Testing of the Structure-Conduct-Performance Hypothesis for Industrial Banking Profitability: Evidence from Indonesia

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Abstract

This study aims to test the validity of the Structure Conduct and Performance (SCP) hypothesis on banking profitability in Indonesia. This research data comes from banking financial statements from the Financial Services Authority (OJK) and Bank Indonesia. The analysis method uses the panel data regression method. The banking industry studied includes 110 conventional commercial banks and Islamic banks from 2010-2019. This research has found that the profitability performance of the banking industry is statistically significantly influenced by concentration, market share, cost efficiency to generate revenue, bank size, net interest income margin, Bank Indonesia's benchmark interest rate, and economic growth. Meanwhile, inflation is insignificant. The contribution of the research was to develop of Structure Conduct Performance (SCP) theory. The SCP is applicable to Indonesian banking and it is the *Hybrid of the Efficient-Structure Traditional Hypothesis* which states that the effects of efficiency and market concentration have improved banking profitability performance. The combination of structure, market share, and efficiency supports the hypotheses *on Efficiency* and SCP Traditional. High banking profitability due to the combination of efficiency and market concentration formed by increased assets and mergers. Therefore, OJK and Bank Indonesia in encouraging asset improvement through future mergers can improve efficiency, the competitiveness of the banking industry, the and economic stability of Indonesia.

1. Introduction

The Covid-19 pandemic that has hit the world has an impact on all economic fields, both business activities, banking, and government. Economic weakness in the form of a prolonged recession will threaten the banking industry. Therefore, the performance of this bank needs to be continuously studied to be able to see the level of banking health in mitigating the possibility of systemic risks, which are overshadowed by the threat of the global economic crisis that began due to the pandemic Attention to banking is important as an institution that carries out the intermediation function, namely as an intermediary between parties who have excess funds and parties with lack of funds.

The development of the banking industry's performance fluctuated. The profitability level of banks ranges from 2-3 percent even in 2020 it is only around 1.59 percent. The performance of credit distribution is reflected in the LDR figure which has increased from 2010-2019, but in 2020 it decreased again to 82.54 percent. The performance of the banking industry needs to be studied to see its influence on the economy. In order to monitor the performance of the financial industry, Indonesia needs to streamline integrated *financial risk monitoring conducted* between supervisory institutions such as the Financial Services Authority (OJK), Bank Indonesia, and the Deposit Insurance Corporation (LPS). OJK has the authority to conduct *an Integrated Risk Rating* (IRR) to supervise and determine the health status of conglomerate groups or other financial services businesses in terms of capital. In addition, it also applies *a supervisory plan* to minimize the risk of financial crisis. Meanwhile, Bank Indonesia has the authority to implement macroprudential policy to maintain macroeconomic stability (Juhro, 2020; Warjiyo and Juhro, 2020).

The development of the banking industry structure is reflected in the control of assets by large banks, namely commercial banks. The *Concentration Ratio* (CR) of the assets of 4 banks reached 51.45 percent while the assets of 20 large banks controlled 81.96 percent of the total national banking assets (OJK, 2020). Traditionally, the CR4 number has been a benchmark for market structure (Bain, 1951). The *structure-conduct-performance* (SCP) approach and *efficiency-structure* (ESH) hypothesis use traditional structural approaches from various industrial organization theories to measure competition in the industry (Bikker and Haaf, 2002).

Market power is not only in concentration, so Shepherd in 1986 developed another market force, namely the market power of individual banks. Market forces allow banks to earn higher profits only through anti-competitive practices (Khan & Kutan, 2021). That power can be from mergers. New sources of strength from competition arise due to differentiation. The SCP study was then developed based on the *relative market power* (RMP) hypothesis. RMP in the banking industry is to find out whether individual banks are capable of generating profitability through differentiation or in other words to ensure that profitability is not just from the combined market forces of the big banks that make up the concentration. Sastro, Suwito & Suzuki, (2012), researched the profitability of the post-crisis banking system in Indonesia. Profitability using profitability-dependent variables (ROA), bank-specific determinants (management spending, capitalization, loan intensity, and bank size), industry-specific determinants using concentration (HHI), and

Profitability is a company's ability to make a profit, and is the right indicator to measure bank performance. Islamic banks are among the Tangguh ones, because during the pandemic their performance remains good and convincing (Wahyudi et al., 2021). Likewise, Al-abedallat, (2017) in Jordan proved that the factors of assets, direct credit facilities, deposits, equity owners, branches, and ATMs have significant influence on bank profitability. The review recommends banks should diversify investments to increase profitability, and expand e-banking services to increase profits and reduce costs. Previously, Petria et al., (2015) had examined the determinants of profitability of European Union (EU) banks during the period 2004-2011. Bank-specific factors (internal) use proxies for bank profitability, average return on assets (ROAA) and average return on equity (ROAE). Credit and liquidity risk, management efficiency, business diversification, market concentration, competition and economic growth have a significant effect on bank profitability, both ROAA and ROAE. An interesting and valuable result is the positive influence of competition on bank profitability in the EU27.

Further afield, O'Connell (2023) Examine bank-specific, industry-specific, and macroeconomic variables. Bank characteristics will show how the bank runs its operations and the type of bank will have an impact on its profitability. Differences in market share and operating activities are closely related to anticipation of macroeconomic conditions such as inflation. The determinants of Islamic bank profitability from bank-specific variables that affect profits are capital, efficiency, and problematic financing (Widarjono, 2021). High capital adequacy ratios (CARs) reduce profits and inefficient Islamic banks and *non-performing financing* reduce profits. When looking at the study, macroeconomic variables and business risks have different effects between types of banks and the size of the bank. Research by Yao and Haris (2018) found an inverse U-shaped relationship between bank size and profitability. The Herfindahl–Hirschman Index (HHI) is applied to evaluate the impact of market forces and find results that support the structure behavior hypothesis (SCP). Likewise, Sakti (2020) examined the influence of market structure on bank performance in Central Java by involving commercial banks and rural banks for the 2012-2016 period. The results of this study support that market structure has a significant positive effect on bank performance, but there is no collusive behavior among large banks.

2. Literature Review

The *structure, conduct, and performance (SCP) analysis approach was* originally developed by Mason in 1939, and the SCP approach was used in industrial organizations by Bain in 1951, to determine the relationship between concentration and profitability (Lelissa & Kuhil, 2018; Asngari et al., 2018). Bain (1951) argued that there is collusion that causes a positive relationship between concentration and profitability, and a negative relationship between concentration and competitive market performance (Asngari et al.. 2018). In a concentrated industry there are barriers to market entry that lead to sustained high profits in the market. Furthermore, in the banking sector, the market concentration on large banks has an impact on the power of banks in setting high lending rates and low deposit rates. It is very important for industrial organizations to detect whether there is

collusion using market forces possessed by industry, because market forces are very harmful to social welfare due to the existence of banks that regulate price fixing strategies for mutual benefit. However, a bank will be influenced by the dynamic nature of market behavior, where the behavior of buyers and sellers in the market often changes.

The structure of the banking industry is concentrated, has behavior in order to cost efficiency and resulting performance. The validity of the relationship between the variables of Structure, Conduct, *and* Performance (SCP) is diverse, including five hypotheses (Asngari, 2016), where there are three main thoughts of the SCP paradigm and there are two new developments that can explain the relationship between SCP variables and elements that can shape market structure, behavior and company performance. ***First, the*** traditional SCP hypothesis, explains that high performance (profit) caused by collusive behavior in highly concentrated market structures. High concentration is inversely proportional to the level of competition. The traditional SCP method is referred to as the beginning of structural methods to analyze market structure, competitive behavior and banking performance, its empirical applicability is different for the banking industry in different countries (Ajlouni, 2010). ***Second***, the efficiency hypothesis (ESH) states that efficiency can drive high profit performance, not collusion or high concentration. Efficiency is achieved by companies (banks) with low-cost structures, which can increase profits by lowering prices and expanding market share. ***Third***, the differentiation hypothesis says that the market share used as a proxy structure is the result of differentiation and then the company can determine a much higher price level (behavior) so that the profit (performance) obtained will be high as well (Mensi, 2010). This hypothesis is also called the *relative market power* (RMP) hypothesis when market share significantly increases performance. High profit performance is derived from differentiation behavior which is seen based on the interaction of concentration with large market share (MSCR) as a relative measure of market strength (RMP). ***Fourth,*** the MES hypothesis (*modified efficient structure hypothesis*) shows that performance is not caused by market concentration, but is caused by high market share and efficiency obtained. ***Fifth***, the HET (*hybrid of efficient structure and Traditional SCP*) hypothesis suggests that high market efficiency and concentration can affect performance.

A study of profit determinants using the simultaneous SCP model of banking in Indonesia was conducted by Asngari in 2016 using data from commercial banks in Indonesia (2003-2015) which concluded that there is a simultaneous influence between market structure, conduct and performance of the Indonesia banking industry. Another study conducted by Knezevic & Dobromirov, (2016) examined the determinants of profitability of the banking industry in Serbia. The study investigates the impact of bank-specific, market-specific and macroeconomic factors on the profitability of the banking sector in Serbia in the period 2004–2011. This study used panel data. The results showed that bank-specific and market-specific factors had an effect on bank profitability, but macroeconomic factors had no effect on profitability.

Research testing the SCP hypothesis in Indonesia conducted by Jatmiko (2000) using 16 bank samples from 1988-1994 concluded that the SCP hypothesis test that applies to profit is the efficiency hypothesis. Nugroho and Yusuf (2014) tested the application of the SCP hypothesis on banking profits in Indonesia in 2009-2012 by testing the Traditional Hypothesis, Efficiency and Differentiation concluding that the applicable

hypothesis is efficiency, market share (MS) has a significant positive effect on profitability. This is in line with the differentiation hypothesis which states that market share is a proxy for efficiency. Asngari 2016 has tested the SCP hypothesis using banking data in Indonesia in 2003-2015 concluding that the applicable hypothesis is the efficiency and structure modification hypothesis (MES), where is high bank profitability results from market share and dissertation with efficiency. High profits are not due to concentration and collusion but high profitability is due to increased market share, and efficiency.

Furthermore, Jumono et al., (2019) conducted research on the determinants of profitability in the banking industry in Indonesia for the period 2001-2014. This research defines profitability as basic *earning power* (BEP) and *return on equity* (ROE) with variables such as basic conditions, market structure, banking characteristics, and performance as determinants. *GMM-Arellanno Bond* dynamic panels are used as an analytical tool. The results showed that basic conditions, market structure, banking characteristics, and performance had a significant effect on profitability. Based on these results, this study recommends that the Indonesian banking segment improve its market structure through improved performance, especially individual banks.

Lelissa & Kuhil, (2018) examined the empirical evidence of the SCP relationship of the banking industry in Ethiopia, stating that some studies explicitly consider the performance of Ethiopian banks using a structural approach (SCP or ESH). Nevertheless, existing bank performance studies are not analyzed by combining large banks in the industry, with long-term observations of banks, using parametric and non-parametric methods, which are rare in the Ethiopian context.

Farkasdi et al., (2021) examined the determinants of profitability in commercial banks in Germany for the period 2017-2020 which concluded that asset size, capital adequacy, savings, and non-interest income have a significant effect on profitability. The most dominant factor affecting profitability is non-interest income. A study on the determinants of profitability was also conducted by Horobet et al., (2021) who examined banks in Central and Eastern European countries using the *Generalized Method of Moments (*GMM) approach, concluding that unemployment, inflation, budget balances, non-government credit, non-performing loan levels, concentration levels and capitalization levels have a negative impact on banking profitability in Central and Eastern European Countries (*CEE*).

3. Research Methods

The research data covers a population of 110 commercial banks including conventional banks and Islamic banks, concentration of the 4 largest commercial banks, market share, cost efficiency, minimal mandatory reserves, credit expansion, advertising costs, net income from interest, inflation and economic growth. The source of banking data comes from *banking financial statements (bank scope)* contained in the Indonesian Banking Directory and banking financial statements of the Financial Services Authority (OJK). The data used are data that meet the criteria of structure variables, behavioral variables

and performance variables in the banking industry. In addition to bank characteristic data, bank compliance data also meets monetary policy in banking arrangements, such as reserve requirements and LDR. The macroeconomic data used are economic growth data (GDP) and inflation. Indonesian Banking Directory (DPI) data comes from OJK publications, and macroeconomic data comes from BPS publications. The source of DPI data for this study for the period 2010-2019 is from OJK. The source of inflation and economic growth data comes from BPS.

The focus of this study will be to discuss the validity of SCP relationships. Tests of the SCP relationship hypothesis include the possibility of high profit due to collusion inconcentrated structures (traditional SCP), efficiency hypothesis where efficiency causes performance (ESH), differentiation hypothesis where differentiation causes profit (DSH), efficiency-structure modification hypothesis (MES), and efficiency development hypothesis and concentrated structure (HET).

The independent variable to explain the profitability of the banking industry is viewed from aspects of structure, policy, behavior and macroeconomic conditions. The variables of the market structure of the banking industry used are concentration ratio (CR4), and market share (MS). While the behavior variables used are cost efficiency variables (COEF), and determination of net income from *interest margin (net interest margin)*. Monetary policy aspects include determining the reserve requirement and expanding credit using the *loan-to-deposit ratio*. Macroeconomic conditions, namely inflation and economic growth, affect banks' ability to create profits. The profitability performance of banks in this study will be used a measure of bank profitability (ROA). Shared factors that determine performance will be analyzed, such as concentration, market share, cost efficiency behavior, bank credit expansion, net income margin, minimum liquidity (GWM), inflation and economic growth.

The validity of the SCP hypothesis, the banking profit function is used in equation (1) to explain the factors affecting bank profitability, and the statistical coefficient t is used to test the validity of the traditional SCP hypothesis, the efficiency hypothesis and the differentiation or development hypothesis. Models to test the validity of the SCP hypothesis have been used by researchers Homma et al., 2014; Asngari, 2016; Yudaruddin, 2018) using ROE or ROA as the dependent variable analyzed regression model. This study uses ROA, with 8 main independent variables, and the estimation uses a panel data model approach as follows;

$$ROA_{it} = \beta_o + \beta_1 CR_{it} + \beta_2 MS_{it} + \beta_3 COEF_{it} + \sum_{i=4}^{n} \beta_i X_{it} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots (1)$$

ROA is the level of profitability of a bank measured by the ratio of profit to assets; CR is the concentration ratio of the four largest banks; MS is market share; COEF is the efficiency of operating cost ratio to generating revenue. Xit is the vector of i-th bank specific variables in the t-year, Monetary policy and economic conditions. Bank-specific variables include loan to deposit ratio (LDR), and net interest margin (NIM). The monetary policy variable as the bank's controller is the reserve requirement. Macroeconomic conditions are used inflation (INF) and economic growth (REG). In full, the banking profitability model to be tested is structured as follows;

$$ROA_{it} = \beta_o + \beta_1 CR_{it} + \beta_2 \text{MS}_{it} + \beta_3 COEF_{it} + \beta_4 LDR_{it} + \beta_5 NIM_{it}$$
$$+ \beta_6 GWM_{it} + \beta_7 INF_{it} + \beta_8 REG_{it} + \varepsilon_t \ \dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Testing Hypothesis SCP

Testing the traditional SCP hypothesis is carried out by testing the null hypothesis which states that in model (2) CR4 has a positive and significant effect at the level of α=5 percent.

Table 1 Testing the Assumptions of the SCP hypothesis

Hypothesis	Ho: β1	Ho: β2	Ho: β3
Traditional SCP	> 0	= 0	= 0
Difference-Structure Hypothesis or Relative Market Power (DSH or RMP)	= 0	> 0	= 0
Efficient-Structure hypothesis (ESH)	= 0	= 0	> 0
Modified-effiiciency-Structure (MES)	= 0	> 0	> 0
Hybrid of Efficient-Structure and Traditional SCP (HET)	> 0	> 0	> 0

Description: > 0 = significant at the test level at α=5%; = 0 is insignificant.
Source: adopted from various sources in Asngari (2016).

The panel model approach to find out whether intercepts differ between banks is used the Fixed Effect method, and to find out which intercepts differ between times the *Random Effect method is used*.

Panel Data Model Selection

Chow Test

The Chow test uses F-statistics to select panel data regression models with fixed effect or panel data regression without dummy variables (*common effect*). F test value of 4.233 with Probability F = 0.000 < α=1%, then Ho is rejected, meaning that the suitable model is Fixed Effect.

Lagrenge Multiplier Test

The LM test is used to test whether *the random effect* model is better than the Common Effect. The random effect significance test method was developed by Breusch-Pagan, who used residuals from the Common effect method. Breusch-Pagan test value = 206.00 with probability = 0.00 < α=1 percent then Ho is rejected, which means the suitable model is Random effect.

Hausman Test

The Hausman test is performed to test whether a random effect or fixed effect model is suitable. In the REM regression position, the Hausman test can be performed. If the Hausman Test Value > Chi-Square table at α=0.05, or if the Hausman Test Probability < 0.05 then Ho is rejected, which means a suitable FEM model for the case. Based on the Hausman test, the number of Chi-Squares statistic = 66.60 and with Probability = 0.00 < α=1 percent, Ho is rejected and the suitable model is the Random effect.

Rule of Thumb Gujarati

According to Gujarati (2021), panel data selection can be done using many individuals, data series and statistical results., The best model has more reliable statistical criteria, based on deterministic coefficient (R^2), significance of model parameters, statistical F-test, significant t value, and minimum Akaike, Schwarz and Hannan-Quin criteria. Based on statistical criteria, the Fixed Effect model is the best model.

4. Results
Descriptive Statistics

Tabel 2. Descriptive Statistic

	ROA?	BSZ?	LDR?	MSA?	CR4?	COEF?	NIM?	GWM?	BIRATE?	EGRW?	INF?
Mean	1.58	15.07	102.05	0.958	45.94	88.44	5.7567	8.1075	6.0995	5.3924	4.7606
Median	1.38	16.09	88.28	0.220	45.40	87.49	5.3600	8.0000	6.0000	5.0600	3.6100
Maximum	12.40	291.4	972.07	47.65	90.80	290.1	32.160	100.90	7.7500	6.2200	8.3800
Minimum	-5.15	0.00	0.000	0.000	0.000	-125.5	-6.2500	0.0800	4.2500	4.7900	2.7200
Std. Dev.	1.35	9.83	77.58	2.645	4.316	19.791	2.5965	4.4679	1.1606	0.5199	2.1295
Observations	1095	1095	1095	1095	1095	1095	1095	1095	1095	1095	1095
Cross sections	110	110	110	110	110	110	110	110	110	110	110

Source: *author calculation by EViews*

The profitability of conventional and Islamic commercial banks has an average of 1.58 percent, with a standard deviation of 1.35 percent. The concentration variable (CR4) had an average of 45.94 percent with a variation of 4.3 percent. The variable cost of efficiency measured from BOPO has an average of 88.4 percent. Policy variables include an average reserve requirement of 8.10 percent, Bank Indonesia interest rates of 6 percent, economic growth of 5.39 percent and inflation of 4.7 percent. More details can be observed in Table 2.

Tabel 3. Panel Uni Root Test

(Ho: assumes common unit root process)

No	Variabel	Levin, Lin &Chu t	Probability	Conclusion
1	ROA	-12.9997	0,0000	Reject Ho, Stasioner
2	CR4	-17.,6959	0,0000	Reject Ho, Stasioner
3	MSA	-4.29990	0,0000	Reject Ho, Stasioner
4	COEF	-29.2449	0.0000	Reject Ho, Stasioner
5	LDR	-7.41334	0,0000	Reject Ho, Stasioner
6	NIM	-42.6332	0,0000	Reject Ho, Stasioner
7	BSZ	19.6968	0,0000	Reject Ho, Stasioner
8	GWM	-128.178	0,0000	Reject Ho, Stasioner
9	BIRATE	-13.9626	0,0000	Reject Ho, Stasioner
10	EGRW	-26.8735	0,0000	Reject Ho, Stasioner
11	INF	-17.9875	0,0000	Reject Ho, Stasioner

Source: *author calculation by EViews*

Based on the static test t Levin, l Lin & Cu has a probability = 0000 < α = 0.05 then Ho is rejected which means that all data are stationary or do not contain unit roots.

Cointegration Test

The results of Kao's cointegration test, the value of t statistic = -2.711 with Probability = 0.0033 < α=5% then Ho is rejected, so the data has cointegration or relationship in the long run.

Empirical Result of Model Profitability Banking Industry

Estimation of banking profit performance models in the industry as stated in (1) is carried out simultaneously using the panel data regression method. There are three panel data models, namely Common Effect, Fixed Effect and Random Effect. The selection of panel data estimation methods must be in accordance with the results of statistical tests, namely the Chow test, Hausman test, and LM test. The results of the panel data method estimation using ROA as a dependent, obtained the estimated profitability model of the banking industry as shown in Table 4.

The deterministic coefficients, information was obtained that all variations in independent variables were able to explain the variation in banking profits by 50.5 percent, and 49.5 percent were explained by other factors. Most independent variables are significant at α=1 percent and α=5 percent, except LDR, reserve requirement, and INF have no significant effect. Model constant (2) of -3.51 means that if all independent variables remain constant or zero, then the profitability performance of the banking industry is -3.51 percent. This figure shows that if all the free variables in the model are zero, then the bank's profit will be negative, meaning that the bank's ability to earn profit is strongly influenced by the independent variable in the model.

The value of the coefficient of determination (R2) of the PLS model or Common Effect is 0.272; in fixed effect model (FEM) of 0.506 and in random effect model (REM) of 0.198. This means that statistically the ability to change variables can explain the largest variation in ROA changes produced by the Fixed Effect model. The value of the coefficient R2 = 0.506 means that the variation of the independent variable is able to explain the change in ROA variation by 51 percent using the FEM model, or by 27.2 percent using the PLS model, and the smallest by 19.8 percent using the REM model.

Table 4. Banking Industry Profit Model Estimation

Dependent Variable: ROA					
Periods included: 10					
Cross-sections included: 110					
Total panel (unbalanced) observations: 1095					
Sample: 2010 2019					
Method:	Panel Least Squares		Panel Fixed Effect		Panel Random Effect
Variable	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-1.050240	0.1482	-3.506747	0.0000	-2.397090	0.0005
CR4	0.066884	0.0000	0.096715	0.0000	0.082523	0.0000
MSA	0.039684	0.0159	-0.178068	0.0001	0.005076	0.8240
COEF	-0.026340	0.0000	-0.020149	0.0000	-0.022365	0.0000
LDR	0.001243	0.0071	0.000237	0.6952	0.000871	0.0869
NIM	0.154433	0.0000	0.129089	0.0000	0.145265	0.0000
BSZ	-0.007138	0.1144	0.018953	0.0038	-0.002927	0.5254
BIRATE	0.007745	0.8637	0.086159	0.0346	0.038071	0.3389
GWM	0.011615	0.1519	0.001672	0.8345	0.006993	0.3604

EGRW	0.116747	0.1157	0.172111	0.0087	0.153227	0.0185
INFL	0.035914	0.1471	0.016250	0.4618	0.034671	0.1094
R-squared		0.271611		0.505588		0.197672
Adjusted R-Sq		0.264891		0.445245		0.082523
S.E. of regression		1.160988		1.008562		1.035074
F-statistic		40.42148		8.378488		26.70676
Prob(F-statistic)		0.000000		0.000000		0.000000
Mean dep. var		1.581270		1.581270		0.882021
Akaike info. Crit.		3.146415		2.958035		n.a
Schwarz Crit.		3.196628		3.505817		n.a
Hannan-Quinn Crit		3.165415		3.165311		n.a
DW-Statistic		1.142357		1.626814		1.408711

Source: processed by the research team using EViews

The SCP hypothesis framework of banking in Indonesia some researchers found preliminary evidence that the efficiency hypothesis (ESH) is valid. Prayoga (2000) who used 16 bank samples from 1988-1994 concluded that testing the SCP hypothesis applicable to profit is the efficiency hypothesis. Banking deregulation has succeeded in encouraging the national banking industry to increase efficiency which in turn has the effect of increasing the market share of banks which ultimately increases profitability. Asngari (2016) proved that high bank profitability results from market share and dissertation with efficiency. High profits are not due to concentration and collusion but high profitability is due to increased market share, and efficiency.

Based on the results of the estimation the FEM model is a model that produces the best estimate based on the value of the coefficient of determination and the number of variables that significantly comply with ROA. The results of the Chow Test of 424.276361 with Probability = 0.000, and Hausman test of 66.61 with Probability = 0.00 and LM test using Breusch-Pagan of 206.01 with Probability = 0.000, the suitable model is the Fixed effect Model (FEM). Based on the FEM estimation, the model can be written as follows;

ROA = -3,5067   + 0,0967 CR4 - 0,1781 MSA - 0,0200 COEF + 0,0002 LDR
          (0,7223)***   (0,0967)***   (0,0439)***   (0,0019)***   (0,0006)

          + 0,1290 NIM + 0,0189 BSZ + 0,0017 GWM + 0,0861 BIRate +
            (0,0244)***   (0,0065)***   (0,0080)   (0,0407)**

          0,1721 EGRW + 0,0162 INF ……………………………………..   (2)
          (0,0654)***   (0,0221)

R^2 = 0,505
F stat   = 8,38 Prob. F = 0,00
D-W   = 1,62
Hausman = 66,61   Prob. = 0,00
Chow-Test = 434,3 Prob. = 0,00
Levin, Lin & Chu t* = 28,95 Prob. = 0,00
*** = signifikan pada α = 0,01
  ** = signifikan pada α = 0,05

Based on statistical criteria, the accuracy of estimation using the largest coefficient of determination was chosen a fixed effect model to test the validity of the SCP hypothesis. Based on the t test value, significant coefficients namely CR4>0, MS<0, and COEF<0 proved that the SCP hypothesis on profit in Indonesia that applies is a *hybrid of efficient structure and traditional SCP (HET)* shows that high profitability is due to efficiency and market concentration due to increased assets and some banks merging not due to collusion.

In the performance model written in equation (2) can be seen the SCP relationship as follows. ***First,*** concentration has a real influence on the profit performance of the banking industry in the level of α= 1 percent. ***Second***, market share has a real influence on profit performance at the level of α= 1 percent. ***Third***, real cost efficiency has an effect on profit performance in the level of α= 1 percent. This relationship can explain that the framework of the relationship in the SCP hypothesis in the banking industry in Indonesia that applies is the HET Hypothesis (*hybrid of efficient structure and Traditional SCP*) states that the effect of market efficiency and concentration increases banking performance. The efficiency hypothesis (ESH) applies in conjunction with the SCP Traditional Hypothesis, efficiency and concentration lead to increased banks' ability to create profits, while a wider market share reflects differentiation but is counterproductive to profit-making capabilities when less productive assets and non-performing loans are still high. This happened in contrast to the results of Asngari study (2016) which concluded that the hypothesis that prevailed at that time was the Modified Effeciency (MES) Hypothesis. The difference is because the study only uses the ROE of commercial banks, while this study uses the ROA of all conventional banks and Islamic banks.

Determinants of Banking Profitability

The concentration coefficient is 0.0967 and is significant in the level of α=1 percent. A 1 percent increase in market concentration would increase the bank's profitability performance by 0.097 percent. The positive relationship between concentration and profit level is in line with SCP theory and has been proven by Sastrosuwito and Suzuki, 2011; Asngari, 2016. Concentration affects the profitability of banks in Indonesia.

Market share (MS) has a real influence on banking profitability at the level of α= 1 percent. The market share coefficient (MS) in this study, which involved conventional commercial banks and Islamic banks, resulted in a negative coefficient of -0.178 which means if other factors remain, then an increase of one percent market share will reduce bank profitability by 0.178 percent. The difference in the results of this study with previous studies such as those conducted by Nabieu (2013) and Asngari (2016) revealed that the influence of market share is positive and significant on the Bank's profitability. This difference in results is due to the different market share variables used where market share here is measured by credit disbursed while the previous two studies used DPK. A negative MS coefficient means that the greater the market share of the disbursed credit, the higher the risk of bad loans and this will result in an increase in unproductive assets, which will reduce the bank's ability to create profits.

Banks carry out intermediation functions as measured by credit expansion behavior (LDR) for conventional banks and / or financing (FDR) for Islamic banks. The average

LFDR of national banks between 2010-2020 of 103 percent is high. The effect of LFDR was not significant on the profitability performance of banks. The LFDR coefficient is 0.0002. The results of Asngari study (2016) LDR coefficient of -0.0003 show that LDR that is too high can potentially reduce bank profits, because the potential for bad loans (NPL) also increases. The average bad loan is 2 - 3 percent.

Cost efficiency (COEF) and net interest income margin (NIM). Cost efficiency (COEF) is negative, which is -0.020 and Asngari (2016) is also negative at -0.476 and significant at the level of α=1 percent. This means that the higher the proportion of a bank's operating expenses to operating income, the bank's profitability will decrease. In this study, the average COEF was 88.43, and the average ROA was 1.34. The decrease in ROA during this period was due to the increased COEF value which showed symptoms of declining banking efficiency ahead of the Covid-19 Pandemic.

NIM or *net interest margin or et operating margin* is a source of income for conventional and sharia banks. The NIM coefficient is 0.129 and its effect on bank profitability is significant at the level of α=1 percent. A 1 percent increase in interest income margin, or operating income, would raise 0.129 percent ROA. The average NIM and NOM throughout the observation of 5.77 percent is much lower than the period 2003-2015 of 7.12 percent, this means that NIM has contributed to increasing the average ROA by 1.34 percent.

The bank's regulatory policy in this performance model is the bank's minimum liquidity (GWM) regulation. The reserve requirement of 8-8.5 percent can be achieved by the national banking industry on average of 8.11 percent. Compliance with reserve requirements has a positive impact on the profitability performance (ROE) of the banking industry. The reserve requirement coefficient is 0.002 and is significant at the level of α=1 percent. That is, if the bank is able to increase the reserve requirement by 1 percent, then the bank's profitability performance (ROE) will increase by 0.002 percent. The increase in the minimum liquidity of banks held in Bank Indonesia as capital or reserve funds can increase bank profitability, because from these minimum deposits banks earn interest.

The effect of inflation and economic growth on bank performance on bank profitability is not significant at the level of α=10 percent. An inflation coefficient of 0.01 and an economic growth coefficient of 0.17 reflect a unidirectional relationship between inflation or economic growth and bank profitability. Inflation does not cause banks' ability to earn profits, although it is not real but it can be interpreted that inflation will encourage banks to work harder to earn profits. Likewise, economic growth also does not significantly affect bank profitability. Economic growth does not directly affect the ability of banks to create profits. This happened because macroeconomic conditions were stable, namely average inflation of 4.76 percent, and average economic growth of 5.40 percent. This stable economic condition insignificantly affect the increase in bank profitability.

5. Conclusion and Suggestion

The results of this study have contribute to the theory of SCP Hyphothesis and its application in industrial banking performance. Based on the SCP relationship testing of banks in Indonesia, it proves the validity of the *hybrid hypothesis of efficient structure*

and traditional SCP (HET). The HET hypothesis suggests that high profitability is due to market efficiency and concentration due to increased assets due to multiple banks merging rather than collusion. High profits and increased concentration are not due to collusion but high profitability due to increased efficiency and concentration due to increased efficiency and mergers.

The profitability performance of the banking industry is significantly influenced by concentration, market share, cost efficiency, bank size, interest income margin and net operations, Bank Indonesia's benchmark interest rate, and economic growth. Significant factors that can drive the improvement of bank profitability performance are concentration, bank size, net margin of interest and operating income, Bank Indonesia interest rate (BI rate, 7DRR) and economic growth. Factors that significantly lower the profitability of banks are market share and cost efficiency. Credit and financing expansion (LFDR), reserve requirements and inflation have no significant impact on the profitability of the banking industry.

Monetary policy issued by central banks for economic recovery and maintaining stability. Price stability and inflation are important to maintain both domestic and global economic influences. In uncertain global conditions will greatly affect banking performance related to the allocation of capital sources, efficiency, and finally the ability to create profits. Attractive banking performance continues to be studied to anticipate the impact of economic uncertainty in the future.

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