



## Financial Efficiency and Profitability Analysis of Apollo Hospitals: Via Motaal Test and DuPont Models

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### Abstract

This paper explores the monetary execution of Apollo Hospital over the past five years. While contribution is evident in high net income, the investigation uncovers a concerning trend of low returns on speculation and a high debt-to-equity ratio. The objective of the study is to analyze the performance of Apollo Hospital by applying different measures with the help of Ratios. This provides a detailed review of the financial position of the company in the health industry. Financial metrics like liquidity ratios play a key role in assessing their resilience. Motaal test is an effective tool for evaluating their efficiency and strategic decisions. The study uses a five-year dataset (2018-2022) drawn from annual reports and financial databases. It applies ratio analysis to assess the company's liquidity position. The Motaal test is applied to assess the position using the current ratio, quick ratio, and liquid ratio, and provides rankings based on performance in the respective years. This study analyzes Apollo Hospital's financial performance using DuPont analysis. These findings propose potential wastefulness in financial administration and raise questions around long-term sustainability. Advanced monetary assessment is recommended to gain a more comprehensive understanding of the company's financial health. The study highlights the financial strength and challenges of Apollo Hospital, emphasizing its ability to sustain growth and profitability. The study relies on publicly available data, which may not reflect all financial details, and focuses mainly on quantitative metrics, neglecting qualitative factors.

**Keywords:** *Apollo Hospital, Financial Performance, Profitability, Liquidity, Solvency, Debt-to-Equity Ratio, Motaal Test, DuPont Analysis, Healthcare Finance*

### INTRODUCTION

In the modern economy, finance is defined by the availability of funds when needed. All businesses, regardless of size, require funding to achieve their goals (Altman, 1968). It is used to assess firms' overall financial health over a given period and can also be used to compare similar firms within the same industry or to compare businesses or divisions within a conglomerate (Businessworld 2021). It refers to the extent to which financial goals have been or are being fulfilled and is a critical aspect of credit risk management (Pearce and Robinson, 1997). Financial performance analysis involves the analysis and interpretation of financial statements to fully determine the profitability and financial soundness of the firm. Ratio analysis and comparative statements are critical tools used to examine a company's financial performance (Brigham & Ehrhardt, 2022).

Financial analysis is the process of identifying a firm's financial strengths and weaknesses by properly establishing the relationships between the items included in the balance sheet and the profit and loss account of Companies (Thakur, 2022). Financial analysis is a powerful tool for ratio analysis. Ratio analysis is an exceptionally powerful methodical tool useful for measuring the performance of an operation (Alshatti, 2015).

Financial analysis is a common instrument used to manage finances (Wild & Halsey, 2020). It involves evaluating the operational and financial performance of the business, an industry, or even the economy, as well as projecting its future state and anticipated return (Saroja & D, 2013).

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Financial analysis may be used to assess a potential customer's creditworthiness, a supplier's ability to fulfill long-term contract terms, and competitors' market performance (Penman, 2022).

Financial statements provide a starting point for financial analysis. By using these statements, partners such as value investors, management, and lenders can make informed investment and credit decisions Bernstein & Wild (2000). This allows an examination of Apollo Hospitals' financial performance over the past five years to assess its financial health (Chandra, P., 2019). By evaluating past and current performance through financial statements, the study aims to determine whether the company maintains a sound financial position and to forecast its future performance (Cooper & Schindler, 2014). Scientific methods fit into financial advisory services, highlighting how students can use internship experiences to develop their professional skills. In recognition of Apollo's tremendous accomplishments, the Indian government released a commemorative stamp—the first for a healthcare firm. Additionally, a stamp marking the 15th anniversary of Apollo Hospitals' first successful liver transplant in India was issued.

### Research Objectives

1. To examine the liquidity, profitability, and solvency ratios of Apollo Hospital.
2. To ascertain the liquidity position of Apollo Hospitals by employing the Motaal test.
3. To evaluate financial performance by using Du Pont analysis.
4. To propose interventions for the improvement in the liquidity position.

### LITERATURE REVIEW

It is widely recognized that financial statement analysis is a crucial method for assessing a company's solvency, profitability, liquidity, operational effectiveness, and overall health (Beaver, W. H., 1966). Because hospitals operate in a highly capital-intensive environment that requires significant investments in medical infrastructure, cutting-edge technologies, and qualified personnel, financial efficiency assumes greater importance in the healthcare sector (Gapenski & Reiter, 2016). To measure organizational performance and long-term sustainability, academics have used a variety of financial performance assessment methods, such as ratio analysis, the DuPont model, and liquidity assessment models (Maheshwari, S. N., & Maheshwari, S. K., 2021).

The DuPont Analysis is a widely used method for identifying the primary drivers of profitability by decomposing Return on Equity (ROE) into profit margin, asset turnover, and financial leverage (Horrigan, 1968; Soliman, 2008). Similarly, the Motaal holistic Test of Liquidity provides a multidimensional examination of liquidity by integrating multiple liquidity indicators into a single assessment, offering greater explanatory power than individual liquidity ratios (Motaal, 1977). Few studies have combined the Motaal Test with the DuPont framework to assess profitability and liquidity efficiency concurrently, especially in the Indian healthcare sector, even though both models have been used separately in studies examining corporate financial performance (Joshi, P., 2016).

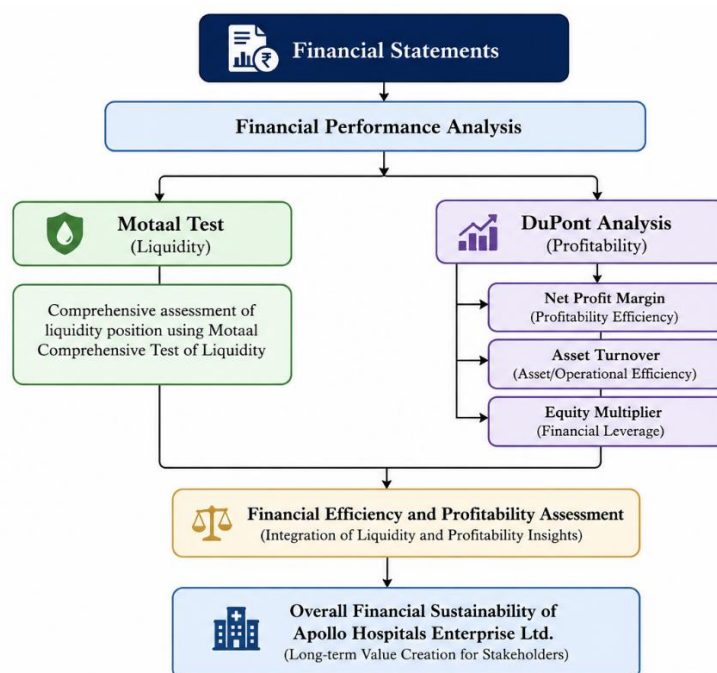
Through strategic growth, digital healthcare initiatives, and ongoing investments in medical infrastructure, Apollo Hospitals Enterprise Limited (AHEL), founded in 1983, has become one of India's top integrated healthcare providers (Apollo Hospitals Annual Report, 2024). Few studies have used an integrated analytical framework that combines profitability decomposition using the DuPont model with liquidity assessment using the Motaal Test, despite prior research examining hospitals' financial performance using traditional ratio analysis and profitability measures (Bhatia & Gupta, 2022). This limitation hampers a thorough understanding of how liquidity management affects profitability and overall financial efficiency in healthcare companies (Foster, G., 1986).

Therefore, the present study develops a conceptual framework that links financial efficiency (measured by the Motaal Test) with profitability performance (measured by the DuPont model) to

provide a holistic evaluation of Apollo Hospitals' financial performance (Kumar & Sharma, 2022). By integrating these complementary analytical models, the study seeks to address an important gap in the literature and contribute empirical evidence on the relationship among liquidity management, operational efficiency, and shareholder value creation within India's healthcare sector (Fraser & Ormiston, 2020).

A company's operational effectiveness, profitability, liquidity, and overall financial health can be assessed using financial statements (Gibson, 2021). Because hospitals operate in a capital-intensive environment with significant investments in infrastructure, technology, and human resources, financial efficiency is especially crucial in the healthcare sector (Gapenski & Reiter, 2016). Apollo Hospitals Enterprise Limited (AHEL), established in 1983, is one of India's largest integrated healthcare providers and has consistently demonstrated strong financial performance through strategic expansion, technological innovation, and diversified healthcare services (Apollo Hospitals Annual Report, 2024). As a result, evaluating its profitability and financial efficiency using well-known analytical models such as the Motaal Test and DuPont Analysis provides insight into its operational efficacy and financial sustainability (Helfert, 2001).

## Conceptual Framework



**Figure 1. Conceptual Framework**

Source: Developed by the authors based on: Motaal (1977); Horrigan (1968); Nissim and Penman (2001); Soliman (2008); Gapenski and Reiter (2016); Pandey (2021); Brigham and Ehrhardt (2022).

## Conceptual Integration of Liquidity and Profitability Model

Financial performance is a multidimensional concept that encompasses liquidity, solvency, operational efficiency, and profitability (Saleem, Q., & Rehman, R. U., 2011). Although traditional ratio analysis evaluates these dimensions separately, a comprehensive assessment requires an integrated analytical framework that explains how effective resource management contributes to sustainable financial performance (Brigham & Ehrhardt, 2022; Pandey, 2021).

The present study uses two complementary analytical models—the Motaal Comprehensive Test of Liquidity and the DuPont Analysis—to assess the financial performance of Apollo Hospitals

Enterprise Limited. The Motaal Test evaluates liquidity efficiency by assessing the firm's ability to maintain adequate working capital, manage inventories, and preserve liquid resources. Efficient liquidity management enables healthcare organizations to meet short-term obligations, ensure uninterrupted patient care, and optimize the use of current assets ([Gapenski & Reiter, 2016](#)).

However, liquidity alone does not guarantee financial success. Profitability depends on a firm's ability to convert available resources into earnings while maintaining operational efficiency. The DuPont model addresses this by decomposing Return on Equity (ROE) into Net Profit Margin, Asset Turnover, and Equity Multiplier, thereby identifying whether shareholder returns are primarily driven by operational profitability, efficient asset utilization, or financial leverage ([Soliman, 2008](#)).

The analytical logic of this study assumes that effective liquidity management supports operational continuity and efficient resource allocation, thereby enhancing profitability and shareholder returns ([Delen et al., 2013](#)). Thus, the Motaal Test assesses short-term financial efficiency, whereas the DuPont model evaluates long-term profitability and value creation ([Delen et al., 2013](#)). Together, these models provide a comprehensive framework for assessing the overall financial sustainability of Apollo Hospitals ([Higgins, 2019](#)). By integrating liquidity and profitability analyses, the study overcomes the limitations of relying on a single financial model and offers a more holistic understanding of corporate financial performance ([Mittal & Sadana, 2020](#)).

### **Motaal Test and Liquidity Efficiency**

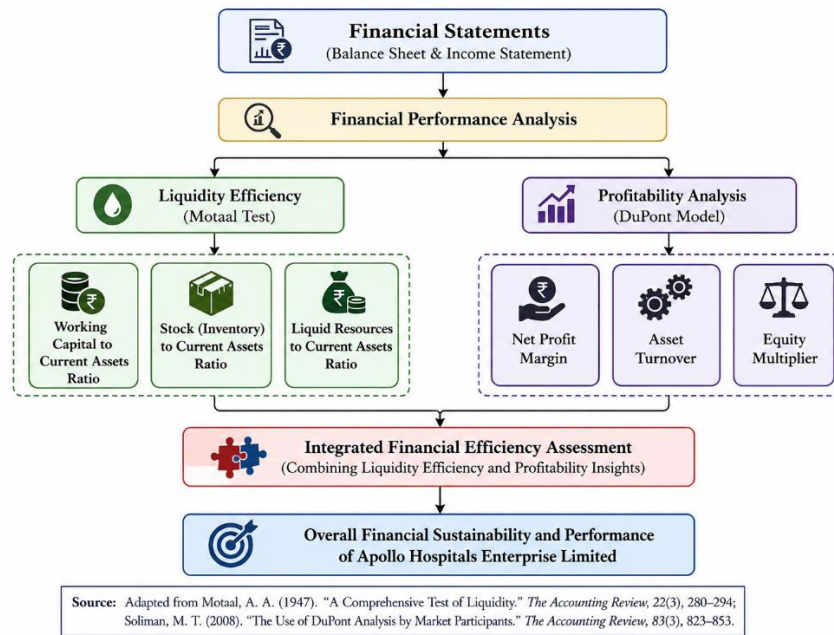
Liquidity management is a key factor in organizational stability, especially in healthcare institutions, where continuous service delivery depends on adequate working capital ([Nowicki, 2018](#)). While individual liquidity ratios offer valuable insights, they typically capture only one dimension of liquidity. The Motaal Comprehensive Test of Liquidity offers a broader evaluation by combining several liquidity indicators into a single composite ranking.

The Motaal Test, introduced by [A.A. Motaal \(1977\)](#) as a comprehensive approach for evaluating liquidity performance and assesses liquidity efficiency through three financial indicators:

1. Working Capital to Current Assets Ratio – indicates the extent to which current assets are supported by net working capital.
2. Stock (Inventory) to Current Assets Ratio – shows the proportion of current assets invested in inventories. A lower ratio reflects stronger liquidity because less capital is tied up in stock.
3. Liquid Resources to Current Assets Ratio – measures the share of highly liquid assets, such as cash and cash equivalents, in relation to total current assets.

Each ratio is ranked separately, and the final combined ranking reflects the firm's overall liquidity position. Companies with higher working capital ([Shin & Soenen, 1998](#)), lower reliance on inventory, and greater liquid resources receive better liquidity rankings ([Beaver, W. H. 1966](#)).

The Motaal Test is particularly useful for comparative financial analysis because it captures multiple dimensions of liquidity that a single ratio cannot fully measure ([Raheman & Nasr, 2007](#)). Therefore, this study applies the Motaal Test to assess the liquidity efficiency of Apollo Hospitals over the study period.



**Figure 2. Structure of Financial Performance Analysis**

### Financial Performance of Apollo Hospitals

Apollo Hospitals Enterprise Limited has emerged as India's leading healthcare provider, operating hospitals, pharmacies, diagnostic centers, and digital health platforms (White, G. I., Sondhi, A. C., & Fried, D., 2003). The company has consistently expanded its market presence while maintaining strong financial fundamentals (Apollo Hospitals Annual Report (2024)).

A study by Rao and Mishra (2022) found that Apollo Hospitals achieved significant growth in revenue, operating profits, and asset utilization over the previous decade. The study attributed this growth to strategic diversification and efficient management practices.

CRISIL Ratings (2024) reported that Apollo Hospitals has a strong financial profile marked by healthy cash flows, moderate leverage, and robust liquidity. Similarly, ICRA (2023) highlighted that the company's integrated healthcare ecosystem significantly contributes to earnings stability and profitability (Ohlson, J. A., 1980).

The healthcare sector's digital transformation has further strengthened Apollo Hospitals' financial performance. Deloitte (2023) found that digital healthcare solutions improve operational efficiency, reduce transaction costs, and enhance patient engagement. Apollo's investments in telemedicine, electronic health records, and digital pharmacy services have positively affected revenue and profitability (Apollo Hospitals Annual Report, 2024).

Research by Sharma and Verma (2023) further demonstrated that Apollo Hospitals effectively manages working capital, thereby supporting expansion initiatives without compromising liquidity or financial stability (Narasimhan & Murty, 2001).

### RESEARCH METHOD

This study uses a quantitative descriptive research design and secondary financial data to examine the financial efficiency and profitability of Apollo Hospitals Enterprise Limited (AHEL). This approach is appropriate because the analysis relies on numerical data from the company's audited financial statements, enabling an objective evaluation of its financial performance over the selected study period.

To achieve the study objectives, financial statement analysis is used to assess key dimensions of performance, including liquidity, solvency, operational efficiency, and profitability. The analysis



incorporates widely accepted financial ratios and two established analytical models—the Motaal Comprehensive Test of Liquidity and the DuPont Analysis. While the Motaal Test provides a comprehensive assessment of the company's liquidity position, the DuPont framework decomposes Return on Equity (ROE) into its underlying components to identify the drivers of profitability and shareholder returns. The integration of these analytical techniques enables a more comprehensive evaluation of Apollo Hospitals' overall financial performance and long-term financial sustainability.

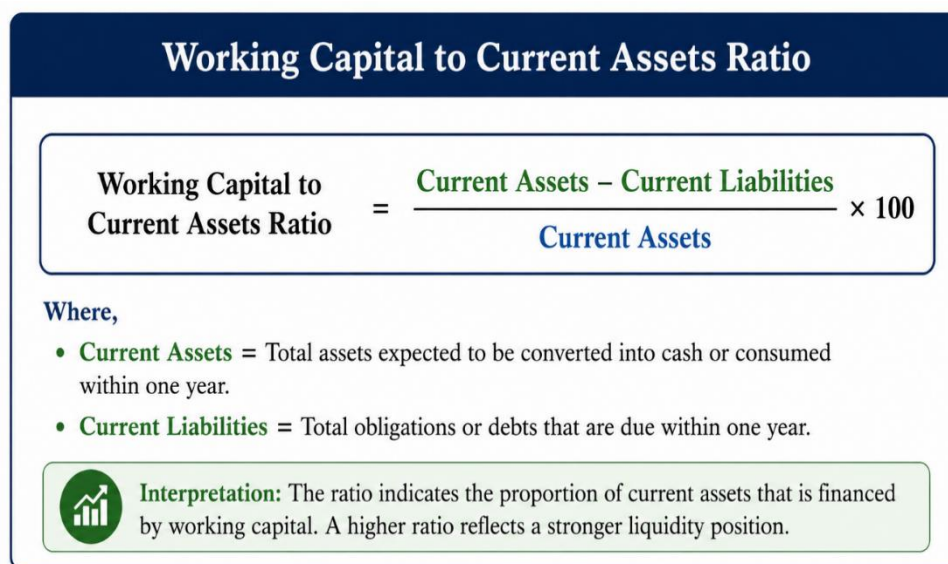


Figure 3. Ratio Formula

### DuPont Analysis

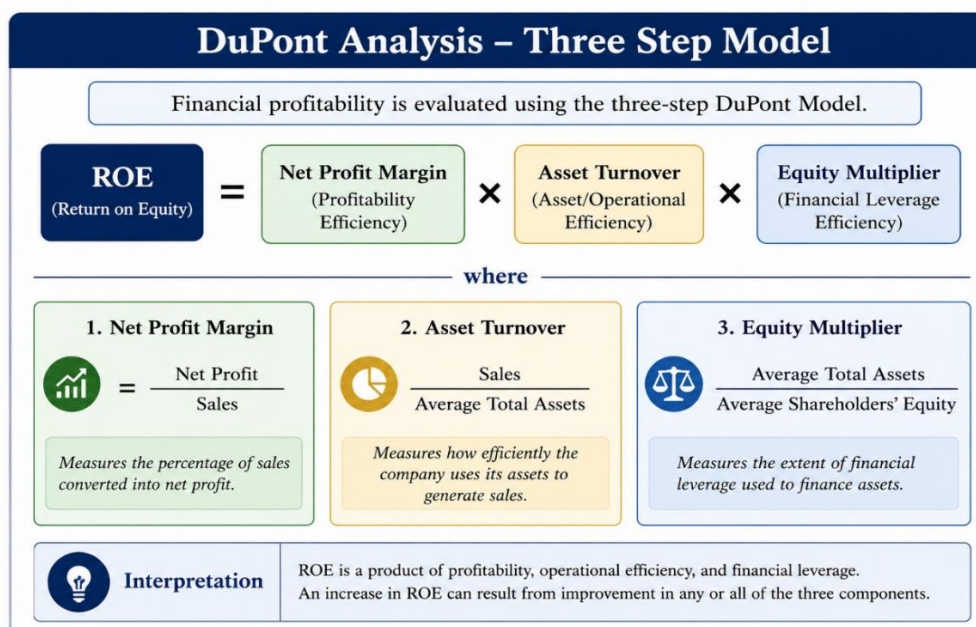


Figure 4. Dupont Analysis Formula

### Data Analysis Procedure

Apollo Hospitals Enterprise Limited's consolidated annual reports served as the source for the audited financial data. Microsoft Excel was used to compute key financial ratios. To assess the

company's short- and long-term financial position, liquidity and solvency ratios were calculated first. The Motaal Comprehensive Test was then used to evaluate overall liquidity efficiency through composite ranking. To assess the primary drivers of profitability, the DuPont Analysis was used to decompose Return on Equity into its three fundamental components: Net Profit Margin, Asset Turnover, and Equity Multiplier.

## Data Analysis

**Table 1.** Balance Sheet of Apollo Hospital

| <b>BALANCE SHEET OF APOLLO (in Rs. cr.)</b> | <b>MAR-22</b> | <b>Mar-21</b> | <b>Mar-20</b> | <b>Mar-19</b> | <b>Mar-18</b> |
|---------------------------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>EQUITIES AND LIABILITIES</b>             |               |               |               |               |               |
| <b>SHAREHOLDER'S FUNDS</b>                  |               |               |               |               |               |
| Equity Share Capital                        | 71.9          | 71.9          | 69.6          | 69.56         | 69.56         |
| TOTAL SHARE CAPITAL                         | 71.9          | 71.9          | 69.6          | 69.56         | 69.56         |
| Reserves and Surplus                        | 6038.8        | 5129.6        | 3918.8        | 3813.8 5      | 3633.9 4      |
| TOTAL RESERVES AND SURPLUS                  | 6038.8        | 5129.6        | 3918.8        | 3813.8 5      | 3623.9 4      |
| TOTAL SHAREHOLDERS FUNDS                    | 6110.7        | 5201.5        | 3988.4        | 3883.4        | 3693.5        |
| <b>NON-CURRENT LIABILITIES</b>              |               |               |               |               |               |
| Long Term Borrowings                        | 1908.1        | 1965.4        | 2499.7        | 2597.3        | 2547.1        |
| Deferred Tax Liabilities [Net]              | 524.1         | 297.8         | 291.3         | 310.37        | 246.61        |
| Other Long-Term Liabilities                 | 676.1         | 743.2         | 1421.8        | 4.15          | 9.79          |
| Long Term Provisions                        | 0             | 0             | 0             | 0             | 0             |
| TOTAL NON-CURRENT LIABILITIES               | 3108.3        | 3006.4        | 4212.8        | 2911.8 5      | 2803.5        |
| <b>CURRENT LIABILITIES</b>                  |               |               |               |               |               |
| Short Term Borrowings                       | 116.1         | 0             | 456.9         | 455.69        | 349.53        |
| Trade Payables                              | 653.2         | 849.6         | 727.2         | 536.43        | 473.39        |
| Other Current Liabilities                   | 349.1         | 574.2         | 650.5         | 544.93        | 424.64        |
| Short Term Provisions                       | 70.8          | 97.5          | 108.4         | 96.04         | 67.52         |
| TOTAL CURRENT LIABILITIES                   | 1189.2        | 1521.3        | 1943          | 1633.0 8      | 1315.0 7      |
| TOTAL CAPITAL AND LIABILITIES               | 10,408.2 0    | 9,729.2 0     | 10,144. 20    | 8,428.3 5     | 7,812.0 7     |
| <b>ASSETS</b>                               |               |               |               |               |               |
| <b>NON-CURRENT ASSETS</b>                   |               |               |               |               |               |
| Tangible Assets                             | 5100.6        | 4895.6        | 5937.8        | 3844.7 7      | 3630.1 3      |
| Intangible Assets                           | 20.1          | 142.4         | 117.9         | 125.04        | 131.39        |
| Capital Work-In-Progress                    | 22.4          | 196.9         | 200.1         | 818.81        | 698.3         |
| Other Assets                                | 0             | 0             | 0             | 0             | 0             |
| FIXED ASSETS                                | 5144.6        | 5257.2        | 6282.3        | 4788.6 2      | 4459.8 2      |
| Non-Current Investments                     | 1558.3        | 1134.5        | 1048.8        | 1072.7 1      | 898.27        |
| Deferred Tax Assets [Net]                   | 0             | 0             | 0             | 0             | 0             |
| Long Term Loans and Advances                | 32            | 31.2          | 38.2          | 19.59         | 0             |
| Other Non-Current Assets                    | 218.1         | 268.6         | 459.9         | 544.41        | 474.16        |
| TOTAL NON-CURRENT                           | 6953          | 6691.5        | 7829.2        | 937.89        | 6425.3 3      |

| ASSETS                        |           |          |           |          |          |
|-------------------------------|-----------|----------|-----------|----------|----------|
| CURRENT ASSETS                |           |          |           |          |          |
| Current Investments           | 500.8     | 956.2    | 27.5      | 12.57    | 2.01     |
| Inventories                   | 146.8     | 210.3    | 707.4     | 561.15   | 538.68   |
| Trade Receivables             | 824.2     | 1204     | 966.1     | 909.32   | 749.94   |
| Cash And Cash Equivalents     | 556.9     | 408.2    | 3456.5    | 277.66   | 294.56   |
| Short Term Loans and Advances | 4.1       | 5.3      | 7         | 8        | 0        |
| Other Current Assets          | 1422.4    | 253.7    | 260.5     | 234.34   | 394.65   |
| TOTAL CURRENT ASSETS          | 3455.2    | 3037.7   | 2315      | 2003.0 2 | 1979.8 3 |
| TOTAL ASSETS                  | 10,408.20 | 9,729.20 | 10,144.20 | 8,428.35 | 7,812.07 |

Source: <https://www.apollohospitals.com>

Table 1 presents a summary of the balance sheet of Apollo Hospitals Enterprise Limited for the five-year period from FY2018–2019 to FY2022–2023. The data indicate notable changes in the company's financial position regarding its assets, liabilities, and shareholders' equity. The balance sheet reflects a strengthening financial position over the five-year period, characterized by growth in shareholders' funds and total assets, increased long-term investments, and a gradual reduction in debt obligations. These changes provide the basis for evaluating the company's liquidity, solvency, and profitability in the subsequent financial ratio analysis.

### Liquidity Ratios

**Table 2.** Liquidity Ratios of Apollo

| Year | CR       | QR       | ITR      |
|------|----------|----------|----------|
| 2018 | 1.51     | 1.51     | 13.33    |
| 2019 | 1.23     | 1.23     | 14.86    |
| 2020 | 1.19     | 0.83     | 13.85    |
| 2021 | 2        | 1.86     | 43.52    |
| 2022 | 2.91     | 2.78     | 0.00     |
| Mean | 1.768    | 1.642    | 17.112   |
| S.D. | 0.715556 | 0.739777 | 15.97043 |
| C.V. | 40.47261 | 45.05341 | 93.32884 |

Source: Compiled by Author

Table 2 presents the liquidity ratios of Apollo Hospitals Enterprise Limited for FY2018 to FY2022. The analysis includes the Current Ratio (CR), Quick Ratio (QR), and Inventory Turnover Ratio (ITR), which together assess the company's ability to meet short-term obligations and manage inventory efficiently. The liquidity ratios suggest that Apollo Hospitals' short-term financial position improved in the latter part of the study period, particularly in FY2021 and FY2022. The Current Ratio and Quick Ratio indicate stronger liquidity, while the significant fluctuations in the Inventory Turnover Ratio warrant further examination before drawing conclusions about inventory management.

### Motaal Comprehensive Test of Liquidity

The Motaal Comprehensive Test of Liquidity is a composite liquidity assessment that evaluates a firm's short-term financial strength by integrating multiple liquidity indicators into a single ranking framework. Unlike conventional liquidity ratios, which assess only one aspect of liquidity, the Motaal Test provides a more comprehensive evaluation by considering working capital, inventory investment, and liquid resources simultaneously. The method has been widely



used in comparative financial performance studies because it offers an overall measure of liquidity efficiency (Mandal & Dutta, 2010; Renuka, 2016; Mittal & Singh, 2023).

**Table 3. Motaal Comprehensive Test**

# MOTAAL COMPREHENSIVE TEST OF LIQUIDITY

The Motaal Test evaluates a firm's overall liquidity position by combining three liquidity ratios into a single composite ranking.

## LIQUIDITY RATIOS AND FORMULAS

### 1. Working Capital to Current Assets Ratio

$$= \frac{\text{Current Assets} - \text{Current Liabilities}}{\text{Current Assets}} \times 100$$

Working Capital = Current Assets – Current Liabilities

### 2. Stock to Current Assets Ratio

$$= \frac{\text{Inventory}}{\text{Current Assets}} \times 100$$

(Lower value indicates better liquidity)

### 3. Liquid Resources to Current Assets Ratio

$$= \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Assets}} \times 100$$

Liquid Resources = Current Assets – Inventory

## RANKING RULES



1. Working Capital to Current Assets Ratio  
(Higher value is better)  
Rank in **DESCENDING** order



2. Stock to Current Assets Ratio  
(Lower value is better)  
Rank in **ASCENDING** order



3. Liquid Resources to Current Assets Ratio  
(Higher value is better)  
Rank in **DESCENDING** order



Add the individual ranks of the three ratios to obtain the composite score (Total Rank).  
The year with the **LOWEST** composite score is considered to have the strongest overall liquidity position.

| Year | Working Capital to Current Assets Ratio (%)<br>(Higher is Better) | Rank (↓) | Stock to Current Assets Ratio (%)<br>(Lower is Better) | Rank (↑) | Liquid Resources to Current Assets Ratio (%)<br>(Higher is Better) | Rank (↓) | Total Rank (Sum) | Ultimate Rank |
|------|-------------------------------------------------------------------|----------|--------------------------------------------------------|----------|--------------------------------------------------------------------|----------|------------------|---------------|
| 2018 | 0.27                                                              | 3        | 0.27                                                   | 3        | 0.72                                                               | 3        | 9                | 3             |
| 2019 | 0.28                                                              | 2        | 0.28                                                   | 4        | 0.71                                                               | 4        | 10               | 4             |
| 2020 | 0.31                                                              | 1        | 0.31                                                   | 5        | 0.69                                                               | 5        | 11               | 5             |
| 2021 | 0.07                                                              | 4        | 0.07                                                   | 2        | 0.93                                                               | 2        | 8                | 2             |
| 2022 | 0.04                                                              | 5        | 0.04                                                   | 1        | 0.95                                                               | 1        | 7                | 1             |

Note: ↓ = Descending Order (Higher is better) | ↑ = Ascending Order (Lower is better)

Table 3 presents the results of the Motaal Comprehensive Test of Liquidity for Apollo Hospitals Enterprise Limited from FY2018–2019 to FY2022–2023. The Working Capital to Current Assets Ratio declined from 0.31 in FY2020 to 0.04 in FY2022, while the Liquid Resources to Current Assets Ratio increased from 0.69 to 0.95 over the same period. The Stock-to-Current-Assets Ratio trended downward, indicating a lower share of inventory in current assets. Based on the composite ranking of the three liquidity indicators, FY2022 achieved the strongest overall liquidity position (Rank 1) with the lowest total score of 7, whereas FY2020 recorded the weakest liquidity position (Rank 5) with the highest composite score of 11. These results provide a comparative assessment of Apollo Hospitals' liquidity performance over the study period.

### Solvency Ratios

Solvency ratios measure a company's ability to meet its long-term financial obligations and indicate the extent to which its assets are financed by debt and equity (Satryo et al., 2017). These ratios provide valuable insights into a firm's long-term financial stability and risk-bearing capacity. The present study uses the Debt-to-Equity Ratio, Debt-to-Asset Ratio, and Interest Coverage Ratio (ICR) to assess the solvency position of Apollo Hospitals Enterprise Limited over the study period.

**Table 4. Solvency Ratios**

| Years | Debt/Equity Ratio (%) | Debt/Asset Ratio | ICR  |
|-------|-----------------------|------------------|------|
| 2018  | 101.58                | 38.35            | 1.58 |
| 2019  | 103.50                | 37.57            | 2.14 |
| 2020  | 100.31                | 29.54            | 2.24 |
| 2021  | 63.65                 | 25.66            | 1.49 |
| 2022  | 43.16                 | 18.40            | 5.17 |

Sources: <http://www.topstockresearch.com>

Table 4 shows that the Debt-to-Equity Ratio declined steadily from 103.50 in FY2019 to 43.16 in FY2022, reflecting a lower share of debt relative to shareholders' equity. The Debt-to-Asset Ratio also decreased over the period, indicating that a smaller share of total assets was financed by debt. The Interest Coverage Ratio improved to 5.17 in FY2022, suggesting a stronger ability to meet interest obligations from operating earnings. Overall, the solvency ratios indicate an improvement in the company's long-term financial position over the study period.

### Profitability Ratios

Profitability ratios assess a company's ability to generate earnings from its assets, equity, and operations. These ratios measure the efficiency with which management uses available resources to generate profits (Suresh & Prakash, 2023). In this study, Return on Assets (ROA), Return on Equity (ROE), Asset Turnover (AT), Earnings per Share (EPS), and Net Profit Margin (NPM) are used to evaluate the profitability of Apollo Hospitals Enterprise Limited.

**Table 5.** Profitability Ratios

| Year | ROA  | ROE   | AT   | EPS   | NPM  |
|------|------|-------|------|-------|------|
| 2018 | 1.36 | 3.61  | 0.96 | 8.44  | 0.71 |
| 2019 | 2.57 | 7.08  | 1.05 | 16.97 | 2.07 |
| 2020 | 4.01 | 13.62 | 0.99 | 32.70 | 3.86 |
| 2021 | 1.31 | 3.26  | 0.92 | 10.74 | 1.28 |
| 2022 | 8.00 | 18.77 | 0.56 | 73.42 | 7.50 |

Sources: <https://www.moneycontrol.com>

Table 5 shows that the profitability ratios fluctuated over the five-year study period. Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS), and Net Profit Margin (NPM) peaked in FY2022, indicating stronger profitability that year. In contrast, the Asset Turnover Ratio declined to 0.56 in FY2022, reflecting lower asset utilization than in earlier years. Overall, the profitability ratios capture changes in the company's financial performance over the study period and provide a descriptive assessment of its profitability trends.

### DuPont Analysis

DuPont Analysis is a widely accepted method for evaluating financial performance that decomposes Return on Equity (ROE) into three components: Net Profit Margin, Asset Turnover Ratio, and Equity Multiplier (Soliman, 2008; Pandey, 2007). The model offers a comprehensive assessment of a firm's profitability, operational efficiency, and financial leverage, helping researchers and investors identify the underlying drivers of shareholder returns (Nissim & Penman, 2001). Recent studies have reaffirmed the DuPont framework's usefulness for evaluating financial performance, comparing firms across industries, and supporting strategic financial decision-making (Wijesundera et al., 2022; Kartikasari & Merianti, 2023).

$$ROE = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$$

**Table 6.** Du Pont Analysis

| Financial Year | Net Profit Margin (%) | Asset Turnover Ratio (Times) | Equity Multiplier (Times) |
|----------------|-----------------------|------------------------------|---------------------------|
| 2018           | 0.71                  | 0.9571                       | 1.36                      |
| 2019           | 2.07                  | 1.0473                       | 2.57                      |

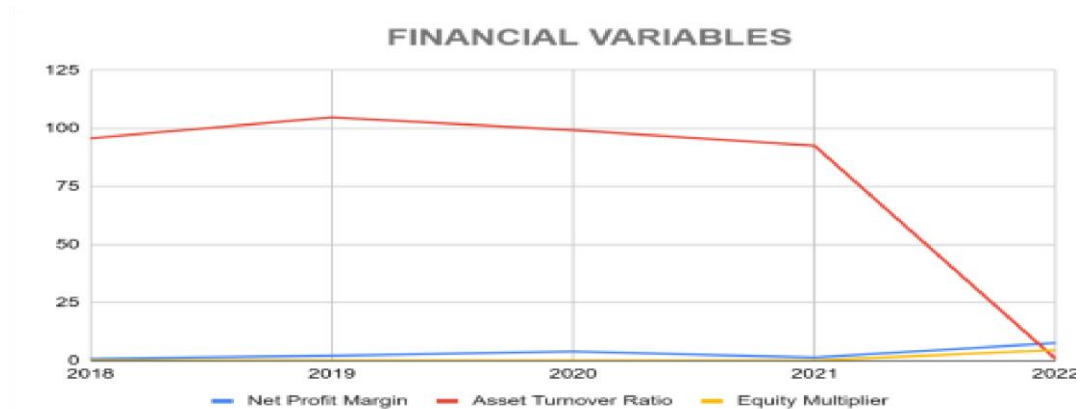
|      |      |        |      |
|------|------|--------|------|
| 2020 | 3.86 | 0.9919 | 4.01 |
| 2021 | 1.28 | 0.9249 | 1.31 |
| 2022 | 7.5  | 0.56   | 8    |

Source: Compiled by the author based on the Annual Reports of Apollo Hospitals Enterprise Limited (2018–2019 to 2022–2023).

Table 6 presents the DuPont components of Apollo Hospitals Enterprise Limited for 2018–2022. The analysis shows noticeable fluctuations across all three components over the five-year period. The Net Profit Margin rose steadily from 0.71% in 2018 to 3.86% in 2020, reflecting improved operational profitability. However, it fell sharply to 1.28% in 2021, likely due to higher operating costs and pandemic-related challenges affecting healthcare operations. In 2022, the Net Profit Margin rose significantly to 7.50%, indicating substantial improvement in earnings performance and cost efficiency.

The Asset Turnover Ratio remained relatively stable from 2018 to 2021, suggesting consistent use of assets to generate revenue. However, the ratio declined significantly in 2022, indicating that the company generated less revenue per unit of assets. This decline may be associated with a significant expansion of the company's asset base through investments in hospitals, medical equipment, digital healthcare infrastructure, or acquisitions, whose financial benefits may be realized over a longer period.

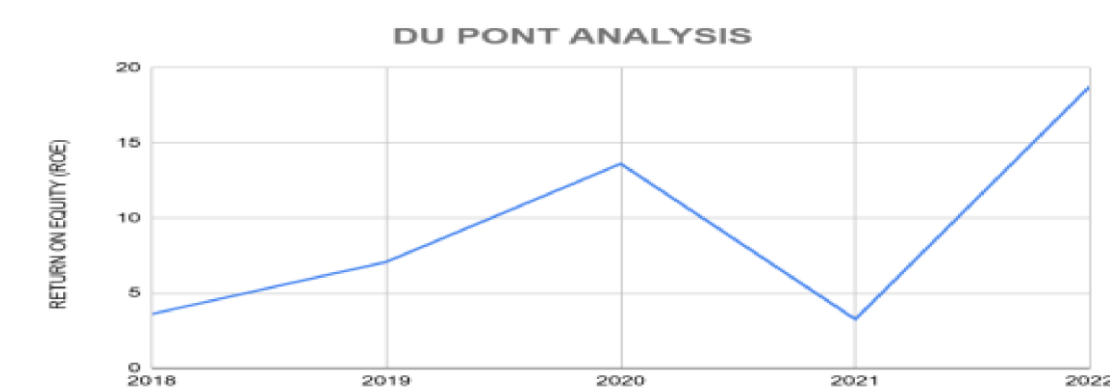
The Equity Multiplier varied considerably over the study period, rising from 1.36 in 2018 to 4.01 in 2020, falling to 1.31 in 2021, and then surging to 8.00 in 2022. The sharp 2022 increase indicates greater reliance on debt financing relative to shareholders' equity. While higher financial leverage can enhance shareholder returns when earnings remain strong, it also increases financial risk due to higher debt obligations.



**Figure 5.** Financial variables in DuPont Analysis of Apollo hospital.

Figure 5 illustrates the trends in the three DuPont components over the study period. The figure shows that the remarkable improvement in profitability in 2022 was accompanied by a significant increase in financial leverage, while operational efficiency, as reflected by the Asset Turnover Ratio, weakened. This suggests that Apollo Hospitals improved financial performance in 2022 was driven primarily by higher profit margins and increased leverage rather than by improvements in asset utilization. Therefore, sustaining future profitability will require the company to improve asset efficiency while maintaining prudent debt management. In 2022, the company experienced a strong increase in profitability (higher Net Profit Margin), but asset efficiency dropped significantly (low Asset Turnover Ratio). The sharp rise in the Equity Multiplier suggests the company took on substantial debt, which may have influenced profitability. If managed

well, this leverage can boost growth, but it also increases financial risk.



**Figure 6.** DuPont Analysis of Apollo Hospital using ROE

Figure 2 presents the Return on Equity (ROE) calculated using the DuPont model. ROE rose from 3.61% in 2018 to 7.08% in 2019 and to 13.62% in 2020, indicating improved profitability, efficient asset utilization, and effective use of financial leverage. However, ROE fell sharply to 3.26% in 2021, reflecting reduced profitability and weaker financial performance during the pandemic. In 2022, ROE increased substantially to 18.77%, the highest value recorded during the study period. This significant improvement can be attributed to the combined effect of a higher Net Profit Margin and a considerably higher Equity Multiplier, despite the decline in Asset Turnover.

Overall, the DuPont analysis shows that Apollo Hospitals achieved a strong recovery in financial performance after the challenges of 2021. The company's exceptional ROE in 2022 reflects improved profitability and effective use of financial leverage. However, the decline in asset turnover signals the need for more efficient asset utilization to ensure sustainable long-term growth. Management should therefore focus on balancing profitability, operational efficiency, and financial leverage to maintain strong shareholder returns while minimizing financial risk.

## FINDINGS AND DISCUSSION

This study examined the financial performance of Apollo Hospitals Enterprise Limited from FY2018–2019 to FY2022–2023 using financial ratio analysis, the Motaal Test, and the three-step DuPont Model. Overall, the results indicate that the company maintained a fairly healthy liquidity position throughout the study period. The Current Ratio and Quick Ratio both improved in the later years, suggesting that the company became better at meeting its short-term obligations. The Motaal Test also showed an interesting trend: even though the Working Capital to Current Assets ratio declined over time, the share of liquid assets within current assets increased. As a result, the company's overall liquidity ranking improved in FY2022–2023.

The solvency position also showed steady improvement. Both the Debt-to-Equity Ratio and the Debt-to-Asset Ratio declined during the study period, indicating that the company relied less on borrowed funds and more on its own resources. In addition, the Interest Coverage Ratio rose sharply in FY2022–2023, meaning the company was much better positioned to meet its interest payments from operating profits.

The profitability results were also encouraging. Return on Equity (ROE), Return on Assets (ROA), Earnings per Share (EPS), and Net Profit Margin (NPM) all improved noticeably in FY2022–2023, indicating stronger earnings performance and better returns for shareholders. However, the Asset Turnover Ratio remained relatively low, suggesting that the company's profits grew faster than its asset efficiency.

The three-step DuPont Analysis provided a clearer picture of what drove changes in Return on Equity. Apollo Hospitals' ROE fluctuated over the study period, rising from 3.61% in 2018 to 7.08% in 2019 and 13.62% in 2020, then falling to 3.26% in 2021 before climbing sharply to 18.77% in 2022. This pattern indicates that the strong improvement in ROE in FY2022–2023 was primarily driven by a higher Net Profit Margin, which reached 7.50% and reflected better operating performance. The Asset Turnover Ratio declined in the final year, pointing to weaker efficiency in generating revenue from assets. At the same time, the Equity Multiplier increased to 8.00, indicating greater use of financial leverage. In simple terms, the rise in ROE came mostly from better profitability and higher leverage, while asset efficiency played a smaller role. Taken together, the findings suggest that Apollo Hospitals performed well financially, with strong liquidity, improving profitability, and a more stable solvency position, although there is still room to improve asset utilization.

## CONCLUSIONS

This study assessed the financial performance of Apollo Hospitals Enterprise Limited from FY2018–2019 to FY2022–2023 using financial ratio analysis, the Motaal Test, and the three-step DuPont Analysis. The overall picture is positive. The company appears to have maintained a strong financial position throughout the study period, supported by improved liquidity management, rising solvency, and stronger profitability in the later years.

The Motaal Test provided a useful, more detailed view of liquidity by combining several liquidity indicators into a single ranking system. The results show that the company's liquidity position improved over time, mainly because the proportion of liquid assets within current assets increased, even though working capital fluctuated. Similarly, the solvency analysis points to a gradual strengthening of the capital structure, as debt ratios declined and the Interest Coverage Ratio improved significantly. This reflects lower financial risk and greater stability.

The DuPont Analysis helped explain the drivers of changes in shareholder returns. It showed that Return on Equity reached its highest level of 18.77% in FY2022–2023, mainly because of a stronger Net Profit Margin and a higher Equity Multiplier, which indicates more effective use of financial leverage. At the same time, the relatively low Asset Turnover Ratio suggests that asset efficiency still needs attention. While leverage supported shareholder returns, the company will need to maintain a careful balance between borrowing and operational efficiency if it wants to sustain this performance in the long run.

In conclusion, Apollo Hospitals Enterprise Limited showed resilience and sound financial management during the study period. By combining traditional ratio analysis with the Motaal Test and the DuPont Model, the study offers a more complete view of financial performance, covering liquidity, solvency, profitability, efficiency, and shareholder value creation.

## LIMITATION & FURTHER RESEARCH

When interpreting the findings, it is important to keep this study's limitations in mind.

First, the study focuses solely on Apollo Hospitals Enterprise Limited, a single listed healthcare company. As a result, the findings cannot be generalized to the entire healthcare sector or to companies operating in different financial or regulatory settings.

Second, the study relies entirely on secondary data from the company's audited annual reports for FY2018–2019 to FY2022–2023. Therefore, the accuracy of the findings depends on the completeness and reliability of those published financial statements.

Third, the study uses ratio analysis, the Motaal Test, and the three-step DuPont Model to assess financial performance. These tools are useful for understanding liquidity, solvency, profitability, and shareholder return, but they do not capture qualitative factors such as

management quality, corporate governance, patient satisfaction, service quality, technological changes, regulatory developments, or competition, all of which can also affect performance.

Fourth, the five-year period covered in the study may not be long enough to reflect broader financial trends or major structural changes in the healthcare industry. The period may also have been influenced by unusual events such as the COVID-19 pandemic, which are not separately analyzed in the study.

Finally, the study is descriptive in nature and does not use statistical or econometric methods to test cause-and-effect relationships between financial variables. As a result, the findings should be understood as observations of financial performance rather than proof of causation.

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