



Time Series and Cross-Sectional Analysis of Tobacco Companies for the 2021–2024 Period Case Study: PT Indonesian Tobacco Tbk, PT Gudang Garam Tbk, and PT HM Sampoerna Tbk

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Abstract: This study aims to analyze and compare the financial performance of PT HM Sampoerna Tbk, PT Gudang Garam Tbk, and PT Indonesian Tobacco Tbk during the 2021–2024 period using time series and cross-sectional approaches. The research employs a quantitative descriptive method based on secondary data obtained from audited annual financial statements published by the Indonesia Stock Exchange. Financial performance is measured using liquidity, activity, solvency, and profitability ratios. Time series analysis is applied to observe performance trends over four years, while cross-sectional analysis is used to compare company performance in the 2024 fiscal year. The results show that PT HM Sampoerna Tbk demonstrates the most balanced and stable financial performance, characterized by efficient asset utilization, strong solvency, and consistent profitability. PT Gudang Garam Tbk exhibits very strong liquidity and a conservative capital structure,

but relatively lower operational efficiency and profitability. Meanwhile, PT Indonesian Tobacco Tbk shows higher profit potential accompanied by declining liquidity, increasing leverage, and greater financial risk. In conclusion, differences in company scale, operational efficiency, and financial strategy significantly influence financial sustainability in the Indonesian tobacco industry.

Keywords: Financial Performance, Tobacco Industry, Time Series Analysis, Cross-Sectional Analysis, Financial Ratios

Introduction

The tobacco manufacturing industry continues to play a strategic role in Indonesia's industrial structure due to its substantial contribution to state revenue through tobacco excise, employment absorption, and its extensive supply chain linkages from upstream to downstream sectors. However, during the 2021–2024 period, the industry faced increasingly dynamic challenges, including post-COVID-19 economic recovery, progressive increases in excise tax rates, global inflation affecting raw material costs, stricter health regulations, and shifts in consumer preferences toward healthier lifestyles.

Amid these pressures, major tobacco companies such as PT HM Sampoerna Tbk and PT Gudang Garam Tbk, as well as smaller-scale players like PT Indonesian Tobacco Tbk, have continued to demonstrate resilience in sustaining their operations. Differences in

operational scale, cost structures, and business strategies are presumed to influence each firm's ability to respond to these external challenges. Therefore, a comprehensive and objective financial performance analysis is required to evaluate how effectively these companies manage their assets and capital in achieving strategic objectives (Fahmi, 2018; Harahap, 2016).

Financial performance analysis employs financial ratios encompassing liquidity, solvency, activity, and profitability to simplify complex financial statement data into decision-relevant information (Kasmir, 2019; Munawir, 2014; Hery, 2018). A time series approach enables the examination of trends and fluctuations in financial performance over time, while a cross-sectional approach facilitates comparative analysis of companies' competitive positions within the same period (Wooldridge, 2013). The analysis is based on annual financial statements published by the Indonesia Stock Exchange for the 2021–2024 period.

Accordingly, this study aims to analyze the patterns and changes in the financial performance of tobacco companies over the last four years, compare their financial positions and operational efficiency in the 2024 fiscal year, and identify the key factors driving performance disparities among firms with different business scales and characteristics. The findings are expected to contribute academically to financial statement analysis literature and provide practical insights for investors, corporate management, and policymakers in understanding the dynamics of Indonesia's tobacco industry (Hansen & Mowen, 2004; Mangkunegara, 2013).

Research Method

Research Design

This study adopts a quantitative descriptive research design with a comparative approach. The design is intended to describe, analyze, and compare the financial performance of tobacco companies using numerical data derived from their financial statements. Two analytical approaches are applied: time series analysis, which examines trends and changes in financial performance over the 2021–2024 period, and cross-sectional analysis, which compares the financial position and operational performance of the sampled companies within the same period, particularly in the 2024 fiscal year.

Population, Sample, Sampling

The population of this study comprises all tobacco sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. The sampling technique employed is purposive sampling, based on the following criteria:

1. Inclusion criteria:

- a. Companies classified under the tobacco sub-sector and listed on the IDX.
- b. Companies that published complete and audited annual financial statements consecutively from 2021 to 2024.
- c. Financial statements accessible through official IDX publications.

2. Exclusion criteria:

- a. Tobacco companies that did not publish complete financial statements during the observation period.
- b. Companies that were delisted or subject to prolonged trading suspension during the study period.

Based on these criteria, three companies were selected as the research sample:

- PT HM Sampoerna Tbk
- PT Gudang Garam Tbk
- PT Indonesian Tobacco Tbk

No companies were excluded after the selection process, as all tobacco sub-sector firms meeting the criteria were included in the final sample.

Intervention Procedure

This study does not employ an experimental research design; therefore, no intervention, treatment, or manipulation of variables was conducted. The research procedure focuses on secondary data analysis, which involves the following steps:

1. Collecting audited annual financial statements for the 2021–2024 period from the official website of the Indonesia Stock Exchange.
2. Calculating key financial ratios based on the statements of financial position and income statements.
3. Organizing ratio results into time series trend tables.
4. Conducting cross-sectional comparisons among companies, particularly for the 2024 fiscal year.
5. Interpreting the findings through narrative and comparative analysis.

Instrument and Data Analysis Technique

The primary research instrument consists of financial ratios derived from audited annual financial statements. The ratios are categorized into four main groups:

1. Liquidity Ratios
 - Current Ratio
 - Quick Ratio

2. Activity Ratios

- Average Collection Period
- Inventory Turnover
- Fixed Asset Turnover
- Total Asset Turnover

3. Solvency Ratios

- Debt to Total Assets Ratio (DAR)
- Times Interest Earned (TIE)
- Fixed Charge Coverage (FCC)

4. Profitability Ratios

- Profit Margin
- Return on Assets (ROA)
- Return on Equity (ROE)

Data validity is ensured through the use of audited financial statements officially published by the Indonesia Stock Exchange, while reliability is maintained by applying standardized financial ratio formulas consistently across all observation periods and companies. The data analysis technique employed is descriptive-comparative analysis, with results presented in tables and interpreted narratively to explain trends, patterns, and performance differences among the sampled companies.

Results and Discussion

Liquidity Analysis

1. Current Ratio

Table 1. Current Ratio

Year	HMS	GG	ITTC	Average
2021	1.88	2.09	1.45	1.81
2022	1.69	1.90	1.45	1.68
2023	1.74	1.83	1.02	1.53
2024	1.63	2.29	1.39	1.77

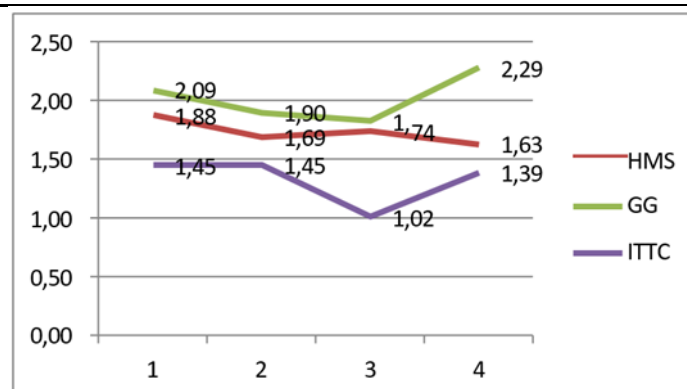


Figure 1. Current Ratio

The current ratio measures the ability of current assets to cover short-term liabilities.

- Time Series Trend: GGRM demonstrates the strongest performance, with its ratio increasing from 2.09 in 2021 to 2.29 in 2024. HMSP remains relatively stable, although it shows a gradual decline to 1.63 in 2024. Meanwhile, ITIC experienced a sharp drop in 2023 to 1.02 before recovering slightly in 2024.
- Cross-Section Comparison: In 2024, GGRM exhibits the strongest liquidity buffer, significantly exceeding the industry average.

2. Quick Ratio

Table 2. Quick Ratio

Year	HMS	GG	ITTC	Average
2021	1.07	0.42	0.15	0.55
2022	1.69	0.27	0.15	0.70
2023	0.74	0.26	0.08	0.36
2024	0.70	0.34	0.11	0.38

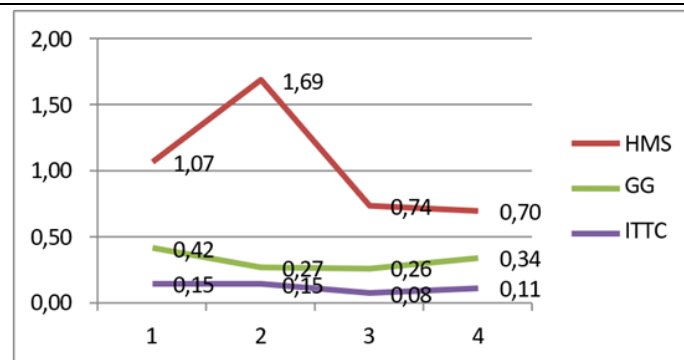


Figure 2. Quick Ratio

Given that tobacco inventories require a long processing period, the quick ratio provides a more immediate liquidity perspective.

- Data Observation: HMSP leads with a quick ratio of 0.70 in 2024, substantially higher than GGRM (0.34) and ITIC (0.11).
- Analysis: The low quick ratios of GGRM and ITIC indicate a high dependency on inventory sales to settle short-term liabilities. HMSP is in a relatively safer position in the event of sudden cash needs.

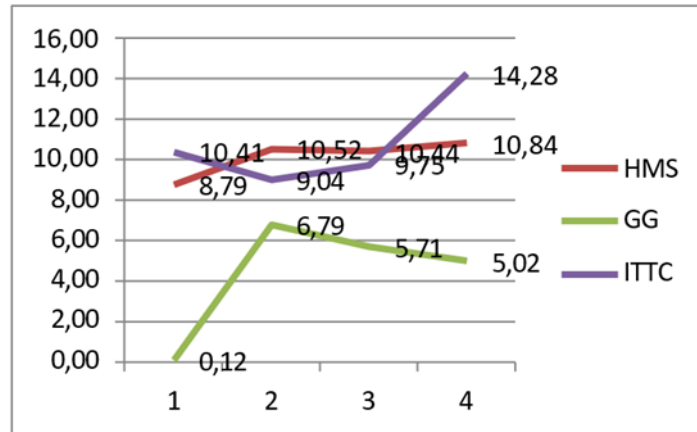
Activity Analysis

1. Average Collection Period

The average collection period measures the efficiency of a firm's credit policy and the speed at which receivables are converted into cash. Shorter collection periods indicate faster cash inflows, while longer periods may signal higher credit risk or overly lenient credit policies.

Table 3. Average Collection Period

Year	HMS	GG	ITTC	Average
2021	8.79	0.12	10.41	6.44
2022	10.52	6.79	9.04	8.78
2023	10.44	5.71	9.75	8.68
2024	10.84	5.02	14.28	10.05

**Figure 3.** Average Collection Period

Trend and Comparative Analysis:

- PT HM Sampoerna Tbk (HMS):
 - HMS demonstrates highly consistent receivables management, maintaining collection periods between 8.79 and 10.84 days.
 - This stability reflects disciplined credit management and effective collection practices.
- PT Gudang Garam Tbk (GG):
 - In 2021, GG recorded an exceptionally low collection period of 0.12 days, indicating that most sales were conducted on a cash basis or collected almost immediately.
 - Although the period increased to 5.02 days in 2024, GG still maintains the fastest collection cycle among the three firms, strengthening its operating cash position.
- PT Indonesian Tobacco Tbk (ITTC):
 - ITTC records the longest average collection period, with a significant upward trend reaching 14.28 days in 2024.
 - This increase suggests a relaxation of credit policies or growing challenges in receivables collection during the final year.

2. Inventory Turnover

Table 4. Inventory Turnover

Year	HMS	GG	ITTC	Average
2021	4.61	2.33	1.98	2.97
2022	4.21	1.83	2.28	2.77
2023	4.06	0.50	1.75	2.10
2024	4.51	2.45	1.37	2.78

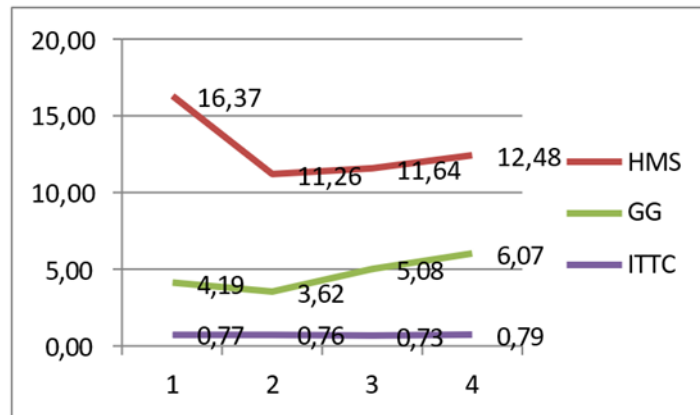
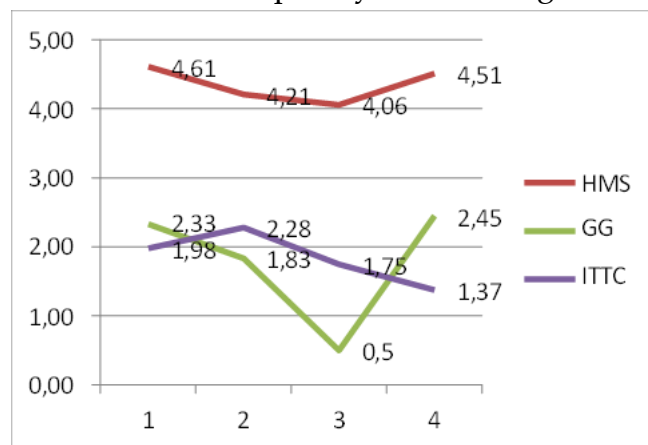


Figure 4. Inventory Turnover

- Trend Analysis: HMSP maintains high stability, achieving an inventory turnover of approximately 4.51 times in 2024. ITIC shows an extraordinary efficiency spike in 2024, reflected indirectly through receivable and asset turnover patterns discussed in the activity analysis.
- Operational Implications: GGRM experienced a sharp decline in inventory turnover in 2021 but gradually recovered in subsequent years, although it remains below HMSP.



3. Fixed Asset Turnover

Table 5. Fixed Asset Turnover

Year	HMS	GG	ITTC	Average
2021	16.37	4.19	0.77	7.11
2022	11.26	3.62	0.76	5.21
2023	11.64	5.08	0.73	5.82
2024	12.48	6.07	0.79	6.45

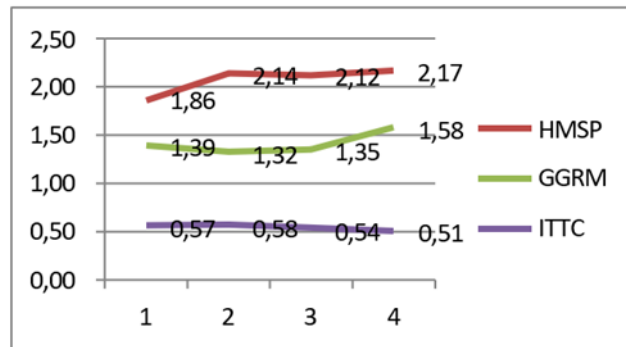


Figure 5. Fixed Asset Turnover

- PT HM Sampoerna Tbk (HMS): HMS consistently records the highest efficiency. After declining from 16.37 in 2021, the ratio rebounded to 12.48 in 2024, indicating optimal utilization of production facilities and technology.
- PT Gudang Garam Tbk (GG): GG shows a positive improvement trend, rising from 3.62 in 2022 to 6.07 in 2024, signaling better utilization of production capacity.
- PT Indonesian Tobacco Tbk (ITTC): ITTC consistently posts ratios below 1.00, reaching only 0.79 in 2024. This indicates substantial fixed asset capacity not yet matched by sufficient sales volume or significant operational inefficiencies.

4. Total Asset Turnover

Table 6. Total Asset Turnover

Year	HMS	GG	ITTC	Average
2021	1.86	1.39	0.57	1.27
2022	2.14	1.32	0.58	1.35
2023	2.12	1.35	0.54	1.34
2024	2.17	1.58	0.51	1.42

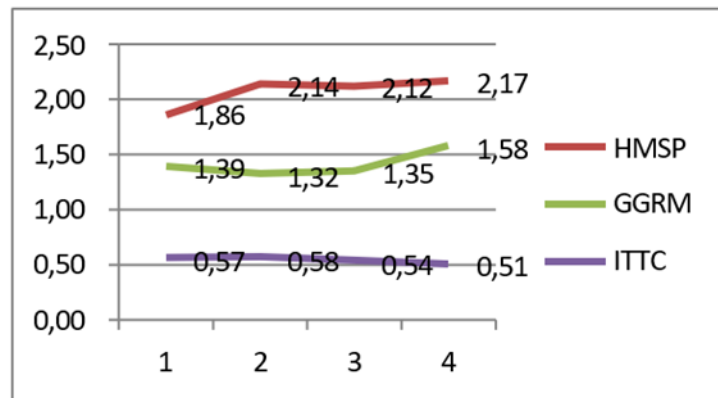


Figure 6. Total Asset Turnover

This ratio reflects how effectively each unit of assets generates sales.

- HMSP: Leads with a ratio of 2.17 in 2024, demonstrating excellent efficiency in asset utilization.
- ITIC: Shows a declining trend from 0.57 in 2021 to 0.51 in 2024, indicating that asset growth has not been accompanied by proportional sales growth.

Solvency Analysis

1. Debt to Total Assets Ratio (DAR)

Table 7. DAR

Year	HMS	GG	ITTC	Average
2021	0.55	0.34	0.17	0.35
2022	0.54	0.35	0.24	0.38
2023	0.55	0.32	0.29	0.39
2024	0.48	0.25	0.32	0.35

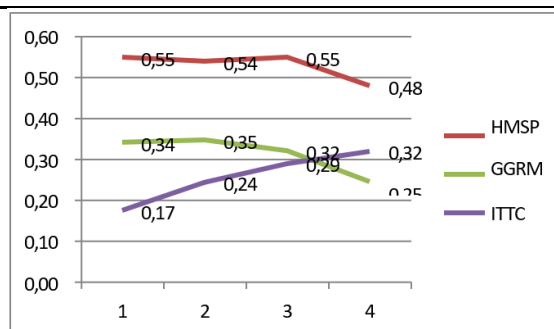


Figure 7. DAR

DAR measures the proportion of assets financed by debt.

- GGRM: Shows a significant improvement by reducing its debt ratio from 0.34 to 0.25 in 2024, indicating a very healthy capital structure.
- ITIC: Displays an upward trend from 0.17 to 0.32. Although still within a safe range, this trend warrants attention if profitability does not increase accordingly.

2. Times Interest Earned (TIE)

Table 8. TIE

Year	HMS	GG	ITTC	Average
2021	162.91	10.50	5.46	59.63
2022	300.98	8.82	4.79	104.86
2023	247.00	8.36	3.86	86.61
2024	247.00	9.37	3.26	86.55

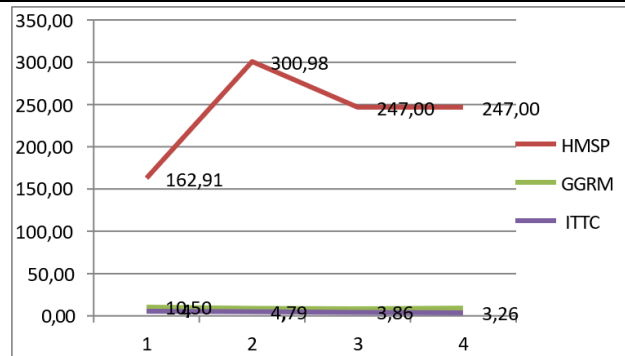


Figure 8. TIE

This ratio reflects the firm’s ability to cover interest expenses.

- HMSP: Maintains exceptionally high coverage (247.00 in 2024), meaning operating income exceeds interest expenses by several hundred times.
- ITIC: Shows a continuous decline from 5.46 to 3.26, indicating rising pressure from interest expenses on operating profitability.

3. Fixed Charge Coverage

Table 9. Fixed Charge Coverage

Year	HMS	GG	ITTC	Average
2021	35.53	9.05	3.44	16.00
2022	37.58	7.83	3.75	16.38
2023	35.04	7.21	3.14	15.13
2024	33.68	7.88	2.70	14.75

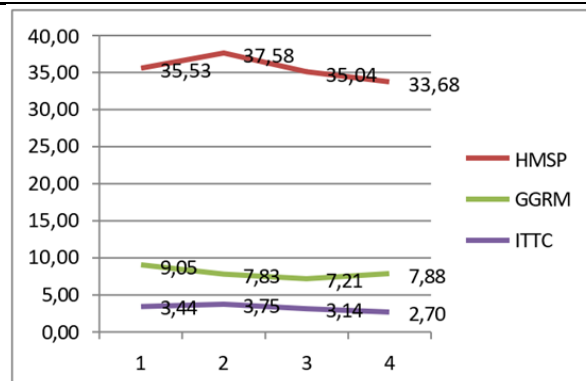


Figure 9. Fixed Charge Coverage

HMSP demonstrates absolute dominance with an FCC of 33.68 in 2024. GGRM remains stable at a moderate level (7.88). In contrast, ITIC shows a concerning downward trend from 3.44 to 2.70, signaling increased financial risk due to reduced operating income flexibility.

Profitability Analysis

1. Profit Margin

Table 10. Profit Margin

Year	HMS	GG	ITTC	Average
2021	0.07	0.06	0.07	0.07
2022	0.06	0.06	0.12	0.08
2023	0.06	0.06	0.09	0.07
2024	0.06	0.06	0.07	0.06

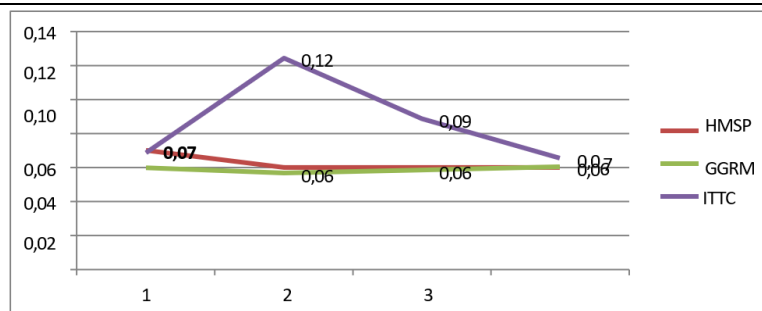


Figure 10. Profit Margin

- HMSP: Highly stable, ranging from 0.07 in 2021 to 0.06 in 2024.
- GGRM: Consistently maintained at 0.06 throughout the observation period.
- ITIC: Exhibits dynamic fluctuations, peaking at 0.12 in 2022 before declining to 0.07 in 2024, indicating unstable cost and operational strategies.

2. Return on Assets (ROA)

Table 11. ROA

Year	HMS	GG	ITTC	Average
2021	0.13	0.09	0.04	0.09
2022	0.12	0.08	0.07	0.09
2023	0.12	0.08	0.04	0.08
2024	0.12	0.10	0.03	0.08

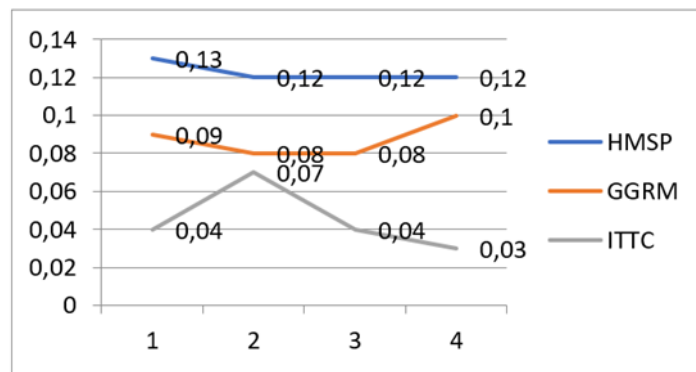


Figure 11. ROA

ROA: HMS remains the most stable at approximately 12% from 2022–2024. ITTC briefly reached 7% in 2022 but declined to 3% in 2024.

3. Return on Equity (ROE)

Table 12. ROE

Year	HMS	GG	ITTC	Average
2021	0.24	0.00	0.17	0.14
2022	0.22	0.00	0.36	0.19
2023	0.21	0.00	0.28	0.16
2024	0.23	0.00	0.22	0.15

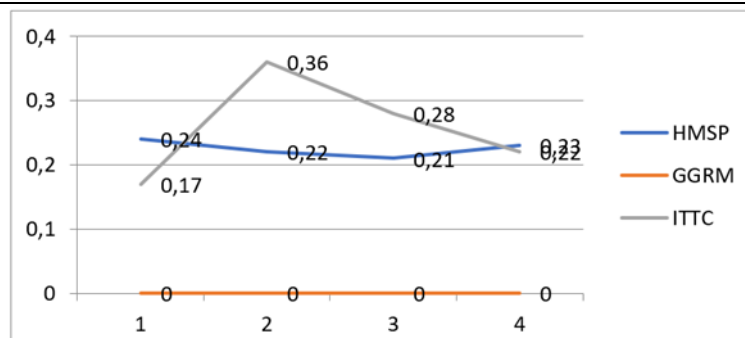


Figure 12. ROE

ROE: ITTC previously recorded the highest ROE (36.19% in 2022) but shows a declining trend to 22.29% in 2024. GGRM’s extremely low ROE values indicate significant challenges in generating shareholder returns during the observation period.

Discussion

The financial performance differences observed among the three tobacco companies during the 2021–2024 period reflect variations in strategic orientation, operational efficiency, and financial policy. PT HM Sampoerna Tbk demonstrates the most balanced performance in terms of liquidity, activity, solvency, and profitability. This finding is consistent with prior studies indicating that large firms with diversified product portfolios and strong market power tend to exhibit more stable financial performance and higher asset efficiency (Majumdar & Chhibber, 1999; Nuryaman, 2015). The company's high interest coverage ratio further supports the argument that efficient asset utilization and strong earnings capacity reduce financial distress risk, as suggested by Altman (2000).

PT Gudang Garam Tbk shows very strong liquidity and a conservative capital structure, which aligns with research indicating that firms in highly regulated industries often adopt low-leverage strategies to mitigate financial risk and regulatory uncertainty (DeAngelo & Roll, 2015). However, the relatively low profitability and moderate asset efficiency observed in this study support findings by Margaritis and Psillaki (2010), who argue that excessive conservatism in capital structure may limit operational efficiency and return generation. This suggests that Gudang Garam prioritizes financial safety over aggressive growth and profitability optimization.

In contrast, PT Indonesian Tobacco Tbk exhibits lower liquidity, fluctuating operational efficiency, rising leverage, and declining profitability, reflecting a higher-risk financial profile. These results are consistent with studies showing that smaller firms often face greater financial volatility due to limited access to capital, weaker bargaining power, and less efficient asset utilization (Beck, Demirgüç-Kunt, & Maksimovic, 2005). Although higher leverage can enhance returns in favorable conditions, the declining liquidity and coverage ratios observed in this study support the view that increased debt exposure heightens financial vulnerability when profitability weakens (Myers, 2001).

Overall, this study reinforces empirical evidence that firm size, operational maturity, and financial strategy are critical determinants of financial performance. Larger firms tend to achieve greater stability and resilience, while smaller firms offer higher growth potential but face increased financial risk, particularly in industries subject to strong regulatory and cost pressures.

Conclusion

This study concludes that financial performance in the Indonesian tobacco industry during the 2021–2024 period varies significantly across firms due to differences in scale, operational efficiency, and financial strategy. PT HM Sampoerna Tbk demonstrates the most balanced and resilient performance, supported by stable liquidity, highly efficient asset utilization, strong solvency, and consistent profitability. PT Gudang Garam Tbk exhibits superior liquidity and a conservative capital structure that ensures financial safety, although this is accompanied by relatively weak operational efficiency and low profitability. Meanwhile, PT Indonesian Tobacco Tbk shows higher growth potential but faces increasing financial risk, as reflected in declining liquidity, rising leverage, and fluctuating operational performance. Overall, the findings highlight the importance of aligning financial management strategies with firm size and market positioning to maintain sustainability in an increasingly regulated and competitive industry.

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