Analysis of Market Structure and Performance on the Go Public Pharmaceutical Industry in Indonesia

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Abstract

This study aims to analyze the market structure and examine the main factors that influence the performance of the pharmaceutical industry in Indonesia, these factors are the Market Power Hypothesis (MPH) and the Efficiency Structure Hypothesis (ESH), where the debate between the two perspectives is still going on until now. The Market Power Hypothesis argues that market performance is the result of market power, while the Efficient Structure Hypothesis argues that market performance is a result of the ability to perform efficiency. The variable used to proxy MPH is market concentration, while the ESH is proxied using the variable of technical efficiency and scale. Next, the performance variable used is ROA. The type of data used is secondary data from the annual report of 8 pharmaceutical producers listed on Indonesia Stock Exchange (IDX) from 2010 to 2019. The analytical method used is DEA and panel data regression. The results showed that market concentration negatively affected ROA, while technical efficiency and scale had a positive effect on ROA. These results indicate that the performance (ROA) of the pharmaceutical industry in Indonesia is influenced by the level of efficiency rather than market power, so the results of this study support the Efficiency Structure Hypothesis (ESH) that efficiency is the key to success in the market. These results also support the Chicago School SCP framework that performance determines conduct and then market structure.

Key words : SCP, DEA, Market Power, Efficiency, Pharmaceutical Industry

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INTRODUCTION

Health is considered an significant factor that affects the quality of human resources. Countries with low levels of health have more severe challenges in achieving economic growth, its happens if the community is healthy then the production and services will increase economic growth (Prananda et al., 2018). Pharmaceutical preparations are one of the facilities in the health sector that have a strategic role in the health services of a country. Pharmaceutical preparations or pharmaceutical products such as drugs, medicinal ingredients, traditional medicines, and cosmetics play a role in handling and preventing various diseases that can threaten public health and are a primary need. Where the level of need is high and must be provided by the state so that the demand is not affected by the ups and downs of a country's economic conditions (Mawarti, 2017).

Based on the 2020 Population Census, Indonesia is a country that has the fourth largest population in the world (270 million people) with 10.8% being the elderly, that makes Indonesia have an increasing need for pharmaceuticals. In addition, Indonesia's position on the equator makes Indonesia a tropical climate where countries with a tropical clime have a greater chance of being exposed to tropical diseases than non-tropical countries.

The publication of the Ministry of Industry (2021), shows the trend of the total market share of the Indonesian Pharmaceutical sector growing from 65.9 trillion (2016) to 88.3 trillion (2019), meaning that during 2016-2019 there has been an increase in the consumption of Pharmaceutical products in Indonesia.

The large market share of the pharmaceutical industry as well as the positive growth in consumption of pharmaceutical products indicates a positive trend for pharmaceutical industry

manufacturers in Indonesia. In addition, based on the publication of the Ministry of Industry (2021), from 2015 to 2019, the domestic Pharmaceutical, Chemical Drug Products, and Traditional Medicines industry increased by 132 new industries, from 198 industries (2015) increasing to 230 (2019). If viewed based on the source of capital, several pharmaceutical manufacturers in Indonesia have conducted an initial public offering (IPO) on the Stock Exchange market. Until the end of 2021, there are as many as 10 pharmaceutical manufacturers with active status as go-public companies (Indonesian Stock Exchange).
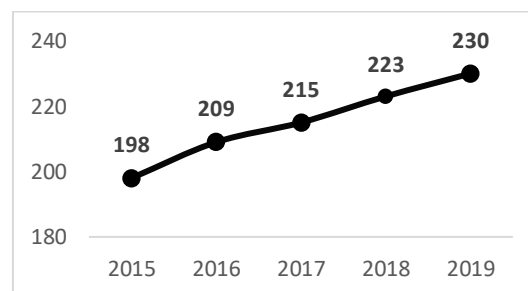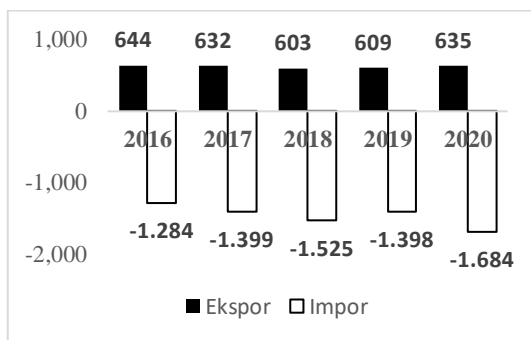

Source: Ministry of Industry, 2021.

Figure 1. The Number of Pharmaceutical Industries in Indonesia

In addition to selling pharmaceutical products to meet domestic market needs, Indonesian pharmaceutical manufacturers are also involved in the global pharmaceutical market. The export value of the Pharmaceutical Industry, Chemical Drug Products, and Traditional Medicines experienced an increasing trend over a three-year period (2018 - 2020) which was 2.68 percent, where in 2018 the export value of 602.5 million USD increased to 653.3 million in USD 2020 with the largest export destination countries, namely Singapore, Japan, the Philippines, and Thailand (Ministry of Industry, 2021).

As for imports, the Indonesian pharmaceutical industry experienced an increase, in value increased from 1.52 billion USD (2018) to 1.68 (2019). The biggest imports came from China, the United States, Germany, and France (Ministry of Industry, 2021).

The disparity between the value of exports and imports in the pharmaceutical industry, where the value of imports is greater than the value of exports, causes the trade balance of the pharmaceutical industry to experience a deficit

from year to year. From 2016 to 2018, the trade balance of the pharmaceutical industry experienced a deficit. The trade balance deficit briefly eased in 2019 but will increase again in 2020. That shows that most pharmaceutical needs, including raw materials, are imported.

Source : Ministry of Industry, 2021.
Figure 2. Pharmaceutical Industry Trade Performance (Million USD)

In 2015 PT Kimia Farma Tbk as one of the government-owned pharmaceutical companies, established PT Kimia Farma Sungwun Pharmacopia (KFSP) as the first drug raw material (BBO) factory in Indonesia. The construction of PT Kimia Farma Sungwun Pharmacopia (KFSP) indicates an effort to carry out vertical integration.

The study by Li et al. (2017), explained that efficiency is the main factor as a determinant of company or industry performance in a market. The research approach uses the Efficient Structure Hypothesis (ESH). Demsetz and Peltzman in Lelissa & Kuhil (2018), argue that efficiency has an effect on company profits where excess profits received are the result of the ability to increase efficiency, not the result of price development. Several research results have supported that efficiency affects performance, including Li et al. (2017), found that x-efficiency had a significant positive effect on ROA. Park & Weber (2006), found that scale efficiency has a significant positive effect on ROA. Destiartono & Purwanti (2021), found that technical efficiency and scale significantly affect ROA.

The traditional SCP framework introduced by Bain Lelisa & Kuhil (2018), was the beginning of the efficiency hypothesis. The traditional SCP framework focuses on analyzing the market structure of performance and considers that market power are the key determinants of the performance of a company or industry. The relationship between market power and performance is known as the Market Power Hypothesis (MPH), Industries with a high degree of concentration have market power and allow for collusion or deal with competitors to increase prices above equilibrium so that incumbents gain a monopoly advantage. Several research results support the Market Power Hypothesis (MHP) including Yongbo et al. (2019), found that market share (relative market power hypothesis) had a significant positive effect on ROA, Mala et al. (2019), also found that market share has a substantial impact on ROA.

This article seeks to use both hypotheses in the Indonesian Pharmaceutical Industry. What is the primary determinant factor of performance in the pharmaceutical market industry. MPH argues that performance is determined by market power, where the framework formed is in the form of a structure influencing behavior and then influencing performance (structure-behavior-performance). While the ESH hypothesis argues that performance is determined by efficiency. The flow formed is the opposite of the SCP framework, specifically performance affects behavior, then affects market structure (performance-behavior-structure).

METHOD

The research unit in this study is the eighth go-public pharmaceutical industry in Indonesia from 2010-2019 which was selected using the purposive sampling method. The variables used are structure, performance, and other variables that affect profitability (ROA). The structural variables consist of the Herfindahl-Hirschman index (IHH) and vertical integration (MPH Proxies), Performance variables consist of

technical efficiency and scale efficiency (ESH Proxies) calculated using Data Envelopment Analysis, as well as firm size and debt-to-assets ratio variables.

The qualitative analysis method is used to analyze the general description of the structure and performance of the go-public pharmaceutical industry in Indonesia. While the quantitative analysis used is panel data regression analysis is built into 2-models. Model (1) analyze the factors that affect profitability with MPH and ESH approach proxies.

$$ROA_{it} = a_0 + a_1 IHH_{it} + a_2 INT_{it} + a_3 TE_{it} + a_4 SE_{it} + a_5 SIZE_{it} + a_6 DAR_{it} + e_{it} \qquad (1)$$

The Decision rules, for the MPH hypotheses are verified, the sign of the coefficients of MS and INT should be significant and positive. Similarly, if supports the hypothesis of ESH. The coefficient of TE and SE should be positive and significant.

Moreover, it is possible that measures of market share are endogenous in the ESH model, that is to say, the most efficient firms may belong to concentrated markets and/ or have large market shares. Thus, if the hypotheses of the ESH theory are valid, it is necessary that the efficiency has a significant positive effect on the market structure (Ayadi & Ellouze, 2013). The model (2) as a verification of model (1) that efficiency affects market concentration.

$$MS_{it} = \beta_0 + \beta_1 TE_{it} + \beta_2 SIZE_{it} + \beta_3 DAR_{it} + u_{it} \qquad (2)$$

MS (Market Share) is used to indicate market dominance in an industry. The mathematical equation to measuring market share:

$$MS = Xi / (\sum X) \, 100\% \qquad (3)$$

MS is the market share, Xi is the sales value of company i, and $\sum X$ is the total industry sales value. Sales data used are in million rupiahs. The market share value ranges from 0 to 100 (percent).

IHH (Herfindahl-Hirschman Index) is used to measure the degree of market concentration in the industry. The mathematical equation to measuring IHH:

$$IHH = \sum_{i=1}^{N} Si^2 \qquad (4)$$

IHH is the herfindahl-hirschman index, Si^2 is the value of the squared share of company i in the industry. The share used is the company's sales in million rupiahs.

INT (Vertical Integration) describes the company's efforts in controlling raw materials or marketing processes. In this study, vertical integration is measured using the company's efforts to control raw materials, so the vertical integration formed was backward vertical integration. The vertical integration variable is measured using a dummy number with the following conditions.

0, for the years 2010-2015, before the establishment of KFSP as a producer of medicinal raw materials (BBO) for the pharmaceutical industry.

1, for the years 2016-2019, after the establishment of KFSP as a producer of medicinal raw materials (BBO) for the pharmaceutical industry.

TE (Technichal Efficiency) the choice of a production process that produces certain outputs by minimizing resources. TE is measured using DEA Constant Return to Scale (CRS) method with output orientation.

SE (Scale Efficiency) is an efficiency that shows the ability of a business unit to operate on its long-term average cost curve or the condition of a relative increase in output resulting from the proportional addition of inputs. Scale efficiency is obtained from the ratio between technical efficiency (CRS model) and pure technical efficiency (VRS model). The efficiency value in the DEA method ranges from 0 to 1. If the Decision-Making Unit (DMU) is 1, then the unit is operating efficiently in the industry.

SIZE (Size of the Company) shows the ease of the company in obtaining additional capital, the larger size of the company, the easier it is to obtain additional capital. Company size is

measured using the total asset value formulated into a logarithm.

DAR (Debt-to-Assets Ratio) is used as an indicator to measure how much company assets are financed using debt. DAR is the ratio between total debt and total assets.

ROA (Return on Assets) is used as an indicator to measure the level of company profitability. The mathematical equation to calculate ROA is as follows:

ROA = EAT / TA. (5)

EAT is Earning After Tax (net income after tax) and TA is Total Assets (total company assets).

RESULTS AND DISCUSSION

The first objective in this study is to analyze market structure using three indicators based on market structure framework references, the indicators are number of producers, market concentration, and entry barriers. The number of pharmaceutical manufacturers with go-public status in Indonesia is relatively small compared to non-go-public pharmaceutical manufacturers. There are 10 pharmaceutical manufacturing companies are actively listed on the Indonesia Stock Exchange (IDX). The small number of companies is an early indicator that the pharmaceutical industry is oligopolistic.

Then, the market concentration (HHI) for the pharmaceutical industry in 2010-2019 is high (2644 - 3094). The greater the HHI value (> 2500), the more concentrated the competition in the market will be (Arsyad and Kusuma). The value further indicates that this industry is a tight oligopoly.

Table 1. Herfindahl-Hirschman Index

Year	Herfindahl-Hirschman Index
2012	2860
2013	2976
2014	3094
2015	3028
2016	2967
2017	3042
2018	2913
2019	2916

Source: Annual report (processed)

The pharmaceutical industry exhibits relatively high barriers to entry for several reasons. First, the industry has barriers to entry from the Economy of Scale (new companies entering the market will find it difficult to achieve the economies of scale achieved by companies that are already exist in the market). Based on Figure 3, the MES value is 46.21 percent. These results indicate significant entry barriers. Second, barriers to entry are also caused by raw materials. Most of the raw materials for medicine (BBO) 95 percent are still imported and require more costs to be able to get BBO massively.
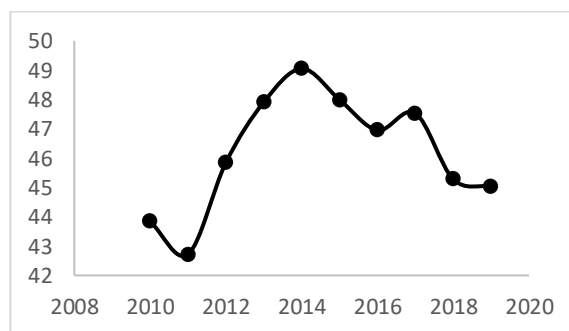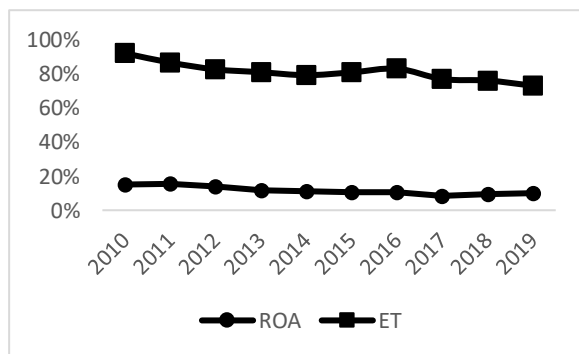

Source: Annual report (processed)

Figure 3. Minimum Efficiency Scale Value for Pharmaceutical Industry 2010-2019 (Percent)

Based on these three characteristics, the Indonesian pharmaceutical industry exhibits a tight oligopoly market.

The performance of the go-public pharmaceutical industry is measured using indicators of Return on Assets (ROA) and

Technical Efficiency (ET). ROA is used to measure a company's ability to earn profit from total assets owned as a whole. ROA is also the basis that affects the continuous operation and rapid development of enterprises. whereas, Technical efficiency measurement describes a company's ability to combine production factors (inputs) and technology to produce products at the maximum output that can be achieved (Li et al., 2017).

Source: Annual report (processed)

Figure 4. Average ROA and Technical Efficiency

The average ROA in the go-public pharmaceutical industry tends to be relatively declining. The average ROA value in 2010 was 15.32%, increased by 15.45% in 2011, and then decreased in the following years to 9.26% in 2018. That description shows that the profitability of the Indonesian pharmaceutical industry tends to decline from 2010 to 2019. The results show that pharmaceutical companies have not been able to generate maximum profits from their total assets. Where PT Merk is the producer with the highest level of profitability (21.50%) while PT Indofarma is the producer with the lowest level of profitability (2.74 percent). Meanwhile, technical efficiency (TE) of pharmaceutical companies showed varying results. On average the industry's technical efficiency score (using the CRS approach) is 80,8%, implying that only 19,2% of the

production process is lost due to process inefficiencies.

In estimating the two models, we use panel data regression using the fixed-effect model, model estimation (1) is used to investigate the factors that affect the performance of the Indonesian pharmaceutical industry by using proxy variables from the Market Power Hypothesis (MPH) and Efficiency Structure Hypothesis (ESH) approaches as well as variable others that are thought to affect performance. Model, (2) Analyzing the effect of performance on market structure as a form of testing the verification of the Efficiency Structure Hypothesis (ESH) that the SCP flow is inverse, namely, performance affects market structure.

In table 3, the results of model estimation (1) show that the structure variable is prohibitively significant and has a negative coefficient, indicating that market power will significantly negatively affect performance, then for technical efficiency and scale, both have a significant positive effect on performance. These results are following the research of (Yongbo et al. 2018; Li et al. 2017; and Destiarto & Purwanti 2021). Similarly, the results support the Efficiency Structure Hypothesis (ESH) that the performance of pharmaceutical companies in Indonesia is influenced by efficiency. Conversely, this finding does not support the Market Power Hypothesis because market power does not affect performance. These results are supported by the high level of technical efficiency in the pharmaceutical industry. In essence, pharmaceutical producers must increase their scale and technical efficiency as these two variables positively affect performance.

While another variable, size has a significant positive effect on performance. In practice, the larger the size of the company, the easier it is to obtain capital so that the company can increase production capacity and economies of scale (Swir, 2004). That means that the larger the size

of the company, the greater the production capacity and economies of scale enjoyed by producers, and at the same time, the production costs borne by producers will be lower. With a relatively larger capacity and relatively low production costs, the revenue from sales will be relatively larger. The amount of acceptance affects the profit received and will ultimately improve performance.

Debt-to-asset ratio has no significant effect on performance. DAR is an indicator of risk, the greater the DAR value will increase the risks that must be faced by producers because of the large burden borne (Bharawati, 2021). The greater the DAR value, the lower the profit received and will ultimately reduce the level of profitability, The two findings are different from the findings by (Li et al., 2017; and Destiartono & Purwanti, 2021).

It's important to note that the hypothesis of ESH is tested only if efficiency proxies have

a positive and significant effect on the market structure (MS). The Table 3. Model (2) show that TE is significant and positive on the market structure (MS). Therefore, this hypothesis is verified in the Indonesian pharmaceutical industry.

The results show that our results support the Efficiency Structure Hypothesis. ESH argues that efficiency is the main key, not market power. The findings indicate the importance of improving efficiency levels for all pharmaceutical producers (technical and scale significant and positively affect performance). Otherwise, using market power as the main strategy to gain performance is less appropriate because based on the finding does not support the Market Power Hypothesis, MPH argues that highly concentrated industries can earn greater profits, and highly concentrated means that players can collude by jointly fixing prices and outputs.

Table 2. FEM result on Model (1) dan Model (2)

Variable	Model (1) ROA		Model (2) Market Share	
	Coefficient	Prob.	Coefficient	Prob.
C	-0,798431	0,0599	-0,119738	0,0384
IHH	-0,820391	0,0035	-	-
INT	-0,020801	0,0161	-	-
TE	0,297770	0,0000	0,039264	0,0008
SE	0,182881	0,0377	-	-
SIZE	0,124132	0,0372	0,032850	0,0002
DAR	-0,016387	0,6199	0,022173	0,0741
R-squared		0,903184		0,995591
Adj R-squared		0,884114		0,994952
F-statistic		47,36172		1558,198
Prob(F-statistic)		0,000000		0,000000

Source: Output Eviews 9.0

We conjecture several arguments to explain the results to explain why the Market Power Hypothesis (ESH) does not apply to the Indonesian Pharmaceutical industry. The industry is highly regulated. One of these regulations is the Highest Retail Price (HET), the HET set that Indonesian pharmaceutical producers remain price takers, not price setters (natural role in oligopolist and/or monopolist). Their performance can be said to improve when the government sets a higher HET. The policy regulates prices and types of products through FORNAS.

Further, the Indonesian Pharmaceutical industry also has to face TKTDN regulations, the regulation focuses on the production process for active pharmaceutical ingredients by 50 percent, the R&D process, and the drug production process independently. With the implementation of these regulations, producers are forced to incur more costs to make production efficient.

CONCLUSION

The results showed that the Indonesian go-public pharmaceutical industry in Indonesia has a dominant oligopoly industrial structure and high barriers to entry. This is indicated by the IHH and MES values in the Indonesian go-public pharmaceutical industry. From the findings, market concentration (IHH) has a negative effect on ROA, while technical efficiency and scale have a significant positive effect on ROA, indicating that the performance of the pharmaceutical industry is determined by the level of efficiency, not market power. These results indicate that this study supports the Efficiency Structure Hypothesis (ESH).

In this study, it was also found that performance through technical efficiency proxies had a significant positive effect on market structure, so the study results also support the perspective SCP framework that

flows in the reverse SCP framework where performance affects behavior, then behavior affects market structure.

The novelty of this research is that researchers use a proxy variable (INT) for the Market Power Hypothesis (MPH) approach as well as other variables that are thought to have an effect on performance (SIZE and DAR). The INT variable uses a dummy, the number zero (0) for the year before PT KFSP was built as a medicinal raw material company (BBO) and the number one (1) for the year after it was built.

In this study, the authors did not include behavioral variables in the regression model. Because the authors could not find a proxy for behavior variables (Advertising to sales ratio, Capital labor ratio, dan Riset & Development) complete for all companies. For future studies, we advise observing longer than this study (more periods) and adding other input proxies to measure conduct so that the direction of the SCP framework and the influences between elements within the framework are clearer. Further research can also change and/ or add market structure variables in model 2 (as a verification model).

REFERENCES

Arsyad, L., & Kusuma, S. (2014). *INDUSTRIAL ECONOMICS: A Structural Approach To Behavior And Performance* [*EKONOMIKA INDUSTRI: Pendekatan Struktur Perilaku Dan Kinerja*]. Jogjakarta: UPP STIM YKPN.

Ayadi, I., & Ellouze, A. (2013). Market Structure And Performance Of Tunisian Banks. *International Journal Of Economics And Financial Issues*, 345-354.

Bello, M., & Isola, W. (2014). Empirical Analysis Of Structure Conduct Performance On Nigerian Banking Industry. *The Empirical*

Econometric And Quantitative Economics Latters, 24 - 34.

Bharawati, Rika F., &, Dra. W. (2021). *The Influence Of DAR, ROE, DER, And DPR On Company Value In Consumer Goods Industry Sector Companies Listed On The IDX For The 2018-2020 Period* [*Pengaruh DAR, ROE, DER, Dan DPR Terhadap Nilai Perusahaan Pada Perusahaan Sektor Consumer Goods Industry Yang Terdaftar Di BEI Periode 2018-2020*]. Thesis, Muhammadiyah University Of Surakarta [*Skripsi Thesis, Universitas Muhammadiyah Surakarta*].

Church, J., & Ware, R. (2000). *INDUSTRIAL ORGANIZATION: A Strategi Approach*. New York: The McGraw-Hill Comapnies.

Coelli, T., Rahman, S., & Thirtle, C. (2002). Technical, Allocative, Cost And Scale Efficiencies In Bangladesh Rice Cultivation: A Non-Parametric Approach. *Journal Of Agricultural Economics, 53*(3).

Destiartono, M. & Purwanti, E. (2021). Market Power Or Efficiency? An Empirical Study On The Indonesian Fertilizer Industry. *Journal Of Economics And Business* [*Jurnal Ekonomi Dan Bisnis], 24*(2), 361-378.

Firmansyah, B. (2018). *Market Structure Analysis On The Profitability Of The Sharia Life Insurance Industry* [*Analisis Struktur Pasar Pada Profitabilitas Industri Asuransi Jiwa Syariah*]. Undergraduate Thesis: UIN Syarif Hidayatullah Jakarta.

Fitriani, A., Daryanto, H., Nurmalina, R., & Susilowati, S. H. (2014). *Structure, Behavior, and Performance of the Indonesian Broiler Industry: Simultaneous Model Approach* [*Struktur, Perilaku, dan Kinerja Industri Broiler Indonesia: Pendekatan Model Simultan*]. Bogor:

Bogor Agricultural Institute [*Bogor: Institut Pertanian Bogor*].

Gamal, T. (2018). *The Effect of Product Quality on Consumer Satisfaction in Buying a Suzuki Ertiga Car at PT. Prosperous Buana Trada (SBT) Pekanbaru* [*Pengaruh Kualitas Produk Terhadap Kepuasan Konsumen Dalam Membeli Mobil Suzuki Ertiga Pada PT. Sejahtera Buana Trada (SBT) Pekanbaru*]. Riau Islamic University [*Universitas Islam Riau*].

Ghozali, I. (2018). *Multivariate Application With SPSS 25 Edition 8 Program* [*Aplikasi Mutivariate Dengan Program SPSS 25 Edisi 8*]. Semarang: Diponegoro University Publishing Agency [*Semarang: Badan Penerbit Univeritas Diponegoro*].

Gujarati, D., & Porter, D. (2015). *Fundamentals Of Econometrics 5th Edition (Translation)* [*Dasar - Daasar Ekonometrika Edisi 5 (Terjemah)*]. Jakarta: Salemba Empat.

Intan, K. (2020). Merck Sharp Dohme Pharma (SCPI) Is In The Process Of Going Private, Progress [Merck Sharp Dohme Pharma (SCPI) Dalam Proses Go Private ini Progresnya]. https://investasi.kontan.co.id/news/merck-sharp-dohme-pharma-scpi-dalam-proses-go-private-ini-progresnya.

Jaya, W. (1993). *Introduction To Industrial Economics* [*Pengantar Ekonomi* Industri]. Jogjakarta: BPFE.

Jumono, S., Abdurrahman., & Fathmala, C. (2017). *Market Concentration Index And Performance: Evidence From Indonesian Banking Industry. International Journal Of Economics And Financial Issues*, 249-258.

Lelissa, T., & Kuhil, A. (2018). *The Structure Conduct Performance Model And Competing Hypothesis-A Review Of*

Literature. *Research Journal Of Finance And Accounting*, 76-89.

Lipczynski, J., Wilson, J., & Goddard, J. (2005). *INDUSTRIAL ORGANIZATION: Competition, Stretegi, Policy 2nd Edition.* New Jersey: FT Prentice Hall.

Li, Y., Nie, D., Zhao, X., & Li, Y. (2017). Market Structure And Performance : An Empirical Study Of The Chinese Solar Cell Industry. *Renewable And Sustainable Energy Reviews, 70,* 78–82.

Lubis, R. (2014). *Analysis Of Technical, Allocative And Economic Efficiency Of Pineapple Production In Subang Regency, West Java Province* [*Analisis Efisiensi Teknis, Alokatif Dan Ekonomi Produksi Nanas Di Kabupaten Subang, Propinsi Jawa Barat*]. Bogor: Bogor Agricultural Institute [*Bogor: Institut Pertanian Bogor*].

Mala, C., Rodoni, A., & Yaman, B. (2018). Market Power And Efficiency Of Islamic Banking And Conventional Banking In Indonesia. *Global Review Of Islamic Economics And Bussiness,* 131-143

Morita, H., & Avkiran, N. (2009). Selecting Inputs And Outputs In Data Envelopment Analysis By Designing Statistical Experiments. *Journal Of The Operations Research,* 163-173.

Nurhayati, R. (2012). The Influence Of Tax Revenue And Investment On Regional Economic Growth In West Java Province [*Pengaruh Penerimaan Pajak Dan Investasi Terhadap Pertumbuhan Ekonomi Daerah Di Provinsi Jawa Barat*]. Undergraduate Thesis: Universitas Negeri Jakarta.

Ministry Of Health [*Kementerian Kesehatan*]. (2015). *Regulation Of The Minister Of Health Of The Republic Of Indonesia Number 98 Of 2015 Regarding Provision Of Information On The Highest Retail Price Of Drugs* [*Peraturan Menteri Kesehatan Republik Indonesia Nomor 98 Tahun 2015 Mengenai Pemberian Informasi Harga Eceran Tertinggi Obat*]. Jakarta: Ministry Of Health [*Jakarta: Kementerian Kesehatan*].

KPPU. (2019). Strategic Sector Research Related To Prevention Of Monopolistic Practices And Unfair Business Competition In The Indonesian Pharmaceutical Industry [*Penelitian Sektor Strategis Terkait Pencegahan Praktek Monopoli Dan Persaingan Usaha Tidak Sehat Pada Industri Farmasi Di* Indonesia]. Jakarta: KPPU.

Ministry Of Industry [*Kementerian Perindustrian*]. (2019). Drug And Food Control Agency Regulation Number 9 Of 2019 Regarding Technical Guidelines For Good Medicine Distribution [*Peraturan Badan Pengawas Obat Dan Makanan Nomor 9 Tahun 2019 Mengenai Pedoman Teknis Cara Distribusi Obat Yang Baik.*] Jakarta: Ministry Of Industry [*Jakarta: Kementerian Perindustrian*].

Ministry Of Industry [*Kementerian Perindustrian*]. (2021). *Pharmaceutical Industry Analysis* [*Analisis Industri Farmasi*]. Jakarta: Ministry Of Industry [*Jakarta: Kementerian Perindustrian*].

Pambudi, A.. (2011). *Analysis Of Factors Influencing Indonesia's Export Of Cocoa Beans To Malaysia And Singapore* [*Analisis Faktor-Faktor Yang Mempengaruhi Ekspor Biji Kakao Indonesia Ke Malaysia Dan Singapura*]. Undergraduate Thesis: Universitas Diponegoro.

Park, K. & Weber. W. (2006). Profitability Of Korean Banks: Test Of Market Structure Versus Efficient Structure. *Journal Of Economics And Business 58,* 222-239.

Putri, R. & Widodo, W. (2019). *Analysis Of The Relationship Between Competition And Efficiency In The Indonesian Banking Industry For The 2012-2017 Period Approach To The Vector Autoregressive*

Panel [*Analisis Hubungan Antara Kompetisi Dan Efisiensi Pada Industri Perbankan Indonesia Periode 2012-2017 Pendekatan Panel Vector Autoregressive*]. Undergraduate Thesis: Universitas Diponegoro.

Surianta, A. (2020). Primum Non Nocere: A Policy Approach To Pharmaceutical Investment In Indonesia [*Premium Non Nocere*: *Sebuah Pendekatan Kebijakan Untuk Investasi Farmasi Di Indonesia*]. *Center For Indonesian Policy Studies*.

Yongbo, G., Linlin, C., Yao, X., & Yao, S. (2019). *An Empirical Research on the Relationship of Market Structure, Efficiency and Performance of Chinese Traditional Patent Medicine Industry.*