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Market Concentration in the Indonesian Mobile Broadband Industry: A Competition Analysis Before and After Consolidation (2024 – 2025)

✉**Fathir Fikro**[1]
[1]*Faculty of Economics and Business, Sebelas Maret University, Indonesia.*
✉ishlahfikro@gmail.com

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ABSTRACT

The research investigates the market structure of mobile broadband internet services in Indonesia with the help of the Structure-Conduct-Performance (SCP) frame. The secondary data have been collected from annual reports of 2024 of four leading players of the market: Telkomsel, Indosat Ooredoo Hutchison, XL Axiata, and Smartfren (the subsequent simulation consolidates XL-Smart). Following a quantitative analysis method, the degree of market concentration and disparity has been calculated based on Market Share, Concentration Ratio (CR), Herfindahl-Hirschman Index (HHI), and Gini Coefficient. The findings show that there is a very high concentration before the consolidation (CR2 = 70.62%, CR3 = 88.59%, HHI = 2986). Thus, the industry has an oligopoly market structure and falls into Spectrum III according to the KPPU guidelines. Post-consolidation simulation (the merger between XL and Smartfren) makes the HHI even higher (3396) by 410 points and requires passing the Comprehensive Assessment (Penilaian Menyeluruh Spektrum III) stage at KPPU. However, the disparity is reduced with the Gini Coefficient goes down from 0.196 to 0.052. Even though consolidation equalizes subscriber shares, the high concentration gives much control over pricing and competitive conditions to dominant players. In conclusion, this study recommends more comprehensive oversight of the subsequent consolidation process to optimize the regulator's role in establishing oversight that fosters inclusive market competition.

INTRODUCTION

Over the past two decades, the Internet has become a primary necessity for more than half of the world's population. Nearly 60% of the global community has connected to the Internet through various digital devices they own (GSMA Intelligence, 2025). Internet connectivity contributed economic revenue of $1.080 trillion in 2025 and is projected to reach $1.250 trillion by 2030 (GSMA Intelligence, 2025). Mobile

Broadband Internet has had a real impact on the global economy, contributing to Gross Domestic Product of $6.500 Trillion in 2024 and is predicted to reach $11.000 Trillion in 2030. The economic contribution of mobile broadband is equivalent to 5.8% of global GDP, reaching a peak of 11% in 2030. It is comparable to, or even exceeds combined GDP of the 57 member countries of the Organisation of Islamic Cooperation (OIC), which amounts to $5.400 trillion in 2024 based on (SGIER, 2024). The substantial revenue generated by the Internet industry has made it a crucial player in supporting global economic resilience.

The telcos industry has experienced a period of higher revenue growth over the past 100 years, driven by the cable network a century ago, and more recently by the provision of mobile connectivity and broadband (Dyke et al., 2025). The global economic cycle generated by internet sector revenues has certainly had an economic impact on all countries, including Indonesia. In this regard, Indonesia, as one of the most populous countries in the world, enjoys a strategic demographic advantage. World Bank (2023) data shows Indonesia as the country with the fourth-largest internet subscription population in the world and the largest in Southeast Asia, with 352 million mobile broadband users and 13.5 million fixed broadband users. The number of existing subscriptions has exceeded the Indonesian population of 281 million, so it can be assumed that more than 20% of users are dual users, subscribing to more than one operator.

Indonesia's demographic advantage will influence the amount of revenue received by operators and will support business sustainability in the mobile broadband industry, according to theory (Zehle, 2019). This theory states that a company's revenue will directly impact an operator's growth and investment in network infrastructure (Zehle, 2019). This network investment will determine the optimal service provided to consumers, including access speed (internet speed) and resolution quality (internet payload). Based on data from Dyke et al. (2025), the global average annual revenue per user (Average Rate per User/ARPU) is $28 or IDR 469,658 (exchange rate of IDR 16,773/USD). Data collected from four cellular operators in Indonesia in 2024 showed a combined annual ARPU of IDR 592,047, meaning that Indonesia's ARPU has surpassed the ARPU of the global mobile broadband industry. This achievement makes the mobile broadband industry in Indonesia have good user growth potential and supports industry sustainability, making the mobile broadband industry in Indonesia have sustainable profit prospects.

This role has proven to benefit not only the industry but also the government. Non-Tax State Revenue (Penerimaan Negara Bukan Pajak or PNBP) from spectrum licensing fees has increased almost every year. Data compiled by the Ministry of Communication and Digital Affairs recorded a 7.58% increase in PNBP from 17.6 trillion in 2019 to 21.14 trillion in 2023 (SDPPI Kementerian Komunikasi dan Digital, 2023). This amount represents almost the entire PNBP deposited by the Ministry of Communication and Digital Affairs into the state treasury, amounting to 21.50 trillion (SDPPI Kementerian Komunikasi dan Digital, 2023). This demonstrates a synergistic economic cycle between industry and regulators, which, of course, contributes to the State Budget (APBN), which will be used to improve people's welfare in an effort to support the country's development goals. This large figure makes the Internet industry, especially that based on Mobile Broadband, play a strategic role in supporting economic growth in Indonesia.

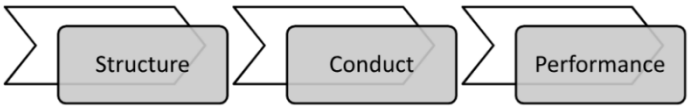
The development of mobile broadband internet in Indonesia will be very interesting if studied from the perspective of industrial economics by analyzing the role of each operator in influencing sales levels and sales dominance within an industry group. The definition of industry itself, according to Lipczynski et al. (2005), is a group of companies that join together in the same business scope or the same supply chain. Typically, this similarity arises due to geographical factors, namely the location of companies that are adjacent to each other or located in the same area that supports each other, and even forms the same supply chain. This collectively formed supply chain allows companies to synergize and save costs that arise during the production process.

For the latter concept, there is an interesting case study to illustrate how, in the internet industry, saving network investment costs by pooling operators under a single connection is possible and has been done. In Malaysia, the government once issued regulations regarding operator participation in a collective investment to build a 5th generation (5G) network infrastructure called a ‘wholesale network operator’. The agreement stated that each operator would create a new operator entity aimed at designing, building,

operating, and maintaining the country's only 5G network. According to McKinsey & Company in (Travasoni et al., 2025), each operator could achieve savings of up to 60% on network investment costs, which could be allocated to more demanding costs, such as operational expenditure (OPEX). This is an essential example of how companies working within an integrated industry can create greater profit potential.

According to Bain, as quoted by Lipczynski et al. (2005), there is a strong correlation between the market structure in an industry and the behaviour of companies in responding, which in turn has implications for the company's performance in that industry. This paradigm is called Structure-Conduct-Performance (SCP). Khavidhurrohmaningrum (2013) further explains that market structure is an essential topic in understanding industry behaviour and performance because the structure of an industry will determine the behaviour (conduct) of industry players, which ultimately has implications for industry performance.
According to Lipczynski et al. (2005), the relationship is not one-way, but two-way, so the opposite can occur, namely, company performance will influence behaviour and subsequently influence industry structure.

Figure 1.1 SCP Linkage Paradigm



Source: (Khavidhurrohmaningrum, 2013)

Broadly speaking, there are four operators officially registered to operate mobile broadband internet businesses in Indonesia in 2024: PT. Telekomunikasi Seluler (Telkomsel), PT. Indosat Oooredo-Huchison (OH), PT. XL-Axiata and PT. Smart Telecom. Using the Structure-Conduct-Performance (SCP) paradigm, this study will explore the role of each operator and measure their impact on sales and cash flow within the Indonesian mobile broadband industry.

LITERATURE REVIEW

This study, which measures the structure of the mobile broadband industry in Indonesia, uses at least two theoretical frameworks to explain how it operates and how it views the dynamics of its operation. One is a theory that explains the structure of the industry itself, and the other is a more recent theory that explains the implications of corporate performance within the industry: the Structure-Conduct-Performance (SCP) theory, proposed by Edward Mason and Joe Bain, two American economists. This will be explained in more detail in the following subsections;

1. Industrial Economy

According to Lipczynski et al. (2005), industry is defined as a group of companies united within the same business scope or supply chain. Lipczynski et al. (2005) explain that these companies are generally united or categorised within an industry scope due to geographical similarities or being within the same supply chain. Geographical similarities arise from the location of production units in the same area or region. Furthermore, supply chain similarities arise from interconnected production and distribution channels that stretch from upstream to downstream, enabling joint efforts to produce a more advanced or superior product. Furthermore, these production processes and results can create added value or reduce unemployment, thus creating a ripple effect across a very broad area and driving the regional economy. This chain of effects in the economy ultimately requires that “industry” be studied from an economic perspective, thereby creating a discourse on Industrial Economics.

Understanding Industrial Economics is as important as understanding industry from a technical definition perspective. This is because, according to Matondang et al. (2025), industrial economics is a branch of economics that continues to evolve over time and with new discoveries. A simple discussion of industry is developed through an analysis of competitive market structures, known as static theory. The theory of

competitive markets was formulated by Marshall in 1890, classifying markets into two parts: perfect competition and monopoly. Discussions on market structure continued to evolve, especially after Chamberlin and Robinson formulated the theory of monopoly markets in 1930, making the discussion of imperfect markets increasingly complex.

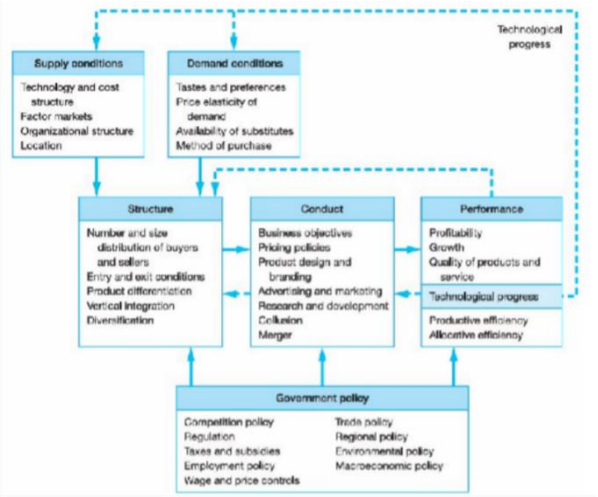
This theory was criticised by economists in the 20th century, particularly those of the Austrian School. Schumpeter, one of the economists who opposed the theory, as cited in Lipczynski et al. (2005), argued that Marshall's static theory was too simplistic to explain how competition occurs in markets, particularly in relation to dominance and monopoly. Schumpeter disagreed that profits derived from monopolisation were evidence of a company abusing its power. Monopoly profits, in fact, play a role in encouraging innovation and motivating companies to utilise resources more efficiently in the long term. Monopolies cannot be blamed because in a market, information is always imperfect, and therefore, market structures will remain differentiated. Therefore, this theory has led many economists to hold negative sentiments toward monopolistic firms due to the overly simplistic assessment of static theory.

As a refinement, industrial economics theory emerged, with a more advanced paradigm, assessing corporate optimism as stemming from the relationship between firm performance, strategy, and market influence. This theory is called dynamic theory, and the earliest paradigm to emerge was the Structure-Conduct-Performance (SCP) paradigm, proposed by Mason and Bain in 1944, which will be explained in more detail in the next subchapter.

2. The SCP Paradigm

The SCP paradigm is a renewed concept of industrial economics that emphasises the importance of strategy and performance in determining a company's position within the industrial market structure. This paradigm was initiated by Mason and Bain, two American economists. The SCP paradigm explains the concept of industrial competition, which has long been simplified by static theory, namely, an integrated view of company performance that greatly determines the company's competitive strategy in the industrial market (Lipczynski et al., 2005). Where companies are responsible for their position in providing market power through a game strategy called conduct, which will influence the visibility of their performance on an ongoing basis, companies with the best level of performance (both in terms of cash flow and human resources) will create unique game strategies (thanks to the view of innovation and the efficient adoption of appropriate technology) that determine the company's position of strength in the market. Likewise, companies with more power will create innovation and the best resource allocation, which has implications for the company's performance in playing in the industrial market. This is in accordance with the view of Lipczynski et al. (2005) that the SCP paradigm has a two-way flow of implications, so that the three factors can influence and lock one another.

Figure 2.1 *The Structure-Conduct-Performance Paradigm*



Source: (Lipczynski et al., 2005)

The flowchart in Figure 2.1 illustrates how an industry's influence is not only assessed statically, but also dynamically, to complement it. The diagram shows how performance, driven by profitability, growth, and product or service quality, coupled with technological factors, becomes the driving force for companies to compete in the industrial market. The factors included in performance will influence the industry's objectives (how the company positions its business as an object to be conditioned), pricing strategy, product design and branding, advertising and marketing, research and development capabilities, and whether the company will decide to collude with other companies or decide to acquire companies, either through legal ownership or investment. This second factor, hereinafter referred to as conduct, will determine the company's position and bargaining power in the competitive industrial market, referred to as structure.

This theory can have the opposite implication: that company structure (where the company is positioned in the industrial market) will influence the game model the company adopts and its performance in producing goods or services. This is what Lipczynski et al. (2005) define as a two-way condition, a situation in which the flow of implications begins from opposite directions, naturally, without being influenced by company projections. A company may experience a decline in financial performance (cash flow or balance sheet) due to strategic errors or inefficiencies. These strategic errors are a consequence of the company's weak bargaining power within the market structure, leading to uncertain decision-making. Conversely, in certain cases, a company may already be experiencing financial performance issues, leading to a less-than-optimal strategy, impacting its ability to capture market share. Therefore, the use of this paradigm sharpens the analysis in assessing market structure without replacing the role of existing assessments.

According to Matondang et al. (2025), the impact of this on competition policy is crucial. The SCP model has driven the development of antitrust policies, while the Chicago School argues that market concentration is not always harmful if it can generate efficiency. Thus, industrial economic theory provides a crucial foundation for developing adaptive, contextual competition policies that maintain a balance between consumer protection, market efficiency, and encouraging innovation. Collaboration between theoretical development and policy implementation is key to creating a healthy, competitive, and fair business climate for the long term (Matondang et al., 2025).

RESEARCH METHODS

This study, which measures the structure of the mobile broadband industry in Indonesia, uses a quantitative method. According to Neuman (2014), quantitative methods are data research approaches expressed numerically or in the form of numbers. Quantitative research is characterised by measuring facts objectively, focusing on the use of variables, making reliability a key factor in research, being value-free, separating theory and data, being independent of context, being measured using statistical analysis, and maintaining a neutral researcher attitude (Neuman, 2014). Quantitative research is used to measure the performance of mobile broadband internet companies in selling mobile broadband products. In this study, four operators were selected as research subjects: Telkomsel, Indosat Ooredoo, XL Axiata, and Smartfren. These four operators are companies officially registered as license holders for selling mobile broadband internet products in Indonesia by Ministry of Communication and Digital Affairs (Komdigi).

The data used is secondary, collected from the annual reports of each mobile operator in 2024 (Indosat, 2024; Smartfren, 2024; Telkomsel, 2024; XL Axiata, 2024). The data used is public and can be accessed through each operator's website.

This study will employ an approach consistent with the SCP paradigm, utilizing several calculation techniques to provide conclusions regarding the market structure and size of each operator in the Indonesian mobile broadband industry. The calculation techniques used are detailed as follows:

1. Market Share

This study measures the extent of operators' reach in acquiring mobile broadband internet customers proportionally. Market share is defined by the Marquette University Raynor Library (2025) as the percentage of total market or industry sales achieved by a company within a specific period. This definition emphasizes that market share is not simply a sales figure, but also reflects a company's level of market dominance

compared to its competitors. Therefore, the greater the market share, the more dominant the company's role in determining the direction of industry competition, whether through pricing strategy, product quality, or service innovation. In this study, market share is measured using user penetration to represent a company's sales. This is because there are limitations in accessing data on the volume of Internet data plan sales held by operators. Therefore, using the number of users is the most feasible approach, as the data is openly available (open source) and can be downloaded at any time.
The formula for market share is:

$$S_i = \frac{Q_i}{Q}$$

With explanation:
S_i = Market share of company-I
Q_i = Sales of company-I
Q = Total industry sales in the same period

2. Seller Concentration

To determine the extent to which an industry is influenced by a group of companies, a calculation technique is needed to determine the seller concentration figure for the targeted industry (Lipczynski et al., 2005). According to Khavidhurrohmaningrum (2013), the sales concentration ratio is a percentage of total industry output or sales revenue. The ratio of a number of companies measures the relative market share of the total industry output accounted for by those companies. Lipczynski et al. (2005) explain that seller concentration refers to two topics of discussion: the number and distribution size of companies. Concentration within an industry is important because the number of companies competing in an industry will determine the distribution size of companies, which has implications for the distribution and disparities between companies (Lipczynski et al., 2005). Conversely, sales concentration measures must be able to capture the implications of the number of companies and their relative size on the nature of competition (Lipczynski et al., 2005).

The firm concentration ratio, usually denoted by CRn, measures the share of the n largest firms in an industry of some measure of the total industry size. The most commonly used measures are based on industry sales, assets, or employment data (Lipczynski et al., 2005). The concentration ratio is formulated as follows:

$$CR_n = \sum_{i=1}^{n} x_i$$

With explanation:
CR_n = Company concentration ratio
X_i = Sales of company-i (after sorting from largest to smallest)
n = Number of companies that have been added up

3. Hirschman-Herfindahl Index (HHI)

According to Lipczynski et al. (2005), the orthodox sales concentration index as previously used (to measure sales concentration) has several weaknesses such as inaccurate or unrepresentative measurement figures in some sales transfer processes and the insignificance of the index in several cases of company mergers by showing insignificant market share increases. Therefore, there is a need for refinement of the orthodox formulation used and in relation to this, an index is created that has a more significant level of measurement between companies, namely the Hirschman-Herfindahl Index (HHI).

The purpose of using the Hirschman-Herfindahl index formulation is to determine whether a company may merge (combining several companies into one entity) within an industry (Lee et al., 2020; Peleckis, 2022). This is because the HH Index measures the extent of company concentration within an industry. The higher the index score, the higher the market concentration, meaning market power is determined by a handful of large companies (Lee et al., 2020; Peleckis, 2022). The HH Index is calculated by squaring the sum of the companies' market shares (Lee et al., 2020; Peleckis, 2022). The HH Index ranges from 0 to 10,000 (Talpur, 2023). Generally, the calculation is done by adding the market shares of the three largest companies (CR-3)

(Lee et al., 2020; Peleckis, 2022). The method for calculating this index will be explained in the following formula:

$$HH = \sum_{i=1}^{N} s_1^2$$

With explanation:
HH = Hirschman-Herfindahl Index Formula
N = Total number of firms or entities in the industry market
Si = Market share of firm i, expressed as a proportion (e.g., a decimal, such as 0.25 for 25%)

After the calculation results are validated, the obtained values are matched to classify the level of industry competition in the following classification table:

Table 3.1 Industrial Categories based on HHI acquisition

Range	Range (×10000)	Category	Concentration
0.00 – 0.10	0 – 1000	Perfect Competition	Low
0.10 – 0.18	1000 – 1800	Monopolistic	Low
0.18 – 0.40	1800 – 4000	Oligopoly	High
≥ 0.40	≥ 4000	Monopoly	High

Source: (Lee et al., 2020; Peleckis, 2022)

The Hirschman-Herfindahl Index calculation is authoritatively used to regulate and monitor industrial competition in several countries. The United States, for example, through its trade commission (U.S. Federal Trade Commission), issued 'Merger Guidelines' as a basis for all industries in conducting mergers and acquisitions. The Merger Guidelines regulate an industry with an HHI score of less than 1,800 as a low concentration, allowing mergers or acquisitions. While industries with an HHI score of more than 1,800 are considered high concentration, requiring assessment and review by the FTC if any company intends to merge or acquire, due to the high potential for leading to a monopoly market (Federal Trade Commission, 2023). Similarly, market competition regulations are regulated in the European Union with a limit that if the HHI score is less than 2,000, mergers or acquisitions do not require review, and if it is more than 2,000, mergers or acquisitions must be supervised (European Union, 2004).

In Indonesia, the government, through the Business Competition Supervisory Commission (Komisi Pengawas Persaingan Usaha or KPPU), issued Pedoman Penilaian terhadap Penggabungan, Peleburan, atau Pengambilalihan (Guidelines for the Assessment of Mergers, Consolidations or Takeovers) since 6 October 2020 as a guideline for determining industrial concentration. The guidelines serve as an explanation of KPPU Regulation No. 13 of 2019 concerning the Assessment of Business Combinations or Mergers, or the Acquisition of Company Shares, That May Result in Monopolistic Practices and/or Unfair Competition the KPPU's industry categories based on HHI figures are as follows:

Table 3.2 KPPU Industry Categories based on HHI

Range of Index	Category	Annotation
<1.500	Spektrum I	KPPU has determined that there is no potential for monopolistic practices and/or unfair competition resulting from a merger, consolidation, or acquisition. KPPU assesses that it does not alter the pre-existing market structure and does not give rise to the potential for monopolistic practices and/or unfair business competition following merger, consolidation, or acquisition.
1500 – 2500	Spektrum II	If the change (delta) in the HHI before and after a merger, consolidation, or acquisition is less than or equal to 250 (ΔHHI ≤ 250), the KPPU determines that there is no potential for monopolistic practices and/or unfair business

(ΔHHI > 250)		competition because the resulting change in market power is not significant enough. If the change (delta) in the HHI exceeds 250 (ΔHHI > 250), the KPPU proceeds to the Comprehensive Assessment stage (Tahap Penilaian Menyeluruh).
> 2500 (ΔHHI > 150)	Spektrum III	If the change (delta) in the HHI before and after a merger, consolidation, or acquisition is less than or equal to 150 (ΔHHI ≤ 150), the KPPU determines that there is no potential for monopolistic practices and/or unfair business competition because the resulting change in market power is not significant enough. If the change (delta) in the HHI exceeds 150 (ΔHHI > 150), the KPPU proceeds to the Comprehensive Assessment stage (Tahap Penilaian Menyeluruh).

Source: (*Pedoman Penilaian Terhadap Penggabungan, Peleburan, Atau Pengambilalihan*, 2020)

4. Gini Coefficient

The Gini coefficient is a measure of inequality in the distribution of firm sizes (Lipczynski et al., 2005). The Gini coefficient is a number derived from calculating the level of income disparity. Furthermore, the Gini coefficient can be graphed using the Lorenz curve to measure the extent of the gap between each entity. This curve and coefficient are generally used to measure the level of inequality used to formulate development programs.

However, according to Lipczynski et al. (2005), the Lorenz curve can also be used within the framework of industrial growth; in this case, it is used to show the cumulative variation between each company. The formula for the Gini coefficient is as follows:

$$G = \frac{\sum_{n=1}^{N} \sum_{i=1}^{n} x_i}{0{,}5(N+1) \sum_{i=1}^{N} x_i}$$

Explanation:
G = Gini coefficient, which is used to measure the level of inequality in the distribution of a variable, such as income or wealth in a population
N = Total number of individuals or units in the population being analysed
Xi = The value of the variable owned by the *i* individual (e.g., income), sorted from lowest to highest (x1 ≤ x2 ≤ ... ≤ xN)

According Qu et al. (2023), Gini coefficient has a value range between 0 – 1. The Gini coefficient value indicates a more even distribution if the value is towards 0. Conversely, inequality will be worse if it approaches the number 1. The Gini coefficient measurement categories are described in detail in the following table:

Table 3.3 Industry Categorization based on Gini Coefficient

Range of Value	Category
< 0.2	Very balanced distribution
0.2 – 0.3	Relatively balanced distribution
0.3 – 0.4	Quite balanced distribution
0.4 – 0.5	Great inequality
> 0.5	Very large inequality

Source: (Qu et al., 2023)

RESULT AND DISCUSSION

This section presents the results of the concentration and market share calculations for each mobile broadband company in Indonesia. Data sourced from each operator's financial reports is presented descriptively, using the calculations explained in the previous discussion.

First, the results of the market share calculations in Indonesia will be presented. The calculations are presented in the following table:

Table 4.1 Market Share of the Mobile Broadband Industry in Indonesia

Company	User	Market Share (%)
Telkomsel	127.100.000	39.73%
Indosat	98.800.000	30.88%
XL Axiata	57.500.000	17.97%
Smartfren	36.500.000	11.41%
Total	319.900.000	100.00%

Source: Processed data (2024)

The table shows that Telkomsel has the largest market share in Indonesia's mobile broadband market at 39.73%, followed by Indosat (30.88%), XL Axiata (17.97%), and Smartfren (11.41%). This means that Telkomsel is the leader in internet product sales in the mobile broadband market, with greater user growth opportunities than other operators. This makes the risk of Telkomsel experiencing a decline in revenue due to the increasing performance of other operators minimal, unless Telkomsel faces a company-wide dilemma that causes its performance to decline. In other sides, other operators experience consistent performance increases.

Table 4.2 Market Share Situation after Consolidation (2025)

No	Perusahaan	User	Market Share (%)
1	Telkomsel	127.100.000	39.73%
2	Indosat	98.800.000	30.88%
31	XL-Smart	94.000.000	29.38%
SUM		319.900.000	100.00%

Source: Processed with data of 2024

In a market environment where the mobile broadband telecommunications sector consists of only three business entities, market fragmentation narrows and leans toward equilibrium. The resulting merger creates a more even distribution of subscribers. Theoretically, this consolidation reshapes the competitive landscape of the industry. With the formation of a three-firm oligopoly, the market share of the smallest entity (previously held by Smartfren at 11.41%) escalates to 29.38% under the consolidated XL-Smart entity. Intuitively, this reduces size disparity among operators, as confirmed by the decline in the Gini coefficient from 0.286 in the four-operator baseline to 0.115 in the three-operator simulation (elaborated further in the Gini coefficient section). This indicates a relatively balanced distribution of subscriber share among the remaining market players.

Second, we will present seller concentration data, which is the result of adjusting the market share data presented in the previous table. The data is presented in the following table:

Table 4. 3 Seller Concentration of Mobile Broadband Industry Operators in Indonesia

Seller Concentration (n-firm)	
2-firm (CR2)	70.62%
3-firm (CR3)	88.59%
4-firm (CR4)	100.00%

Source: processed data (2024)

The above computation shows that there is a very high level of concentration within the market, since the two leading firms Telkomsel and Indosat have CR2 of 70.62% and CR3 of 88.59% share of total subscribers. High concentration within the pre-consolidation market structure implies that the market is characterized by an uneven distribution of market shares. In this case, the power within the market is mainly in the hands of few dominant firms. According to SCP theory, these characteristics are generally accompanied by high barriers to entry.

When evaluating the transition toward a post-consolidation scenario (from XL Axiata and Smartfren to XL-Smart), the concentration metrics exhibit a structural realignment. Under the simulated three-firm

market structure, the combined CR2 (Telkomsel and Indosat) remains unchanged at 70.62%, but the total industry output is now fully distributed among only three entities, rendering CR3 equal to 100.00%.

Comparing the pre and post consolidation dynamics, the consolidation shifts the mobile broadband market from a fragmented four-firm oligopoly with a vulnerable fringe player (Smartfren at 11.41%) toward a more symmetrical three-firm oligopoly where the smallest entity commands 29.38% of subscribers. While this shift reduces size disparity among remaining operators, the absorption of the fourth player elevates the overall market concentration. Thus, market consolidation yields a more balanced distribution of subscribers and fosters a more competitive environment, thereby driving service innovation and technological adoption. The third is the calculation of the Hirschman-Herfindahl Index (HHI), which is carried out on companies involved in the mobile broadband industry in Indonesia, with details in the following table:

Table 4.4 HH Index Measurement of Mobile Broadband Industry Operators in Indonesia

Companies	Market Share (^2)	x 10000
Telkomsel	0,1579	1579
Indosat	0,0954	954
XL Axiata	0,0323	323
Smartfren	0,0130	130
	1,0000	10000
HHI		**2986**

Source: Processed data (2024)

The table shows the Hirshman-Herfindahl Index (HHI) for the Indonesian Mobile Broadband industry, which is 2986. These results indicate that the Indonesian mobile broadband industry is in imperfect competition (Oligopoly criteria), characterised by high concentration, as categorised by (Lee et al., 2020; Peleckis, 2022). These results indicate the high level of competition in the Indonesian mobile broadband industry. Furthermore, the HHI categorises the mobile broadband industry as Spektrum III, where it is possible to carry out a comprehensive assessment of the merger process and prevailing industry conditions. The following table illustrates the market structure following the market consolidation.

Table 4.5 HH Index Measurement After Consolidation (2025)

Companies	Market Share (^2)	x 10000
Telkomsel	0,1579	1579
Indosat	0,0954	954
XL-Smart	0,0863	863
	1,0000	10000
HHI		**3396**

Source: Processed with data of 2024

Consolidation in the mobile broadband industry increased the industry index score from 2986 to 3396, representing a change of 410 points. Based on KPPU regulations, changes following consolidation with a delta greater than 150 (see the provisions in Table 3.2) imply significant changes that cause the KPPU to elevate the assessment level to the Comprehensive Assessment stage, meaning the assessment examines the potential for a monopoly based on more complex factors, including an analysis of barriers to market entry, an analysis of potential anti-competitive behavior, efficiency factors, insolvency factors, and other assessment aspects as stipulated in article 13 paragraph 5 PerKPPU No. 3/2019.

Lipczynski et al. (2005) explain that higher concentration and dominance in competition will lead to a more closed market due to the emergence of barriers to entry. This restricts players' ability to freely enter and exit the market, resulting in very low participation among new players. The imperfect level of competition also allows large companies to set the pace of the game by colluding with one another or

acquiring smaller companies. This results in the market having absolute power to determine selling prices (price-making), leaving buyers with little bargaining power.

Finally, we calculate the gap in market power distribution using the Gini coefficient. The following table shows the power gap between one company and another in the same industry, as follows:

Table 4.6 Measurement of the Gini Coefficient in the Indonesian Mobile Broadband Industry

No	Perusahaan	User	Cumulative Users
1	Telkomsel	127.100.000	127.100.000
2	Indosat	98.800.000	225.900.000
3	XL Axiata	57.500.000	283.400.000
4	Smartfren	36.500.000	319.900.000
SUM		319,900,000	319.900.000
GINI			**0.196**

Source: Processed data (2024)

The assessment rule is that the closer the coefficient is to 1, the greater the perceived gap between industries, indicating that a handful of companies dominate the majority of the industry. However, if the coefficient is closer to 0, the industry market is increasingly competitive and moving toward perfect competition. In the mobile broadband telecommunications industry, as shown in the table, the resulting figure is 0.196, placing it in the "very balance distribution" category (Qu et al., 2023), indicates that there is virtually no gap in user base within the industry and that each operator has nearly equal strength in the competition for user penetration. In other words, there are virtually no barriers to entry for new companies or those with the smallest user share to improve the quality of their services in order to compete. The level of inequality, as measured by the Gini coefficient, for the industry following consolidation is as follows:

Table 4.7 Measurement of the Gini Coefficient After Consolidation

No	Company	User	Cumulative Users
1	Telkomsel	127.100.000	127.100.000
2	Indosat	98.800.000	225.900.000
3	XL-Smart	94.000.000	319.900.000
SUM		319.900.000	672.900.000
GINI			**0.052**

Source: Processed with data of 2024

Further analysis regarding the inequality in subscriber share distribution among operators was conducted using the Gini coefficient approach. In a hypothetical post-consolidation market structure comprising three companies (XL-Smart, Indosat, and Telkomsel), the Gini coefficient value drops significantly from 0.196 (under the four-company scenario for 2024) to 0.052. This decline indicates that the consolidation between XL-Axiata and Smartfren creates a highly symmetrical subscriber distribution among the three companies (holding shares of 29.38%, 30.88%, and 39.73%, respectively). Based on inequality classification criteria, a Gini coefficient of 0.069 indicates a highly balanced distribution. However, it should be noted that this reduction in size inequality occurs alongside a decrease in the number of market players and an increase in the concentration index (HHI). The conclusion drawn thus far is that the drop in the Gini coefficient reflects a more even distribution of users across the various operators, despite the potential for the market to be dominated by the operator with the largest user base.

The behaviors resulting from these conditions subsequently influence the 'performance' of each operator in service delivery. Companies with higher service pricing tend to maintain network quality and

coverage while ensuring service availability across various regions, including those with challenging environmental conditions. This necessitates that each operator maintain high levels of network investment (Capital Expenditure) and increase them annually. High network investment is closely linked to network quality as well as a company's prospects for boosting sales or ARPU (Zehle, 2019). The converse also holds true for each company.

Table 4.8 Mobile Broadband ARPU in Indonesia

Operators	ARPU (Yearly)
Telkomsel	Rp. 891.793
Indosat	Rp. 565.454
XL Axiata	Rp. 598.119
Smartfren	Rp. 319. 888
AVERAGE	Rp. 593.800
Global ARPU	Rp. 469.658

Source: Operator's annual report 2024, processed

The table below shows that mobile broadband operators in Indonesia performed very well, achieving a high average ARPU, even surpassing the global average of IDR 469,658, as reported by Dyke et al. (2025).

This indicates that each operator's revenue has reached an optimal level and that cash flow is healthy. Telkomsel achieved the highest revenue among the three operators. Theoretically, increased company revenue will lead to increased network investment, as demonstrated by a study (Zehle, 2019). This increased network investment (CAPEX) provides long-term prospects for improving service quality and network performance, making consumers feel more comfortable with the prices they pay. Therefore, increased revenue is crucial for supporting operator quality and performance.

To demonstrate these implications, data on the CAPEX ratio of the Indonesian mobile broadband industry is required. Therefore, the following processed data will be interesting to discuss:

Table 4.9 CAPEX ratio of Indonesian Mobile Broadband Industry operators

Operators	CAPEX Ratio
Telkomsel	13.17%
Indosat	22.31%
XL-Axiata	33.05%
Smartfren	13.42%
AVERAGE	**20.49%**

Source: Operator's annual report 2024, processed

The table shows the CAPEX percentage for all operators in the Indonesian mobile broadband market. The table shows that Indosat and XL Axiata have the highest CAPEX ratios, with XL Axiata being the highest, followed by Indosat. The large CAPEX ratio of XL Axiata relative to Indosat aligns with the ARPU of both operators, indicating that XL Axiata has a higher ARPU than Indosat. Then, in a lower ranking is Smartfren, followed by Telkomsel. This shows that there is a positive implication between high ARPU and high network investment.

Zehle (2019) theory seems appropriate to describe the three operators mentioned above. However, this theory does not apply to Telkomsel due to the inverse proportional performance. This indicates an unnatural performance for Telkomsel, as neither Zehle's theory nor the SCP paradigm seems to provide a suitable picture. This presents a research gap for future research.

CONCLUSIONS

This study aims to analyse the structure of the mobile broadband industry in Indonesia using the Structure–Conduct–Performance (SCP) paradigm by measuring market share, seller concentration, Hirschman-Herfindahl Index (HHI), and Gini Coefficient. The results show that the structure of the mobile

broadband industry in Indonesia is characterised by an imperfect competition with a very-high level of market concentration. The dominance of several major operators is reflected in the CR2 value of 70.62% and the CR3 value of 88.59%, indicating that most market power is concentrated in a handful of large companies. This finding is reinforced by the HHI value of 2986 in the pre-consolidation and increase to 3396 after consolidation, placing the industry in the oligopoly category with high concentration according to the classification (Lee et al., 2020; Peleckis, 2022) and is in Spektrum III according to the KPPU classification. Furthermore, the Gini coefficient value of 0.052 indicates a very low inequality in the distribution of market power among operators in the industry.

Descriptively, the results of this study indicate that the mobile broadband industry in Indonesia faces structural challenges in balancing market power among operators. Although the distribution of users is moving toward equilibrium following consolidation, operators with the largest market shares continue to dominate the industry's competitive dynamics. Theoretically, the results of this study strengthen the relevance of the SCP paradigm in explaining the relationship between market structure, firm behaviour, and industry performance in the mobile broadband-based digital telecommunications sector. High market concentration has the potential to create barriers to entry and increase the risk of collusion or uncompetitive pricing practices. Practically, these findings provide implications for regulators to maintain competitive balance through merger oversight policies, spectrum regulation, and protection of small players to maintain healthy industry dynamics. Thus, although the consolidation process has created a more symmetrical and balanced distribution of customers among the remaining operators, the increasingly concentrated market structure still allows the dominant entity to dictate the direction of competition and pricing.

For further research, it is recommended to use an analytical approach that integrates variables such as strategic firm behaviour, network cost efficiency, and technology investment dynamics, such as 5G, to obtain a more comprehensive picture of the evolution of the mobile broadband industry structure in Indonesia.

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References

Dyke, D. Van, Littmann, D., Fritz, J., Stewart, D., & Raman, P. (2025). *2025 Global Telecommunications Outlook*. Deloitte. https://www.deloitte.com/us/en/insights/industry/technology/technology-media-telecom-outlooks/telecommunications-industry-outlook-2025.html

European Union. (2004). *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. Official Journal of the European Union.

Federal Trade Commission. (2023). *Merger Guidelines [2023] - U.S. Department of Justice and the Federal Trade Commission*. U.S. Departement of Justice and Federal Trade Commission.

GSMA Intelligence. (2025). *The Mobile Economy 2025*. www.gsmaintelligence.com Indosat. (2024). *Laporan Tahunan Indosat 2024*. www.ioh.co.id

Khavidhurrohmaningrum. (2013). Strategi dan Perilaku Industri Pengolahan di Kota Semarang tahun 2007-2011. *Economics Development Analysis Journal*. http://journal.unnes.ac.id/sju/index.php/edaj

Lee, S., Chang, S. R., & Suh, Y. (2020). Developing Concentration Index of Industrial and Occupational Accidents: The Case of European Countries. *Safety and Health at Work*, *11*(3), 266–274. https://doi.org/10.1016/j.shaw.2020.05.003

Lipczynski, John., Wilson, J. O. S., & Goddard, J. A. (2005). *Industrial Organization: Competition, Strategy, Policy*. Prentice Hall/Financial Times.

Marquette University Raynor Library. (2025, April 25). *Market Share*. Https://Libguides.Marquette.Edu/c.Php?G=36664&p=232911&utm.

Matondang, K. A., Purba, E. E., El Zaidan, M., & Lumbangaol, D. W. (2025). Perkembangan Teori Ekonomi Industri dan Implikasinya Terhadap Kebijakan. *Jurnal Pengabdian Masyarakat Dan Riset Pendidikan*, *4*(2), 8802–8806. https://doi.org/10.31004/jerkin.v4i2.3305

Neuman, W. Lawrence. (2014). *Social Research Methods: Qualitative and Quantitative Approaches* (7th ed.).

Pearson. *Pedoman Penilaian terhadap Penggabungan, Peleburan, atau Pengambilalihan*. (2020). Komisi Pengawasan Persaingan Usaha Republik Indonesia.

Peleckis, K. (2022). Determining the Level of Market Concentration in the Construction Sector—Case of Application of the HHI Index. *Sustainability (Switzerland)* , *14*(2). https://doi.org/10.3390/su14020779

Qu, R., Lee, S. H., Rhee, Z., & Bae, S. J. (2023). Analysis of Inequality Levels of Industrial Development in Rural Areas through Inequality Indices and Spatial Autocorrelation. *Sustainability (Switzerland)*, *15*(10). https://doi.org/10.3390/su15108102

SDPPI Kementerian Komunikasi dan Digital. (2023). *DATA STATISTIK SDPPI 2023*.

SGIER. (2024). *STATE OF THE GLOBAL ISLAMIC ECONOMY REPORT 2024/2025*. Dinar Standard supported by Islamic Development Bank Institute.

Smartfren. (2024). *PT Smartfren Telecom Tbk*.

Talpur, A. B. (2023). Market power and concentration-performance analysis of the banking sector: A comparative study of Singapore and Pakistan. *Social Sciences and Humanities Open*, *7*(1). https://doi.org/10.1016/j.ssaho.2022.100383

Telkomsel. (2024). *Laporan Tahunan Telkomsel 2024*.

Travasoni, A., Fiandro, L., & Atluri, V. (2025). *The Future of Telcos: Mapping the Routes to Renewed Success*. McKinsey & Company.

World Bank. (2023).*Mobile cellular subscriptions*. Https://Data.Worldbank.Org/Indicator/IT.CEL.SETS?Locations=ID. XL Axiata. (2024). *Laporan Tahunan XL Axiata 2024*.

Zehle, S. (2019). *Sustainable spectrum pricing Fostering the deployment of 5G through appropriate spectrum pricing*. Coleago Consulting.