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What the Lerner Index tells us about the competition in the Indonesia's Life Insurance industry?

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■ Proper pricing is crucial in the insurance industry, as it ensures a company's ability to cover liabilities. The study examines the relationship between pricing policies and competition in Indonesia's life insurance industry by comparing Lerner Index calculations. The index measures as the percentage markup of price above marginal cost and often been calculated as a measure of a firm's market power.

■ The relationship between market conduct and the Lerner Index in the insurance industry is explored, showing that market conduct practices, including pricing strategies, can significantly affect a firm's Lerner Index, potentially leading to increased market power and pricing authority.

■ In the Indonesian life insurance industry, there is a correlation between a company's size and the Lerner Index, with smaller companies in Class 1 (asset < 5T) facing more competition and lower Lerner Index values, leading to more elastic demand, while larger companies in Class 2 (5T < Asset <= 10T) and above have higher retention rates and greater Lerner Index values, indicating greater market power.

■ Based on the simulation, we indicate that Indonesia's life insurance sector may require a minimum of Rp. 27 trillion in assets to achieve a satisfactory Lerner Index level of 0.7. The level required to achieve adequate market power is also found in other countries.

I.   Introduction

Pricing stands as the foundation of each insurance product. A proper pricing policy is imperative, ensuring the insurance company's ability to cover its liabilities. Within the insurance industry, ensuring price adequacy holds paramount importance for the long-term financial health and operational success of companies. In this context, pricing involves determining the suitable cost of insurance products and outlining accompanying terms and conditions. Given the unpredictability of policyholders' claims, setting the correct price for insurance products presents its own challenges. For those procuring insurance, known as the insured, the price plays a significant role in their decision-making process, serving as a major distinguishing factor among various insurance options. A well-defined and accurate pricing strategy is crucial as it equips insurance companies to effectively manage their financial liabilities and fulfil promises made to policyholders when claims arise. This underscores the critical role of proper pricing in enabling insurance companies to manage liabilities effectively.

In the realm of insurance market conduct, the pricing of insurance products also exerts a pivotal influence on consumers' decisions. When individuals select an insurance product, the price emerges as their primary consideration. This is because the cost of the insurance policy directly impacts their financial considerations and budget constraints. Within this competitive landscape, a notable feature of competitors' offerings is their ability to provide insurance products at remarkably low prices. This strategic approach of offering insurance at a reduced cost is employed to attract and entice potential customers. Therefore, it is important to observe the market conduct as most companies try to compete using price strategy. The market conduct pertains to the behavior exhibited by financial service providers in designing, organizing, and delivering information, offerings, product/service agreements, as well as resolving disputes and handling complaints.

Striking a balance between fostering the growth of the financial services sector and ensuring the fulfillment of consumer rights and responsibilities is essential to enhance consumer trust in market conduct practices. In the Non-Bank Financial Industry (NBFI), particularly in the insurance sector, a crucial role is played in providing financial protection to society as a mitigation measure against potential future risks. In recent years, the Indonesian insurance industry has encountered various issues, including insolvency cases in several life insurance companies. The problems experienced by these insurance companies are largely due to market conduct errors. The OJK (Indonesia's Financial Services Authority) has actively addressed concerns in several insurance companies, while simultaneously strengthening regulation and supervision to safeguard consumers and drive the advancement of a healthier, more efficient, and sustainable insurance industry. However, market conduct concerns persist within the Indonesian insurance industry, such as mis-selling of insurance products by insurance agents, unresponsive and inefficient claims handling, inappropriate premium rate calculations, and pricing wars. These issues undoubtedly have negative implications for insurance companies.

The market conduct can be observed based on decisions of pricing made by

companies. Calculating premium rates (premium pricing) for an insurance product is significant in determining the financial contribution that policyholders must pay to obtain financial protection against specific risks. Essentially, the fundamental idea behind premium pricing is to ensure that the accumulated premium is substantial enough to cover potential future losses. Setting insurance premium pricing, particularly for long-term life insurance products, requires complex actuarial mathematical concepts. Life insurance actuaries employ the concept of actuarial present value to calculate the total expected loss that will need to be covered in the future. This concept involves calculating expected future cash flows and determining the present value of these cash flows using assumptions such as the interest rate. Therefore, in life insurance premium pricing, important assumptions are necessary, including:

1. Mortality Rate: the mortality rate refers to the death rate within a population for a specific age group. In the calculation of life insurance premium pricing, the mortality rate is a key assumption in determining the risk of death that the insurance company cover. Actuaries analyze statistical data to predict mortality rates based on age, gender, and other factors, such as smoking or non-smoking habits, and others.

2. Interest Rate: the interest rate serves as the basis for determining the present value of future cash flows, including the premiums to be received by the insurance company and the claims that will be paid to policyholders. The assumed interest rate used in premium pricing must be carefully chosen to align with market conditions and the risk profile of both the company and policyholders.

3. Expenses: Insurance companies have operational costs that must be considered in determining insurance premium pricing. These operational costs encompass administrative expenses, marketing expenses, and other costs related to the provision and issuance of insurance policies.

4. Lapse Rate: The lapse rate refers to the percentage of policyholders who terminate their insurance policies prior to the end of policy's coverage period. The assumption of a lapse rate is also a crucial element in pricing as it significantly affects the cash outflow and the expected claim risk in the future.

5. Loading (Margin): Loading represents an additional component added into the pricing structure to accommodate unexpected risks and to establish an additional profit margin for the company.

These assumptions are crucial to the actuarial calculations that determine the appropriate premium rates for insurance policies and play a significant role in ensuring the financial stability and sustainability of insurance companies. This study aims to investigate how pricing policies set by insurance companies reflect the level of competition in Indonesia's life insurance industry through a comparison of the Lerner Index calculation. Due to the complexities to disentangle cost and premium components for each company, this study is the first attempt to do so in the context of Indonesia's life insurance industry as a whole.

II.   Literature Review
Market Power, Competition, and Pricing Power in Insurance Context

The financial services industry encompasses a diverse range of institutions including banks, investment companies, lenders, finance companies, insurance companies, and others. The growth of the financial services sector, both in terms of asset size and asset growth pace, has led to increased competition. The ability of a company to maintain and expand its market share in the face of competition from local or foreign entities can be defined as market power (Mawardi et al., 2019). The standard definition of market power is a firm's ability to influence the price at which it sells its products. From an economic standpoint, the concentration of market power results in higher prices and reduced quantities, leading to decreased consumer and overall welfare compared to a hypothetical perfectly competitive scenario (Shaffer and Spierdijk, 2020). This is why policymakers are concerned about market power and aim to curb it. Rajhi and Salah (2011) assert that addressing competition and market power in the financial services industry is essential for offering a variety of financial products and services and charging competitive prices to maximize societal surplus. While there are various concepts and definitions of market power, they all revolve around the ability to influence product prices or provide competitive pricing, which is a crucial element of market power.

Market power and competition concerning pricing (pricing power) are common challenges faced by various businesses, particularly in the insurance sector. Companies in competitive insurance markets often prioritize low pricing and premium reduction strategies overgrowth and expansion (Ren and Schmit, 2009). In the insurance context, reduced competitive behavior (increased concentration) can potentially elevate insurance policy premiums due to dominant firms exercising market power. This may lead to adverse selection of high-risk policyholders within the policyholder pool, heightening the likelihood of incurring losses and contributing to market instability. Furthermore, exerting pricing power and charging unfairly high premiums are expected traits in less competitive insurance markets. This dynamic could attract high-risk individuals to the insurance pool, leading to increased loss development and higher claim likelihood (Boyd and Nicolo, 2005). Martinez-Miera and Repullo's theory suggests that weaker market power and heightened competition prompt competitors to take undue risks to gain market share and profits. In the insurance market, price competition could potentially draw high-risk policyholders into the pool, increasing the chances of claims (Alhassan and Biekpe, 2017).

Researchers have investigated the causes and consequences of pricing power in the insurance industry. Selection bias occurs when pricing power (manifested as higher premiums) leads high-risk individuals to self-select into an insurance pool at the expense of low-risk individuals (Akerlof, 1970; Rothschild and Stiglitz, 1976). According to Rothschild and Stiglitz (1976), higher premiums paid by low-risk policyholders result in cross-subsidization favoring high-risk policyholders, exacerbating financial inequality, portfolio risk, loss profitability, and the risk of market collapse. In the context of insurance markets, competition often prompts policyholders to switch insurers more frequently over time. This makes it challenging for insurers to effectively utilize past claim behavior data and pricing strategies, elevating the risk within insurance pools and the likelihood of

policyholder claims (Alhassan and Biekpe, 2017). Moreover, Keeley (1990) suggests that in highly competitive markets, the pursuit of profits increases the temptation to take unwarranted risks. This, in turn, diminishes capital buffers and exposes companies to unfavorable economic conditions. This notion is substantiated by the fact that competitive insurance markets sometimes lower insurance premiums to boost policy sales. Consequently, there is a tendency to spread losses across insurance pools more widely, escalating the potential for market insolvency.

Lerner Index

An American economist named Abba Lerner created the Lerner (1934) index, which measures competition. The difference between price and marginal cost, which is used to further divide by the price level to generate the Lerner index, is how the Lerner index is defined and computed. The discrepancy between the firm's pricing and its marginal cost at the profit-maximizing rate of output was recognized by the Lerner index as the "degree of monopoly". In this study, we use the Lerner index to calculate the level of competition in the insurance industry. This approach is recommended because the index measures a firm's ability to set prices above their marginal costs based on the competitive environment in the market over time and assesses market power at the firm level (Alhassan and Biekpe, 2019). This is suitable for the industry-level data employed in this paper. The equation for estimating the Lerner index is given as:

$$L_{i,t} = \frac{p_{i,t} - mc_{i,t}}{p_{i,t}}$$

Where $p_{i,t}$ is the output price set by an insurer i at time t, and $mc_{i,t}$ is insurer i's marginal cost at time t. _A higher value of the Lerner index (closer to 1) reflects greater market power while lower values indicate a competitive market. A wider gap between P and MC, in Lerner's view, implied more monopolistic power._ The social optimum that is reached in perfect competition is Lerner's benchmark for assessing monopoly power and evaluating the welfare economics of monopolies. Additionally, according to Elzinga and Mills (2011), Lerner claimed that the index was acceptable for determining a firm's monopoly power in an equilibrium of monopolistic competitive markets. With its theoretical and empirical foundations, the Lerner index has become a popular standard measure of evaluating market power and competition in existing literature. There are a few studies that have already addressed the issue of market power in the banking industry using the Lerner index (Igan et al, 2021; Arrawatia et al, 2019; Khattak et al, 2021; Fukuyama and Tan, 2020). This method will be used to identify the market power of insurance industry in Indonesia.
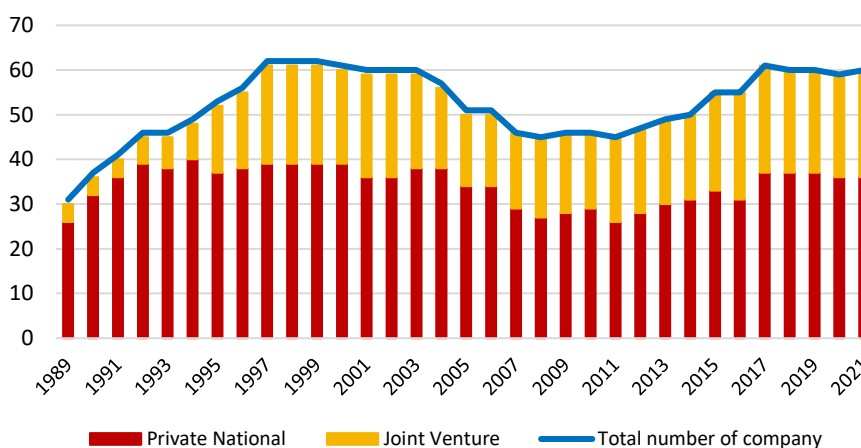
The Structure of the Indonesian Life Insurance Industry

Following the Asian crisis in 1998, there was a substantial increase in the number of Indonesian life insurance companies, propelled by the establishment of joint venture life insurance firms and foreign capital ownership. During that year, the International Monetary Fund (IMF) encouraged the opening of the Indonesian financial services market through its Letter of Intent, aiming to stimulate foreign investment inflow into Indonesia. The regulation governing insurance markets in 1992 (Peraturan Pemerintah No. 73 Tahun 1992 tentang Penyelenggaraan Usaha Perasuransian) brought about fundamental changes in the market

landscape for the Indonesian insurance industry.

As illustrated in Figure 1, the number of Indonesian life insurance companies saw a significant rise in 1997, largely due to the growth in joint venture life insurance firms. However, during the Global Financial Crisis period in 2008, the number of Indonesian insurance companies experienced another decline, with several private national life insurance companies being ceased their operations. As of 2021, the Indonesian life insurance industry comprises 60 companies, consisting of 24 joint venture entities and 36 national private companies.

Figure 1. Number of Companies in the Indonesia Life Insurance Market

Source: CEIC

The Indonesian life insurance industry's structure is characterized by fragmentation due to the significant number of life insurance companies present in the country. Additionally, the structure of life insurance in Indonesia aligns with the higher competition market structure (Setiadie, 2019). This circumstance is also evident in the growth of Indonesian life insurance assets, which have expanded at a rate of 11% (CAGR 10Y). The rapid expansion of the insurance sector, both in terms of asset size and growth rate, has led to intensified competition within the industry.

The competitive nature of the Indonesian life insurance industry is further highlighted through the analysis of market share based on premiums. Table 1 illustrates that a significant portion, 59.7%, of the market share originates from life insurance companies with substantial asset holdings, namely those exceeding IDR 25 trillion, totaling just 7 companies. Companies with medium-sized assets, ranging between >IDR 5 trillion and <=IDR 25 trillion, contribute roughly 30.8% to the market. In contrast, smaller insurance companies with assets under IDR 5 trillion, amounting to around 27 companies, contribute only 9.5% to the market.

These conditions underscore an unbalanced structure within the Indonesian life insurance industry, where considerable inequality is observed in terms of market share. High-asset life insurance companies dominate the market share, while most entities with lower assets contribute minimally to the industry. The prevalence of market control among large companies suggests the presence of

market power, indicating their capacity to influence product pricing or offer competitive rates (pricing power). In an industry characterized by high fragmentation and substantial market control, the likelihood of price wars tends to increase.

Table 1: Summary of Indonesia's Life Insurance Market

Asset Group	Number of Company	Market Share Premi
(below =IDR5 trillion)	27	9,50%
(>IDR5 trillion - <=IDR10 trillion)	8	15,80%
(>IDR10 trillion - <=IDR25 trillion)	9	15%
(Above IDR25 trillion)	7	59,70%

Source: CEIC

In Indonesia, the regulation of life insurance premium rates is generally governed by Keputusan Menteri Keuangan Republik Indonesia No. 422/KMK.06/2003 Tentang Penyelenggaraan Usaha Perusahaan Asuransi dan Perusahaan Asuransi. This regulation considers the following factors: (1) a pure premium calculated based on the interest rate, mortality table, or morbidity table used; (2) acquisition fees, administration fees, and other general expenses; and (3) the estimated return on investment from the premium.

However, the Indonesian regulatory body has not specifically outlined premium limit rates for life insurance products. Consequently, insurance companies possess the freedom to establish and modify premium rates. These circumstances encourage heightened competition and exert pressure on pricing. Furthermore, the removal of the ex-ante approval requirement through regulatory channels enables insurers to compete based on products and contract terms.

Empirical Literature

The existence and exercise of market power have been explored both theoretically and empirically in the literature. While many recent additions to this body of work have focused on competition within the financial sector, particularly the banking industry, a variety of findings have emerged. Igan et al. (2021) employed the Lerner index to analyze trends in bank competition in advanced economies from the early 2000s. They identified a significant increase in market power, particularly following the global financial crisis. Fukuyama and Tan (2022), using data from commercial banks in China, discovered that joint-stock banks exhibit the lowest market power. While city commercial banks display a higher level of market power than joint-stock commercial banks, it is still less than that of the remaining three ownership types. Arrawatia et al. (2019) assessed competition in India's banking sector, utilizing two approaches of the Lerner index—traditional and risk-adjusted. The results indicated that the Indian banking system exerts less market power when assessed through the risk-adjusted Lerner index, contrary to the findings of the traditional Lerner index. In Indonesia's context, Khattak et al. (2021) investigated the impact of competition and portfolio diversification on banking stability for both conventional and Islamic banks. The study revealed that competition negatively affects Islamic banks,

while diversification does not have an impact. However, in enhancing the stability of the Indonesian banking sector, competition and diversification complement each other.

Studies on insurance pricing have garnered significant attention in both empirical and theoretical literature. Nonetheless, the estimation of competition or pricing power exercise in insurance markets is limited in existing studies. Notable among these estimates is the work conducted by Alhassan and Biekpe (2019), which empirically analyzed determinants of pricing power in the South African non-life insurance market. This study identified firms with substantial pricing power in the market, highlighting domestic-owned insurers exerting higher pricing power compared to foreign-owned counterparts. Factors such as size, cost efficiency, product line diversification, market concentration, leverage, and reinsurance contracts were identified as significant predictors of pricing power. Another study by Jeng (2015) unveiled the evolution of competition within both life and non-life insurance markets in China between 2001 and 2009. The findings indicated that non-life insurance companies operated under monopolistic conditions, suggesting that insurance markets in China were characterized by monopolistic competition. Murat et al. (2002) assessed competition in insurance markets by examining 48 general insurance companies in Australia. Their findings suggested that the market was characterized by monopolistic competition.

The empirical literature has also delved into exploring the repercussions of competition in insurance markets on various economic outcomes, including financial stability, bank efficiency, information sharing, and economic growth. Alhassan and Biekpe (2017) examined the non-linear effect of competition on risk-taking behavior in emerging insurance markets, focusing on 79 non-life insurance firms. Their research revealed that higher competition levels led to market instability. The study also highlighted that increased competitive conditions (low market power) encouraged excessive risk-taking to compete for market share and profits. Consequently, there was a propensity to expand the distribution of losses among insurance pools, amplifying the likelihood of market insolvency. Shim (2017) explored the empirical relationship between market concentration and stability within the property-liability market. The findings suggested that heightened market concentration heightened financial instability. In contrast, Cummins et al. (2017) investigated the impact of competition on stability in selected life insurance markets in the European Union. Their research supported the competition-stability hypothesis, positing that competition contributes to the financial soundness of insurance companies.

III.   Data and methodology

Data Source

The study employs data acquired from the Indonesian Life Insurance Association (AAJI) report, which furnishes comprehensive information about various firms operating within the Indonesian life insurance market. This dataset forms the bedrock of the analysis, facilitating an understanding of the dynamics of pricing power during a specific timeframe.

Temporal Scope

The research spans five years, encompassing the period from 2016 to 2021. This expansive temporal range facilitates a thorough examination of trends and

shifts within the industry. The extended duration allows researchers to capture potential changes in pricing power and identify emerging patterns or trends over the years. The fundamental data utilized for analysis encompasses premium data, policy counts, operational costs, and underwriting outcomes.

Categorization of Assets

This study incorporates an assessment of the Lerner Index, considering Indonesia's life insurance companies classified into four distinct asset-based classes: Class 1 (asset size ≤ 5 trillion IDR), Class 2 (asset size > 5 trillion and ≤ 10 trillion IDR), Class 3 (asset size > 10 trillion and ≤ 25 trillion IDR), and Class 4 (asset size > 25 trillion IDR). This classification schema enhances the understanding of the competitive landscape within Indonesia's life insurance industry.

The segmentation of insurance companies based on asset size seeks to discern the dynamics of market competition across varying asset levels. Recognizing that companies with differing asset sizes may possess varied degrees of market power and pricing flexibility, this approach offers a nuanced exploration of the relationship between asset size and pricing behavior. By dissecting these asset classes, the study delves into whether the interplay between asset size and pricing behavior differs among these distinct categories. This categorization methodology ultimately enhances comprehension of competitive dynamics in the Indonesian life insurance sector, shedding light on the interplay between company size and market competition.

Methodology: Calculation of Lerner Index

As elaborated in the literature review, the Lerner Index is employed to gauge a firm's capacity to establish prices exceeding their marginal costs, based on the competitive climate prevailing in the market over time. It evaluates market power at the firm level. The Lerner Index is mathematically defined as follows:

$$L_{i,t} = \frac{p_{i,t} - mc_{i,t}}{p_{i,t}}$$

Where $p_{i,t}$ is the output price set by an insurer i at time t, and $mc_{i,t}$ is insurer i's marginal cost at time t. This approach enables a comprehensive understanding of how these insurers operate within the market, particularly concerning their ability to exercise pricing power beyond their production costs. While the variables of P and MC seem to be straightforward in theory, there are detailed adjustments to be implemented in the context of the insurance industry.

Price ($p_{i,t}$)

In this study, the output price established by an insurance company is calculated by metric in the following formula:

$$P = \frac{\text{NB Premium Written}}{\text{Number of Policies from NB}}$$

Where:

- NB Premium Written represents the insurer's new business premium written within a period timeframe. This signifies the total value of premiums collected from new insurance policies sold from single

premium as well as regular premium insurance products within a given time span.

- Number of Policies from NB is the number of policies derived from new business obtained by the insurance company during that exact period and representing the count of individual insurance policies initiated during the same time frame.

This metric offers an insightful way to measure how much revenue a life insurance company generates from its new business. It also gives a valuable perspective as it demonstrates how much an insurance company earns premium on average from each new policy issued. The metric will also provide insights into the company's pricing strategy, the attractiveness of its sales strategy to customers, and its overall performance in terms of generating new business policies.

Marginal Cost ($mc_{i,t}$)

The insurer's marginal cost obtained in this study is represented by a calculated metric as well. The calculation of the metric involves two key components which are the insurer's total operating cost spent for new business generated within a period timeframe, and number of policies derived from new business obtained by the same insurer during the same timeframe. Therefore, the metric for calculating marginal cost is generated by following formula:

$$MC = \frac{\text{Total Operationg Cost for NB}}{\text{Number of Policies from NB}}$$

Where:

- Total operating cost for NB represents the total operating cost spent by insurance companies for generating new business (new policies) within a period of timeframe. Operating costs spent by insurance companies include costs related to administration expenses, marketing expenses, distribution of policies, and other operational expenses tied to the issuance of new policies.

- The number of policies from NB represents the total number of individual insurance policies issued during the same timeframe.
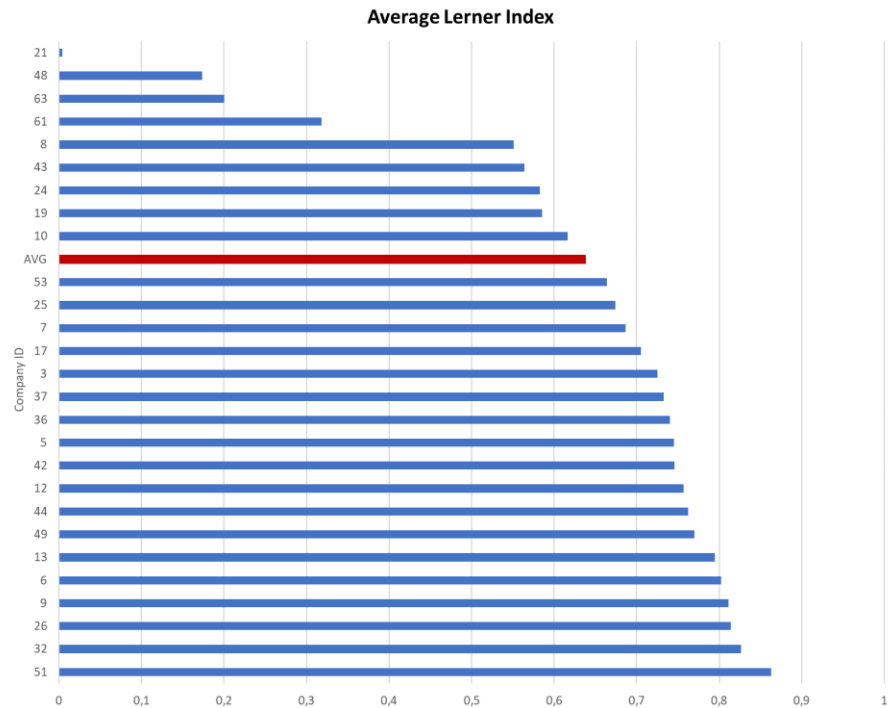
This metric represents the marginal cost incurred for each policy created within the period. In essence, this metric quantifies the average cost incurred by the insurance company to produce one additional policy. It provides valuable insights into the efficiency of insurer's operations and the resources allocation required to generate new policies.

IV.   Results

The results of this study encompass an in-depth analysis of the Lerner Index concerning life insurance companies operating in Indonesia. The findings offer a comprehensive understanding of the competitiveness and pricing strategies employed by these insurance companies. Through the evaluation of the Lerner Index, the study quantifies the extent of market power and competition within the pricing context. A higher Lerner Index signifies more robust pricing power,

suggesting that insurance companies may have the capacity to exert influence on prices beyond production costs.

Figure 2. Average Lerner Index of Indonesia Life Insurance Companies

We put indices company ID to show the distribution of the data. Figure 2 illustrates the average Lerner Index over a six-year period for the sampled insurance companies within Indonesia's life insurance industry. This average serves as a measurable gauge of each company's market power and pricing approach. Companies with higher Lerner Index values are likely to possess greater influence over their pricing strategies, implying a certain degree of market control. Conversely, companies with lower Lerner Index values might operate within a more competitive market, necessitating closer alignment between pricing and production costs.

Out of the 27 sampled Indonesian life insurance companies, a total of 15 exhibit higher Lerner Index values than the average. These values suggest that these companies wield more pronounced market power within the industry, enabled by effective pricing strategies. The remaining 12 companies display lower Lerner Index values, indicating a comparatively lower degree of market power and operation within a heightened competitive environment.

Moreover, as the learner index calculation is an inverse index to elasticity:

$$LI = {}^{1}\!/_{-\varepsilon d}$$

Where εd represents the price elasticity of demand, we can observe that companies 51, 32, 26, 9, 6, and 13 exhibit the highest Lerner Index values, corresponding to the smallest εd values. This suggests that for these

companies, policyholders are relatively locked-in, enabling the companies to set prices without significant concern about the churn rate, given the inelastic demand elasticity ($0 < \varepsilon d < 1$). Considering that factors like loyalty and trust might also contribute beyond pricing considerations, a qualitative study could be conducted to uncover why these companies excel in customer retention.

We can also present the calculation based on class category as in Table 2.

Table 2. Lerner Index per Asset Classification

LERNER INDEX	2016	2017	2018	2019	2020	2021	AVG
KELAS 1	0.21	0.79	0.36	0.37	0.49	0.56	**0.46**
KELAS 2	0.70	0.95	0.69	0.70	0.70	0.79	**0.75**
KELAS 3	0.80	0.91	0.70	0.67	0.71	0.74	**0.75**
KELAS 4	0.75	0.89	0.70	0.69	0.74	0.76	**0.76**

Source: IFGP Research

Table 2 presents a comprehensive overview of the Lerner Index within Indonesia's life insurance industry, categorized into four classes based on their asset sizes, across a six-year span from 2016 to 2021. The Lerner Index values signify the extent to which firms can set prices above marginal costs. However, since the data is collected only when a complete financial report of the company is available, the actual Lerner Index might be lower in the lower class due to the exclusion of samples.

We can infer that: For life insurance companies in Class 1, with asset sizes below 5 trillion IDR, the average Lerner Index is 0.46. This indicates a moderate ability to influence the market through pricing decisions beyond marginal costs. Both Class 2 (asset size > 5 trillion IDR and ≤ 10 trillion IDR) and Class 3 (asset size > 10 trillion IDR and ≤ 25 trillion IDR) exhibit an average Lerner Index of 0.75, indicating a higher degree of market power and pricing control. In Class 4, representing companies with asset sizes exceeding 25 trillion IDR, the Lerner Index stands at 0.76, slightly higher than that of Classes 2 and 3. This result suggests that Class 4 companies possess greater market power and more pricing flexibility beyond marginal costs.

The results presented in Table 2 not only provide Lerner Index values for different asset classes within Indonesia's life insurance industry but also demonstrate a trend: the average Lerner Index increases as the asset size of insurance companies grows. This trend implies that larger life insurance companies are more likely to exert pricing power in the market, indicating a stronger influence on pricing strategies and a heightened level of market control.
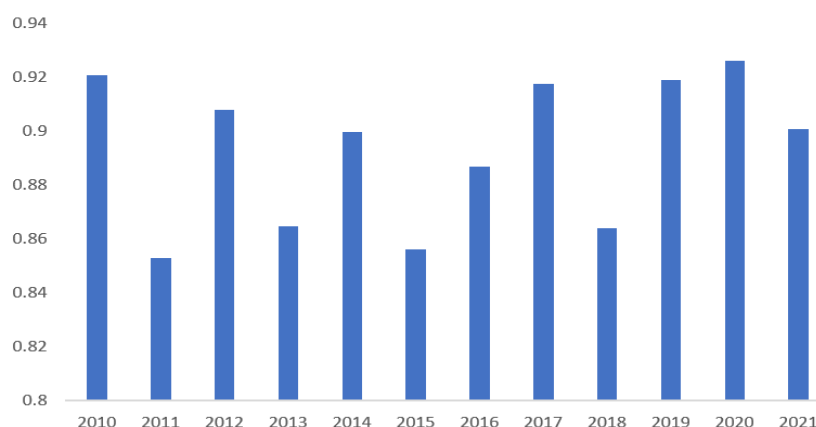
Comparison with other countries

Some of these studies include Ortynski (2021) and Al Hasan (2019) in Poland and South Africa, respectively. The research reveals that the Lerner Index is approximately 0.9 in Poland and 0.67 in South Africa, as shown in the table below.

Table 3. Literature Lerner Index

Author	Sample	Findings
Ortynski, Kazimierz (2021)	18 non-life insurance companies in Poland from 2011 to 2019	In 2019, the Lerner index for the non-life insurance industry within the given sample was 0.90. Meanwhile, the average Lerner index for the period from 2011 to 2019 was 0.93.
Alhassan and Biekpe (2019)	79 insurance companies in South Africa from 2007 to 2012	In the year 2012, the Lerner index for the insurance industry was 0.67, with an average for the period from 2007 to 2012 being 0.68.

We also conduct our own calculations for Singapore life insurance industry and found out that Lerner Index progresses in the interval of 0.8-0.9 over the years.

Figure 3. Lerner Index Life Insurance Companies in Singapore

Source: Bloomberg, IFGP Research, note: Calculated based on Bloomberg Intelligence data on Insurance.

Based on the above country comparison, we hypothesize that the company will have a better stability when the index approaches the range of 0.7 to 0.9. Hence, using this threshold, we conduct simulations to determine the amount of assets required to achieve the stability involving the following steps:

1. Determine the coefficient parameter that quantifies on how assets influence the Lerner Index calculated using the regression analysis.

2. Calculate the mean values of assets and the Lerner Index based on the observed data in Indonesia.

3. Identify the assets needed to achieve stability in the industry.

We do the simple regression analysis to find coefficient parameter of asset on Lerner Index and we found out that: that a 1 trillion IDR increase in assets corresponds to a 0.003 increase in the Lerner Index. We then calculate the mean values for assets and the Lerner Index in the observed sample, which are 14.7

Figure 4. Result of simple regression analysis of asset on Lerner Index

VARIABLES	Model 1	Model 2
Total Asset	0.00333***	0.00271*
	(0.000925)	(0.00161)
Total amount of police		1.17e-07***
		-1.87E-08
Total number of polices		3.17E-07
		-2.10E-07
Operating cost		-4.22e-07***
		-6.74E-08
Underwriting results		-1.38e-08*
		-7.91E-09
Constant	0.612***	0.604***
	-0.0215	-0.02
Observations	151	151
R-squared	0.08	0.311

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: IFGP Research, note: Calculated based on Data AAJI.

trillion IDR (for assets) and 0.661 (for the Lerner Index). On average, companies require approximately a 0.039 increase in the Lerner Index. Using the parameter estimates mentioned above, this corresponds to around (0.039/0.003) trillion IDR or 13 trillion IDR in assets to achieve a minimum stability of a company owning Lerner Index of 0.7.

Therefore, it can be concluded that the ideal total assets for Indonesia's life insurance sector should be approximately 14.7 trillion IDR + 13 trillion IDR, which equals 27 trillion IDR.

This amount of required asset will be higher if use a greater threshold of Lerner Index like those in Singapore (0.9).

V. Conclusion

From the study we conclude the following findings and recommendation:

1. The correlation between market conduct and the Lerner Index in the insurance industry presents an intriguing avenue for exploration. The Lerner Index gauges a firm's capacity to establish prices surpassing its marginal cost, thereby reflecting its market power. Crucially, market conduct practices, including pricing strategies, exert a substantial influence on a firm's Lerner Index. Unscrupulous or manipulative pricing practices can lead to heightened market power and, consequently, an elevated Lerner Index. Companies fortified with greater market power can potentially impose higher prices without suffering customer attrition due to inelastic demand. Furthermore, the efficacy of market conduct holds the potential to foster consumer trust, which, in turn, can engender

enhanced loyalty and diminished sensitivity to price fluctuations (indicating inelastic demand). When policyholders possess trust in an insurance company, they are more likely to embrace pricing adjustments, thereby empowering the company with amplified pricing authority (resulting in a higher Lerner Index).

2. In the context of the life insurance industry in Indonesia, a pertinent correlation has emerged between a company's size and the magnitude of the Lerner Index, pointing towards monopolistic power. Despite the general decline in the Lerner Index since 2018, a noteworthy disparity persists between class 1 and the other classes. The class 1 category, comprising approximately 30 companies, finds itself in a fierce competition that pivots on pricing due to a much lower Lerner index and consequently more elastic demand curve. This curve implies that customers can readily switch due to price differentials. Contrary in Class 2 and above consisting bigger companies where the retention rates are higher as indicated by greater Lerner Index.

3. Additionally, we conducted simulations to determine the optimal asset size for Indonesia's life insurance sector to attain a satisfactory Lerner Index level. Our findings suggest that a minimum of 27 trillion IDR in assets may be necessary to achieve minimum Lerner Index of 0.7.

4. This study is consistent with a previous IFG Progress study in Economic Bulletin 1, 'Kinerja Asuransi Jiwa Indonesia di Era Covid-19,' which shows that life insurance companies with assets exceeding Rp. 25 trillion were able to successfully navigate and perform during the Covid-19 period.

5. This study serves to illuminate the significance of regulatory pricing measures implemented by the authorities. Such measures alleviate concerns around pricing for companies especially for smaller size insurance companies, thereby allowing them to pivot towards cultivating quality and trust, nurturing a more sustainable life insurance market by conducting consolidation.

Indonesia Financial Group (IFG)

Indonesia Financial Group (IFG) adalah BUMN Holding Perasuransian dan Penjaminan yang beranggotakan PT Asuransi Kerugian Jasa Raharja, PT Jaminan Kredit Indonesia (Jamkrindo), PT Asuransi Kredit Indonesia (Askrindo), PT Jasa Asuransi Indonesia (Jasindo), PT Bahana Sekuritas, PT Bahana TCW Investment Management, PT Bahana Artha Ventura, PT Bahana Kapital Investa, PT Graha Niaga Tata Utama, dan PT Asuransi Jiwa IFG. IFG merupakan holding yang dibentuk untuk berperan dalam pembangunan nasional melalui pengembangan industri keuangan lengkap dan inovatif melalui layanan investasi, perasuransian dan penjaminan. IFG berkomitmen menghadirkan perubahan di bidang keuangan khususnya asuransi, investasi, dan penjaminan yang akuntabel, prudent, dan transparan dengan tata kelola perusahaan yang baik dan penuh integritas. Semangat kolaboratif dengan tata kelola perusahaan yang transparan menjadi landasan IFG dalam bergerak untuk menjadi penyedia jasa asuransi, penjaminan, investasi yang terdepan, terpercaya, dan terintegrasi. IFG adalah masa depan industri keuangan di Indonesia. Saatnya maju bersama IFG sebagai motor penggerak ekosistem yang inklusif dan berkelanjutan.

Indonesia Financial Group (IFG) Progress

The Indonesia Financial Group (IFG) Progress adalah sebuah *Think Tank* terkemuka yang didirikan oleh Indonesia Financial Group sebagai sumber penghasil pemikiran-pemikiran progresif untuk pemangku kebijakan, akademisi, maupun pelaku industri dalam memajukan industri jasa keuangan