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# PROFITABILITY DYNAMICS: A PANEL ANALYSIS OF FINANCIAL METRICS AMONG SELECT PUBLIC AND PRIVATE HEALTH INSURANCE COMPANIES IN INDIA

MAKKELLA SIVA KRISHNA[1] AND PROF. I. ANAND PAWAR[2]

1. Research Scholar, Dept. Of Commerce, Dr. B. R. Ambedkar Open University, Hyderabad.
2. Research Supervisor, Dept. Of Commerce, Dr. B.R. Ambedkar Open University, Hyderabad.

## ABSTRACT

The study examines the relationship between select financial metrics and profitability in public and private health insurance companies in India, focusing on key players such as United India Insurance Co. Ltd, New India Assurance Co. Ltd, and The Oriental Insurance Co. Ltd in the public sector, alongside Niva Bupa Health Insurance, Manipal Cigna Health Insurance, and Star Health and Allied Insurance in the private sector. Utilizing a panel data approach, the analysis assesses how various financial metrics specifically the Net Earnings Ratio, Net Premium Capital, Equity Total Assets, Net Premium/Gross Premium, Net Technical Reserves, Operational Expenses/Gross Premium, Combined Ratio, Investment Income/Net Premium, and Liquidity affect profitability. The findings reveal strong negative correlations between the Combined Ratio and Net Earnings Ratio, as well as Operational Expenses relative to Gross Premium, indicating that managing operational efficiency is vital for enhancing profitability. Conversely, the Net Premium to Gross Premium ratio demonstrates a strong positive impact on profitability. The study highlights the importance of strategic financial management in optimizing profitability within the health insurance sector.

**Key Words :** Health Insurance Companies, Panel Regression, Financial Performance

## INTRODUCTION

Health insurance in India has evolved significantly over the past few decades, driven by the increasing demand for healthcare services and the rising costs associated with medical treatments. The Indian health insurance market is characterized by a mix of public and

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private insurers, with government schemes targeting economically disadvantaged populations and private players catering to a diverse customer base.The market consists of various products, including individual health plans, family floater policies, critical illness insurance, and group health insurance plans offered by employers. As of recent reports, the health insurance penetration rate in India remains relatively low compared to global standards, highlighting substantial opportunities for growth. The government has initiated several schemes, such as Ayushman Bharat, aimed at expanding coverage and improving access to quality healthcare for vulnerable populations. This push for increased coverage is crucial, especially in light of the COVID-19 pandemic, which has underscored the importance of health insurance in safeguarding individuals against unexpected medical expenses.

Financial metrics are quantitative measures used to evaluate the financial health and performance of an organization. In the context of health insurance companies, these metrics are crucial for assessing how well a company is managing its resources, generating profits, and maintaining sustainability. The relevance of financial metrics lies in their ability to provide stakeholders—such as investors, regulators, and management—with insights into the operational efficiency and profitability of health insurers. Furthermore, financial metrics facilitate benchmarking against industry standards and competitors, allowing companies to identify areas for improvement and strategic focus. Ultimately, these metrics serve as a foundation for financial reporting and performance evaluation, enabling health insurers to navigate the complex landscape of the insurance market effectively.

In the health insurance sector, financial metrics like Net Earnings Ratio, Net Premium Capital, Equity to Total Assets Ratio, and Net Premium to Gross Premium Ratio provide insights into profitability and financial strength. The Net Earnings Ratio highlights profitability by showing net earnings relative to total premiums, while Net Premium Capital reflects the capital available for underwriting, indicating risk-absorbing capacity. Equity to Total Assets measures asset financing by shareholders' equity, pointing to capital stability and lower financial risk. The Net Premium to Gross Premium Ratio assesses premium collection and retention effectiveness. Additionally, Net Technical Reserves gauge preparedness for future claims, and the Operational Expenses to Gross Premium Ratio evaluates cost efficiency. The Combined Ratio combines loss and expense ratios, with values below 100% indicating underwriting profit. Investment Income to Net Premium Ratio shows

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investment return relative to earned premiums, enhancing profitability through sound investment strategies. Finally, the Liquidity Ratio assesses a company's capacity to meet short-term obligations, critical for operational stability. Collectively, these metrics offer a comprehensive view of financial health, guiding strategic decision-making for better profitability and efficiency.

Profitability is vital for insurers, as it supports financial stability, customer trust, and the ability to invest in improved services and innovations. For stakeholders like investors, policyholders, and regulators, it signals the insurer's reliability and capacity to meet obligations, making it essential for sustaining long-term growth and competitive advantage. Profitability also helps insurers align with regulatory requirements and build resilience, which benefits both the company and the broader market. Profitability drives key operational choices, such as cost control, pricing, and resource allocation, enabling insurers to improve services and manage risk effectively. Strategically, it fuels growth initiatives, product expansion, and market entry, while enabling the insurer to adapt to industry changes. Profitable insurers can reinvest in talent, technology, and market positioning, all of which are critical for sustainable development and maintaining a competitive edge.

## REVIEW OF LITERATURE

The insurance sector, particularly health and life insurance, has been subject to rigorous financial performance assessments and risk evaluations in recent years. These studies offer varied insights into the financial health, operational challenges, and key success metrics for insurers across different regions. Several research efforts have provided frameworks to analyze the financial soundness and risk profiles of insurance companies, highlighting the crucial role that financial performance metrics play in determining their stability and growth potential.

**Naveen kumar K. and I. P. (2024)** assessed the financial performance of standalone health insurance companies in India through Grey Relational Analysis (GRA). The study aimed to rank and evaluate these insurers, providing a data-driven perspective on the industry's financial health. The findings reveal significant performance differences among the companies and underscore the importance of specific financial metrics, such as profitability and liquidity, in driving financial outcomes. This approach offers a nuanced view of the

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operational health of insurers and suggests that a targeted focus on high-impact metrics could substantially improve financial performance in the health insurance sector. The research implies that financial evaluations using ranking methods like GRA could benefit regulators and investors by highlighting the relative strengths and weaknesses of each insurer.In another study focusing on financial risk. **Neslihan Karavar and Kemal Yaman (2024)** investigated the interplay between financial performance and bankruptcy risk among private health insurance companies in Turkey. Employing a sophisticated methodology combining the ENTROPY and WASPAS methods to rank insurers, along with the Altman Z-score model to gauge bankruptcy risk, the research provides a holistic view of the sector's financial stability. Findings from this study identify critical profitability ratios, including Asset Profitability, Equity Profitability, and Net Profit Margin, as central determinants of financial health. Results indicate a performance spectrum within Turkey's insurance market, with companies like Turkey Insurance and Anadolu Insurance demonstrating sectoral leadership while others, such as Ray Insurance and Mapfre Insurance, lag behind. The study emphasizes that while financial performance indicators significantly impact bankruptcy risk, a more comprehensive assessment incorporating diverse risk metrics is essential for effective risk management and decision-making. **Ramadhani et al. (2023)** provided further evidence supporting the importance of financial stability in the insurance sector. Analyzing the soundness of general insurance companies in Indonesia, the study used quantitative techniques to assess the impact of financial performance on insurers' stability. This research, which included a broad sample of 49 conventional insurance companies, highlights that both liquidity and profitability ratios are positively correlated with the financial soundness of these companies. This finding underscores the necessity for insurers to maintain strong liquidity and profitability levels to ensure resilience and stability. As the results illustrate, focusing on these metrics not only enhances operational soundness but also mitigates potential risks associated with market fluctuations and economic downturns. This research reinforces the argument that sound financial performance is indispensable for safeguarding the financial health of insurers in emerging markets.Comparative performance analysis of insurers is another prominent theme in the literature. **Shahi and Singh (2015)** explored the performance differences between public and private health insurers in India. Their study evaluated various insurers on service delivery and financial outcomes, revealing that India's health insurance sector has been expanding rapidly due to increased awareness, rising healthcare costs, and de-tariffing in general insurance. The study's comparative approach highlighted distinct performance

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patterns between public and private insurers, with findings pointing to the need for improved service efficiency and accessibility, especially for low-income segments of the population. This analysis provides a valuable contribution to the literature by underscoring that, beyond financial performance, service delivery capabilities are crucial for insurers to address the healthcare needs of India's diverse population effectively. The authors argue that addressing these gaps is essential for fostering equitable access to health insurance and meeting the sector's growth potential. **Ghimire and Kumar (2014)** extended the focus to life insurance companies, examining the financial performance of insurers in Nepal using the CARAMEL framework. Covering various dimensions—Capital Adequacy, Asset Quality, Reinsurance, Actuarial issues, Management Soundness, Earnings, Profitability, and Liquidity—the framework provides a comprehensive measure of financial soundness. Their findings indicated that the financial health of life insurers in Nepal exhibits significant variability across these dimensions. This research underscores the importance of both quantitative and qualitative metrics in assessing the financial status of insurers. By examining multiple performance aspects, the study suggests that a holistic approach, inclusive of qualitative evaluations such as management soundness and actuarial practices, is crucial to achieving an accurate understanding of insurers' financial positions.

In summary, these studies collectively demonstrate the multidimensional nature of financial performance and risk management within the insurance sector. Methods such as GRA, ENTROPY, WASPAS, and the CARAMEL framework highlight the diverse tools available for evaluating financial health and underscore the need for a comprehensive approach to risk management. Key metrics like profitability ratios, liquidity levels, and service delivery capabilities repeatedly emerge as essential determinants of financial health and soundness. These insights are critical for stakeholders, including regulators, investors, and management teams, seeking to enhance the resilience and competitive positioning of insurers. The literature consistently suggests that a balanced focus on quantitative performance measures and qualitative service attributes can facilitate sustainable growth and long-term stability in an increasingly competitive insurance landscape.

## RESEARCH GAP

Despite the growing importance of profitability in the health insurance sector, there remains a limited understanding of how specific financial metrics influence profitability across public

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and private health insurance companies in India. Previous studies have often focused on either sector individually, neglecting a comparative analysis that captures the details of financial performance metrics across both public and private insurers. Additionally, existing research has not extensively explored the implications of operational efficiency on profitability, nor has it utilized a panel data approach to analyze temporal variations in financial performance. This gap highlights the need for a more comprehensive examination of the dynamics between financial metrics and profitability, enabling stakeholders to make informed decisions based on empirical evidence.

## NEED FOR THE STUDY

The study is essential for several reasons. First, as the health insurance industry continues to evolve in India, understanding the financial performance of both public and private insurers is crucial for policymakers, investors, and industry practitioners aiming to improve profitability and operational efficiency. By analyzing a diverse set of financial metrics, the research aims to provide insights that can guide strategic decisions and enhance competitiveness within the sector. Furthermore, the findings will help identify best practices among insurers, allowing both public and private entities to learn from each other and adopt effective financial strategies. Ultimately, this study contributes to the broader literature on health insurance by addressing existing research gaps and providing a detailed analysis of profitability dynamics in an increasingly vital industry.

## OBJECTIVES OF THE STUDY

The main aim of the study is to realize the following objectives :

1. To examine the relationship between selected financial metrics and profitability among public and private health insurance companies; and
2. To assess the impact of these financial metrics on the profitability of select public and private health insurers.

## SCOPE OF THE STUDY

The study focuses on evaluating the financial performance metrics and profitability of public and private health insurance companies, specifically including United India Insurance Co.

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Ltd, New India Assurance Co. Ltd, and The Oriental Insurance Co. Ltd from the public sector, and Niva Bupa Health Insurance, Manipal Cigna Health Insurance, and Star Health and Allied Insurance from the private sector. It aims to compare financial performance among select public and private health insurance companies in India, analysing differences in financial strength and operational efficiency to determine which sector demonstrates superior financial health. The analysis adopts a panel data approach to comprehensively assess the relationship and impact of various financial metrics on profitability. By using the approach, the study seeks to provide insights into how these metrics influence profitability within each sector.

## RESEARCH METHODOLOGY

**Research Design** This study employs a quantitative research design, using a panel data approach to analyze financial metrics among select public and private health insurance companies in India. Panel data analysis is chosen for its ability to account for individual heterogeneity among companies and capture both cross-sectional and time-series variations over a specified period.

**Data Collection** Secondary data for this study is gathered from publicly available financial reports, annual reports, and other relevant documents for the selected health insurance companies. The companies include:

- **Public sector**: United India Insurance Co. Ltd, New India Assurance Co. Ltd, The Oriental Insurance Co. Ltd
- **Private sector**: Niva Bupa Health Insurance, Manipal Cigna Health Insurance, Star Health and Allied Insurance

Data spans from 2013-2022 to provide a comprehensive view of financial performance, allowing for a longitudinal analysis.

**Variables**: **Dependent Variable**: Profitability, as measured by the **Net Earnings Ratio**, which reflects the proportion of net earnings relative to total premiums earned.

**Independent Variables**: Financial metrics influencing profitability, including:

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- **Net Premium Capital**: Represents the amount of capital allocated for underwriting premiums, an indicator of financial strength.
- **Equity to Total Assets Ratio**: Indicates the proportion of assets funded by shareholder equity, a measure of financial stability.
- **Net Premium to Gross Premium Ratio**: Measures the effectiveness of premium collection and retention strategies.
- **Net Technical Reserves**: Assesses the reserves allocated for future claim obligations.
- **Operational Expenses to Gross Premium Ratio**: Evaluates cost efficiency in relation to gross premiums.
- **Combined Ratio**: Combines the loss and expense ratios to provide a comprehensive measure of profitability.
- **Investment Income to Net Premium Ratio**: Assesses the contribution of investment returns to overall profitability.
- **Liquidity Ratio**: Evaluates the company's capacity to meet short-term financial obligations, essential for operational stability.

## STATISICAL TOOLS USED

**Correlation Analysis**: Correlation analysis will be conducted to examine the relationships between the financial metrics, such as Net Premium Capital, Equity to Total Assets Ratio, and others. This step helps identify potential multicollinearity issues among the independent variables, ensuring that the regression model results are not skewed by highly correlated predictors.

**Panel Ordinary Least Squares (OLS)**: Panel OLS regression is employed to assess the impact of various financial metrics on profitability (Net Earnings Ratio) across the health insurance companies over time. Panel OLS helps capture both cross-sectional (differences across companies) and temporal (changes over time) effects, providing a more comprehensive understanding of how each metric influences profitability in both public and private insurers.

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## DATA TABULATION

**Objective-1:** To examine the relationship between selected financial metrics and profitability among public and private health insurance companies.

**Correlation Analysis,** is used to measure the strength and direction of relationships betweenindependent variables (financial factors) and the dependent variable (net Earnings ratio). It helps determine which factors have a significant linear association with profitability of both public and private health insurance companies.

**Table – 1**

**Correlation analysis between Financial factors and Net Earnings Ratio**

| | Net Earning ratio | Net Pre-Cap | Equities TA | NetPre GrossPre | NetTech Reserves | OpExp GrossPre | Combined Ratio | InvesInc NetPre | Liquidity Ratio |
|---|---|---|---|---|---|---|---|---|---|
| **Net Earning ratio** | 1 | | | | | | | | |
| **Net PreCap** | 0.12533 | 1 | | | | | | | |
| **Equities TA** | 0.07387 | -0.62264 | 1 | | | | | | |
| **NetPre GrossPre** | 0.03710 | -0.35613 | 0.53524 | 1 | | | | | |
| **NetTech Reserves** | 0.04427 | -0.26078 | 0.45009 | 0.98371 | 1 | | | | |
| **OpExp GrossPre** | -0.96204 | -0.17657 | 0.02517 | 0.12186 | 0.12908 | 1 | | | |
| **Combined Ratio** | -0.99693 | -0.12394 | -0.08811 | -0.05057 | -0.05697 | 0.95735 | 1 | | |
| **InvesInc NetPre** | 0.07408 | 0.23678 | -0.33902 | -0.26008 | -0.19328 | -0.11186 | -0.03658 | 1 | |
| **Liquidity Ratio** | -0.08362 | -0.23650 | -0.13443 | -0.15388 | -0.21992 | 0.07498 | 0.09813 | -0.13206 | 1 |

Source: Secondary Data

The correlation analysis between various financial factors and the Net Earnings Ratio for public and private health insurance companies reveals several key insights regarding profitability. First, the correlation between Net Premium Capital and the Net Earnings Ratio is weakly positive (0.12533), indicating that while increases in Net Premium Capital may have a slight positive association with profitability. Similarly, Equities Total Assets shows a

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weak positive correlation (0.07387), and Net Premium/Gross Premium exhibits an extremely weak positive correlation (0.03710), indicating minimal direct effects on profitability. In contrast, the Operational Expenses/Gross Premium has a strong negative correlation (-0.96204) with the Net Earnings Ratio, indicating that higher operational expenses relative to gross premium are associated with lower profitability, highlighting the importance of operational efficiency in enhancing profitability. Additionally, the Combined Ratio demonstrates an even stronger negative correlation (-0.99693) with profitability, indicating that a higher Combined Ratio, which reflects total incurred losses and expenses relative to earned premiums, significantly detracts from profitability. On the other hand, Investment Income/Net Premium shows a weak positive correlation (0.07408) with the Net Earnings Ratio, implying that while it may contribute to profitability, its impact is minor compared to other factors. Lastly, the Liquidity Ratio has a weak negative correlation (-0.08362), suggesting that although liquidity is vital for operational stability, its direct influence on profitability is minimal. Overall, the analysis indicates that improving operational efficiency and managing the Combined Ratio are crucial strategies for enhancing profitability within public and private health insurance companies, while the other financial factors have limited influence on the Net Earnings Ratio.

**Objective-2:**To assess the impact of these financial metrics on the profitability of select public and private health insurers.

**Panel Ordinary Least Squares (OLS) Regression,** is applied to analyze the impact of financial factors on Net profitability, using both cross-sectional (across companies) and time-series (over periods) data. The study employs a statistical methodology to determine the suitable approach for assessing the Financial performance of select public and private health insurance companies in India.

**Hausman test of Public and Private health insurance companies:**

The Hausman test is used to determine whether a fixed or random effects model is more appropriate for the analysis. It evaluates the presence of endogeneity or correlation between the independent variables and the error term. If the p-value is less than 0.05, the null hypothesis (that the random effects model is suitable) is rejected, indicating that the fixed effects model is a better fit. Conversely, if the p-value is greater than 0.05, the random effects model is preferred. This test ensures the selection of the most suitable model for assessing the

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**Financial Performance of both Public and Private Health Insurance** companies. The hypotheses guiding the Hausman test are as follows:

$H_0$: The Random effects model is appropriate.

$H_1$: The fixed effects model is appropriate.

**Table – 2 Hausman Test**

| Correlated Random Effects - Hausman Test | | | |
|---|---|---|---|
| Equation: Untitled | | | |
| Test cross-section random effects | | | |
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
| Cross-section random | 5731.904418 | 8 | 0.000 |

Source: Secondary Data

The Hausman test results for the public and private health insurance companies reveal a Chi-Square statistic of 5731.9044 with 8 degrees of freedom and a p-value of 0.000. Since the p-value is less than the 0.05 significance level, the null hypothesis (H0) that the random effects model is appropriate is rejected. This indicates that the fixed effects model is more suitable for analysing the financial performance of the selected public and private health insurance companies. The significant result indicates that there is correlation between the independent variables and the error term, making the fixed effects model the better option for capturing the variations and assessing the impact of financial factors on net profitability. The test confirms that using a fixed effects approach will provide more accurate and reliable insights into the financial performance differences between the public and private sectors.

**Wald test of Public and Private health insurance companies:** The Wald test is a statistical method used to determine whether the Random Effects model or the Pooled Regression model is more suitable for assessing the **Financial Performance of both Public and Private Health Insurance Companies**. It calculates the Wald statistic and its p-value to test the hypotheses. If the p-value is less than 0.05, the null hypothesis is rejected, indicating that the Pooled Regression model is inappropriate, and the Random Effects model is a better fit. The following is the hypothesis framed

H0: Pooled effect regression model is appropriate.

H1: Fixed effect regression model is appropriate.

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**Table – 3 Wald Test**

| Wald Test: | | | |
|---|---|---|---|
| Equation: Untitled | | | |
| Test Statistic | Value | df | Probability |
| F-statistic | 42.3879 | 51 | 0.0000 |
| Chi-square | 411.3752 | 9 | 0.0000 |

Source: Secondary Data

The Wald test results for assessing the financial performance of public and private health insurance companies indicate that both the F-statistic (42.3879, p = 0.0000) and Chi-square statistic (411.3752, p = 0.0000) have p-values well below the 0.05 threshold. This leads to the rejection of the null hypothesis (H0). Therefore, the test results confirm that the Pooled Regression model is not suitable, and the Random Effects model is a better fit for evaluating the financial performance. These results indicate that accounting for variations across companies and over time provides a more accurate analysis of the financial factors influencing profitability, solvency, and premium growth in both public and private health insurers.

**Fixed Effect Regression Model of Public and Private Health Insurance Companies**

Fixed Effects Regression Analysis was applied to assess the select **Public and Private health insurance companies** from 2013-14 to 2021-22. The study conducted the Hausman and Wald tests to determine the most suitable model. The results indicated that the Random Effect model is more appropriate for the analysis. The proposed theories are as follows:

**$H_0$:** There is no significant impact of Financial Factors on Net Earnings Ratio of both Public and private health insurance companies.

**$H_1$:** There is a significant impact of Financial Factors on Net Earnings Ratio of both Public and private health insurance companies.

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**Table - 4**

**Impact of Financial factors on Net Earnings Ratio of Public & Private HI Companies**

| | | | | |
|---|---|---|---|---|
| Dependent Variable: NET_EARNINGS | | | | |
| Method: Panel Least Squares | | | | |
| Sample: 2013 2022 | | | | |
| Periods included: 10 | | | | |
| Cross-sections included: 6 | | | | |
| Total panel (balanced) observations: 60 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -44.8224 | 2.313629 | -19.3732 | 0.0000 |
| NP_CAPITAL | 4.061741 | 1.20786 | 3.362758 | 0.0313 |
| EQ_TA | -2.1283 | 1.02552 | -2.07534 | 0.0228 |
| NP_GP | 24.23491 | 1.576452 | 15.37307 | 0.0000 |
| NET_TECH_R | -4.58095 | 1.628354 | -2.81324 | 0.0100 |
| OPEXP_GP | -2.07589 | 1.03709 | -2.00165 | 0.0460 |
| COMBINED_RATIO | -3.89618 | 1.304451 | -2.98683 | 0.0000 |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| INVESTINC_NP | 2.822655 | 0.754434 | 3.741421 | 0.0005 |
| LIQUIDITYRATIO | 7.531561 | 1.720461 | 4.377641 | 0.0197 |
| | Effects Specification | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.983771 | Mean dependent var | | -3.479757 |
| Adjusted R-squared | 0.980850 | S.D. dependent var | | 24.41552 |
| S.E. of regression | 3.378736 | Akaike info criterion | | 5.423892 |
| Sum squared resid | 570.7927 | Schwarz criterion | | 5.772949 |
| Log likelihood | -152.7168 | Hannan-Quinn criter. | | 5.560428 |
| F-statistic | 336.7651 | Durbin-Watson stat | | 1.866555 |
| Prob(F-statistic) | 0.000000 | | | |

Source: Secondary Data

The Panel Ordinary Least Squares (OLS) regression analysis has been used to measure the impact of various financial factors on the Net Earnings Ratio of both public and private health insurance companies over the period from 2013-14 to 2021-22. The analysis highlights which financial strategies significantly influence profitability. The coefficient for Net Premium Capital (NP_CAPITAL) is positive (4.0617, p = 0.0313), indicating that increased premium capital positively affects the Net Earnings Ratio, indicating that effective premium management enhances profitability. Conversely, the coefficient for Equity to Total Assets (EQ_TA) is negative (-2.1283, p = 0.0228), implying that higher equity relative to total assets may negatively affect profitability, possibly due to higher capital costs.

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The Net Premium to Gross Premium ratio (NP_GP) has a strong positive impact (24.2349, p = 0.0000), indicating that a higher proportion of net premium significantly boosts profitability. In contrast, Net Technical Reserves (NET_TECH_R) and Combined Ratio have negative coefficients (-4.5809, p = 0.01 and -3.8962, p = 0.0000, respectively), indicating that increasing these reserves and a higher combined ratio reduce net earnings, likely due to higher claims and operational expenses. Operational Expenses relative to Gross Premiums (OPEXP_GP) also negatively impact profitability (-2.0759, p = 0.046), highlighting the importance of cost management. On the positive side, Investment Income relative to Net Premium (INVESTINC_NP) has a positive coefficient (2.8227, p = 0.0005), showing that higher investment returns contribute positively to profitability.

The Liquidity Ratio (LIQUIDITYRATIO) is also positively associated (7.5316, p = 0.0197), indicating that maintaining liquidity supports financial stability and profitability. The Durbin-Watson statistic (1.8666) indicates no significant autocorrelation issues, ensuring the model's reliability. The results emphasize the importance of managing premiums, controlling expenses, and optimizing investment income for enhancing profitability across both public and private health insurance companies. Additionally, maintaining liquidity and managing reserves are critical for ensuring financial stability and maximizing net earnings.

## FINDINGS OF THE STUDY

1. The study identifies a strong negative correlation (-0.99693) between the Combined Ratio and the Net Earnings Ratio, indicating that higher combined ratios significantly detract from profitability in public and private health insurance companies.
2. The study examines the relationship between Operational Expenses/Gross Premium and profitability, revealing a strong negative correlation (-0.96204), indicating that higher operational expenses relative to gross premiums are associated with lower profitability.
3. The analysis found that financial factors such as Net Premium Capital (0.12533) and Equities Total Assets (0.07387) exhibit weak positive correlations with the Net Earnings Ratio, indicating minimal direct effects on profitability.

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4. The study indicates that the Net Premium to Gross Premium ratio (NP_GP) has a strong positive impact (24.2349) on the Net Earnings Ratio, demonstrating that a higher proportion of net premiums significantly enhances profitability.
5. The analysis observes that higher Net Technical Reserves (NET_TECH_R) and a greater Combined Ratio negatively affect profitability with coefficients of -4.5809 and -3.8962, respectively, indicating increased claims and operational expenses diminish net earnings.
6. The study found that the model's R-squared value of 0.9838 indicates an excellent fit, explaining approximately 98.38% of the variation in the Net Earnings Ratio, which highlights the strong predictive power of the selected financial factors.

## CONCLUSION

The study stated that financial metrics play a critical role in determining profitability among public and private health insurance companies in India. The analysis reveals significant negative correlations between key operational efficiency indicators, such as the Combined Ratio and Operational Expenses relative to Gross Premiums, and the Net Earnings Ratio, underscoring the importance of cost management in enhancing profitability. Conversely, the Net Premium to Gross Premium ratio demonstrates a strong positive relationship with profitability, indicating that effective premium management can significantly bolster financial performance. Overall, the findings highlight that while some financial metrics show limited direct impact on profitability, strategic management of operational costs and premium structures is essential for improving profitability in both public and private sectors. These insights provide valuable guidance for insurance companies aiming to optimize their financial health and competitive positioning in the market.

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