in the banking sector. Marquez (2002) also found that when competition becomes tighter, each bank will compete for customers, and sometimes banks reduce loan terms. As a result, NPLs increase, and banking efficiency levels decrease. Another effort to attract customers is usually by providing loans with low interest, which can reduce bank efficiency.

According to Zhao et al. (2022), Sahul Hamid & Ibrahim (2021), Căpraru et al., (2020) Ju & Tang, (2022), Li & Li (2022) and Apriadi et al., (2017). Competition strengthens financial performance and improves service facilities and technology, ultimately increasing bank profitability.

The research results of Khattak & Ali (2021), Rakshit (2022), and Rakshit & Bardhan (2022) found that higher competition results in lower profitability. Furthermore, Tan et al. (2017) found that competition in commercial banks in China tends to reduce financial performance as measured by profitability.

Hypothesis

H1: Market efficiency, as proxied by Cost-income ratio (CIR), Scale Efficiency (SEFF), and Technical Efficiency (TEFF), has a positive impact on company profitability.

H2: Firm Size (Ln TA) has a positive impact on profitability.

H3: Strategy Differentiation as proxied by Market Share of Bank (MS), Market Concentration Ratio (CR) has a positive impact on company profitability.

H4: Lerner Index (LI) has a positive impact on company profitability.

9. RESEARCH METHODOLOGY

9.1. **Data and Sampling**.

The sample in this study are conventional banks in Indonesia that have entered the Top 10 based on asset criteria. Using quarterly data for the 2012-2021 period. Data was taken from bank financial reports published on the Financial Services Authority's (OJK) website and from various sources needed to complete this research.

9.2. Regression Model analysis**.**

The regression model that will be used adapts the research of Jumono et al., (2018), as follows:

$$\pi_{i,t} = a_0 + a_1 MS_{i,t} + a_2 CR4_t + a_3 MSCR_{i,t} + a_4 LI_{i,t} + a_5 CIR_{i,t} +$$

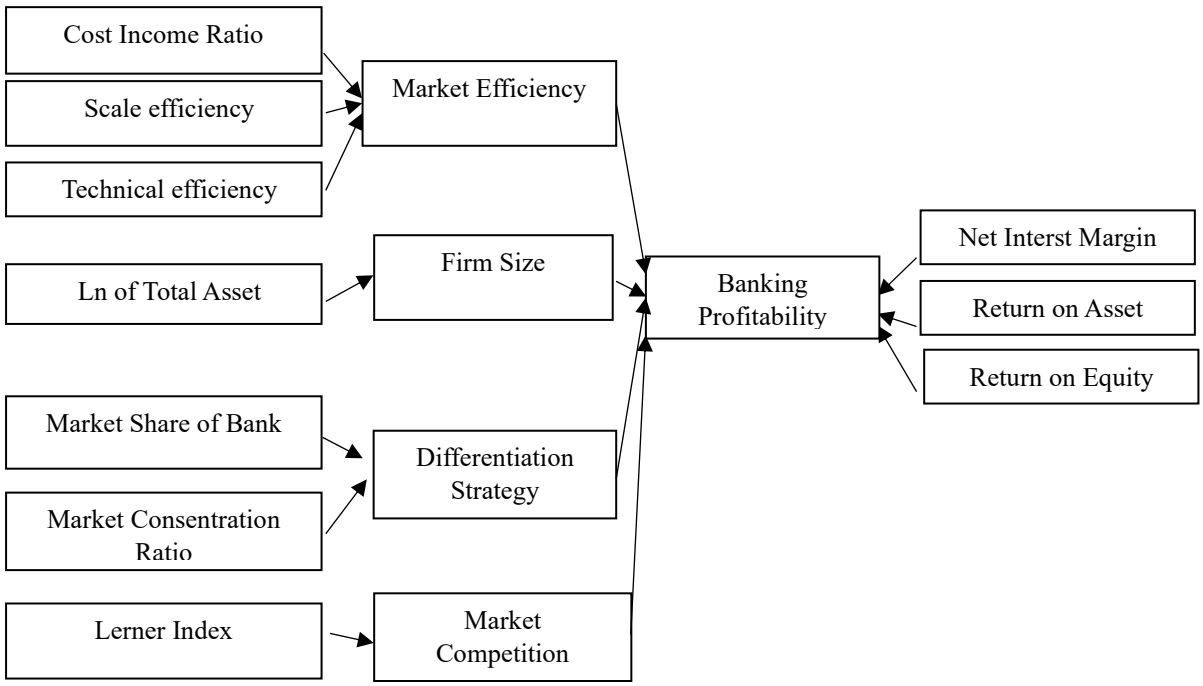
$$a_6 SEFF_{i,t} + a_7 TEFF_{i,t} + a_8 Size_{it} + e_{it}$$

where, π_(i,t) is banking profitability, which is proxied by NIM (Net Interest Margin); ROA (Return on Assets); ROE (Return on Equity): Meanwhile MSi,t = Market Share of bank -i, in year t ; CR = Market Concentration Ratio, in year t; MSCRi,t = multiplication between MS and CR bank -i, in year t; LI = Lerner Index; Size= Ln(Total Assets); SEFF =Scale Efficiency; and TEFF= Technical Efficiency;

9.3. Research Model

The research model in this study is presented as follows :

Image 2 : Research Model



Research variable

Banking Profitability as a Dependent variable proxied by NIM (Net Interest Margin); ROA (Return on Assets); ROE (Return on Equity):

Market Efficiency is the independent variable 1 with CIR (cost-to-income ratio), SEFF (scale efficiency), and TEFF (Technical efficiency).

Firm Size as Independent Variable 2 with proxy Ln of Total Assets

Differentiation strategy as independent variable 3 with MS proxy (Bank Market Share); CR (Market Concentration Ratio);

Market Competition as independent variable 4 with LI proxy (Lerner Index)

Table 1. Definition of Operating Variable, and Measurement

Variable	Proxies	Notation	Maesurement	Directions
Market Efficiency	Cost Income Ratio	CIR	Cost / Income Ratio (%)	+
	Scale Efficiency	SEFF	Output/Input, DEA approach	+
	Technical efficiency	TEFF	Output/Input,DEA approach	+
Firm Size	Size	Size	Ln of Total Assets bank-i	+
Strategy Differentiation	Market Share of bank	MS	Asset bank-i / Total Market Assets Industry (%)	+
	Market Concentration Ratio	CR	Total Assets Largest banks / Total Assets Industry (%)	+/-
Market Competition	Lerner Index	LI	(Price/unit asset-Marginal Cost)/ Price/unit asset (%)	+/-
Banking Profitability	Net Interest Margin	NIM	Net Interest Margin/Earning Assets (%)	
	Return on Asset	ROA	Operating Profit /Asset (%)	
	Return on Equity	ROE	Profit After Tax/Equities	

The analysis model chosen is a panel data regression analysis model. This model is used because it can better interpret the relationship between the structure of the variables used as the basis for the analysis. From the results of the Chow test and the Housman test, the results obtained show that panel data for this research is more suitable for using the Fixed Effect Model (FEM) where the slope coefficient is constant but the intercept is not continuous. However, this does not rule out the possibility of using alternative methods to analyze the panel data model using the Random Effect Model (REM). In the FEM or fixed effects model, differences in unit characteristics and periods are accommodated in the intercept so that the intercept can change over time.

Meanwhile, for the REM or random effects model, differences in unit characteristics and periods are accommodated in the error or residual of the model. Because two components contribute to error formation, namely units and periods, random errors in REM need to be decomposed into combined mistakes and errors for periods. In this research, interpretation will lead to testing a proven hypothesis. For this reason, four stages of understanding of the regression results are carried out, namely:

(1) To test whether banks in Indonesia support the traditional SCP hypothesis, a limitation is applied, namely the variable coefficient MS=0

(2) To test whether banks in Indonesia support the differentiation hypothesis, we limit the efficiency of the market concentration variable, CRx=0

(3) To test whether the banks studied support the efficiency hypothesis, the regression was carried out without any restrictions on the MS and CRx variables being regressed simultaneously. If profits are greater because they are the result of efficiency, then MS and

CRx do not really affect profits, the CRx coefficient = 0 and the MS coefficient = 0, because the relationship between market share and concentration on profitability is wrong.

(4) The MS*CR variable is used to further prove whether profits are the result of collusion. The research results of this variable are used to confirm the rejection or acceptance of the traditional hypothesis. If profits are the result of collusion, the MS*CR coefficient > 0 (positive) means that profit sharing will increase according to the proportion of market share to industry concentration. And if there is no collusion in an industry, the MS*CR coefficient <= 0 (zero/negative).

10. RESULT AND DISCUSSION

10.1. Result

The data processed is panel data, which is tested using the Housman Test. There are three models in panel data, namely pool less squares, fixed effect model, and random effect model. The Hausman test will provide the best panel data model results between the fixed effect model and the random effect model. From the Housman test, it was concluded that this model would be better using a fixed effect model. The BLUE test will be the next test which aims to detect whether there are multicollinearity, heteroscedasticity and autocorrelation problems in the model. From the BLUE test, the results show that there is no multicollinearity, heteroscedasticity and autocorrelation in this model.

The researcher did not intervene in the data and data processing, so it is hoped that the results of this research will be purely from the results of processing the data obtained. This research was carried out on national banks using 12 samples of conventional banks in Indonesia, which are included in the top 10 categories of banks.

This research tests the research of Gavurova et al. (2017), who found that the market structure of the banking industry in the European Union is still concentrated. However, market structure is negatively related to banking performance.

Table 2 illustrates the effect of variables of banking market structure (MS, CR, MSCR, & LI), variables of efficiency (CIR, TEFF & SEFF), and firm size (LnTA) on banking profitability (NIM, ROA & ROE). Overall, the results of this study indicated that banking profitability was significantly influenced by market share (MS) in a positive direction, but the coefficients of the variables concentration ratio (CR) and Lerner index (LI) were not positive, but zero/negative.

Table 2. Result of Impact Competition and Efficiency on Banking Profitability

Variable	**Banking profitability**					
	NIM		ROA		ROE	
	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.	Coeff Prob.
MS	0.464*** 0.000	0.448*** 0.000	0.284*** 0.0000	0.258*** 0.0000	3.429*** 0.0000	3.170*** 0.0000
CR	-0.0034 0.216	-0.021 0.427	0.0112** 0.0301	0.011** 0.0497	-0.140*** 0.0086	-0.136*** 0.007
MSCR	-0.847*** 0.000	-0.81*** 0.001	-0.390*** 0.0000	-0.324*** 0.0000	-4.756*** 0.0000	-4.023*** 0.0000
LI	0.0231	-1.140	-0.468***	-0.479***	-3.028***	-3.556***

	0.956	0.733	0.0000	0.0000	0.0003	0.0000
CIR	-0.033*** 0.000	-0.038*** 0.000	-0.074*** 0.0000	-0.074*** 0.0000	-0.3182*** 0.0000	-0.332*** 0.0000
SEFF	0.0009 0.773		0.0023*** 0.0000		0.0307*** 0.0000	
TEFF		0.006*** 0.006		0.0016*** 0,0001		0.0296*** 0.0000
Size (LnTA)	0.394* 0.051	0.334* 0.078	-0.456*** 0.0000	-0.501*** 0.0000	-3.970*** 0.0000	-4.781*** 0.0000
C	1.3940	2.1912	15.99***	16.976***	117.40***	134.39***
	0.6764	0.4623	0.0000	0.0000	0.0000	0.0000
R^2	0.268	0.272	0.964	0.9633	0,887	0.884
Adjusted R^2	0.257	0.262	0.963	0.9627	0.885	0.882
Pr (Rn^2, F-Stat)	0.000	0.000	0.000	0.0000	0.000	0.000
Observation	480	480	480	480	480	480
Panel Model:	**LS, Ro**	**LS, Ro**	**EGLS**	**EGLS**	**EGLS**	**EGLS**

Informations: LS,Ro = Least Squre Robust, EGLS = EGLS (Cross-section SUR);
, **, * indicates significance at the 10%, 5% and 1% levels*

Variables of operating cost efficiency proxied by CIR (cost to income ratio) had a negative (significant) effect. Meanwhile, the banking intermediary-efficiency variables proxied by scale efficiency (SEFF) and technical efficiency (TEFF) have a positive (significant) effect on banking profitability. Firm size even had a significant negative effect on banking profitability.

The results of the statistical analysis above can be interpreted from an industrial economic perspective. Based on the result, Indonesia's big banks (top ten assets) have played an efficient intermediary function. Nevertheless, they just face disruptions from diseconomies of scale.

Banking efficiency in this study describes the behavior of bank management in implementing differentiation strategies, operating costs, and intermediation banking efficiency. Statistically, banking efficiency as a successful result of the differentiation strategies is shown by a positive coefficient on the MS (market-share) variable. As for the implementation of intermediation efficiency, it is indicated by a positive coefficient on the TEFF (technical efficiency) and SEFF (scale efficiency) variables. Meanwhile, the operating cost efficiency is indicated by the negative coefficient of variable CIR (cost-to-income ratio) in relation to NIM, ROA, and ROE (banking profitability).

10.2. Discussion

5.2.1 Impact Efficiency towards banking profitability.

The results of this study indicate that banking efficiency synergies to strengthen banking profitability. Efficiency comes from success in carrying out the differentiation strategy, intermediary function, and operating costs. Efficiency is resulted from the success in the differentiation strategies as explained in 4.1. Impact market share, and market concentration towards banking profitability.

The success of efficiency in managing operating costs strengthens banking profitability. The statistical evidence can be seen in the negative CIR coefficient, which shows that the lower the

CIR, the more efficient the bank's operational financing. Thus, efficiency provides positive synergy to banking performance.

The banks managed to serve the banking intermediary function. The statistical evidence can be seen in the positive coefficients of TEFF and SEFF. This shows if the score-TEFF and score-SEFF increase, the efficiency of bank intermediation increases, thereby providing positive synergy in banking profitability as well.

The findings of the negative effect of CIR on banking profitability, which shows that profitability is affected by operating cost efficiency, support Tan et al., 2017(b), and Chamberlain et al., (2020) who found that low CIR reflects an increase in profit margin. Meanwhile, a high CIR indicates that a bank is inefficient or has poor management quality.

The findings of the positive influence of technical efficiency (TEFF) and scale efficiency (SEFF) on banking profitability support the efficiency hypothesis as stated by Lloyd et al, 1994. The finding also supports the findings of Georgios et al., (2009), which indicated banking efficiency (especially scale efficiency) appears to be the main driving force for increasing profitability in most Latin American countries.

5.2.2 Impact of firm size on banking profitability.

The results of this study showed that the larger firm size actually results in decreased banking profitability. Statistically, this can be seen in the negative coefficient of the firm size variable (lnTA). This is an indication of "diseconomies of scale", especially in terms of capacity. The size of the firm that has exceeded the optimal point of economies of scale can create diseconomies of scale. A continuously expanding size of the banks creates inefficiency, indicated by an increase in AC & MC (average cost and marginal cost) so that profits/unit assets decrease.

The findings of this study provide support for Lingerih Zerihun (2021), which showed a negative and significant effect of bank size on ROA, and Lestari (2021), bank size has a negative effect on ROE. However, the result of this study contradicts the findings of Budhathoki et al., (2020) that showed increasing assets can provide benefits for banks to expand and develop more variety of products so that banks can benefit from a scale and scope economy. Budhathoki's research is in line with Mishra et al (2021), Hutauruk et al (2022), Takarini & Pratiwi (2022), Sahyouni & Wang (2018), and Ruslan et al (2019) which proves a positive effect of bank size on ROA.

5.2.3 Impact market share, and market concentration on banking profitability.

The success of the banking differentiation strategy which is indicated by market share that positively synergizes with banking profitability becomes the initial indication to accept the ESH (Efficiency Structure Hypothesis) concept. Furthermore, to convincingly accept the validity of the ESH more evidence is needed. This study result showed that banking performance is the result of market efficiency instead of market collusion. Thus, the MSCR coefficient should be further checked, whether it is positive or not. If the MSCR coefficient is positive, it means the market is collusive, but if it is not positive it means the market is working efficiently.

From the results of this research analysis, the MSCR coefficient was zero and negative, not positive. This result means that the market is efficient. This finding strengthens acceptance of the ESH concept, because banking profitability is the result of the role of an efficient market, not because of a collusive market. The market concentration formed by big banks in Indonesia is only an efficient collection of market shares, which reflects the success of the differentiation strategy. With such a strategy they naturally earn excess profit.

These findings support Chaerani et al., (2019) who found that market share has a positive effect on banking profitability, which proves that banking profitability is not achieved by maximizing monopoly power, but rather by a bank's ability to diversify products. In addition, according to Belkhaoui et al., (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between market share and bank profitability. This supports the findings of Nisa, et al., (2019) and Irawati (2017) that collusive behavior in the SCP hypothesis in the national banking industry in Indonesia is not confirmed.

5.2.4 Impact Lerner Index on banking profitability

The results of this study showed that market -concentration has no positive but negative effect on banking profitability. This negative effect shows that the market competition level and banking profitability move in the opposite directions. The sharper the market concentration decreases, the higher the market competition level, as indicated by a decreasing LI (lerner index). However, banking profitability tends to increase. Statistically, this can be seen in the negative coefficient of LI (Lerner index) on ROA and ROE.

This finding provide support for Zhao et al. (2022), Sahul Hamid & Ibrahim (2021), Căpraru et al., (2020) Ju & Tang, (2022), Li & Li (2022) and Apriadi et al., (2017). Competition strengthens financial performance and enhance service and technology facilities that in turn increases bank profitability. However, this result is in contrast with Khattak & Ali (2021), Rakshit (2022), and Rakshit & Bardhan (2022) that indicated higher competition results in lower profitability. Furthermore, Tan et al., (2017) found that in commercial banks in China, competition tends to reduce financial performance as measured by profitability.

6 CONCLUTION

This research analysis shows that the ESH concept is valid and can be applied to large banks in Indonesia. These findings support the validity of the ESH theory. First, there is a positive influence of market share on profitability. The larger market share compared to other banks is due to successful efficiency in creating synergistic differentiation strategies to strengthen profitability. Thus, market concentration is a collection of market shares from efficient market behavior, not collusion. This kind of market concentration can become an industrial market strength.

Second, decreasing market concentration can be interpreted as increasing competition, which leads to a decrease in banking profitability and vice versa. Statistically, this can be seen from the positive coefficient of the MS variable and the negative coefficient LI as indicators that show the positive influence of market share (MS) and the negative influence of the Lerner index (LI) on bank profitability.

This research is very useful for readers, especially in the banking industry, because it is proven that banking profitability is influenced by the efficiency of managing operational costs and the intermediation function. Statistically, this can be seen from the negative CIR and the

positive coefficients of the TEFF and SEFF variables on banking profitability (NIM, ROA, and ROE). However, banking has been detected to experience diseconomies of scale, which can increase marginal costs (MC) and average costs (AC). As a result, profit/unit of assets decreases. Increasing company size hurts banking profitability.

The limitation of this research is that it only examines large banks and does not cover all banks in Indonesia.

REFERENCES

1. Abbas, A., & Sheikh, M. R. (2023). Structure-Conduct-Performance (SCP) Paradigm: A VAR and VECM-based Granger Causality Analysis. *Journal of Policy Research*, *8*(4), 125–136. https://doi.org/10.5281/zenodo.7593037
2. Asri, N. N., & Suarjaya, A. A. (2018). Pengaruh Dana Pihak Ketiga, Capital Adequacy Ratio, Likuiditas, and Ukuran Perusahaan Terhadap Profitabilitas. E-Jurnal Manajemen Unud, Vol. 7, No. 6, 3384-3411.
3. Astutiningsih, K. W., & Baskara, I. G. (2019). Pengaruh CAR, Dana Pihak Ketiga, Ukuran Bank, and LDR terhadap profitabilitas Bank Perkreditan Rakyat. E-Jurnal Manajemen Universitas Udayana, Vol. 8, No. 3, 1608 - 1636.
4. Acaravci, S.K. and Çalim, A. E. (2013) Turkish Banking Sector's Profitability Factors. International Journal of Economics and Financial Issues, 3(1).
5. Apriadi, Intan et all. (2017). "Kompetisi and Stabilitas perbankan di Indonesia". Jurnal Manajemen IPB. 21 (01), 33-54.
6. Allen N. Berger & Loretta J. Mester, (1997). "Efficiency and productivity change in the U.S. commercial banking industry: a comparison of the 1980s and 1990s," Working Papers 97-5, Federal Reserve Bank of Philadelphia.
7. Bhatti GA, Hussain H (2010) Evidence on structure conduct performance hypothesis in Pakistani commercial banks. Int J Bus Manag 5(9):174
8. Beck, T., De Jonghe, O., and Schepens, G. (2011). "Bank Competition and Stability: Cross-country Heterogenity." Working Papers of Faculty of Economics and Business Administration, Ghent University, Belgium.
9. Begum, F., Islam, K. S., Saroni, S. A., Rahman, M. K., Sarker, B. B., & Omar, N. (2023). Short-term determinants of banking profitability and financial sustainability of banks in Bangladesh: An empirical study of COVID-19 effects. *Corporate Ownership and Control*, *20*(3), 61–74. https://doi.org/10.22495/cocv20i3art4
10. Belkhaoui, S., Lakhal, L., Lakhal F., and Hellara S. (2014). "Market Structure, Strategic Choices and Bank Performance: a Path Model", Journal of Managerial Finance, Vol. 40, No. 6, pp. 538- 564.
11. Berger, A. N., & Mester, L. J. (1997). Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions? Journal of Banking and Finance, 21, 895-947. http://dx.doi.org/10.1016/S0378-4266(97)00010-1.

12. Berger, A.N. (1995). “The Profit Structure Relationship in Banking Test of Market Power and Efficient Structure Hypothesis.” Journal of Money, Credit, and Banking, Vol.27, pp. 404- 431

13. Budhathoki, P. B., Rai, C. K., Lamichhane, K. P., Bhattarai, G., & Rai, A. (2020). The Impact of Liquidity, Leverage, and Total Size on Banks’ Profitability: Evidence from Nepalese Commercial Banks. Journal of Economics and Business, 3(2). https://doi.org/10.31014/aior.1992.03. 02.219

14. Bukvic, Rajko M. (2020). Concentration and Competition in Serbian Banking Sector in the Period 2016- 2018. Economica, 66 (2), 17 – 35

15. Căpraru, B., Ihnatov, I., & Pintilie, N.-L. (2020). Competition and diversification in the European Banking Sector. Research in International Business and Finance, 51, 100963. https://doi.org/10.1016/j.ribaf.2018.09.014

16. Chaerani, N., Cotoro, M., & Achmad, D. (2019). Struktur pasar and kinerja: Studi kasus pada bank umum di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375–384. https://doi.org/https://doi.org/10.36226/jrmb.v4i3.276

17. Chamberlain, T., Hidayat, S., & Khokhar, A. R. (2020). Credit risk in Islamic banking: evidence from the GCC. Journal of Islamic Accounting and Business Research, 11(5), 1055-1081. https://doi.org/10.1108/JIABR-09-2017-0133

18. Cristian, E., Leonarsan, W., & Kim, S. S. (2020). The impacts of compe[1]tition, efficiency, and risk towards bank’s performance in Indonesia. Jurnal Keuangan and Perbankan, 24(4), 407-419. https://doi.org/10.26905/jkdp.v24i4.4903

19. DePamphilis, D. M. (2019). The Regulatory Environment. In Mergers, Acquisitions, and Other Restructuring Activities (pp. 35–63). Elsevier. https://doi.org/10.1016/B978-0-12- 815075-7.00002-4

20. Dietrich, A., & Wanzenried, G. (2009), April). What determines the profitability of commercial banks? New evidence from Switzerland. In 12th conference of the Swiss society for financial market researches, Geneva (Vol. 2, p. 39).

21. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348

22. Douglas JosÃ© MendonÃ§a, JÃºlia Alves e Souza, Francisval de Melo Carvalho, Gideon Carvalho de Benedicto, (2020). "Relationship between Efficiency and Profitability in Banks of Brazil," Journal of Finance and Economics Research, Geist Science, Iqra University, Faculty of Business Administration, vol. 5(1), pages 1-17, March.

23. Duranovic, Gordana and Filipovic, Sanja. (2021). The Impact of Market Concentration on Competitiveness of the Banking Sector in Serbia. Industrija, 49 (3/4), 25 - 454.

24. Ejoh, N.O., and Sackey, J.A. (2014). “The Impact of Market Share on Deposit Money Banks’ Profitability in Nigeria.” European Journal of Business and Management, Vol.6, No.19.

25. Fithriyanto, nur, (2020) The Determinant Factors of Bank Profitability in Indonesia. Available at SSRN: https://ssrn.com/abstract=3736551 or http://dx.doi.org/10.2139/ssrn.3736551

26. Gavurova, Beata et. al. (2017). The Structure – Conduct – Performance Paradigm in the European Union Banking. Economics and Sociology, 10 (4), 99 - 112.

27. Georgios E. Chortareas & Jesus G. Garza-Garcia & Claudia Girardone, (2009). "Banking Sector Performance in Latin America: Market Power versus Efficiency," Working Papers 0905, Department of Accounting, Economics and Finance, Bristol Business School, University of the West of England, Bristol.

28. Ha, V. D. (2020). Does bank capital affect profitability and risk in Vietnam? Accounting, 6(3), 273–278. https://doi.org/10.5267/j.ac.2020.2.00 8

29. Heckmann, T., Gegg, K., Gegg, A., & Becht, M. (2014). Sample size matters: Investigating the effect of sample size on a logistic regression susceptibility model for debris flows. *Natural Hazards and Earth System Sciences*, *14*(2), 259–278. https://doi.org/10.5194/nhess-14-259-2014

30. Hutauruk, C. M., Muchtar, S., & Paragina, A. B. (2022). Pengaruh Manajemen Risiko Kredit and Faktor Spesifik Bank terhadap Kinerja Keuangan Bank Konvensional di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–16. https://doi.org/10.31932/jpe.v7i3.211

31. Izzo, T., Risaliti, G., & Evangelista, L. (2023). *The banking management of sustainability: Assessing the integration of ESG factors at governance level*. 61–65. https://doi.org/10.22495/cgaiop13

32. Ju, S., & Tang, H. (2022). Competition and operating efficiency of manufacturing companies in E-commerce environment: Empirical evidence from Chinese garment companies. Applied Economics, 0(0), Article 0. https://doi.org/10.1080/00036846.2022.2102126

33. Jumono, S., Sugiyanto, & Mala, C. M. F. (2019). Determinants of Profitability in Banking Industry: A Case Study of Indonesia. Asian Economic and Financial Review, 9(1), 91–108. https://doi.org/10.18488/journal.aefr.2019.91.91.108

34. Keqa, F. (2021). The determinants of banks' capital adequacy ratio: Evidence from western balkan countries. *Journal of Governance and Regulation*, *10*(2 Special Issue), 352–360. https://doi.org/10.22495/JGRV10I2SIART15

35. Khan, M. ul H., & Hanif, M. N. (2019). Empirical evaluation of 'structure-conduct-performance' and 'efficient-structure' paradigms in banking sector of Pakistan. International Review of Applied Economics, 33(5), 682–696. https://doi.org/10.1080/02692171.2018.1518411

36. Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. International Journal of Islamic and Middle Eastern Finance and Management, 14(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348

37. Kim, J. (2018). Bank Competition and Financial Stability: Liquidity Risk Perspective. Contemporary Economic Policy, 36(2), 337–362. https://doi.org/10.1111/coep.12243

38. Lloyd-William, D.M., Molyneux, P. & Thornton, J. (1994).Market Structure and Performance in Spanish Banking . Journal of Banking and Finance, 18(3): 433-443.

39. Lestari, H. S. (2021). The Effect of Liquidity, Leverage and Bank's Size on Bank's Profitability of Indonesian Listed Bank. Jurnal Manajemen, 12(2), 26. https://doi.org/10.32832/jmuika.v12i2.3946

40. Lingerih Zerihun, H. (2021). Effect Of Bank Specific Factors On Profitability Of Commercial Banks In Ethiopia. Journal of Finance and Accounting, 9(2), 23. https://doi.org/10.11648/j.jfa.2021090 2.11

41. Marquez, R. (2022). Competition, adverse selection, and information dispersion in the banking industry. Rev. Financial Stud, 901–926.

42. Mishra, A. K., Kandel, D. R., & Aithal, P. S. (2021). Profitability in Commercial Bank – A Case Study of Nepal. International Journal of Case Studies in Business, IT, and Education, 5(1), 61–77. https://doi.org/10.47992/ijcsbe.2581.6 942.0101

43. Munawar, Yusuf. (2017). "Kompetisi And Efisiensi Bank Umum Di Indonesia Periode 2008-2013".Bina ekonomi Center for Risk Management Studies Indonesia. 21 (1), 1-12.

44. Navila, N., & Sujianto, A. E. (2022). Pengaruh Modal Pinjaman and Volume Usaha Terhadap Sisa Hasil Usaha Dengan Total Aset Sebagai Variabel Intervening. JAE (Jurnal Akuntansi Dan Ekonomi), 7(3), 134-144. https://doi.org/10.29407/jae.v7i3.18310

45. Nisa, C., Mukri, C., & Djamil, A. (2019). Struktur Pasar And Kinerja: Studi Kasus Pada Bank Umum Di Indonesia. Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(3), 375 - 384. DOI: https://doi.org/10.36226/jrmb.v4i3.276

46. Pasha, R., & Elbages, B. (2022). Green Banking Practices: The Impact Of Internet Banking On Bank Profitability In Egypt. *Corporate and Business Strategy Review*, *3*(2), 65–75. https://doi.org/10.22495/cbsrv3i2art6

47. Phan, H. T., Anwar, S., Alexander, W. R. J., & Phan, H. T. M. (2019). Competition, efficiency and stability: An empirical study of East Asian commercial banks. North American Journal of Economics and Finance, 50, 100990. https://doi.org/10.1016/j.najef.2019.100990

48. Rakshit, B. (2022). Does Bank Competition Necessarily Contribute to Higher Profits? The Case of Indian Banking. Asian Economics Letters, 3(3), 35526. https://doi.org/10.46557/001c.35526

49. Rakshit, B., & Bardhan, S. (2022). An empirical investigation of the effects of competition, efficiency and risk-taking on profitability: An application in Indian banking. Journal of Economics and Business, 118, 106022. https://doi.org/10.1016/j.jeconbus.2021.106022

50. Sahyouni, A., & Wang, M. (2018). The Determinants of Bank Profitability: Does Liquidity Creation Matter? SSRN Electronic Journal, 2(2), 61– 85. https://doi.org/10.2139/ssrn.3125714

51. Samad A (2008) Market structure, conduct and performance: evidence from the Bangladesh Banking Industry. J Asian Econ 19(2):181–193
52. Shanko, T., Abera TIMBULA, M., & University, J. (2019). Factors Affecting Profitability: An Empirical Study On Ethiopian Banking Industry. International Journal of Commerce and Finance, 5(2), 87–96.
53. Shalit, S. S., & Sankar, U. (1977). The Measurement of Firm Size. The Review of Economics and Statistics. 59(3): 290-298
54. Sahul Hamid, F., & Ibrahim, M. H. (2021). Competition, diversification and performance in dual banking: A panel VAR analysis. Economic Research-Ekonomska Istraživanja, 34(1), 194–220. https://doi.org/10.1080/1331677X.2020.1782242
55. Simatele, M. (2015). Market Structure and Competition in the South African Banking Sector. Procedia Economics and Finance, 30(15), 825–835. https://doi.org/10.1016/s2212- 5671(15)01332-5.
56. Sylos Labini, S., & Donofrio, F. (2021a). Banks' compensation policies under the global pandemic: Evidence from the European banking sector. *Journal of Governance and Regulation*, *10*(1), 74–82. https://doi.org/10.22495/jgrv10i1art8
57. Stulz, R. M. (2019). FinTech, BigTech, and the Future of Banks. Journal of Applied Corporate Finance, 31(4), 86–97. https://doi.org/10.1111/jacf.12378
58. Sudrajat, C., & Rosid, J. M. (2022). Analysis Of Structure – Conduct - Performance (SCP) on The Merger of State-Owned Enterprise Islamic Banks Based on The Assets Value. 1(2), 283–294.
59. Takarini, N., & Pratiwi, N. D. (2022). Analisis Faktor-Faktor yang Mempengaruhi Profitabilitas pada Perusahaan Subsektor Makanan and Minuman yang Terdaftar di BEI. Jurnal Pendidikan Ekonomi (JURKAMI), 7(3), 1–13. https://doi.org/10.31932/jpe.v7i3.190
60. Tan, A. and Floros, C. (2013). "Market Power, Stability and Performance in the Chinese Banking Industry." Journal of Economic Issues, Vol. 18, No. 2, pp. 65-90.
61. Tan, Y. (2016a). Conclusion. In Efficiency and Competition in Chinese Banking (pp. 167–176). Elsevier. https://doi.org/10.1016/b978-0-08- 100074-8.00007-8
62. Tan, Y. (2016b). Literature Review on Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 67–91). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00004-2
63. Tan, Y. (2016c). Theory of Bank Efficiency and Bank Competition. In Efficiency and Competition in Chinese Banking (pp. 45–66). Elsevier. https://doi.org/10.1016/b978-0-08-100074-8.00003-0
64. Tan, Y., Floros, C., & Anchor, J. (2017a). The profitability of Chinese banks: Impacts of risk, competition and efficiency. Review of Accounting and Finance, 16(1), 86– 105. https://doi.org/10.1108/RAF-05-2015-0072
65. Tan, Y.; Floros, C. Risk, Competition and Efficiency in Banking: Evidence from China. Glob. Financ. J. 2018, 35, 223–236.

66. Tang, H.W., & Chen, A. (2020). How do market power and industry competition influence the effect of corporate governance on earnings management? Quarterly Review of Economics and Finance, 78, 212–225.

67. Widiasari, F. W., & Pengestuti I. R. D. (2015). Pengaruh Struktur Pasar, Kompetisi, Diversifikasi, Kapitalisasi, Risiko Kredit, and Size Terhadap Profitabilitas Bank (Doctoral dissertation, UNDIP: Fakultas Ekonomika and Bisnis).

68. Yusuf, M. (2017). Dampak Indikator Rasio Keuangan terhadap Profitabilitas Bank Umum Syariah di Indonesia. Jurnal Keuangan and Perbankan, Vol. 13, No. 2, 141-151.

69. Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. Journal of International Money and Finance, 122, 102552. https://doi.org/10.1016/j.jimonfin.2021.102552

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THE STRENGTH OF COMPETITION AND MARKET EFFICIENCY IN DETERMINING BANK PROFITS

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Abstract

Paying attention to developments in market competition, banking efficiency, and profitability is very important because it will update industry information so that it can be utilized by the early warning system (EWS). Market competition is important in business, so this research is interesting for the public. This research aims to find out the impact of competition and efficiency provide positive synergy on banking profitability. The theoretical basis for problem-solving will use industrial organization thinking, which focuses on the structure conduct performance-efficiency structure hypothesis (SCP-ESH) theory (Abbas & Sheikh, 2023). The research object uses 12 samples of conventional banks in Indonesia, which are included in the top 10 categories of a set of banks during 2012–2021 (quarterly data). The analysis uses panel data regression and statistical analysis. From the research results, it was found that there is a positive synergy between market spread operational cost management efficiency and the intermediation function in banking profitability. However, company size has a negative impact on banking profitability. This research is relevant to the research of Gavurova et al. (2017), who found that the market structure of the banking industry in the European Union was still concentrated. However, market structure is negatively related to banking performance.

Keywords: Market Share, Market Competition, Efficiency, Profitability, Big Banks

Authors' individual contribution: Conceptualization — S.S. and C.M.F.M.; Methodology — S.S. and C.M.F.M.; Validation — S.S. and C.M.F.M.; Formal Analysis — S.S. and C.M.F.M.; Investigation — S.S. and C.M.F.M.; Resources — S.S. and C.M.F.M.; Data Curation — S.S. and C.M.F.M.; Writing — Original Draft — S.S.; Writing — Review & Editing — S.S. and C.M.F.M.; Visualization — S.S.; Supervision — C.M.F.M.; Project Administration — S.S. and C.M.F.M.

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1. INTRODUCTION

Competition, efficiency, and profitability in the banking sector are important aspects that need more attention. Efficiency is the best alternative to maintain the existence of banks amidst intense competition (Begum et al., 2023; Keqa, 2021). Apart from that, efficiency can also produce more appropriate quality and prices of banking products so that banks will obtain sufficient profits to increase stability through bank capital adequacy. Therefore, Berger and Mester (1997) suggest looking at it from a micro and macro perspective.

Based on data for 2012–2021, there was significant asset growth in the Indonesian banking sectors. However, asset distribution remained

concentrated. Indonesian Financial Services Authority (FSA) records show that the number of conventional banking assets from 2012 to 2021 increased significantly. In 2012, the total assets (TA) were only 7,099,564 billion rupiahs. The TA continued to grow until 2021, reaching 9,670,515 billion rupiahs, an increase of 1,362 times. Asset growth per year (YoY) was always positive. Growth assets were 8.364% (average), with the largest of 10.134% (2021) and the smallest of 5.947% (2019). The market concentration rose, and the Lerner index (LI) decreased.

The market concentration index, as indicated by the market concentration ratio CR10 and CR4, increased. CR10 = 70.80% (average) and CR4 = 54.674% (average), meaning that the majority of all conventional banking assets in Indonesia (109–115 banks) were still concentrated in the large banks, where the ten largest banks control around 70,800% of the national assets, and the four largest banks hold about 54.674% of the assets. Meanwhile, the LI indicator was 14.130% (average), which showed a decreasing trend — indicating that the banking sector's market power decreased due to increasingly tight market competition.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of ten big banks in Indonesia. The banking liquidity indicator, as indicated by loan to deposit ratio (LDR), fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660% (2020), and the average of 86.734%. Furthermore, the return on assets (ROA) decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844%.

This research was conducted because of gaps in previous research. Several studies have examined the relationship between market structure and profitability in commercial banks in Indonesia. For example, Nisa et al. (2019) found that market share (MS) has a positive effect on banking profitability. These findings indicate that banking profitability is achieved because banks can diversify their products rather than maximize monopoly power. The limitation of the research conducted by Nisa et al. (2019) is that it used data for only one year, so it only represents events over a short period. Our study will bridge this gap by expanding the research period to five years from 2017 to 2021, resulting in a total of 480 firm-year observations. It is believed that a larger observation size will be able to produce better regression results (Heckmann et al., 2014). Research by Nisa et al. (2019) produced insignificant coefficients for the variables of market concentration and MS on banking performance, which means that there is collusive behavior in the SCP hypothesis in the banking industry.

Meanwhile, research by Ejoh and Sackey (2014) found a significant positive effect of MS on bank profitability. From this research, there are research gaps that need to be re-examined by researchers. This research is important considering the increasingly tight level of banking competition, so this research can be used as a basis for determining policies in global competition.

The research question in this study is:

RQ: Do competition, differentiation strategy, efficiency, and company size provide positive synergy to the profitability of large banks in Indonesia?

This paper is structured as follows: After the introduction in Section 1, Section 2 of this paper reviews the literature on market efficiency and competition's effects on banking profitability. Section 3 discusses the methodology used in this research. Section 4 presents the results and discussion of the findings from this research. Finally, Section 5 summarizes the findings on the impact of competition and market efficiency on large banks' profits.

2. LITERATURE REVIEW

As an industry, the analysis of individual bank behaviour and the market structure in which banks operate are intimately intertwined. The study of microeconomic banking frequently focuses on examining bank rivalry and efficiency. This research can involve bank behaviour in price competition, such as decisions on deposit interest rates and credit interest rates, in addition to the non-price competition, such as differentiation of banking products and optimization of customer service. According to Phan et al. (2019), efficiency analysis is typically linked to revenue maximization, profit maximization, and cost minimization. Many academic works discuss the relationship between the efficiency of monetary policy and its transmission mechanisms at the macroeconomic empirical level. Unfortunately, not much research explicitly examines Indonesian banking practices at the industry level, both before and after the crisis. Bank actions, for example, those related to assessing credit output or deposit interest rates, are closely related to the type of market in which the bank functions (Maspupah et al., 2022).

There are three thoughts in analyzing the relationship between market structure and performance using the structure conduct performance (SCP) paradigm (Khan & Hanif, 2019). First, the traditional hypothesis is based on the preposition which states that market concentration will encourage collusion between companies in an industry which will then increase profits. Second, the differentiation hypothesis, which is based on the proposition which states that the MS obtained is the result of product differentiation behavior carried out, and third, the efficiency hypothesis, which is based on the proposition which states that efficiency will increase MS and will ultimately increase market concentration as well. However, this increase in MS and concentration is the result of efficient behavior so that ultimately it will increase profits.

Theoretically, the problem of the relationship between market structure and banking performance can be answered more precisely using SCP theory and its developments. According to Abbas and Sheikh (2023), the SCP school (market structure (S), conduct (C), and performance (P)) views the relationship between S, C, and P attributes as linear, while the relative efficiency (RE)/ESH the school views the relationship between S, C, and P attributes, not linear but causal.

The RE school refutes the SCP-theory assumption, where efficiency is seen as a key factor that makes a company's margin (performance) high so that it has the potential to increase MS. Thus, S only sometimes significantly affects performance.

This hypothesis is supported by Belkhaoui et al. (2014) in ESH theory, which states that S is the result of the role of the level of efficiency followed by P.

Another theory is Quiet Life Hypothesis (QLH), which Hicks first put forward; QLH analyzes how market concentration is related to the level of company efficiency. With greater market power, companies need to be more efficient in carrying out their business activities.

Stulz (2019) argued that banks should ensure efficiency in all operations. Inefficient banks will likely exit the market because they no longer provide competitive prices, products, and service quality. Meanwhile, from a macro perspective, an efficient banking industry will lead to lower financial intermediary costs and higher financial system stability. With high efficiency, banks can allocate their financial resources more effectively for economic growth.

The increase in market concentration followed by increased competition has reduced the liquidity and profitability of ten big banks in Indonesia. The banking liquidity indicator, as indicated by the LDR, fell from 88.130% to 83.670%, with the largest of 89.570% (2018), the smallest of 83.660% (2020), and the average of 86.734%. Furthermore, ROA decreased from 3.360% to 2.510%, with the largest of 3.360% (2017), the smallest of 1.840% (2020), and the average of 2.844 %.

Competition, which aims to increase MS and generate excess profits, should promote banking efficiency and trigger innovation that yields more variety of products, lower prices, broader access to finance, and better service (Jumono et al., 2019). The competence inherent among the big banks in Indonesia should also bring a positive effect toward a more efficient market. Meanwhile, the results of the previous studies tell a different story. In short, profitability as an indicator of banking performance could result from collusion in an industry or a company's differentiation and efficiency strategy. The question is, what about the banking performance of big banks in Indonesia? Is it the impact of a collusive market or efficiency?

According to Simatele (2015) and Tan (2016a), the market structure of the banking industry was monopolistic, while Gavurova et al. (2017) found that the market structure of the banking industry in the European Union until 2013 was still concentrated. Still, the market structure was negatively related to banking performance. Specifically, in Serbia, Bukvic (2020) and Duranovic and Filipovic (2021) found that the banking market in Serbia is an oligopoly.

As for the relationship between competition, efficiency, and profitability among Indonesian banks, a study by Cristian et al. (2020) found that competition in the credit and deposit markets does not affect ROA and net interest margin (NIM). However, market competition for fee-based income products (FBI) has a negative effect on ROA and NIM. Meanwhile, Munawar (2017), from an impulse response function (IRF) analysis, found that an increasingly competitive banking industry encourages banking efficiency in Indonesia. Furthermore, Widiasari (2015) found that bank profitability is influenced by the intensity of competition in the banking market, but high competition intensity can reduce bank profitability and stability.

Concerning how operating efficiency influences banking profitability in Indonesia, Fithriyanto (2020) found that management effectiveness in managing operating costs synergies to strengthen ROA. In contrast, according to Cristian et al. (2020), operating efficiency does not affect the ROA and NIM of Indonesian banks. Research on the effect of intermediary efficiency on profitability conducted by Mendonca et al. (2020) in Brazil showed that efficiency is associated with profitability, indicating a more significant impact on return on equity (ROE) than ROA. The previous study conducted in Latin America (Chortareas et al., 2009) found that efficiency, especially efficiency of scale, appears to be the main driving force for increasing profitability in most Latin American countries.

Concerning the influence of firm size on banking profitability, Acaravci and Çalim (2013) found that large banks tend to have a high level of product diversification compared to small banks. In addition to higher diversification potential, economies of scale can also be found in large banks. Diversification reduces risk and economies of scale that lead to increased operational efficiency. Thus, firm size has a positive effect on profitability. However, according to Dietrich and Wanzenried (2009), an extensive bank can cause a negative relationship between size and profitability caused by agency costs, bureaucratic processes, and other factors.

2.1. Efficiency towards banking profitability

According to Navila and Sujianto (2022), companies that run efficiently produce super-expected profits. Meanwhile, according to the "efficiency hypothesis theory" (Lloyd-Williams et al., 1994), companies with a higher level of efficiency than their competitors can implement two strategies to maximize profits. First, they can maintain price levels and company size; second, they can lower prices and expand the size of the company. If they implement the second strategy, their efficiency, and MS will increase, which in turn will stimulate the market penetration process. This efficiency hypothesis emphasizes operational technical efficiency (TEFF), which can reduce average costs (AC) due to increased output. Several studies in America found that efficiency is the dominant variable in explaining profitability in American banks (Shanko et al., 2019).

Tan et al. (2017) and Chamberlain et al. (2020) found that a low cost income ratio (CIR) reflects increased profit margins. Meanwhile, a high CIR indicates a bank is inefficient or has poor management quality. The finding of the negative influence of CIR on banking profitability shows that profitability is influenced by operational cost efficiency.

Research conducted by Lloyd-Williams et al. (1994) supports the findings of Chortareas et al. (2009), indicating that banking efficiency (especially scale efficiency (SEFF)) is the main driving force for increasing profitability in most Latin American countries. This research positively influences TEFF and SEFF on banking profitability.

2.2. Firm size on banking profitability

Research explaining the influence of company size on profitability conducted by Astutiningsih and Baskara (2019) shows that company size has a positive effect on profitability. Meanwhile, other research conducted by Asri and Suarjaya (2018) and Yusuf (2017) shows that partial company size does not have a significant effect on profitability.

According to Sahul Hamid (2021), larger banks will benefit from economies of scale and income diversification. However, a negative relationship can also occur if the bank experiences diseconomies of scale and inefficient management. Meanwhile, according to Shalit and Sankar (1977) and Khan and Hanif (2019), company size also has important influences such as economic scale, access to capital markets, profitability, diversification, regulation, company balance sheet, research and development (R&D), and technological innovation.

Research by Lingerih Zerihun (2021) found that bank size has a negative and significant effect on ROA, and in Lestari (2021), bank size hurts ROE. However, the results of this research contradict the findings of Budhathoki et al. (2020), which show that increasing assets can benefit banks to expand and develop more diverse products so that banks can benefit from the scale and scope of the economy. Budhathoki et al.'s (2020) research is in line with Mishra et al. (2021), Hutauruk et al. (2022), Takarini and Pratiwi (2022), Sahyouni and Wang (2018), and prove that there is a positive influence of bank size on bank size.

2.3. Market share, and market concentration on banking profitability

According to Maspupah et al. (2022), dominant firms are business actors with large MS in the industry. They act as price setters due to their considerable market power. According to Kim (2018), banks with immense market power can take more liquidity risk, thereby reducing competition, which can result in the fragility of the financial system.

Meanwhile, relative market power (RMP) theory entails that companies with large MS with differentiated products can determine output prices and generate excess profits (super regular profits). Therefore, Belkhaoui et al. (2014) confirmed that the larger the MS, the greater the funds from the public that banks can use to increase bank activities. It can eventually increase profits, for example, by increasing investment and lending. Furthermore, Ejoh and Sackey (2014) found a significant positive effect of MS on bank profitability.

Nisa et al. (2019) found that MS positively affects banking profitability; this proves that banking profitability is not achieved by maximizing monopoly power but rather by the bank's ability to diversify its products. In addition, according to Belkhaoui et al. (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between MS and bank profitability.

2.4. Lerner index on banking profitability

Research by Sedera et al. (2022) suggests that competition has a positive relationship with bank profitability because it can encourage financial inclusion, thereby expanding the bank's customer base, diversifying risks, and increasing bank profitability. While the results of other studies, Tan and Floros (2013) and Hope et al. (2013) found that banking competition significantly negatively affects profitability because profits from monopolies are reduced.

In the relationship between competition and profitability, Tan (2016b) concluded that market competitiveness is lower in concentrated markets where the total MS is concentrated in a few large banks. Furthermore, Lapteacru (2014) found that an increasingly competitive market can lead to smaller market power in the banking sector. Marquez (2002) also found that when competition becomes tighter, each bank will compete for customers, and sometimes banks reduce loan terms. As a result, non-repayable loans (NPLs) increase, and banking efficiency levels decrease. Another effort to attract customers is usually by providing loans with low interest, which can reduce bank efficiency.

According to Zhao et al. (2022), Sahul Hamid and Ibrahim (2021), Căpraru et al. (2020), Ju and Tang (2022), and Apriadi et al. (2017), competition strengthens financial performance and improves service facilities and technology, ultimately increasing bank profitability.

The research results of Khattak and Ali (2021), Rakshit (2022), and Rakshit and Bardhan (2022) found that higher competition results in lower profitability. Furthermore, Tan et al. (2017) found that competition in commercial banks in China tends to reduce financial performance as measured by profitability.

The research hypotheses are as follows:

H1: Market efficiency, as proxied by cost-income ratio (CIR), scale efficiency (SEFF), and technical efficiency (TEFF), has a positive impact on company profitability.

H2: Firm size (Ln TA) has a positive impact on profitability.

H3: Strategy differentiation as proxied by the market share of bank (MS) and market concentration ratio (CR) has a positive impact on company profitability.

H4: Lerner Index (LI) has a positive impact on company profitability.

3. RESEARCH METHODOLOGY

3.1. Data and sampling

The sample in this study are conventional banks in Indonesia that have entered the top 10 based on asset criteria. Using quarterly data for the 2012–2021 period. Data was taken from bank financial reports published on the FSA's website and from various sources needed to complete this research.

3.2. Regression model analysis

The regression model that will be used adapts the research of Jumono et al. (2019), as follows:

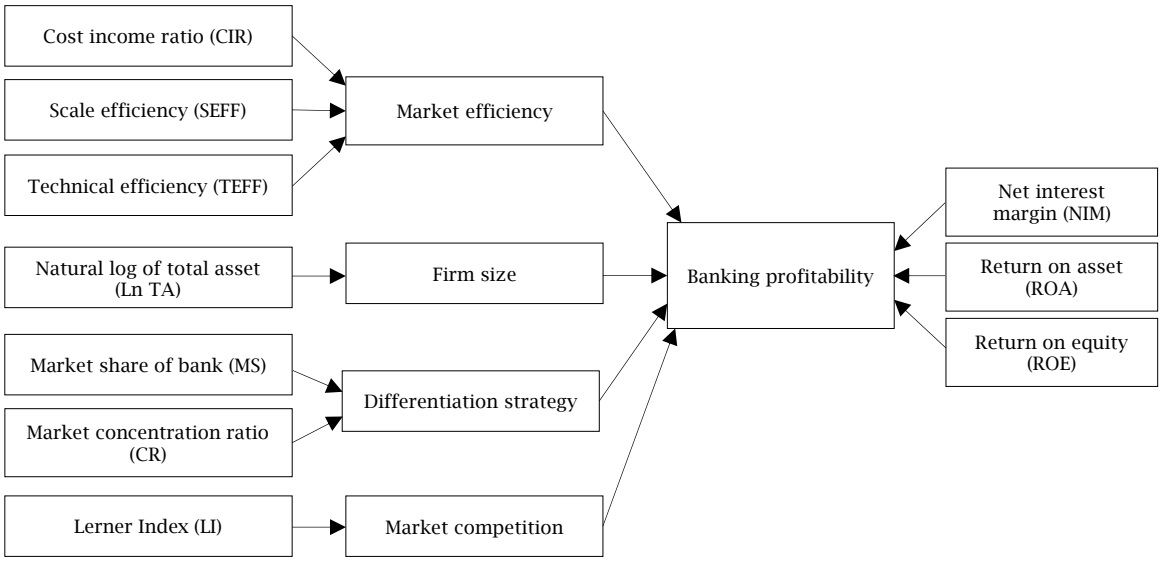
$$\pi_{i,t} = a_0 + a_1 MS_{i,t} + a_2 CR4_t + a_3 MSCR_{i,t} + a_4 LI_{i,t} + a_5 CIR_{i,t} + a_6 SEFF_{i,t} + a_7 TEFF_{i,t} + a_8 Size_{i,t} + e_{i,t} \quad (1)$$

where, $\pi_{i,t}$ is banking profitability, which is proxied by NIM (net interest margin); ROA (return on asset); ROE (return on equity). Meanwhile $MS_{i,t}$ = Market share of bank in year *t*; CR = market concentration ratio in year *t*; $MSCR_{i,t}$ = multiplication between MS and CR bank in year *t*; *LI* = Lerner index; *Size* = Ln TA; *SEFF* = scale efficiency; and *TEFF* = technical efficiency.

3.2. Research model

The research model in this study is presented as follows (Figure 1):

Figure 1. Research model



Research variables are as follows:

- Banking profitability as a dependent variable proxied by *NIM, ROA,* and *ROE.*
- Market efficiency is the independent variable 1 with *CIR*, *SEFF*, and *TEFF*.
- Firm size as independent variable 2 with proxy *Ln TA*.
- Differentiation strategy as independent variable 3 with *MS* proxy (Bank MS) and *CR*.
- Market competition as independent variable 4 with *LI* proxy.

Table 1. Definition of operating variable, and measurement

Variable	*Proxies*	*Notation*	*Measurement*	*Directions*
Market efficiency	Cost income ratio	*CIR*	Cost/Income ratio (%)	+
	Scale efficiency	*SEFF*	Output/Input, DEA approach	+
	Technical efficiency	*TEFF*	Output/Input, DEA approach	+
Firm size	Size	*Ln TA*	Ln of TA bank	+
Differentiation strategy	Market share of bank	*MS*	Asset bank/Total market assets industry (%)	+
	Market concentration ratio	*CR*	TA largest banks/TA industry (%)	+/-
Market competition	Lerner index	*LI*	(Price/Unit asset-marginal cost)/Price/Unit asset (%)	+/-
Banking profitability	Net interest margin	*NIM*	Net interest margin/Earning assets (%)	
	Return on asset	*ROA*	Operating profit/Asset (%)	
	Return on equity	*ROE*	Profit after tax/Equities	

The analysis model chosen is a panel data regression analysis model. This model is used because it can better interpret the relationship between the structure of the variables used as the basis for the analysis. From the results of the Chow test and the Housman test, the results obtained show that panel data for this research is more suitable for using the fixed effect model (FEM) where the slope coefficient is constant but the intercept is not continuous. However, this does not rule out the possibility of using alternative methods to analyze the panel data model using the random effect model (REM). In the FEM, differences in unit characteristics and periods are accommodated in the intercept so that the intercept can change over time.

Meanwhile, for the REM, differences in unit characteristics and periods are accommodated in the error or residual of the model. Because two components contribute to error formation, namely units and periods, random errors in REM need to be decomposed into combined mistakes and errors for periods. In this research, interpretation will lead to testing a proven hypothesis. For this reason, four stages of understanding of the regression results are carried out, namely:

1) To test whether banks in Indonesia support the traditional SCP hypothesis, a limitation is applied, namely the variable coefficient *MS* = 0.

2) To test whether banks in Indonesia support the differentiation hypothesis, we limit the efficiency of the market concentration variable, $CR_x = 0$.

3) To test whether the banks studied support the efficiency hypothesis, the regression was carried out without any restrictions on the *MS* and CR_x variables being regressed simultaneously. If profits are greater because they are the result of efficiency, then *MS* and CR_x do not really affect profits, the CR_x coefficient = 0 and the *MS* coefficient = 0, because the relationship between *MS* and concentration on profitability is wrong.

4) The *MS*CR* variable is used to further prove whether profits are the result of collusion. The research results of this variable are used to confirm the rejection or acceptance of the traditional hypothesis. If profits are the result of collusion, the *MS*CR* coefficient > 0 (positive) means that profit sharing will increase according to the proportion of *MS* to industry concentration. And if there is no collusion in an industry, the *MS*CR* coefficient <= 0 (zero/negative).

4. RESULT AND DISCUSSION

4.1. Result

The data processed is panel data, which is tested using the Housman test. There are three models in panel data, namely pool fewer squares, fixed effect model, and REM. The Hausman test will provide the best panel data model results between the fixed effect model and the REM. From the Housman test, it was concluded that this model would be better using a fixed effect model. The BLUE test will be the next test which aims to detect whether there are multicollinearity, heteroscedasticity, and autocorrelation problems in the model. From the BLUE test, the results show that there is no multicollinearity, heteroscedasticity, and autocorrelation in this model.

The researchers did not intervene in the data and data processing, so it is hoped that the results of this research will be purely from the results of processing the data obtained. This research was carried out on national banks using 12 samples of conventional banks in Indonesia, which are included in the top 10 categories of banks.

This research tests the research of Gavurova et al. (2017), who found that the market structure of the banking industry in the European Union is still concentrated. However, market structure is negatively related to banking performance.

Table 2 illustrates the effect of variables of banking market structure (*MS, CR, MSCR*, and *LI*), variables of efficiency (*CIR, TEFF,* and *SEFF*), and firm size (*Ln TA*) on banking profitability (*NIM, ROA,* and *ROE*). Overall, the results of this study indicated that banking profitability was significantly influenced by *MS* in a positive direction, but the coefficients of the variables *CR* and *LI* were not positive, but zero/negative.

Table 2. Result of impact competition and efficiency on banking profitability

Variable	***Banking profitability***					
	NIM		***ROA***		***ROE***	
	Coeff. prob.	***Coeff. prob.***	***Coeff. prob.***	***Coeff. prob.***	***Coeff. prob.***	***Coeff. prob.***
MS	0.464***	0.448***	0.284***	0.258***	3.429***	3.170***
	0.000	0.000	0.0000	0.0000	0.0000	0.0000
CR	-0.0034	-0.021	0.0112**	0.011**	-0.140***	-0.136***
	0.216	0.427	0.0301	0.0497	0.0086	0.007
MSCR	-0.847***	-0.81***	-0.390***	-0.324***	-4.756***	-4.023***
	0.000	0.001	0.0000	0.0000	0.0000	0.0000
LI	0.0231	-1.140	-0.468***	-0.479***	-3.028***	-3.556***
	0.956	0.733	0.0000	0.0000	0.0003	0.0000
CIR	-0.033***	-0.038***	-0.074***	-0.074***	-0.3182***	-0.332***
	0.000	0.000	0.0000	0.0000	0.0000	0.0000
SEFF	0.0009		0.0023***		0.0307***	
	0.773		0.0000		0.0000	
TEFF		0.006***		0.0016***		0.0296***
		0.006		0,0001		0.0000
Ln TA	0.394*	0.334*	-0.456***	-0.501***	-3.970***	-4.781***
	0.051	0.078	0.0000	0.0000	0.0000	0.0000
C	1.3940	2.1912	15.99***	16.976***	117.40***	134.39***
	0.6764	0.4623	0.0000	0.0000	0.0000	0.0000
R^2	0.268	0.272	0.964	0.9633	0,887	0.884
Adjusted R^2	0.257	0.262	0.963	0.9627	0.885	0.882
Pr (Rn^2 F-stat.)	0.000	0.000	0.000	0.0000	0.000	0.000
Observation	480	480	480	480	480	480
Panel model	LS, Ro	LS, Ro	EGLS	EGLS	EGLS	EGLS

*Note: LS, Ro = Least square robust, EGLS = Cross-section SUR. *, **, *** indicates significance at the 10%, 5%, and 1% levels.*

Variables of operating cost efficiency proxied by *CIR* had a negative (significant) effect. Meanwhile, the banking intermediary-efficiency variables proxied by *SEFF* and *TEFF* have a positive (significant) effect on banking profitability. Firm size (*Ln TA)* even had a significant negative effect on banking profitability.

The results of the statistical analysis above can be interpreted from an industrial economic perspective. Based on the result, Indonesia's big banks (top ten assets) have played an efficient intermediary function. Nevertheless, they just face disruptions from diseconomies of scale.

Banking efficiency in this study describes the behavior of bank management in implementing differentiation strategies, operating costs, and intermediation banking efficiency. Statistically, banking efficiency as a successful result of

the differentiation strategies is shown by a positive coefficient on the *MS* variable. As for the implementation of intermediation efficiency, it is indicated by a positive coefficient on the *TEFF* and *SEFF* variables. Meanwhile, the operating cost efficiency is indicated by the negative coefficient of variable *CIR* in relation to *NIM, ROA*, and *ROE* (banking profitability).

4.2. Discussion

4.2.1. Impact efficiency towards banking profitability

The results of this study indicate that banking efficiency synergies to strengthen banking profitability. Efficiency comes from success in carrying out the differentiation strategy, intermediary function, and operating costs. Efficiency resulted from the success of the differentiation strategies as explained in point 4.1. Impact *MS*, and market concentration towards banking profitability.

The success of efficiency in managing operating costs strengthens banking profitability. The statistical evidence can be seen in the negative *CIR* coefficient, which shows that the lower the *CIR*, the more efficient the bank's operational financing. Thus, efficiency provides positive synergy to banking performance.

The banks managed to serve the banking intermediary function. The statistical evidence can be seen in the positive coefficients of *TEFF* and *SEFF*. This shows if the score-*TEFF* and score-*SEFF* increase, the efficiency of bank intermediation increases, thereby providing positive synergy in banking profitability as well.

The findings of the negative effect of *CIR* on banking profitability, which shows that profitability is affected by operating cost efficiency, support Tan et al. (2017), and Chamberlain et al. (2020) who found that low *CIR* reflects an increase in profit margin. Meanwhile, a high *CIR* indicates that a bank is inefficient or has poor management quality.

The findings of the positive influence of *TEFF* and *SEFF* on banking profitability support the efficiency hypothesis as stated by Lloyd-Williams et al. (1994). The finding also supports the findings of Chortareas et al. (2009), which indicated banking efficiency (especially *SEFF*) appears to be the main driving force for increasing profitability in most Latin American countries.

4.2.2. Impact of firm size on banking profitability

The results of this study showed that the larger firm size actually results in decreased banking profitability. Statistically, this can be seen in the negative coefficient of the firm size variable (*Ln TA*). This is an indication of "diseconomies of scale", especially in terms of capacity. The size of the firm that has exceeded the optimal point of economies of scale can create diseconomies of scale. A continuously expanding size of the banks creates inefficiency, indicated by an increase in average cost (AC) and marginal cost (MC) so that profits/unit assets decrease.

The findings of this study provide support for Lingerih Zerihun (2021), who showed a negative and significant effect of bank size on *ROA*, and Lestari (2021), bank size has a negative effect on *ROE*. However, the result of this study contradicts the findings of Budhathoki et al. (2020) that increasing assets can provide benefits for banks to expand and develop more variety of products so that banks can benefit from a scale and scope economy. Budhathoki et al.'s (2020) research is in line with Mishra et al. (2021), Hutauruk et al. (2022), Takarini and Pratiwi (2022), Sahyouni and Wang (2018), which proves a positive effect of bank size on *ROA*.

4.2.3. Impact market share, and market concentration on banking profitability

The success of the banking differentiation strategy which is indicated by *MS* that positively synergizes with banking profitability becomes the initial indication to accept the ESH concept. Furthermore, to convincingly accept the validity of the ESH more evidence is needed. This study result showed that banking performance is the result of market efficiency instead of market collusion. Thus, the *MSCR* coefficient should be further checked, whether it is positive or not. If the *MSCR* coefficient is positive, it means the market is collusive, but if it is not positive it means the market is working efficiently.

From the results of this research analysis, the *MSCR* coefficient was zero and negative, not positive. This result means that the market is efficient. This finding strengthens acceptance of the ESH concept, because banking profitability is the result of the role of an efficient market, not because of a collusive market. The market concentration formed by big banks in Indonesia is only an efficient collection of *MS*, which reflects the success of the differentiation strategy. With such a strategy they naturally earn excess profit.

These findings support Nisa et al. (2019) who found that *MS* has a positive effect on banking profitability, which proves that banking profitability is not achieved by maximizing monopoly power, but rather by a bank's ability to diversify products. In addition, according to Belkhaoui et al. (2014) and Ejoh and Sackey (2014), there is a significant positive relationship between *MS* and bank profitability. This supports the findings of Nisa et al. (2019) that collusive behavior in the SCP hypothesis in the national banking industry in Indonesia is not confirmed.

4.2.4. Impact of Lerner Index on banking profitability

The results of this study showed that market — concentration has no positive but negative effect on banking profitability. This negative effect shows that the market competition level and banking profitability move in opposite directions. The sharper the market concentration decreases, the higher the market competition level, as indicated by a decreasing *LI*. However, banking profitability tends to increase. Statistically, this can be seen in the negative coefficient of *LI* on *ROA* and *ROE*.

This finding provides support for Zhao et al. (2022), Sahul Hamid and Ibrahim (2021), Căpraru et al. (2020), Ju and Tang (2022), and Apriadi et al. (2017). Competition strengthens

financial performance and enhances service and technology facilities which in turn increases bank profitability. However, this result is in contrast with Khattak and Ali (2021), Rakshit (2022), and Rakshit and Bardhan (2022) that higher competition results in lower profitability. Furthermore, Tan et al. (2017) found that in commercial banks in China, competition tends to reduce financial performance as measured by profitability.

5. CONCLUSION

This research analysis shows that the ESH concept is valid and can be applied to large banks in Indonesia. These findings support the validity of the ESH theory. First, there is a positive influence of MS on profitability. The larger MS compared to other banks is due to successful efficiency in creating synergistic differentiation strategies to strengthen profitability. Thus, market concentration is a collection of MS from efficient market behavior, not collusion. This kind of market concentration can become an industrial market strength.

Second, decreasing market concentration can be interpreted as increasing competition, which leads to a decrease in banking profitability and vice versa. Statistically, this can be seen from the positive coefficient of the *MS* variable and the negative coefficient *LI* as indicators that show the positive influence of *MS* and the negative influence of the *LI* on bank profitability.

This research is very useful for readers, especially in the banking industry, because it is proven that banking profitability is influenced by the efficiency of managing operational costs and the intermediation function. Statistically, this can be seen from the negative *CIR* and the positive coefficients of the *TEFF* and *SEFF* variables on banking profitability (*NIM, ROA*, and *ROE*). However, banking has been detected to experience diseconomies of scale, which can increase MC and AC. As a result, profit/unit of assets decreases. Increasing company size hurts banking profitability.

The limitation of this research is that it only examines large banks and does not cover all banks in Indonesia.

The next research direction is how researchers can use more extensive data by adding research objects using not only large banks but also all banks in Indonesia or comparing banking conditions in Indonesia with banks abroad, which will increase the diversity of research.

REFERENCES

Abbas, A., & Sheikh, M. R. (2023). Structure-conduct-performance (SCP) paradigm: A VAR and VECM-based granger causality analysis. *Journal of Policy Research, 8*(4), 125–136. https://doi.org/10.5281/zenodo.7593037

Acaravci, S. K., & Çalim, A. E. (2013). Turkish banking sector's profitability factors. *International Journal of Economics and Financial Issues, 3*(1), 27–41. https://www.econjournals.com/index.php/ijefi/article/view/343

Apriadi, I., Sembel, R., Santosa, P. W., & Firdaus, M. (2017). Kompetisi dan stabilitasperbankan di Indonesia suatu pendekatan analisis panel vector autoregression [Banking competition and stability in Indonesia. A panel vector autoregression analysis approach]. *Jurnal Manajemen, 21*(1), 33–54. https://doi.org/10.24912/jm.v21i1.146

Asri, N. N. S., & Suarjaya, A. A. G. (2018). Pengaruh dana pihak ketiga, capital adequacy ratio, likuiditas, dan ukuran perusahaan terhadap profitabilitas [The influence of third party funds, capital adequacy ratio, liquidity, and company size on profitability]. *E-Jurnal Manajemen Universitas Udayana, 7*(6), 3384–3411. https://doi.org/10.24843/EJMUNUD.2018.v07.i06.p19

Astutiningsih, K. W., & Baskara, I. G. K. (2019). Pengaruh CAR, dana pihak ketiga, ukuran bank, dan LDR terhadap profitabilitas bank perkreditan rakyat [The influence of CAR, third party funds, bank size, and LDR on the profitability of rural banks]. *E-Jurnal Manajemen Universitas Udayana, 8*(3), 1608–1636. https://doi.org/10.24843/EJMUNUD.2019.v08.i03.p16

Beck, T., de Jonghe, O., & Schepens, G. (2012). *Bank competition and stability: Cross-country heterogeneity* (European Banking Center Discussion Paper No. 2012–026, CentER Discussion Paper No. 2012–085). EBC, CentER. https://doi.org/10.2139/ssrn.1890674

Begum, F., Islam, K. S., Saroni, S. A., Rahman, M. K., Sarker, B. B., & Omar, N. (2023). Short-term determinants of banking profitability and financial sustainability of banks in Bangladesh: An empirical study of COVID-19 effects. *Corporate Ownership & Control, 20*(3), 61–74. https://doi.org/10.22495/cocv20i3art4

Belkhaoui, S., Lakhal, L., Lakhal, F., & Hellara, S. (2014). Market structure, strategic choices and bank performance: A path model. *Journal of Managerial Finance, 40*(6), 538–564. https://doi.org/10.1108/MF-07-2013-0183

Berger, A. N. (1995). The profit structure relationship in banking – tests of market-power and efficient-structure hypothesis. *Journal of Money, Credit, and Banking, 27*(2), 404–431. https://doi.org/10.2307/2077876

Berger, A. N., & Mester, L. J. (1997). Inside the black box: What explains differences in the efficiencies of financial institutions? *Journal of Banking & Finance, 21*(7), 895–947. http://dx.doi.org/10.1016/S0378-4266(97)00010-1

Berger, A. N., & Mester, L. J. (1997). *Efficiency and productivity change in the U.S. commercial banking industry: A comparison of the 1980s and 1990s* (Working Paper No. 97–5). Federal Reserve Bank of Philadelphia. https://doi.org/10.21799/frbp.wp.1997.05

Bhatti, G. A., & Hussain, H. (2010). Evidence on structure conduct performance hypothesis in Pakistani commercial banks. *International Journal of Business and Management, 5*(9), 174–187. https://doi.org/10.5539/ijbm.v5n9p174

Budhathoki, P. B., Rai, C. K., Lamichhane, K. P., Bhattarai, G., & Rai, A. (2020). The impact of liquidity, leverage, and total size on banks' profitability: Evidence from Nepalese commercial banks. *Journal of Economics and Business, 3*(2), 545–555. https://doi.org/10.31014/aior.1992.03.02.219

Bukvic, R. M. (2020). Concentration and competition in Serbian banking sector in the period 2016–2018. *Ekonomika, 66*(2), 17–35. https://doi.org/10.5937/ekonomika2002017B

Căpraru, B., Ihnatov, I., & Pintilie, N.-L. (2020). Competition and diversification in the European banking sector. *Research in International Business and Finance, 51*, Article 100963. https://doi.org/10.1016/j.ribaf.2018.09.014

Chamberlain, T., Hidayat, S., & Khokhar, A. R. (2020). Credit risk in Islamic banking: Evidence from the GCC. *Journal of Islamic Accounting and Business Research, 11*(5), 1055–1081. https://doi.org/10.1108/JIABR-09-2017-0133

Chortareas, G. E., Garza-Garcia, J. G., & Girardone, C. (2009). *Banking sector performance in Latin America: Market power versus efficiency* (CGF Working Paper No. 01/09). Centre for Global Finance (CGF). https://www2.uwe.ac.uk/faculties/BBS/BUS/Research/CGF/CGF%20Working%20Paper01%2009.pdf

Cristian, E., Leonarsan, W., & Kim, S. S. (2020). The impacts of competition, efficiency, and risk towards bank's performance in Indonesia. *Jurnal Keuangan dan Perbankan, 24*(4), 407–419. https://doi.org/10.26905/jkdp.v24i4.4903

DePamphilis, D. M. (Ed.) (2019). The regulatory environment. In *Mergers, acquisitions, and other restructuring activities. An integrated approach to process, tools, cases, and solutions* (10th ed., pp. 35–63). Academic Press. https://doi.org/10.1016/B978-0-12-815075-7.00002-4

Dietrich, A., & Wanzenried, G. (2009). What determines the profitability of commercial banks? New evidence from Switzerland. In *12th Conference of the Swiss Society for Financial Market Research.* http://surl.li/upjgc

Duranovic, G., & Filipovic, S. (2021). The impact of market concentration on competitiveness of the banking sector in Serbia. *Industrija, 49*(3–4), 25–45. https://doi.org/10.5937/industrija49-36262

Ejoh, N. O., & Sackey, J. A. (2014). The impact of market share on deposit money banks' profitability in Nigeria. *European Journal of Business and Management, 6*(19), 81–89. https://core.ac.uk/download/pdf/234625625.pdf

Fithriyanto, N. (2020). *The determinant factors of bank profitability in Indonesia.* https://doi.org/10.2139/ssrn.3736551

Gavurova, B., Kocisova, K., & Kotaskova, A. (2017). The structure – conduct – performance paradigm in the European Union banking. *Economics & Sociology, 10*(4), 99–112. https://doi.org/10.14254/2071-789X.2017/10-4/8

Ha, V. D. (2020). Does bank capital affect profitability and risk in Vietnam? *Accounting, 6*, 273–278. https://doi.org/10.5267/j.ac.2020.2.008

Heckmann, T., Gegg, K., Gegg, A., & Becht, M. (2014). Sample size matters: Investigating the effect of sample size on a logistic regression susceptibility model for debris flows. *Natural Hazards and Earth System Sciences, 14*(2), 259–278. https://doi.org/10.5194/nhess-14-259-2014

Hope, O. K., Ma, M. S., & Thomas, W. B. (2013). Tax avoidance and geographic earnings disclosure. *Journal of Accounting and Economics, 56*(2–3), 170–189. https://doi.org/10.1016/j.jacceco.2013.06.001

Hutauruk, C. M., Muchtar, S., & Paragina, A. B. (2022). Pengaruh manajemen risiko kredit and faktor spesifik bank terhadap kinerja keuangan bank konvensional di BEI [The influence of credit risk management and bank specific factors on the financial performance of conventional banks on the IDX]. *Jurnal Pendidikan Ekonomi (JURKAMI), 7*(1), 73–88. https://doi.org/10.31932/jpe.v7i1.1532

Izzo, T., Risaliti, G., & Evangelista, L. (2023). The banking management of sustainability: Assessing the integration of ESG factors at governance level. In E. Karger & A. Kostyuk (Eds.), *Corporate governance: An interdisciplinary outlook* (pp. 61–65). Virtus Interpress. https://doi.org/10.22495/cgaiop13

Ju, S., & Tang, H. (2022). Competition and operating efficiency of manufacturing companies in e-commerce environment: Empirical evidence from Chinese garment companies. *Applied Economics, 55*(19), 2113–2128. https://doi.org/10.1080/00036846.2022.2102126

Jumono, S., Sugiyanto, & Mala, C. M. F. (2019). Determinants of profitability in banking industry: A case study of Indonesia. *Asian Economic and Financial Review, 9*(1), 91–108. https://doi.org/10.18488/journal.aefr.2019.91.91.108

Keqa, F. (2021). The determinants of banks' capital adequacy ratio: Evidence from western Balkan countries [Special issue]. *Journal of Governance & Regulation, 10*(2), 352–360. https://doi.org/10.22495/JGRV10I2SIART15

Khan, M. ul H., & Hanif, M. N. (2019). Empirical evaluation of 'structure-conduct-performance' and 'efficient-structure' paradigms in banking sector of Pakistan. *International Review of Applied Economics, 33*(5), 682–696. https://doi.org/10.1080/02692171.2018.1518411

Khattak, M. A., & Ali, M. (2021). Are competition and performance friends or foes? Evidence from the Middle East banking sector. *International Journal of Islamic and Middle Eastern Finance and Management, 14*(4), 671–691. https://doi.org/10.1108/IMEFM-08-2019-0348

Kim, J. (2018). Bank competition and financial stability: Liquidity risk perspective. *Contemporary Economic Policy, 36*(2), 337–362. https://doi.org/10.1111/coep.12243

Lapteacru, I. (2014). Do more competitive banks have less market power? The evidence from Central and Eastern Europe. *Journal of International Money and Finance, 46,* 41–60. https://doi.org/10.1016/j.jimonfin.2014.03.005

Lestari, H. S. (2021). The effect of liquidity, leverage and bank's size on bank's profitability of Indonesian listed bank. *Jurnal Manajemen (Edisi Elektronik), 12*(2), 188–201. https://doi.org/10.32832/jm-uika.v12i2.3946

Lingerih Zerihun, H. (2021). Effect of bank specific factors on profitability of commercial banks in Ethiopia. *Journal of Finance and Accounting, 9*(2), 23–27. https://doi.org/10.11648/j.jfa.20210902.11

Lloyd-Williams, D. M., Molyneux, P., & Thornton, J. (1994). Market structure and performance in Spanish banking. *Journal of Banking & Finance, 18*(3), 433–443. https://doi.org/10.1016/0378-4266(94)90002-7

Marquez, R. (2002). Competition, adverse selection, and information dispersion in the banking industry. *The Review of Financial Studies, 15*(3), 901–926. https://doi.org/10.1093/rfs/15.3.901

Maspupah, I., Sudrajat, C., & Rosid, J. M. (2022). Analysis of structure – conduct – performance (SCP) on the merger of state-owned enterprise Islamic banks based on the assets value. *International Conference on Islamic Economic (ICIE), 1*(2), 283–294. https://doi.org/10.58223/icie.v1i2.175

Mendonca, D. J., e Souza, J. A., de Melo Carvalho, F., & de Benedicto, G. C. (2020). Relationship between efficiency and profitability in banks of Brazil. *Journal of Finance & Economics Research, 5*(1), 1–17. https://geistscience.com/JFER/Issue1-20/Article5/JFER2005101.pdf

Mishra, A. K., Kandel, D. R., & Aithal, P. S. (2021). Profitability in commercial bank – a case study of Nepal. *International Journal of Case Studies in Business, IT, and Education, 5*(1), 61–77. https://doi.org/10.47992/IJCSBE.2581.6942.0101

Munawar, Y. (2017). Kompetisi dan efisiensi bank umum di Indonesia periode 2008–2013 [Competition and efficiency of commercial banks in Indonesia for the 2008–2013 period]. *Bina Ekonomi: Jurnal Ilmiah Fakultas Ekonomi Universitas Katolik Parahyangan, 21*(1), 1–12. https://journal.unpar.ac.id/index.php/BinaEkonomi/article/view/2619

Navila, N., & Sujianto, A. E. (2022). Pengaruh modal pinjaman dan volume usaha terhadap sisa hasil usaha dengan total aset sebagai variabel intervening. *JAE: Jurnal Akuntansi & Ekonomi, 7*(3), 134–144. https://doi.org/10.29407/jae.v7i3.18310

Nisa, C., Mukri, C., & Djamil, A. (2019). Struktur pasar and kinerja: Studi kasus pada bank umum di Indonesia [Market structure and performance: Case study of commercial banks in Indonesia]. *Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4*(3), 375–384. http://surl.li/uoadl

Pasha, R., & Elbages, B. (2022). Green banking practices: The impact of internet banking on bank profitability in Egypt. *Corporate & Business Strategy Review*, *3*(2), 65–75. https://doi.org/10.22495/cbsrv3i2art6

Phan, H. T., Anwar, S., Alexander, W. R. J., & Phan, H. T. M. (2019). Competition, efficiency and stability: An empirical study of East Asian commercial banks. *The North American Journal of Economics and Finance, 50*, Article 100990. https://doi.org/10.1016/j.najef.2019.100990

Rakshit, B. (2022). Does bank competition necessarily contribute to higher profits? The case of Indian banking. *Asian Economics Letters, 3*(3). https://doi.org/10.46557/001c.35526

Rakshit, B., & Bardhan, S. (2022). An empirical investigation of the effects of competition, efficiency and risk-taking on profitability: An application in Indian banking. *Journal of Economics and Business, 118*, Article 106022. https://doi.org/10.1016/j.jeconbus.2021.106022

Sahul Hamid, F., & Ibrahim, M. H. (2021). Competition, diversification and performance in dual banking: A panel VAR analysis. *Economic Research-Ekonomska Istraživanja, 34*(1), 194–220. https://doi.org/10.1080/1331677X.2020.1782242

Sahyouni, A., & Wang, M. (2018). The determinants of bank profitability: Does liquidity creation matter? *Journal of Economics and Financial Analysis, 2*(2), 61–85. https://doi.org/10.2139/ssrn.3125714

Samad, A. (2008) Market structure, conduct and performance: Evidence from the Bangladesh banking industry. *Journal of Asian Economics, 19*(2), 181–193. https://doi.org/10.1016/j.asieco.2007.12.007

Sedera, R. M. H., Risfandy, T., & Futri, I. N. (2022). Financial inclusion and bank profitability: Evidence from Indonesia. *Journal of Accounting and Investment, 23*(3), 398–412. https://doi.org/10.18196/jai.v23i3.14721

Shalit, S. S., & Sankar, U. (1977). The measurement of firm size. *The Review of Economics and Statistics, 59*(3), 290–298. https://doi.org/10.2307/1925047

Shanko, T., Timbula, M. A., & Mengesha, T. (2019). Factors affecting profitability: An empirical study on Ethiopian banking industry. *International Journal of Commerce & Finance, 5*(2), 87–96. https://ijcf.ticaret.edu.tr/index.php/ijcf/article/view/130/pdf_86

Simatele, M. (2015). Market structure and competition in the South African banking sector. *Procedia Economics and Finance, 30*, 825–835. https://doi.org/10.1016/S2212-5671(15)01332-5

Stulz, R. M. (2019). FinTech, BigTech, and the future of banks. *Journal of Applied Corporate Finance, 31*(4), 86–97. https://doi.org/10.1111/jacf.12378

Sylos Labini, S., & Donofrio, F. (2021). Banks' compensation policies under the global pandemic: Evidence from the European banking sector. *Journal of Governance & Regulation*, *10*(1), 74–82. https://doi.org/10.22495/jgrv10i1art8

Takarini, N., & Pratiwi, N. D. (2022). Analisis faktor-faktor yang mempengaruhi profitabilitas pada perusahaan subsektor makanan and minuman yang terdaftar di BEI [Analysis of factors that influence profitability in food and beverage subsector companies listed on the IDX]. *Jurnal Pendidikan Ekonomi (JURKAMI), 7*(3), 1–13. https://doi.org/10.31932/jpe.v7i3.1902

Tan, A., & Floros, C. (2013). Market power, stability and performance in the Chinese banking industry. *Economic Issues, 18*(2), 65–89. https://www.economicissues.org.uk/Files/2013/213Tan.pdf

Tan, Y. (Ed.). (2016a). Conclusion. In *Efficiency and competition in Chinese banking* (pp. 167–176). Chandos Publishing. https://doi.org/10.1016/B978-0-08-100074-8.00007-8

Tan, Y. (Ed.). (2016b). Literature review on bank efficiency and bank competition. In *Efficiency and competition in Chinese banking* (pp. 67–91). Chandos Publishing. https://doi.org/10.1016/b978-0-08-100074-8.00004-2

Tan, Y. (Ed.). (2016c). Theory of bank efficiency and bank competition. In *Efficiency and competition in Chinese banking* (pp. 45–66). Chandos Publishing. https://doi.org/10.1016/b978-0-08-100074-8.00003-0

Tan, Y., & Floros, C. (2018). Risk, competition and efficiency in banking: Evidence from China. *Global Finance Journal, 35*, 223–236. https://doi.org/10.1016/j.gfj.2017.12.001

Tan, Y., Floros, C., & Anchor, J. (2017). The profitability of Chinese banks: Impacts of risk, competition and efficiency. *Review of Accounting and Finance, 16*(1), 86–105. https://doi.org/10.1108/RAF-05-2015-0072

Tang, H.-W., & Chen, A. (2020). How do market power and industry competition influence the effect of corporate governance on earnings management? *The Quarterly Review of Economics and Finance, 78*, 212–225. https://doi.org/10.1016/j.qref.2020.02.001

Widiasari, F. W. (2015). *Pengaruh struktur pasar, kompetisi, diversifikasi, kapitalisasi, risiko kredit, dan size terhadap profitabilitas bank (Studi pada bank umum konvensional di Indonesia periode 2009–2013)* [The influence of market structure, competition, diversification, capitalization, credit risk, and size on bank profitability (study of conventional commercial banks in Indonesia for the 2009–2013 period)] [Doctoral dissertation, Universitas Diponegoro]. Diponegoro University. Institutional Repository (UNDIP-IR). http://eprints.undip.ac.id/45656/1/19_WIDIASARI.pdf

Yusuf, M. (2017). Dampak indikator rasio keuangan terhadap profitabilitas bank umum syariah di Indonesia [The impact of financial ratio indicators on the profitability of Islamic commercial banks in Indonesia]. *Jurnal Keuangan dan Perbankan, 13*(2), 141–151. https://doi.org/10.35384/jkp.v13i2.53

Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. *Journal of International Money and Finance, 122*, Article 102552. https://doi.org/10.1016/j.jimonfin.2021.102552