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Firm-Level Determinants of Agency Channel Performance in Indonesia's Life Insurance Industry

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ABSTRACT

The insurance sector plays a crucial role in supporting economic stability and household financial protection. However, insurance penetration in Indonesia remains significantly lower than in many peer countries. Improving insurance premium growth is therefore essential, and the agency distribution channel represents one of the key contributors to this objective. This study identifies the key determinants influencing agency channel performance in Indonesia's life insurance industry, focusing specifically on firm-level factors and their implications for premium growth and market penetration. Using panel data from life insurance companies over the period 2018–2024, a random effects regression analysis reveals significant positive impacts from company total assets, acquisition costs, training costs, number of branch offices, and agent productivity. Affiliation with banking groups, while statistically significant, shows a negative association. Meanwhile, the number of agents, marketing expenses, ownership type, and external macroeconomic factors, including financial sector development indicators, showed no significant influence. These results suggest that internal company resources, structured incentive schemes, well-designed training programs, and expanded branch offices networks are vital for enhancing agency productivity and driving premium growth. The findings emphasise quality over quantity in agency management and suggest targeted strategies for improving distribution effectiveness. From a policy perspective, regulatory authorities such as Otoritas Jasa Keuangan (OJK) should encourage agency professionalisation and closely monitor incentive systems to improve distribution effectiveness and expand insurance penetration. By doing so, the life insurance sector can enhance household financial protection, support financial inclusion, and contribute more effectively to Indonesia's long-term economic growth.

Keywords: Agency Channel, Life Insurance, Firm-Level Determinants

JEL Classification: G22, L22

1 Introduction

Life insurance is a key pillar within the broader financial ecosystem, serving as a mechanism for long-term savings mobilisation, risk pooling, and financial protection, while premium growth further supports economic development through its function as a financial intermediary. Empirical evidence indicates that increased insurance activity that measured by gross premiums, insurance penetration, claim payments, and operating expenses has a statistically significant and positive relationship with GDP growth (Apergis & Poufinas, 2020). A similarly strong association is observed between life insurance and sectoral growth, where effective insurance penetration supports macroeconomic expansion, enhances trade activity, stabilises household consumption, and contributes to the development of social programs (Sare et al., 2023). The accumulation of insurance premiums mobilises domestic savings and finances long-term investments, thereby stimulating production and consumption (Kaya & Kiliç, 2020).

Given these dynamics, fostering the growth of life insurance premiums, particularly in developing markets requires strategic focus on the effectiveness of distribution channels which become the bridge to the customer which serve as the primary bridge between insurers and customers by improving market reach, facilitating customer education, and enhancing policy conversion. Among available channels, the agency channel remains one of the most influential drivers of premium expansion due to its personalised approach, customer engagement capabilities, and ability to build trust in markets where insurance literacy is low. Strengthening agency distribution not only increases insurance accessibility and penetration but also accelerates the flow of funds into the financial system, thereby magnifying life insurance's contribution to economic development. Understanding and optimising the factors that drive agency performance is therefore essential, not only for insurers seeking growth, but also for policymakers aiming to harness insurance as a lever for broader economic progress.

In this context, examining how these dynamics unfold within the Indonesian life insurance industry becomes particularly important, especially given the sector's recent stagnation and the pressing need to revitalise premium growth (Figure 1). Data indicates that total premium income has declined, emphasising the urgency for innovative and strategic solutions to reinvigorate industry performance. Amid this challenging environment, the agency channel remains a crucial distribution mechanism, consistently accounting for approximately 30% of market share (Figure 2). Consequently, identifying determinants of agency channel performance becomes a critical task for insurers aiming to stimulate premium growth and market penetration.

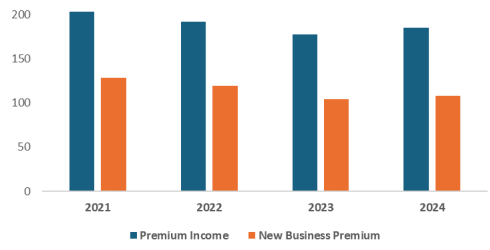

Figure 1. Life Insurance Industry Premium Income (in IDR trillion)

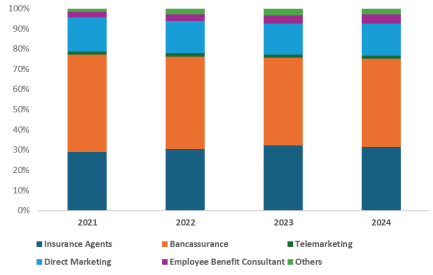

Figure 2. Life Insurance Industry Premium Income by Distribution Channel

Source: AAJI, IFG Progress Analysis

Agents are typically compensated via commissions and incentives, which constitute the bulk of acquisition expenses for life insurers. These acquisition costs are incurred upfront for securing new business and include not only commissions but also bonuses, recruitment costs, and underwriting expenses. These costs, while essential for growth, can impact profitability if not well-managed. Studies have shown that high acquisition ratios may reduce insurer returns (Pjanić et al., 2023). Life insurers must balance expanding sales with maintaining cost efficiency. Strategic marketing and advertising are important investments, as they raise public awareness and drive policy uptake (Fier & Pooser, 2016). Similarly, investments in agent training and development are critical. Well-trained agents tend to be more productive and better at converting leads into sales. Studies document that insufficient training in insurance companies leads to low employee productivity and morale, whereas robust training programs improve efficiency and sales performance (Adebowale & Adefulu, 2019). The efficacy of these expenditures (acquisition commissions, marketing, training) in driving growth is an open question, given that they must ultimately pay off through higher premiums and retention for the insurer to remain financially sound.

Another dimension of the distribution strategy is the size and quality of the salesforce. Life insurance products, being intangible and often complex, then it needs a lot of salesmen and office staff to run the business (Cummins et al., 2010). A larger number of agents can expand an insurer's market reach, especially in a populous country like Indonesia. Prior research confirms that the number of agents or employees is positively associated with insurance sales, reflecting the labour-intensive nature of the industry (Berger et al., 1993; Cummins et al., 2010). Insurers also must emphasise agent productivity (often measured by premium per agent or policies sold per agent) as a key performance indicator. Experienced and well-supported agents can sell significantly more than inexperienced ones. There is ongoing debate on whether insurers should prioritise quantity (hiring more agents) or quality (training and motivating existing agents) for improving performance. This study will explore this issue by analysing how both the size of the agency force and the productivity per agent relate to firm performance in the Indonesian context.

Beyond distribution efforts themselves, several firm-specific characteristics may influence a life insurer's performance. One important factor is the geographical reach of the insurer, often proxied by the number of branch offices or marketing units. The geographical distribution of branch offices significantly affects insurer performance by improving market access and reinforcing brand presence (Siddiqui, 2021). In Indonesia, insurers with wider branch networks are often able to support their agents better and reach customers in regions where digital channels are less effective. Another factor is affiliation with banks. Studies in Europe found that bank-affiliated life insurers benefit from lower distribution costs thanks to their banking partners' networks (Spotorno et al., 2016). Company size is another intrinsic attribute: larger insurers may enjoy economies of scale in operations and marketing. Larger firms also tend to have more capital and risk capacity to underwrite big policies or invest in innovation (Oktiani et al., 2017). We expect that size (total assets) will correlate positively with performance metrics, as documented in other markets (Zinyoro & Aziakpono, 2023). Lastly, ownership structure, whether the insurer is foreign-owned or domestic, could play a role. Foreign entrants often bring advanced product expertise and management know-how, which could improve efficiency (Chen et al., 2009). This study will control for ownership type in the analysis to see if foreign vs. domestic firms differ significantly in the Indonesian context.

The performance of life insurers is also shaped by the macroeconomic and financial

environment in which they operate. A robust economy generally rising income levels, enables more people to afford life insurance and see its value for financial protection. Consistent with many cross-country studies, we expect GDP per capita to be strongly and positively associated with life insurance demand (Dragos et al., 2017). Conversely, recent research confirms that inflation has a significant negative impact on life insurance demand (Beck & Webb, 2003). High inflation erodes the real value of fixed-premium policies and the real return on savings components, making consumers less inclined to lock in long-term contracts. Another important indicator is financial development, commonly measured by the level of domestic credit to the private sector as a percentage of GDP, which reflects the depth and maturity of the banking sector. Higher levels of financial development typically indicate greater access to financial services and more opportunities for insurance distribution. Prior studies find that financial sector development correlates positively with life insurance uptake, as measured by the domestic credit variable (Grabova & Sharku, 2021). In Indonesia, the banking network and credit have expanded in the past decade, which likely supports insurance growth through bancassurance and enhanced trust in financial contracts. We will include such macroeconomic factors in our analysis to capture the external conditions that might drive or dampen life insurance performance.

Understanding the determinants of life insurer performance is vital for maintaining a resilient and growing insurance sector in Indonesia. In a market with a large uninsured population and rising income levels, under-investment in agent productivity or network expansion can limit penetration, while excessive distribution costs without sufficient returns may threaten profitability and solvency. At the same time, external macroeconomic fluctuations such as inflation, slowing income growth, or limited financial sector development, can dampen insurance demand and erode public trust in long-term financial products. These realities underscore the importance of aligning internal firm strategies with the broader economic environment.

To guide our empirical investigation, we pose the following overarching research question: **What are the key factors driving the performance of agency distribution channels in Indonesia's life insurance industry?** Specifically, we seek to determine whether internal firm-level variables or external macroeconomic conditions exert a more significant influence on agency channel performance. On the internal side, we examine distribution-related inputs such as the scale of the agency force, the number of branch offices, acquisition costs, marketing and training expenditures, and broader firm characteristics including total assets, number of employees, ownership type (foreign or domestic), and affiliation with banks. On the external side, we assess macroeconomic indicators (such as GDP per capita, inflation rate, and financial development) to evaluate the extent to which agency performance is sensitive to broader economic conditions. This dual perspective allows us not only to identify which internal strategies insurers can control but also to understand how agency effectiveness may be shaped or constrained by the surrounding economic environment, especially critical consideration for accelerating premium growth and enhancing the life insurer's role in economic growth.

By addressing these questions, our study contributes to closing a notable gap in the literature at the intersection of insurance distribution management and insurer performance. While a substantial body of research has examined macroeconomic determinants of insurance demand (Dragos et al., 2017; Segodi & Sibindi, 2022) and internal operational efficiency (Berger et al., 1993; Zerriaa et al., 2017), studies that integrate both levels of analysis remain limited. While previous works on Indonesia have explored firm-level and

macroeconomic factors, they have primarily focused on financial ratios and profitability metrics such as ROA (Oktiani et al., 2017), without specifically analysing distribution-related expenditures or isolating the agency channel as a distinct driver of performance. Our focus on the agency channel and related costs such as commissions, marketing cost, and training cost thus offers a novel contribution. Despite the continued importance of the agency force in countries like Indonesia, empirical evidence on how targeted investments in this distribution channel affect premium performance remains scarce. Recent work by Pjanić et al. (2023) and Rubio-Misas (2022) highlights the impact of acquisition costs on profitability, and by building on such findings, we provide concrete evidence from the Indonesian life insurance market on the returns to distribution expenditures. In summary, our analysis provides new empirical insights on how distribution strategy and macroeconomic context jointly shape agency performance in Indonesia's life insurance sector. This evidence helps to inform both business strategy and public policy at a time when the insurance industry's role in financial stability and inclusion is under the spotlight.

The remainder of the paper is organised as follows. The next section reviews the relevant literatures, providing context for our analysis. The sample, data and research methodology are presented in the subsequent section. The empirical results are then discussed in the next section and the following section concludes. The final section delineates the policy implications of our findings.

2 Literature Review

2.1 Agency Channel in Life Insurance

Insurance is a complex and intangible product that involves promises of financial compensation upon the occurrence of specific risks, making it challenging for costumers to evaluate and purchase without professional guidance (Cummins & Doherty, 2006). This complexity is particularly pronounced in life insurance, where products are typically long-term in nature, financially significant, and often bundled with riders or customisation features. Consequently, the role of intermediaries, especially insurance agents, becomes vital in bridging the gap between insurers and prospective policyholders.

The life insurance industry has adopted various distribution channels. In the Indonesian context, these channels can be classified as follows: (1) direct marketing, (2) insurance agents, (3) bancassurance, and (4) non-bank enterprise[1]. Among these, the agency channel has long been the backbone of life insurance distribution across many jurisdictions due to its ability to offer personal engagement, explanation of complex products, and trust-based sales relationships (Chen, 2020; Siddiqui & Das, 2018). Agents are typically individuals or entities who operate under commercial contracts with one or more insurance companies. While they operate on behalf of insurers, they are not considered employees. Their compensation is predominantly commission-based, often supplemented with incentive schemes tied to performance metrics (Rubio-Misas, 2022).

Empirical studies confirm the continued relevance of agency channels. For instance, in India, agency channels contribute to the majority of new business premiums in life insurance, even as bancassurance and digital platforms continue to expand (Siddiqui & Das, 2018). In Taiwan, insurers with agency-led distribution models have been shown to achieve stronger insurance demand, partly due to superior risk assessment capabilities embedded in agent interactions (Chen, 2020).

[1]Circular Letter of Financial Service Authority (OJK) No 19/SEOJK.05/2020

2.2 Acquisition Costs, Marketing Costs, and Training Costs

Acquisition costs in life insurance mainly consist of expenses related to securing new business, such as agent commissions and performance-based incentives. These costs are important in agency distribution, where financial incentives play a central role in motivating agents and driving sales. As part of overall operating expenses, acquisition costs have been found to exert a statistically significant negative effect on insurer profitability, particularly when measured through indicators such as Return on Assets (ROA) (Pjanić et al., 2023). Accordingly, insurance companies that can optimise acquisition spending, either by improving productivity per agent or shifting to more cost-effective distribution models, may realise tangible gains in operational efficiency (Rubio-Misas, 2022). These findings underscore the importance of managing acquisition costs not merely as an expense but as a strategic level affecting both distribution effectiveness and overall firm performance.

Marketing expenditures, including advertising and promotional activities, support agency distribution by enhancing public awareness and trust, thereby facilitating agents' engagement with consumers. According to Osei et al. (2022), targeted advertising campaigns increase consumer confidence and product knowledge, thus indirectly boosting agent performance by providing leads and easing the sales process. Complementing this, empirical studies confirm that higher advertising intensity significantly and positively correlates with increased demand for life insurance, highlighting advertising as a critical driver of premium growth and firm success (Fier & Pooser, 2006). However, there are several studies which state that marketing investment must be carefully aligned with channel strategy and customer targeting to generate optimal returns. Chen and Chang (2010) highlight that firms must align marketing investments with their chosen channel mix, as certain channels (e.g., agents versus bancassurance) impact cost structure, efficiency, and profitability in fundamentally different ways. In addition, marketing and service investments should be tailored to each segment's preferred channel, since segments should be analysed in terms of their size and profit potential to help allocate marketing investment more efficiently (Pozza et al, 2018).

Another essential operational investment is training and development. This cost category is particularly relevant for agency-based models, where the quality of human capital directly impacts sales performance. Empirical evidence suggests that training initiatives implemented within private insurance firms have been shown to enhance employee commitment, which subsequently leads to improved performance and productivity levels among staff (Anitha & Kumar, 2016). Supporting this, evidence from the Nigerian insurance sector indicates that insufficient training has contributed to persistently low employee productivity, manifesting in reduced output per worker, diminished morale, declining sales and premiums, employee dissatisfaction, absenteeism, and high turnover. The study further highlights that greater investment in personnel development through effective training programs can significantly improve efficiency, work quality, and overall employee resilience and career success (Adebowale & Adefulu, 2019). An Effective training program equips agents to navigate complex product landscapes, adapt to digital tools, and meet evolving client expectations, while simultaneously fostering the confidence and motivation that drive higher sales volumes and greater customer satisfaction.

2.3 Agents Quality vs. Quantity

One of the most debated issues in evaluating life insurance distribution performance is whether insurers should prioritise expanding the number of agents or enhancing the

quality and productivity of the existing salesforce. While it is intuitive that a larger agent base may improve market reach and customer contact points, empirical literature highlights that the number of employees, including agents, has a strong and This finding aligns with the nature of the insurance industry, which is considered labor-intensive due to the intangible characteristics of its products. As such, a substantial number of sales personnel and administrative staff are essential to operate effectively (Berger et al., 1993; Cummins et al., 2010).

However, agent quality, commonly measured through productivity indicators such as average premium per agent, has also been closely linked to organisational success. Agent productivity captures not only technical sales capability but also encompasses product knowledge, communication skills, and relationship management. Well-trained and experienced agents are more likely to understand client needs, convey complex policy features effectively, and build long-term customer relationships. Insurers that prioritise the continuous professional development and performance-based management of their agents tend to achieve higher levels of productivity (Adebowale & Adefulu, 2019; Anitha & Kumar, 2016).

2.4 Firm Characteristics

Several intrinsic firm characteristics have been consistently linked to the performance of life insurance companies. One of the most widely studied elements is the number and geographical distribution of branch offices or marketing units. There is evidence that increasing the number of branch offices significantly improves access to insurance products, particularly in underserved or semi-urban areas, thereby enhancing operational efficiency and driving sales (Siddiqui, 2021). Moreover, location of the branch plays the significant factors to increased customer awareness, as suggested by Choudhuri (2014), who found that higher branch visibility significantly raised public recognition of life insurance providers in India. Kajwang (2022) also emphasises that expanding marketing offices enables faster and more personal service, thus playing a crucial role in enhancing firm performance. This highlights that both the number and geographical distribution of offices are essential firm-level levers in supporting agent performance.

Beyond geographical outreach, affiliation with banking institutions has emerged as another firm-specific factor affecting life insurer performance. There is evidence that bank-affiliated life insurance companies tend to outperform their non-affiliated counterparts in terms of profitability and premium growth, particularly through cost efficiencies and distribution synergies (Fiordelisi & Ricci, 2011). The integration between banks and insurers facilitates cross-selling, enhances client targeting based on existing banking relationships, and reduces customer acquisition costs. Spotorno et al. (2016) also observe that such affiliations allow insurers to better align product portfolios with the financial needs of bank clients, thus increasing overall responsiveness and boosting customer conversion rates. For agents, this affiliation can translate into greater access to pre-qualified leads, improved product positioning, and higher closing efficiency, ultimately supporting sales force performance.

The size of a firm measured through indicators such as total assets and equity, also influences insurance performance through several mechanisms. There is evidence that firms with larger total assets are better positioned to expand their business, adopt new technologies, and create products aligned with evolving market needs (Oktiani et al., 2017). Larger insurers are better equipped to manage capital-intensive functions and benefit from economies of scale that reduce administrative, claims, and distribution costs

relative to output. Zinyoro & Aziakpono (2023) highlight that large insurers tend to be more efficient both in terms of cost and revenue generation. Their size enables them to spread fixed costs over a broader premium base and withstand financial volatility better than their smaller counterparts. In agency contexts, this means that agents operating under larger insurers are more likely to receive stronger back-office support that enhance productivity and service delivery quality.

Lastly, ownership structure, specifically whether an insurer is foreign-owned or domestically owned, can significantly influence its strategic orientation, operational efficiency, and market behaviour. Evidence from China indicates that although foreign-owned insurers initially struggled with market entry barriers, they eventually achieved higher levels of technical efficiency, particularly after 2005, due to superior managerial practices, actuarial expertise, and innovation capacity (Chen et al., 2009). Despite these strengths, the study also documents that foreign insurers face challenges related to brand recognition, local market understanding, and distribution network depth, which can hinder customer acquisition when compared to domestic firms at the beginning. This is further supported by Choi and Elyasiani (2009), who analysed the U.S. property-liability insurance market and found significant differences in performance between foreign-owned and domestic-owned firms. Foreign players showed superior efficiency in certain lines, owing to better marketing strategies and more streamlined production processes. This suggests that ownership type may also play a role in shaping how effectively agents operate within their distribution performance by influencing agent-client interactions and market adaptability.

2.5 Macroeconomic and Financial Development Factors

Life insurance market development is also closely tied to macroeconomic and financial development indicators. There is evidence that key macroeconomic factors such as GDP per capita and inflation play a central role in shaping the demand and performance of life insurance markets. Higher levels of GDP per capita are consistently associated with increased insurance penetration and density, suggesting that rising income enables individuals to allocate more resources toward long-term financial protection (Dragos et al., 2017). Conversely, inflation tends to exert a negative influence on life insurance demand. Elevated inflation erodes the real value of long-term insurance benefits, reduces consumer confidence in fixed-premium products, and increases uncertainty for both insurers and policyholders (Segodi & Sibindi, 2022). Furthermore, financial development, particularly measured through domestic credit to the private sector as a percentage of GDP, supports life insurance growth by expanding access to financial services and enabling bancassurance distribution models (Zerriaa et al., 2017). As financial systems mature, life insurers benefit from enhanced liquidity, market infrastructure, and customer reach. This is especially relevant for agency performance, as deeper financial markets improve product availability, distribution efficiency, and client conversion rates.

Table 1. Previous studies on Accelerate Life Insurance Growth

Variable	Expected Sign	Sign of Determinants		
		Positive	Negative	Neutral/ Ambiguous
Firm-level Factors				
Total Agent	+	Cummins, J. D., & Doherty, N. A. (2006); Siddiqui, S. A. (2018); Chen, T. (2020).		
Productivity Agent	+	N/A	N/A	N/A
Marketing Office	+	Kajwang, B. (2022); Choudhuri, B. S. (2014)		
Firm's Size	+	Oktiani, I., Priyarsono, D., & Andati, T. (2017); Zinyoro, T., & Aziakpono, M. J. (2023).		Siddiqui, S. A. (2021)
Acquisition Cost	+			Pjanić, M., Mitrašević, M., & Luković, S. (2023)
Marketing Cost	+	Fier, S. G., & Pooser, D. M. (2016); Osei, F., Adjabeng, F. N., Owusu-Mensah, S., & Atakora, A. (2022)		Pjanić, M., Mitrašević, M., & Luković, S. (2023)
Training and Education Cost	+	Adebowale, S., & Adefulu, A. (2019); Anitha R., & Kumar M. A. (2016); Shieh, H., Hu, J., & Ang, Y. (2020).		
Ownership	+			Chen, B., Powers, M. R., & Qiu, J. (2009); Choi, B. P., & Elyasiani, E. (2009)
Subsidiary banking group	+	Spotorno, L., Moro, O., & Anderloni, L. (2016)		
Macroeconomic Factors				
GDP per Capita	+	Dragos, S. L., Mare, C., Dragota, I., Dragos, C. M., & Muresan, G. M. (2017)	Segodi, M. P., & Sibindi, A. B. (2022).	
Financial Development	+	Zerriaa, M., Amiri, M. M., Noubbigh, H., & Naoui, K. (2017)		
Inflation	-	Segodi, M. P., & Sibindi, A. B. (2022)		

3 Methodology

3.1 Data

The data used in our study consist of balance sheet and income statements for life insurers in the Indonesian market over the sample period. We focus on life insurance business only, as detailed data on agency distribution channel are only available for this segment. The data have been obtained from the statistical publications of the Indonesian Life Insurance Association (Asosiasi Asuransi Jiwa Indonesia, AAJI). The AAJI has provided statistical publications on total gross written premiums by distribution channels for the 7-year period of 2018 — 2024. For this reason, our sample period is restricted to the years from 2018 to 2024.

To ensure data consistency and reliability, some observations have been eliminated from the sample due to data problems such as zero or negative premiums or expenses. The final sample utilised in the study comprising 25 life insurance companies in Indonesia that have consistently employed agency distribution channel over the period 2018–2024, resulting in a total of 175 firm-year observations. The sample is restricted to insurers actively engaging in agent distribution throughout the seven-year period to ensure consistency in operational strategy and data comparability.

To account for macroeconomic influences on firm performance, we include a set of macroeconomics indicators: the annual inflation rate, a proxy for financial development, and GDP per capita (Dragos et al., 2017; Zerriaa et al., 2017; Segodi & Sibindi, 2022). These macroeconomic indicators were retrieved from the CEIC database. The inclusion of these variables allows us to isolate the impact of firm-specific characteristics from broader economic conditions.

3.2 Empirical Model

Our research used panel data, and we constructed regression models to identify drivers of agency distribution channel performance in the life insurance industry. Studies that empirically examine the determinants of agency distribution performance remain limited. Accordingly, our empirical approach builds on Chen et al. (2009), which examines the determinants of bancassurance using a multi-country firm-level dataset. For our regression models, the total gross written premiums from the agency distribution channels were the dependent variable, while the independent variables included the number of agents, agency productivity, number of marketing offices, total assets, total acquisition costs, total marketing costs, total education and training costs, ownership (local companies or joint venture), and subsidiary banking group. In addition to firm-specific data, this study also employed inflation, GDP per capita, and a proxy of financial development, to identify the potential drivers of macroeconomic factors on the performance of the agency distribution channel in the life insurance industry.

To investigate the drivers of agency distribution channel performance among life insurance companies in Indonesia, this study employs a Random Effects (RE) panel regression model. The RE approach is chosen to account for both the time-invariant heterogeneity across firms and the panel structure of the data, under the assumption that individual effects are uncorrelated with the explanatory variables. Past studies that have employed the panel regression model to identify the determinant of the several distribution channels in the life insurance industry include those by Chen et al. (2009); Rubio-Misas (2022); and Rauch (2023).

Two distinct model specifications are estimated to capture different dimensions of firm behaviour. The first model focuses on the cost structure associated with maintaining and expanding agency distribution channel. Specifically, the explanatory variables include acquisition costs, marketing expenses, and training and education costs. These components represent the operational expenditures directly tied to the development and support of the use of agent-based distribution channels. The following equation was estimated:

$$\begin{aligned}\log(GWPAgent_{it}) = {} & \alpha + \beta_1 \log(AcqCost_{it}) + \beta_2 \log(MarketingCost_{it}) \\ & + \beta_3 \log(TrainingCost_{it}) + \gamma_1 Inflation_t + \gamma_2 GDPpercapita_t \\ & + \gamma_3 FinDev_t + u_i + \varepsilon_{it}\end{aligned} \tag{1}$$

The second model specification examines firm-specific characteristics that may influence

the scale or intensity of agent-based distribution. This model incorporates variables such as the number of agents, the productivity of agents, the number of marketing offices, and total assets (as a proxy for firm size and capacity). In addition, two categorical variables are included: ownership structure (distinguishing between locally owned and joint venture firms) and affiliation with a banking group (subsidiary status), reflecting the potential influence of firm capacity and strategic orientation. The following equation was estimated:

$$\begin{aligned}\log(GWPAgent_{it}) = {} & \alpha + \beta_1 \log(NumAgent_{it}) + \beta_2 \log(AgentProductivity_{it}) \\ & + \beta_3 \log(MarketingOffice_{it}) + \beta_4 \log(Assets_{it}) + \beta_5 \log(Ownership_{it}) \\ & + \beta_6 \log(SubsidiaryBank_{it}) + \gamma_1 Inflation_t + \gamma_2 GDPpercapita_t \\ & + \gamma_3 FinDev_t + u_i + \varepsilon_{it}\end{aligned} \tag{1}$$

We acknowledge that the potential for simultaneity between firm-level inputs and premium outcomes may differ across explanatory variables. Acquisition costs, which mainly consist of agent commissions and underwriting-related expenses, are most directly linked to realised business volume and therefore may be subject to reverse causality. In contrast, marketing expenditures in this study largely reflect planned activities such as advertising, promotions, and sales contests, while training and education costs are more closely associated with workforce scale, certification, and long-term human capital development, suggesting weaker contemporaneous feedback from premium outcomes. Agent productivity, defined as premium per agent, is mechanically related to the dependent variable and is therefore interpreted as a descriptive efficiency indicator rather than a causal determinant. Accordingly, the estimated coefficients should be interpreted as conditional associations rather than strict causal effects.

In addition, to address potential endogeneity concerns arising from simultaneity between agent productivity and agency premium growth, this study augments the baseline Random Effects estimation with an instrumental variables (IV) approach. Agent productivity is treated as a potentially endogenous regressor, reflecting the possibility that higher premiums may simultaneously enhance agent efficiency through learning effects and incentive mechanisms.

To mitigate omitted variable bias and account for common macroeconomic conditions, both models include time-varying control variables, namely inflation, financial development, and GDP per capita.

Table 2. Summarises the definitions and measurements of the variables

Variable Names	Description
log(GWPAgent)	Logarithm of gross written premiums through agency distribution channel
log(AcqCost)	Logarithm of total acquisition cost
log(MarketingCost)	Logarithm of total marketing cost
log(TrainingCost)	Logarithm of training and education cost
NumAgent	Number of agents
AgentProductivity	Ratio of total agent premium to number of agents
MarketingOffice	Number of marketing offices
log(Assets)	Logarithm of total assets
Ownership	Dummy variable: 1 if joint venture, 0 if local companies
SubsidiaryBank	Dummy variable: 1 if subsidiary of banking group, 0 otherwise
Inflation	Annual inflation rate
GDPpercapita	GDP per capita
FinDev	Ratio of domestic credit to private sector for proxy financial development

4 Results and Discussion

4.1 Descriptive Results

Table 3 presents the descriptive statistics for all variables used in the empirical analysis, based on 175 firm-year observations over the 2018–2024 period. The summary statistics provide insight into the central tendency, dispersion, and overall distribution of both dependent and explanatory variables.

Table 3. Summary of Statistics

Variable Names	Observation	Mean	Std. Dev.	Min	Max
log(GWPAgent)	175	13.59	1.46	9.86	16.97
log(AcqCost)	175	12.37	1.70	6.19	15.22
log(MarketingCost)	168	9.68	1.83	4.78	13.34
log(TrainingCost)	175	7.97	1.61	2.10	11.19
NumAgent	175	14656.71	38361.78	10	264827
AgentProductivity	175	1598.45	6197.97	12.37	52997.77
MarketingOffice	175	67.45	78.17	0	410
log(Assets)	175	15.86	1.30	12.46	18.08
Ownership	175	0.72	0.45	0	1
SubsidiaryBank	175	0.12	0.32	0	1
Inflation	175	2.83	0.87	1.56	4.20
GDPpercapita	175	6.56e+07	8465475	5.60e+07	7.86e+07
FinDev	175	37.10	1.41	35.28	38.80

The dependent variable, Agency channel Gross Written Premium (log (*GWPAgent*)), representing natural logarithm of total premiums generated through the agent-based distribution channel, has a mean value of approximately 13.59 with a standard deviation of 1.46, indicating substantial variation in premium volumes across firms. The minimum and maximum values range from 9.86 to 16.97, reflecting the diverse scale of operations among Indonesian life insurers.

For cost-related variables, natural logarithm of acquisition cost exhibits a mean of 12.37 and a standard deviation of 1.70, whereas natural logarithm of marketing cost and training cost show average values of 9.68 and 7.97, respectively. The wide ranges observed, particularly in acquisition, marketing, and training expenditures, suggest significant differences in strategic operational levels across firms.

In terms of firm characteristics, the average natural logarithm of total assets of firms in the sample stand at 15.86, with some insurers holding as little as 12.46 and others exceeding 18.08, indicating substantial heterogeneity in firm size. The number of agents employed per firm ranges from 10 to 264,827 with a mean of approximately 14,656 agents, underscoring the labor-intensive nature of the agent distribution model.

The number of marketing offices averages 67 per firm, with the distribution ranging from a minimum of 0 to a maximum of 410 offices. The dummy variables for Ownership and Bank Subsidiary Status reflect the sample composition: approximately 72% of firms are joint ventures, and 12% are affiliated with a banking group.

Overall, the descriptive statistics indicate considerable heterogeneity in both operational scale and strategic orientation among life insurers in Indonesia. This justifies the use of panel regression techniques to control for unobserved firm-level heterogeneity while examining the determinants of agent-based premium performance.

4.2 Empirical Result

4.2.1 Multicollinearity Diagnostic

To ensure the reliability of the regression estimates and the robustness of the econometric specification, the study assessed the potential presence of multicollinearity among the explanatory variables. The Variance Inflation Factor (VIF) diagnostic was applied to detect the degree of linear correlation among independent variables.

Table 4. Multicollinearity test

Variable Names	VIF	Tolerance
log(AcqCost)	6.43	0.155
log(MarketingCost)	3.38	0.295
log(TrainingCost)	4.14	0.241
NumAgent	2.82	0.354
AgentProductivity	1.30	0.770
MarketingOffice	3.29	0.303
log(Assets)	4.62	0.216
Ownership	2.31	0.432
SubsidiaryBank	1.52	0.657
Inflation	1.23	0.818
GDPpercapita	7.72	0.129
FinDev	8.37	0.119
Mean VIF	3.93	

The results show that all VIF values are below the conventional threshold of 10, with the majority falling well below 5. Additionally, the mean VIF is within the acceptable range, further supporting the absence of problematic multicollinearity. These findings indicate that the explanatory variables included in the model are not excessively correlated with one another, and thus, multicollinearity is not a concern in this study. Overall, the absence of multicollinearity reinforces the statistical validity of the regression model and enhances the precision of the estimated parameters.

4.2.2 Model Selection

To determine the most appropriate panel data estimation technique, this study conducted a series of model specification tests to compare the pooled ordinary least squares (Pooled OLS), fixed effects (FE), and random effects (RE) models. The objective of these diagnostic procedures is to ensure the consistency and efficiency of the parameter estimates given the structure of the panel dataset.

Table 5. Result of the test for best model selection

Test Methods	Model Comparison	F-value	Prob > chi2	Remarks
Breusch-Pagan	POLS vs FE	218.30	0.000	FE is selected
Hausman	FE vs RE	5.48	0.601	RE is selected

The first test involved a comparison between the Pooled OLS and the Fixed Effects (FE) model using the Breusch-Pagan Lagrange Multiplier (LM) test. The result of the LM test indicates that the null hypothesis is rejected at the 1% significance level. This outcome confirms the presence of unobserved heterogeneity across cross-sectional units, thus

rendering the Pooled OLS model inappropriate and validating the use of a panel estimator.

To further distinguish between the RE and FE estimators, the Hausman specification test was employed. The null hypothesis of the Hausman test assumes that the unique errors are uncorrelated with the regressors, in which case the RE estimator is both consistent and efficient. The test result fails to reject the null hypothesis (p-value > 0.05), indicating that the RE model is preferred over the FE model due to its efficiency gains and the assumption of orthogonality between regressors and unobserved individual effects.

Taken together, the model selection tests provide strong statistical evidence in favour of the Random Effects specification. The RE model is thus adopted in this study as the most appropriate framework for estimating the panel regression, as it accounts for individual-specific effects while maintaining efficiency and consistency under the assumptions verified.

To examine potential simultaneity bias, we employ an instrumental variable approach by treating agent productivity as an endogenous regressor. The Durbin–Wu–Hausman test fails to reject the null hypothesis of exogeneity $\left(\lambda^2 = 1.36;\ p = 0.244\right)$, indicating that endogeneity is not a major concern in the baseline specification. This result suggests that the Random/Fixed Effects estimates remain consistent, while the IV results serve as a robustness check.

Table 6. Result of the endogeneity test for robustness check

Endogeneity test of endogenous regressors
Regressors tested: ProductivityAgent
Chi-sq(1) = 1.360
p-val = 0.2435

4.2.3 Hypothesis Testing

Table 7 reports the estimation results of the Random Effects Generalised Least Squares (GLS) regression model, focusing on the impact of internal cost components on agent-based premium performance among Indonesian life insurance companies. The dependent variable is the logarithm of gross written premiums obtained through agent-based distribution channels (log (*GWPAgent*)), and the model includes key cost structure variables alongside macroeconomic controls.

The coefficient for log of acquisition cost (log (*AcqCost*)) is positive and statistically significant at the 1% level ($\beta = 0.333;\ p < 0.01$), indicating that an increase in acquisition spending is strongly associated with higher premium collection via agents. This suggests that acquisition activities, such as commissions and sales incentives, play a central role in stimulating agent performance and policy sales. Prior studies affirm that insurance companies that can optimise acquisition spending, either by improving productivity per agent or shifting to more cost-effective distribution models, may realise tangible gains in operational efficiency (Rubio-Misas, 2022).

Conversely, the coefficient for log of marketing cost (log(*MarketingCost*)) is statistically insignificant ($\beta = 0.0005;\ p = 0.990$), implying that variation in marketing expenditure does not significantly influence agent-based premium outcomes. This aligns with previous literature suggesting that the effectiveness of marketing investment depends heavily on the channel context and the target customer segment (Chen & Chang, 2010; Pozza et al, 2018).

Meanwhile, the log of training and education expenditure (log(*TrainingCost*)) shows a positive and statistically significant at the 5% level ($\beta = 0.107;\ p = 0.044$). This

finding underscores the importance of capacity-building initiatives in enhancing agent performance. Investment in training appears to yield tangible returns by enhancing agent productivity and effectiveness. Prior research has demonstrated that well-designed employee training programs can significantly enhance organisational commitment and employee loyalty. Increased commitment positively influences both individual productivity and the overall quality of service delivery. These outcomes are particularly relevant in service-intensive industries such as insurance, where customer interaction and trust are central to performance (Adebowale & Adefulu, 2019; Anitha & Kumar, 2016).

Table 7. Regression results for impact of cost components

Explanatory Variables	Expected Sign	Dependent Variable: Log of Premium Agents	
		RE	FE (firm-clustered)
Constant		12.630 (2.849)***	21.839 (14.024)***
log(AcqCost)	+	0.333 (0.056)***	0.301 (0.124)***
log(MarketingCost)	+	0.0005 (0.046)	-0.003 (0.055)
log(TrainingCost)	+	0.107 (0.053)**	0.099 (0.741)
Inflation	-	-0.036 (0.038)	-0.034 (0.022)
GDPpercapita	+	-8.85e-09 (9.68e-09)	-0.529 (0.701)
FinDev	+	-0.091 (0.061)	-0.085 (0.062)
Wald chi2(6)		54.01***	2.69**
R-squared		0.455	0.456
Obs		168	168

Notes: Figures in parentheses are robust standard errors. *, **, and *** represent significance at 10%, 5%, and 1%, respectively

Among the macroeconomic control variables, GDP per capita, inflation, and financial development do not show statistically significant effects at conventional levels. This result should be interpreted with caution. Given the short time dimension of the panel and the fact that all firms are exposed to the same macroeconomic environment, identification relies on limited year-to-year variation rather than cross-sectional differences. As a result, the lack of statistical significance likely reflects data constraints and weak identification rather than the absence of macroeconomic influence on agency-based premium performance.

The overall model fit is moderate, with an R-squared (overall) value of 0.456, indicating that approximately 46% of the variation in agent-based premium performance can be explained by the model. The Wald chi-squared test statistic $\left(\lambda^2 = 54.01;\ p < 0.01\right)$ confirms the joint significance of the explanatory variables.

These findings suggest that cost efficiency in agent network management particularly acquisition and training expenditures is crucial for optimising distribution outcomes in the Indonesian life insurance sector. However, the non-significant role of marketing costs calls for further examination into the effectiveness and allocation of promotional resources.

As an additional robustness check, we re-estimate the baseline specification using a Fixed Effects (FE) model with standard errors clustered at the firm level. This approach relaxes the Random Effects assumption by allowing firm-specific unobserved characteristics to be correlated with the explanatory variables. The Fixed Effects estimates remain broadly

consistent with the baseline Random Effects results (Table 7). While two control variables lose statistical significance in the FE specification, and one exhibits a change in coefficient sign, the key explanatory variables retain their direction and significance. These differences likely reflect the limited within-firm variation and the strong correlation of certain controls with time-invariant firm characteristics. Importantly, the core findings of the study remain robust to alternative model specifications.

Table 8 reports the estimation results from the second Random Effects GLS regression model, which investigates the relationship between firm-specific characteristics and the performance of agent-based distribution, measured by the logarithm of gross written premiums through agents (Log (*GWPAgent*)). The model includes both structural firm attributes and macroeconomic control variables.

Table 8. Regression results for impact of firm-specific characteristics

Explanatory Variables	Expected Sign	Dependent Variable: Log of Premium Agents
Constant		4.561 (2.850)
NumAgent	+	1.19e-06 (1.74e-06)
AgentProductivity	+	0.000 (6.40e-06)***
MarketingOffice	+	0.005 (0.001)***
log(Assets)	+	0.532 (0.094)***
Ownership	+	0.333 (0.445)
SubsidiaryBank	+	-1.116 (0.058)*
Inflation	-	0.107 (0.031)
GDPpercapita	+	2.38e-09 (8.07e-09)
FinDev	+	-0.003 (0.049)
Wald chi2(9)		120.98***
R-squared		0.649
Obs		175

Notes: Figures in parentheses are robust standard errors. *, **, and *** represent significance at 10%, 5%, and 1%, respectively

The coefficient for number of agents (*NumAgents*) is positive but not significant ($\beta = 1.19e-06;\ p = 0.493$), implying that agent headcount alone is not a primary determinant of premium growth. Meanwhile, agent productivity shows a highly significant and positive coefficient ($\beta = 0.0000397;\ p < 0.01$), indicating that firms with more productive agents (measured by premiums per agent) are associated with greater agent-based premium volumes. This finding is consistent with previous studies emphasising that well-trained and experienced agents are more likely to understand client needs, convey complex policy features effectively, and build long-term customer relationships. Insurers that prioritise continuous professional development and performance-based management of their agents tend to achieve higher levels of productivity (Anitha & Kumar, 2016; Adebowale & Adefulu, 2019). Agent productivity reflects not only technical sales ability but also product knowledge, customer service quality, and post-sale relationship management.

The number of marketing offices also demonstrates a statistically significant and positive effect ($\beta = 0.0052;\ p < 0.01$), suggesting that a wider geographic presence via branch networks enhances a firm's capacity to generate business through agent networks. This is aligned with prior research highlighting the expansion of branch or marketing office networks plays a pivotal role in enhancing the service quality and operational reach of insurance companies. A broader physical presence enables insurers to provide faster, more personalised services while also improving accessibility for consumers in diverse geographic regions (Choudhuri, 2014; Siddiqui, 2021; Kajwang, 2022).

Among the structural variables, the total asset size (log(*Asset*)) shows a highly significant and positive coefficient ($\beta = 0.532;\ p < 0.01$), reflecting that firms with larger total assets are better positioned to expand their business, adopt new technologies, and create products aligned with evolving market needs (Oktiani et al., 2017). Large firms are generally more capable of managing capital-intensive functions such as claim reserves, actuarial modelling, and product innovation. Moreover, large-scale insurers benefit from economies of scale, where costs such as administration, claims processing, and distribution decline relative to output. Consistent with this view, Zinyoro & Aziakpono (2023) find that large insurer tends to be more efficient both in terms of cost and revenue generation. Their scale allows for better absorption of fixed costs, enhanced financial resilience, and more stable returns compared to smaller firms. In agency contexts, this means that agents operating under larger insurers are more likely to receive stronger back-office support, including enhanced training infrastructure, digital sales tools, and robust administrative backing, all of which contribute to higher agent productivity and superior service delivery.

However, the binary variables for ownership type and banking affiliation yield mixed results. The coefficient for joint venture ownership (*Ownership*) is positive but statistically insignificant ($\beta = 0.333;\ p = 0.454$), suggesting that foreign equity participation may not directly affect agent-driven premiums. Meanwhile, the coefficient for subsidiary of banking group status is negative and marginally significant at the 10% level ($\beta = -1.116;\ p = 0.058$), indicating that insurance firms affiliated with banking groups tend to generate lower premiums through agency channels. Importantly, this negative association should not be interpreted as inferior firm performance. Instead, it likely reflects strategic channel substitution, whereby bank-affiliated insurers place greater emphasis on bancassurance rather than agency-based distribution. In such firms, agency channels may play a complementary or secondary role relative to bank-led sales networks.

Consistent with the first model, GDP per capita, inflation, and financial development do not exhibit statistically significant effects in this specification. This finding should be interpreted cautiously and reflects the limited temporal variation in macroeconomic conditions within a short panel rather than evidence of macroeconomic irrelevance.

The model demonstrates a good overall fit, with an overall R-squared of 0.649, meaning that approximately 65% of the variation in agent-based premiums is explained by the included variables. The Wald test confirms that the model is jointly significant ($\lambda^2(9) = 120.98;\ p < 0.01$), reinforcing the explanatory power of firm-specific factors in determining agent-channel outcomes.

Within the scope of this analysis, the results reinforce the critical role of firm scale, distribution reach, and agent productivity in supporting agent-based insurance operations. Investment in agent training and geographic expansion appears to yield measurable returns in terms of business volume.

5 Conclusion and Policy Recommendations

5.1 Conclusion

This study offers new empirical insights into the factors driving agency channel performance in Indonesia's life insurance sector. Based on the regression analysis we find that internal company characteristics and distribution-related variables appear to be more salient predictors within the scope of this analysis of agency performance than external macroeconomic conditions.

First, the variable total company assets have a positive and statistically significant effect on agency performance. This suggests that larger life insurers appear to have stronger organisational resources and operational capabilities to support their agency networks. These firms are often more capable of sustaining broader infrastructure, providing logistical and administrative support, and establishing trust among consumers which are elements that help facilitate productive agency systems.

Second, acquisition costs, such as commissions and other expenses related to securing new business, also demonstrate a significant positive influence. This highlights the effectiveness of strategic investments in incentivising new sales policy through the agency channel. Companies that deploy well-structured commission schemes and financial incentives are more likely to see tangible improvements in agency sales performance.

Third, training and education expenditures have a significant and positive impact on agent-based premium growth. Well-designed training programs contribute not only to skill development but also to greater organisational commitment and service quality. Therefore, insurance firms should view training as a critical lever to strengthen performance in agent-driven distribution channels.

Fourth, the number of branch or marketing offices is positively associated with agency performance, reinforcing the importance of physical distribution infrastructure. Insurers with broader office networks can reach more prospective clients and provide more localised support to agents, thus boosting their productivity and market penetration. Moreover, insurers should strategically consider branch locations, particularly in underserved or semi-urban areas to enhance operational efficiency and drive sales.

Fifth, agent productivity emerges as a more critical factor than the sheer number of agents. Our findings reinforce the importance of targeted development and support programs for agents, prioritising skill enhancement and digital enablement over mere expansion of the workforce. A focus on agent quality can result in more meaningful client interactions, higher retention, and improved conversion rates.

Finally, affiliation with banking groups is associated with lower agency channel performance. Rather than indicating inferior performance, this relationship likely reflects strategic channel substitution, as bank-affiliated insurers tend to prioritise bancassurance over traditional agent-based distribution. As a result, differences in agency performance across firms appear to stem from deliberate channel prioritisation rather than operational inefficiency.

In contrast, several variables were found to have no statistically significant effect on agency channel performance. For instance, the total number of agents, while intuitively expected to boost total sales, did not exhibit a significant impact in the model. This finding suggests that merely increasing agent numbers without attention to training, support, or productivity does not automatically improve overall performance. Similarly, marketing expenditures was not found to significantly influence agency outcomes. The effectiveness of

marketing investment is not uniform across all contexts; rather, it is significantly influenced by the nature of the distribution channel employed and the specific characteristics of the target customer segment.

Ownership structure and macroeconomic indicators do not show statistically significant associations with agency channel performance in this study. However, this finding should not be interpreted as evidence of economic irrelevance. Rather, it reflects the limited temporal variation inherent in a short panel where firms face common macroeconomic conditions. Within this empirical setting, firm-level execution, particularly distribution strategy, resource allocation, and agent management, emerges as the primary source of observable variation in agency-based premium outcomes.

Table 9. Summary key findings

Explanatory Variables	Expected Sign	Dependent Variable: Log of Premium Agents
Cost Components		
Acquisition Cost	+	Significant, positive Increase in acquisition spending is strongly associated with higher premium collection via agents
Marketing Cost	+	Insignificant, positive Variation in marketing expenditures does not significantly influence agent based premium outcomes
Training and Education Cost	+	Significant, positive Investment in training shows a significant positive effect, highlighting the importance of agent capacity-building in improving premium performance.
Firm-specific Characteristics		
Number of agents	+	Insignificant, positive indicating that agent quantity alone may not drive performance
Agent productivity	+	Significant, positive emphasising the importance of efficiency and individual agent performance.
Number of marketing offices	+	Significant, positive A higher number of marketing offices significantly contributes to premium growth, reflecting the benefits of expanded geographic reach.
Total asset	+	Significant, positive Total firm assets are positively and significantly linked to premium performance, supporting the presence of scale advantages among larger insurers.
Ownership	+	Insignificant, positive suggesting no clear performance differential between local and joint venture firms.
Subsidiary bank	+	Significant, negative Firms affiliated with banking groups experience significantly lower agent-based premium growth
Macroeconomic variable controls		
Inflation	-	Insignificant, positive Inflation displays an insignificant but positive effect, indicating limited influence on agent-based premium dynamics during the study period.
GDP per capita	+	Insignificant, positive Suggesting weak macro-level demand sensitivity.
Financial development	+	Insignificant, negative implying that deeper financial markets may not necessarily support agent-driven sales.

Taken together, these findings underscore the importance of internal organisational capacity and operational execution in achieving stronger agency performance. Well-capitalised firms that deploy effective acquisition strategies, maintain a widespread physical presence, and invest in agent quality are better positioned to accelerate premium growth, thereby contributing to broader financial inclusion and economic resilience. In contrast, expanding agent numbers or increasing generic marketing expenditure without strategic alignment does not guarantee improved performance. As such, enhancing the agency distribution channel should be viewed as a core strategic priority not only for firm growth but also for advancing the role of life insurance in supporting inclusive and sustainable economic development.

5.2 Policy Recommendations

The findings of this study reveal practical steps that could help both insurance companies and policymakers make better use of agency distribution channels to boost life insurance premium growth and, by extension, Indonesia's broader economic development. As the nation aims to improve financial inclusion and strengthen household financial resilience, it is crucial to make life insurers' agency forces more effective.

For insurance companies, the message is clear: success doesn't come from simply hiring more agents. It is essential to ensure that agents are well-trained, professional, and capable of doing their jobs effectively. Our findings show that agent productivity is one of the strongest indicators of performance. Insurers should prioritise quality over quantity by investing in better training, ongoing support, and digital tools that help agents engage with clients more efficiently and confidently. Insurers are also advised to revisit their incentive schemes. Since acquisition costs, particularly commissions and bonuses, have demonstrable impacts on agency performance, companies must balance motivation with sustainability. Incentives should be designed to reward not only sales volume but also client retention and compliance with ethical standards. This approach would minimise short-term thinking and lower the risk of mis-selling, enhancing long-term client trust and satisfaction. Insurers are also encouraged to allocate training costs strategically by establishing regular and structured development programs. Rather than viewing training as a periodic expense, companies should treat it as a long-term investment that keeps agents' skills sharp, knowledge current, and engagement aligned with evolving market demands. Continuous training enhances agents' ability to understand complex products, anticipate client needs, and adapt to changing regulatory or competitive environments.

Moreover, the expansion of physical marketing office networks emerges as a practical level to increase insurance penetration, especially in high-potential yet underserved areas. Branch presence enhances visibility, facilitates customer engagement, and supports agents with logistical and administrative infrastructure. As our results indicate a positive relationship between branch presence and agency performance, insurers should strategically direct resources toward opening or reinforcing offices in regions with high growth potential.

Larger firms, with more assets and infrastructure, also tend to do better when it comes to agency performance. They can afford to provide stronger training, better systems, and more support. For smaller insurers, this could mean considering strategic alliances or shared platforms that help them compete on a more level playing field.

From a regulatory standpoint, OJK plays a central role in creating a policy environment that supports premium growth through agency channels. Regulator should continue promoting agent professionalism by setting robust competency standards and enforcing

mandatory certification and ongoing education requirements. These measures would help ensure that agents are adequately equipped to explain complex insurance products and build lasting client relationships. OJK should also enhance oversight of incentive structures and sales practices. Transparent and ethical commission models can reduce misaligned behaviours while fostering a healthier, more trusted market.

In summary, this study emphasises that improvements in life insurance sales performance via agency channels are driven more by internal company factors and the effectiveness of distribution systems than by broader macroeconomic conditions. Accordingly, the policy implications presented here emphasise the importance of strengthening insurer capabilities, enhancing agent professionalism, and promoting more strategic deployment of resources within agency networks. At the same time, regulators should encourage a fair, efficient, and consumer-centred insurance marketing environment that supports transparency, ethical sales practices, and balanced incentives. These efforts are not only vital for firm-level performance but also play a broader developmental role. By reinforcing the capacity of agency channels to drive premium growth, the life insurance sector can expand its reach, enhance household financial protection, and improve access to insurance among underserved segments of the population. Through a coordinated approach across industry stakeholders and regulatory institutions, Indonesia's life insurance industry can be positioned as a vital contributor to financial inclusion and long-term, inclusive economic growth.

Disclosure

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Author contributions are defined according to the CRediT taxonomy as follows. Author 2 was responsible for conceptualisation. Author 1 developed the methodology and conducted the formal analysis. Author 3 provided literature review and discussion related to the previous study. Data curation was carried out by Author 2. The original draft was prepared by all the authors.

All research ideas, empirical strategies, data analysis, and final interpretations are the sole responsibility of the authors. The data underlying this study were obtained from publicly accessible official sources and licensed databases. Firm-level insurance data, including premium income, acquisition and operating costs, number of agents, marketing offices, and other agency-related indicators, were sourced from the Indonesian Life Insurance Association (Asosiasi Asuransi Jiwa Indonesia, AAJI). Macroeconomic and financial data were sourced from subscription-based databases such as CEIC and Bloomberg. Data obtained from licensed databases is not publicly shareable due to contractual restrictions. However, processed datasets and replication codes used in the analysis are available from the corresponding author upon reasonable request, and the authors affirm that all data used in this study were accessed and utilised in accordance with applicable data usage agreements.

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