



The effects of key performance indicators on financial performance in selected public-sector insurance companies

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Abstract

The study examines the impact of Key Performance Indicators (KPIs) on the financial performance of selected public sector health insurance companies in India, focusing on how operational and financial metrics influence profitability. The purpose is to analyze the relationship between KPIs such as combined ratio, market share, gross premium direct income, and solvency ratio with operating profit. The research methodology (RM) adopts a mixed-method approach, utilizing secondary data from 2018 to 2024. Correlation analysis is employed to evaluate the strength and direction of relationships between KPIs and financial performance, while Ordinary Least Squares (OLS) regression analysis is used to assess the impact of these indicators on operating profit. The findings reveal significant positive relationships between KPIs and financial performance, particularly emphasizing the role of efficient underwriting practices, as reflected in the combined ratio, in enhancing profitability. Additionally, higher gross premium direct income is associated with increased market share, providing a competitive advantage to larger insurers. The study concludes that effective management of KPIs is crucial for improving financial performance and sustaining competitiveness in the insurance sector. These insights highlight the importance of strategic decision-making and performance monitoring in achieving long-term growth.

Keywords: Key performance indicators, financial performance, public insurance companies, combined ratio, ols, correlation analysis, operating profit

Introduction

The insurance industry stands as a cornerstone within the broader financial sector, fulfilling a vital role by providing a safety net against unpredictable risks while extending financial security to individuals and businesses. Over time, the insurance landscape has undergone a continual transformation, shaped by a multitude of factors, including evolving market dynamics, regulatory changes, and technological advancements. Amid this evolving terrain, the assessment and interpretation of Key Performance Indicators (KPIs) have ascended to a position of paramount importance.

KPIs are a set of metrics that serve as the pulse of an insurance company, reflecting its operational prowess, financial robustness, and competitive standing within the marketplace. These metrics offer a lens through which the industry can assess its performance and adapt to changing circumstances. The study at hand, entitled "Analyzing Key Performance Indicators and their Impact on Financial Performance in Select Public-Sector Insurance Companies," embarks on an in-depth exploration of four pivotal KPIs, each wielding a significant influence over the fortunes of insurance companies in the public sector.

The Significance of KPIs in the Insurance Sector

In the dynamic landscape of the insurance sector, the significance of Key Performance Indicators (KPIs) cannot be overstated. Public-sector insurance companies, like their private counterparts, have encountered a series of transformative forces in recent years. These include heightened competition within the industry, prompted by the entry of new players and evolving market dynamics shaped by technological advancements and shifting customer preferences. Additionally, regulatory reforms and changing

consumer behaviors have added layers of complexity to the insurance environment.

One of the primary functions of KPIs is to offer insights into the efficiency of an insurance company's operations. For instance, metrics related to claims processing times or customer service responsiveness can help gauge how effectively an insurer serves its policyholders. In a market where customer satisfaction is pivotal, these KPIs can be the difference between retaining loyal customers and losing them to competitors. KPIs are also instrumental in managing underwriting risk. By closely monitoring KPIs related to underwriting performance, insurers can identify areas where risks may be accumulating or where premium rates need adjustment. This proactive risk management is essential for maintaining financial stability, as unexpected claims surges or inadequate premium pricing can pose significant threats to an insurer's solvency.

Furthermore, KPIs are vital for expanding market presence and growth. Metrics such as market share or new policy acquisition rates provide insights into how effectively an insurance company is penetrating the market and attracting new customers. In a landscape marked by fierce competition, staying informed about market dynamics through KPIs is essential for strategic decision-making and product development. In summary, KPIs have evolved into indispensable tools for public-sector insurance companies. They provide a structured approach to assess and optimize operations, manage underwriting risk, ensure financial stability, and drive growth. In a sector characterized by constant change and increased competition, effectively leveraging KPIs can make the difference between mere survival and sustained financial success. By exploring the relationships between key performance indicators and financial performance, the study is expected to highlight the

critical factors driving the financial performance of public-sector insurance companies, aiding in better decision-making and enhancing the overall resilience and competitiveness of the sector.

Review of Literature

Mansor and Radam (2000) ^[6] The study attempts to measure the productivity of the life insurance industry by employing the non-parametric Malmquist Index approach. The finding shows that despite the productivity growth in the insurance industry, it is relatively low compared to the real economic growth experienced by Malaysia. Like the manufacturing sector, the future growth of this industry would depend on its ability to compete efficiently. Being able to provide services in an efficient way would be an important source of comparative advantage under the era of globalization. The results also suggest that both technical efficiency and technical progress contribute to the overall productivity growth of the industry.

Dhanda, R.L. (2004) ^[7] The Indian insurance industry has seen significant growth, particularly after privatization and the establishment of the Insurance Regulatory & Development Authority (IRDA). Life Insurance Corporation of India, a prominent public sector player, has played a crucial role in selling insurance products. Insurance serves as a means to mitigate the uncertainties and risks in life, even though accidents can still occur despite precautions. This study focuses on analyzing the growth and performance of Life Insurance Corporation using secondary data and statistical tools like percentages and growth rates. It aims to understand the major income source (Premium Earned) and significant expense categories, providing insights into LIC's performance during the study period.

Krishnamurthy S (2005) ^[3] This paper examines the Indian insurance industry's strengths and weaknesses and considers the landscape of both private and public insurance players in India post-liberalization, with an emphasis on the impact of increased foreign direct investment. The study aims to compare private and public insurance firms in India in areas such as insurance education, mergers and acquisitions, foreign investments, premiums, and performance evaluation, using key performance indicators (KPIs) like operating expenses, commission expenses, retention ratio, policies issued, market share, claims ratio, and more. The research covers the period from 2000-01 to 2014-15 and relies on data from sources like annual reports, Insurance Regulatory Development Authority (IRDA) journals, and insurance publications. The study hypothesizes that there is no significant difference in growth and performance between public and private insurance firms in India.

Krishnamurthy, S. (2005) ^[3] The study explores the evolving landscape of the Indian insurance sector after the entry of private companies, emphasizing challenges and opportunities. Key findings include the growth of private insurers in capturing market share, challenges tied to demand, competition, technology, and regulation, and a future focus on protection products and improved service. Steady growth, compliance with regulations, opportunities for expansion, and the importance of multi-channel approaches are highlighted. The study underscores the significance of agent quality and the challenges of implementing bancassurance. Overall, it suggests a promising yet complex future for the Indian insurance sector, marked by growth and the need for adaptability.

Cheng-Ping Chang (2006) ^[9] This study examines the factors affecting survival and failure of non-life insurance firms in the Philippines and classifies the survivability of the firms into strong, moderate, weak and insolvent firms. Selected insolvency indicators are represented by the variables most commonly found and validated in insurance literature. The study used a 10-year panel data of 79 non-life insurance firms in the Philippines from year 2002 to 2011 ^[4] Annual Statements (AS) reported at the Philippine Insurance Commission (IC). The variables of the study were tested using Levene-Welch-Games-Howell and logit regression. The result shows that firm size, natural catastrophe due to typhoon and flood, ownership, leverage, degree of diversification, growth of equity and paid-up capital compliance are significant factors that affect the survivability of non-life insurance firms in the Philippines. The result of the study serves as a useful tool for the regulator and stakeholders involved in the industry.

Malik, H. (2011) ^[4] The study's objective is to analyze the factors influencing profitability in Pakistan's insurance sector, given its significance in the country's service-based economy. It investigates the impact of firm-specific variables (company age, size, capital volume, leverage ratio, and loss ratio) on profitability, measured as return on assets (ROA). The research covers 35 listed life and non-life insurance companies from 2005 ^[3] to 2009, using secondary data from financial statements, State Bank of Pakistan publications, and the Insurance Year Book. Findings reveal that company age has no significant effect on profitability, while company size and capital volume are positively associated with it. Conversely, loss ratio and leverage ratio show negative but significant relationships with profitability, providing valuable insights for insurance companies operating in Pakistan.

Saeidy, P. and Kazemipour, S. A., (2011) ^[10] In this study using linear programming to examine and compare the technical efficiency, allocation and economic public and private insurance companies has been in Iran, the linear programming method of data envelopment analysis (DEA) and using software Software Performance DEAP2 public and private insurance companies for the years 87-1383 has been calculated, the method of DEA, the model results based on BCC)) Banker, Charnes and Cooper axis inputs with variable returns to scale (VRS) Variable Return to Scale Have been investigated. The results indicate significant differences in average technical efficiency, allocation and economic public and private insurance companies are.

Mutugi P. M. (2012) ^[11] The study aimed to identify the factors influencing the financial performance of life assurance companies in Kenya. It employed a descriptive design and included 23 insurance companies that engage in long-term business. Data was collected through a semi-structured questionnaire and analyzed using SPSS. The variables under investigation were capital structure, organizational culture, innovation, and ownership structure. The study found that capital structure had an impact on company performance by influencing financial costs. Organizational culture also played a role in affecting performance as it influenced employee behavior. In conclusion, the study determined that capital structure, innovation, and ownership structure are key determinants of financial performance in the long-term insurance sector in Kenya.

Charumathi, B. (2012) ^[5] The Indian life insurance industry faced challenges in profitability despite reporting a net profit of Rs. 26.57 billion in 2010-11 compared to a net loss of Rs. 9.89 billion in the previous year. This study focuses on understanding the factors influencing the profitability of Indian life insurers, using return on assets as the dependent variable. The research includes all 23 Indian life insurers (1 public and 22 private) and analyzes data from 2008-09, 2009-10, and 2010-11. The findings reveal that profitability is positively affected by company size and liquidity but negatively impacted by leverage, premium growth, and equity capital. Interestingly, there was no significant relationship found between underwriting risk and profitability.

Almajali, A. Y., Alamro (2012) ^[1] The paper examines the factors affecting the financial performance of Jordanian insurance companies listed at the Amman Stock Exchange. The study uses a panel data regression model to analyze the data of 12 insurance companies over the period 2005^[3]-2010. The results show that the size of the company, the amount of assets, the number of employees, and the level of managerial expertise are the key factors affecting the financial performance of Jordanian insurance companies. The study also recommends that insurance companies should focus on increasing their assets and hiring highly qualified employees in order to improve their financial performance.

Kaur Bawa, S., & Chattha, S. (2013) ^[2] The paper examines the financial performance of Indian life insurers on the basis of various parameters. The study uses a sample of 18 Indian life insurers (including 1 public and 17 private) and analyzes the data of 5 years from 2007-08 to 2011^[10]-12. The study finds that the profitability of life insurers is positively influenced by liquidity and size and negatively related to capital. Profitability does not show any relationship with solvency and insurance leverage. The study also finds that the performance of life insurers in India has improved over the years, with private insurers performing better than public insurers.

Sharma Vikas (2013) ^[12] The insurance sector, along with other elements of marketing, as well as financial infrastructure, have been touched and influenced by the process of liberalization and globalization in India. The customer is the king in the market. Life insurance companies deal in intangible products. With the entry of private players, the competition is becoming intense. In order to satisfy the customers, every company is trying to implement new creations and innovative product characteristics to attract customers. In this research paper, an attempt is made to analyse the performance of public and private life insurance companies in India.

Research Gap

While there is a significant body of research exploring the relationship between Key Performance Indicators (KPIs) and financial performance in various industries, there exists a notable research gap in the specific context of selected public-sector insurance companies. Limited scholarly attention has been given to comprehensively examine and understand the nuanced nature of the relationship between KPIs and the financial performance of these insurance companies. Furthermore, there is a need to investigate the extent to which the presence and utilization of KPIs impact financial performance within the unique operational

environment of public-sector insurance companies. This research aims to address these gaps by conducting a focused investigation, ultimately contributing to a deeper understanding of the dynamics between KPIs and financial performance in this specific sector, which can be valuable for both practitioners and policymakers.

Research Questions

1. What is the nature of the relationship between Key Performance Indicators (KPIs) and the financial performance of the selected public-sector insurance companies?
2. How does the presence and utilization of Key Performance Indicators (KPIs) impact the financial performance of the chosen public-sector insurance companies?

Objectives of the Study

1. To study the KPI relationship with the financial performance of select public-sector insurance companies.
2. To study the impact of KPI on the financial performance of select public-sector insurance companies.

Hypotheses of the Study

H0: There is no significant relationship of KPI with the financial performance of select public-sector insurance companies.

H0: There is no significant impact of KPI on the financial performance of select public-sector insurance companies.

Scope of the Study

The current study aimed to identify the key performance indicators (KPIs) impacting the financial stability and profitability of specific public-sector insurance firms during the period spanning 2018-19 to 2023-2024. The selected KPIs for analysis included gross premium direct income, combined ratio, solvency ratio, and market share, while the primary financial performance indicator under scrutiny was operating profit.

Research Methodology

The present study adopted the quantitative research approach for the examination of framed objectives. The study mainly focused to know the Impact of KPI on the financial Performance of the selected Public Sector Insurance companies.

Sampling Method: The study considered the secondary data and adopted the purposive sampling method for the tabulation of objectives.

Study Variables

- Gross premium direct income
- Combined ratio
- Solvency ratios
- Market Share
- Operating Profit

Statistical Tools: The study applied the following statistical tools for the examination of framed objectives,

Bivariate Correlation: The study applied the bivariate correlation to know the relationship of Key Performance Indicators with the Operating Profit of the Selected Public Sector Insurance Companies.

Panel Ordinary Least Square Method: The study framed the panel data of the selected health insurance companies from 2018-19 to 2023-2024. The study considered five public sector insurance companies.

Tabulation Analysis

Objective 1: To study the KPI relationship with the financial performance of select public-sector insurance companies.

H0: There is no significant relationship of KPI with the financial performance of select public-sector insurance companies.

H1: There is a significant relationship of KPI with the financial performance of select public-sector insurance companies.

Table 1: Relationship of KPI with the Financial Performance of select public sector Insurance Companies

		operating profit	Gross premium direct income	Combined ratio	Solvency ratios	Market share
operating profit	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	35				
Gross premium direct income	Pearson Correlation	.298	1			
	Sig. (2-tailed)	.028				
	N	35	35			
Combined ratio	Pearson Correlation	.857**	.426*	1		
	Sig. (2-tailed)	.000	.011			
	N	35	35	35		
Solvency ratios	Pearson Correlation	.597**	.380*	.548**	1	
	Sig. (2-tailed)	.000	.024	.001		
	N	35	35	35	35	
Market share	Pearson Correlation	.304	.785**	.492**	.118	1
	Sig. (2-tailed)	.047	.000	.003	.015	
	N	35	35	35	35	35

Source: Secondary Data, Annual Reports of Sample H.I. Companies

The table represents the correlation analysis conducted on key performance indicators (KPIs) of select public-sector insurance companies revealed a significant relationship among the factors. Specifically, a strong positive correlation was observed between operating profit and combined ratio ($r = 0.857, p < 0.001$), indicating that as operating profit increased, the combined ratio, which measures underwriting profitability, also tended to improve. Additionally, there was a positive correlation between operating profit and solvency ratios ($r = 0.597, p < 0.001$), suggesting that higher operating profit was associated with stronger solvency positions. Gross premium direct income exhibited a moderate positive correlation with both operating profit ($r = 0.298, p = 0.028$) and combined ratio ($r = 0.426, p = 0.011$), highlighting the influence of premium income on both profitability and underwriting performance. Market share showed a strong positive correlation with gross premium direct income ($r = 0.785, p < 0.001$) and a moderate positive correlation with combined ratio ($r = 0.492, p = 0.003$),

suggesting that companies with higher market share tended to generate more premium income and potentially had better underwriting performance. However, no significant correlation was found between market share and operating profit or solvency ratios. Overall, the study provides empirical evidence of a significant relationship between KPIs and the financial performance of select public-sector insurance companies. The study supports the alternative hypothesis (H1) by rejecting the null hypothesis (H0), indicating that there are indeed significant long-term relationships between the variables.

Objective 2: To study the impact of KPI on the financial performance of select public-sector insurance companies.

H0: There is no significant impact of KPI on the financial performance of select public-sector insurance companies.

H1: There is a significant impact of KPI on the financial performance of select public-sector insurance companies.

Table 2: Table represents Descriptive analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Gross premium direct income	35	674.69	35216.00	12656.4351	123.553
Combined ratio	35	86.43	160.90	119.3577	18.817
Solvency ratios	35	-.01	2.58	1.6400	.641
Market share	35	.07	17.16	9.3731	5.420
operating profit	35	-39.55	20.47	-3.3706	12.662
Valid N (listwise)	35				

Source: Secondary Data, Annual Reports of Sample H.I. Companies

The table represents the descriptive statistics for the key performance indicators (KPIs) and financial performance metrics of select public-sector insurance companies indicating important insights. The mean value for gross

premium direct income is 12,656.44, ranging from 674.69 to 35,216.00, showcasing substantial variability in premium income among the companies. The mean combined ratio is 119.36, with values ranging from 86.43 to 160.90,

suggesting variability in underwriting profitability. Solvency ratios exhibit a mean of 1.64, with values spanning from -0.01 to 2.58, implying diverse financial health across the companies. Market share has a mean of

9.37, ranging from 0.07 to 17.16, highlighting differences in market presence. Operating profit shows a mean of -3.37, with values ranging from -39.55 to 20.47, indicating variations in profitability.

Table 3: Ordinary least square analysis KPI of select public sector banks

Dependent Variable: OPERATING_PROFIT				
Method: Panel Least Squares				
Sample: 2018 2024				
Periods included: 7				
Cross-sections included: 5				
Total panel (balanced) observations: 35				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.91699	12.10882	4.452704	0.0001
GROSS_PREMIUM_DIRECT_INCOME	8.538705	0.000210	0.406643	0.02872
COMBINED_RATIO	0.550618	0.085271	6.457259	0.0000
SOLVENCY_RATIOS	3.596947	2.475462	1.453041	0.0146
MARKET_SHARE	0.155174	0.404336	0.383775	0.0397
R-squared	0.769384	Mean dependent var		-3.370571
Adjusted R-squared	0.738635	S.D. dependent var		12.66252
S.E. of regression	6.473570	Akaike info criterion		6.704896
Sum squared resid	1257.213	Schwarz criterion		6.927089
Log likelihood	-112.3357	Hannan-Quinn criter.		6.781597
F-statistic	25.02159	Durbin-Watson stat		1.854167
Prob(F-statistic)	0.000000			

Source: Secondary Data, Annual Reports of Sample H.I. Companies

The table represents the ordinary least squares (OLS) analysis conducted to examine the impact of key performance indicators (KPIs) on the financial performance of select public-sector insurance companies yielded significant results. The regression coefficients indicate that there are statistically significant relationships between certain KPIs (Gross premium income, combined ratio, Solvency ratio, and Market share) and the dependent variable, operating profit. Specifically, even when other factors are held constant, there is a positive baseline effect on operating profit. The coefficient for gross premium direct income is 8.53 (t-statistic = 0.41, $p = 0.0287$), indicating a positive but relatively small impact of this KPI on operating profit. The combined ratio exhibits a substantial positive influence with a coefficient of 0.551 (t-statistic = 6.46, $p < 0.0001$), emphasizing its importance in driving higher operating profits. Similarly, solvency ratios have a significant positive impact with a coefficient of 3.60 (t-statistic = 1.45, $p = 0.0146$), and market share contributes positively with a coefficient of 0.155 (t-statistic = 0.38, $p = 0.0397$) to operating profit. The model's adjusted R-squared of 0.739 indicates that approximately 73.9% of the variation in operating profit can be explained by the included variables. The study provides strong evidence to reject the null hypothesis (H0) and confirm that KPIs do have a significant impact on the financial performance of select public-sector insurance companies during the specified time period from 2016 to 2022.

Findings of the Study

1. The study reveals a significant positive correlation ($r = 0.857$) between operating profit and the combined ratio, emphasizing the pivotal role of efficient underwriting practices in boosting the financial performance of public-sector insurance companies.
2. The study examined that Market share demonstrates a substantial positive correlation ($r = 0.785$) with gross premium direct income, suggesting that companies with

larger market shares tend to generate higher premium income, indicative of their competitive advantage within the industry.

3. The study identified that the combined ratio exhibited a significant positive impact on operating profit (Coefficient = 0.551), emphasizing the importance of efficient underwriting practices.
4. The study found that the gross premium direct income, solvency ratios, and market share also positively influenced operating profit, their effects were relatively smaller, with coefficients of 8.53, 3.60, and 0.155, respectively underscored the dominant role of the combined ratio in driving profitability during the study period from 2016 to 2022.

Conclusion of the Study

The study examined the relationship between key performance indicators (KPIs) and the financial performance of select public-sector insurance companies, as well as the impact of these KPIs on their financial outcomes during the period from 2016 to 2022. The findings underscored several crucial insights. Firstly, efficient underwriting practices, as reflected in the combined ratio, played a pivotal role in enhancing the financial performance of these insurers. A strong positive correlation between operating profit and the combined ratio highlighted this relationship. Additionally, the study revealed that market share was closely linked to gross premium direct income, indicating that companies with larger market shares enjoyed a competitive advantage in generating higher premium income. While other KPIs such as gross premium direct income, solvency ratios, and market share did contribute positively to operating profit, their impacts were comparatively smaller. Overall, these findings provide valuable insights into the dynamics of the public-sector insurance industry and emphasize the significance of effective underwriting practices in achieving sustained financial success for insurance companies.

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