

Impact of Mergers and Acquisitions on Profitability and Solvency in the Indian Petrochemical Sector: Evidence from Reliance Industries Ltd

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Abstract

This paper examines how mergers and acquisitions (M&A) influenced the financial performance of Reliance Industries Limited (RIL) in the Indian petrochemical sector. Using a longitudinal case-study design and secondary data compiled in the attached source document, the study evaluates three strategic corporate events: the 2002 merger of Reliance Petroleum Limited (RPL) with RIL, the 2008 integration of the Nagothane and Dahej manufacturing complexes, and the 2012 acquisition of the Naphtha Cracker business. For each event, five years of pre-event and five years of post-event financial ratios were compared. The analysis focuses on profitability (gross profit, net profit, operating profit, return on capital employed, and price-earnings ratio), short-term solvency (current ratio and cash ratio), and long-term solvency (debt-equity ratio, proprietary ratio, and total long-term solvency ratio). The findings show a clear post-event improvement in profitability and liquidity across all three transactions. On average, profitability indicators rose substantially after each event, investor confidence strengthened, and short-term liquidity improved. Long-term solvency also improved in broad terms, although the consistent rise in debt-equity ratios indicates that financial strengthening was accompanied by higher leverage. Among the three events, the 2008 asset integration produced the most balanced and pronounced gains across performance categories. The study concludes that M&A served as a powerful strategic instrument for scale expansion, vertical integration, and operational efficiency in RIL. The paper contributes transaction-level evidence from a leading Indian petrochemical firm and offers practical insights for managers, investors, and policymakers assessing the financial consequences of consolidation in capital-intensive industries.

Keywords: mergers and acquisitions, petrochemical sector, financial performance, profitability, liquidity, solvency, Reliance Industries Limited

1. Introduction

Mergers and acquisitions have become an important strategic route through which firms pursue growth, market expansion, vertical integration, technological capability, and financial consolidation. In India, these transactions have been especially visible in industries that require high capital investment and large-scale operational integration, including the petrochemical and energy sectors. Within this context, Reliance Industries Limited (RIL) offers a particularly meaningful case because its expansion has been

driven not only by organic growth but also by strategically timed restructuring, integration, and acquisition decisions.

The attached source material focuses on major transactions associated with Reliance Petrochemical and the broader Reliance group. Its core concern is whether these corporate actions improved profitability, short-term solvency, and long-term solvency. The raw material in the source document contains useful financial information, but it requires substantial rewriting, conceptual tightening, and structural refinement before it can resemble a publishable research paper. The present manuscript therefore reorganizes and rewrites the material into a coherent scholarly article with appropriate headings, analytical flow, and original prose.

This paper studies three major strategic events: the 2002 merger of Reliance Petroleum Limited (RPL) with RIL, the 2008 integration of the Nagothane and Dahej manufacturing complexes, and the 2012 acquisition of the Naphtha Cracker business. Together, these events illustrate how corporate restructuring can influence financial outcomes in a large Indian petrochemical enterprise. The study is important because it connects firm-level restructuring with performance metrics that matter to managers, creditors, shareholders, and policy observers.

2. Background and Industry Context

The petrochemical sector occupies a central position in industrial development because it supplies feedstock and intermediate inputs for plastics, packaging, textiles, agriculture, automobiles, and many other manufacturing activities. In a country such as India, where industrial expansion is closely tied to infrastructure, energy, and downstream manufacturing, the efficiency of petrochemical firms has economy-wide implications.

RIL has emerged as one of the most influential companies in this space. Its trajectory reflects a deliberate strategy of building scale, strengthening refining and petrochemical integration, improving feedstock access, and extending operational control across the value chain. The company's expansion through mergers, acquisitions, and strategic asset integration is therefore not merely a firm-level story; it also reflects broader trends of consolidation, competitiveness, and strategic restructuring in Indian industry.

The merger of RPL with RIL improved consolidation in the group's petrochemical operations. The later integration of the Nagothane and Dahej manufacturing complexes reinforced manufacturing capability and operating scale. The subsequent acquisition of the Naphtha Cracker business further strengthened input security and vertical integration. These events make RIL a useful case for examining whether M&A activity translates into measurable financial improvement.

3. Review of Literature

Existing literature generally describes M&A as a strategic tool for acquiring resources, achieving economies of scale, improving market power, and accelerating diversification. Studies in the Indian context show that M&A activity has often been used to respond to competitive pressure, liberalization, and the need for rapid expansion (Joshi et al., 2020; Rao & Dhar, 2021).

However, the effect of M&A on financial performance is not always uniform. Some studies report improvements in profitability, market valuation, and strategic positioning after mergers, while others find mixed or temporary effects due to integration costs, cultural mismatch, debt burden, or sector-specific constraints (Malik et al., 2022; Shah & Butt, 2020; Julasaria & Mandal, 2022). This suggests

that the impact of M&A cannot be assumed; it must be tested in specific organizational and industry settings.

Research on the oil, gas, and petrochemical segments in India indicates that integration can enhance operational efficiency and market expectations, especially when it supports downstream and upstream coordination (Rashmi et al., 2021). Similarly, case-based discussions of Reliance emphasize the role of strategic integration, large-scale investment, and business restructuring in the company's growth story (Vijayakumar & Nethravathi, 2021).

The literature therefore provides two important insights. First, M&A can be financially beneficial when it creates scale and synergy. Second, outcomes are context-specific and should be evaluated using a multidimensional view of financial performance. This paper builds on that understanding by examining RIL through profitability, short-term solvency, and long-term solvency ratios rather than relying on one indicator alone.

4. Research Gap

Although several studies discuss M&A performance in India, relatively few provide transaction-level, longitudinal analysis of the petrochemical segment using pre- and post-event financial ratios. Existing research is also more likely to focus on shareholder wealth effects or broad sectoral patterns than on detailed operational-financial consequences of specific transactions. The present paper addresses this gap by examining three major RIL-related restructuring events across multiple dimensions of financial performance.

5. Research Objectives and Hypotheses

The study pursues the following objectives: (1) to examine the effect of the selected mergers and acquisitions on profitability; (2) to assess their effect on short-term solvency; (3) to evaluate their effect on long-term solvency; and (4) to compare the relative strength of these effects across the three strategic events under study.

Based on the literature and the strategic logic of integration, the study proceeds with three broad hypotheses: H1: the selected M&A events improved profitability; H2: the selected M&A events improved short-term solvency; and H3: the selected M&A events strengthened long-term solvency, although leverage effects may complicate the result.

6. Research Methodology

This study adopts an analytical case-study design based on secondary data. The underlying numerical information was taken from the attached source file, which compiles pre- and post-event ratio data for RIL and associated business units. The study is thus based on documented financial information rather than primary survey data.

Three strategic events were examined: (i) the 2002 merger of RPL into RIL, (ii) the 2008 integration of the Nagothane and Dahej manufacturing complexes, and (iii) the 2012 acquisition of the Naphtha Cracker business. For each event, five pre-event years and five post-event years were considered. This structure makes it possible to compare financial conditions before and after each strategic intervention.

The variables were grouped into three categories. Profitability was measured through gross profit ratio, net profit ratio, operating profit ratio, return on capital employed (ROCE), and price-earnings (P/E) ratio. Short-term solvency was captured through current ratio and cash ratio. Long-term solvency was assessed

through debt-equity ratio, proprietary ratio, and total long-term solvency ratio.

The primary analytical technique used in the paper is comparative ratio analysis based on pre- and post-event means. Absolute change and percentage change were computed to identify directional improvement or deterioration. This approach is appropriate because the source document primarily provides financial ratio series and because the purpose of the present paper is to produce a polished, publication-ready synthesis of the attached material. Where relevant, the interpretation of solvency explicitly distinguishes between healthy strengthening and increased leverage exposure.

As with all secondary-data studies, the findings should be interpreted within certain limits. The paper focuses on one large corporate group, uses ratio-based comparisons, and does not control for macroeconomic shocks or policy changes affecting the petrochemical industry during the observed periods. Nevertheless, the case remains analytically important because RIL represents one of the most influential examples of industrial consolidation in India.

6.1 Strategic events examined

Table 1. Strategic events and observation windows

Event	Description	Pre-event period	Post-event period
2002 merger	Reliance Petroleum Limited (RPL) merged into Reliance Industries Limited (RIL)	1997-98 to 2001-02	2002-03 to 2006-07
2008 integration	Nagothane and Dahej manufacturing complexes integrated into RIL operations	2002-03 to 2006-07	2008-09 to 2016-17
2012 acquisition	Naphtha Cracker (NCL) business acquired by RIL	2005-06 to 2011-12	2012-13 to 2020-21

Note. Observation windows are based on the data provided in the attached source document.

7. Results and Analysis

This section presents the pre-event and post-event mean values for the major financial ratios. The tables are based on the raw yearly figures contained in the attached document, recalculated to produce a clean and internally consistent publication-style presentation.

7.1 Event I: 2002 merger of Reliance Petroleum Limited into Reliance Industries Limited

Table 2. Pre- and post-merger mean ratios for the 2002 RPL–RIL merger

Variable	Pre-event Mean	Post-event Mean	Absolute Change	% Change
Gross Profit Ratio	16.7	28.84	12.14	72.68
Net Profit Ratio	20.81	34.97	14.17	68.09
Operating Profit Ratio	20.06	33.86	13.8	68.79
ROCE	21.28	35.69	14.4	67.67

P/E Ratio	19.5	33.03	13.53	69.35
Current Ratio	28.41	38.6	10.19	35.86
Cash Ratio	27.84	40.06	12.22	43.89
Debt-Equity Ratio	13.35	28.94	15.59	116.8
Proprietary Ratio	12.8	28.28	15.48	121.01
Total Long-term Solvency Ratio	15.1	31.01	15.91	105.39

Note. Source: author's calculations from the data contained in the attached document.

Table 3. Category-wise summary for the 2002 RPL–RIL merger

Category	Pre Mean	Post Mean	Change	% Change
Profitability (Gross, Net, Operating, ROCE, P/E)	19.67	33.28	13.61	69.17
Short-term Solvency (Current, Cash)	28.13	39.33	11.2	39.84
Long-term Solvency (Debt-Equity, Proprietary, Total LT Solvency)	13.75	29.41	15.66	113.93

Note. Long-term solvency should be interpreted cautiously because an increase in debt-equity ratio also indicates greater leverage.

The 2002 merger produced strong improvements across all profitability indicators. Mean gross profit ratio increased from 16.70 to 28.84, net profit ratio from 20.81 to 34.97, operating profit ratio from 20.06 to 33.86, ROCE from 21.28 to 35.69, and the P/E ratio from 19.50 to 33.03. This pattern indicates better operational performance, stronger returns on capital, and improved investor confidence after the merger.

Short-term solvency also improved. The current ratio rose from 28.41 to 38.60 and the cash ratio from 27.84 to 40.06, suggesting that the merged entity became better positioned to meet its short-term obligations. The improvement in liquidity is consistent with the expected benefits of consolidation, such as stronger cash generation and better resource pooling.

Long-term solvency ratios moved upward as well, but their interpretation requires nuance. The proprietary ratio and total long-term solvency ratio both increased, indicating a broader strengthening of the capital base and asset coverage. At the same time, the debt-equity ratio more than doubled. This suggests that while the merged enterprise became larger and financially stronger, part of that strength

was supported by higher leverage. Therefore, the post-merger outcome can be described as financially expansionary, but not free from long-term capital-structure risk.

7.2 Event II: 2008 integration of the Nagothane and Dahej manufacturing complexes

Table 4. Pre- and post-event mean ratios for the 2008 Nagothane–Dahej integration

Variable	Pre-event Mean	Post-event Mean	Absolute Change	% Change
Gross Profit Ratio	18.93	35.9	16.97	89.65
Net Profit Ratio	18.97	36.06	17.08	90.04
Operating Profit Ratio	20.39	41.01	20.62	101.16
ROCE	19.57	38.17	18.59	94.99
P/E Ratio	18.86	35.65	16.79	89.0
Current Ratio	19.81	38.98	19.18	96.81
Cash Ratio	19.04	36.27	17.23	90.51
Debt-Equity Ratio	18.19	33.29	15.11	83.05
Proprietary Ratio	19.68	38.52	18.85	95.77
Total Long-term Solvency Ratio	19.78	38.88	19.1	96.56

Note. Source: author’s calculations from the data contained in the attached document.

Table 5. Category-wise summary for the 2008 Nagothane–Dahej integration

Category	Pre Mean	Post Mean	Change	% Change
Profitability (Gross, Net, Operating, ROCE, P/E)	19.34	37.36	18.01	93.11
Short-term Solvency (Current, Cash)	19.42	37.62	18.2	93.72
Long-term Solvency (Debt-Equity, Proprietary, Total LT Solvency)	19.22	36.9	17.68	92.03

Note. The post-event period records the strongest broad-based gains among the three events studied.

The 2008 event produced the most pronounced and balanced gains across all financial categories. Profitability improved sharply, with gross profit ratio rising from 18.93 to 35.90, net profit ratio from

18.97 to 36.06, operating profit ratio from 20.39 to 41.01, ROCE from 19.57 to 38.17, and the P/E ratio from 18.86 to 35.65.

Short-term solvency nearly doubled in category-average terms. The current ratio improved from 19.81 to 38.98 and the cash ratio from 19.04 to 36.27. These figures indicate a substantial strengthening of liquidity management and internal financial flexibility after the integration of these manufacturing assets.

Long-term solvency also strengthened in overall terms. The proprietary ratio and total long-term solvency ratio increased markedly, pointing to a stronger capital and asset position. Nevertheless, the debt-equity ratio also rose sharply, confirming that growth and integration were accompanied by a greater reliance on debt financing. Even with this caveat, the 2008 event stands out as the most operationally transformative among the three cases.

7.3 Event III: 2012 acquisition of the Naphtha Cracker business

Table 6. Pre- and post-acquisition mean ratios for the 2012 Naphtha Cracker acquisition

Variable	Pre-event Mean	Post-event Mean	Absolute Change	% Change
Gross Profit Ratio	18.85	29.93	11.08	58.75
Net Profit Ratio	18.92	29.97	11.06	58.46
Operating Profit Ratio	20.88	31.39	10.51	50.32
ROCE	19.75	30.57	10.82	54.77
P/E Ratio	18.75	29.86	11.11	59.22
Current Ratio	20.08	30.81	10.73	53.46
Cash Ratio	19.0	30.04	11.03	58.07
Debt-Equity Ratio	17.83	29.19	11.36	63.74
Proprietary Ratio	19.9	30.68	10.78	54.19
Total Long-term Solvency Ratio	20.03	30.78	10.75	53.64

Note. Source: author's calculations from the data contained in the attached document.

Table 7. Category-wise summary for the 2012 Naphtha Cracker acquisition

Category	Pre Mean	Post Mean	Change	% Change
Profitability (Gross, Net, Operating, ROCE, P/E)	19.43	30.34	10.91	56.16
Short-term Solvency (Current, Cash)	19.54	30.42	10.88	55.7
Long-term Solvency (Debt-Equity, Proprietary, Total LT Solvency)	19.25	30.22	10.96	56.95

Note. The acquisition delivered moderate but consistent gains across all three performance dimensions. The 2012 acquisition also yielded a favourable post-acquisition profile, though the magnitude of improvement was lower than that observed for the 2008 event. Profitability indicators improved consistently: mean gross profit ratio rose from 18.85 to 29.93, net profit ratio from 18.92 to 29.97,

operating profit ratio from 20.88 to 31.39, ROCE from 19.75 to 30.57, and the P/E ratio from 18.75 to 29.86.

Short-term solvency improved meaningfully, with the current ratio rising from 20.08 to 30.81 and the cash ratio from 19.00 to 30.04. This indicates that the acquisition likely enhanced working-capital strength and immediate payment capacity.

The long-term solvency profile again showed both strengthening and leverage. The proprietary ratio and total long-term solvency ratio rose substantially, but the debt-equity ratio also increased from 17.83 to 29.19. This implies that the acquisition supported strategic expansion and asset reinforcement, yet also introduced a more debt-intensive capital structure.

7.4 Cross-event comparison

Table 8. Comparative category-wise summary across the three strategic events

Strategic event	Category	Pre Mean	Post Mean	Change	% Change
2002 merger of RPL into RIL	Profitability	19.67	33.28	13.61	69.17
2002 merger of RPL into RIL	Short-term solvency	28.13	39.33	11.2	39.84
2002 merger of RPL into RIL	Long-term solvency	13.75	29.41	15.66	113.93
2008 integration of Nagothane and Dahej complexes	Profitability	19.34	37.36	18.01	93.11
2008 integration of Nagothane and Dahej complexes	Short-term solvency	19.42	37.62	18.2	93.72
2008 integration of Nagothane and Dahej complexes	Long-term solvency	19.22	36.9	17.68	92.03
2012 acquisition of Naphtha Cracker (NCL)	Profitability	19.43	30.34	10.91	56.16
2012 acquisition of Naphtha Cracker (NCL)	Short-term solvency	19.54	30.42	10.88	55.7
2012 acquisition of Naphtha Cracker (NCL)	Long-term solvency	19.25	30.22	10.96	56.95

Note. Values represent category-wise mean averages derived from the respective ratio groups.

A comparison across events reveals several important patterns. First, every event improved profitability, short-term solvency, and broad solvency-related indicators. This supports the overall proposition that RIL’s restructuring and acquisition strategy created financial benefits.

Second, the 2008 integration of the Nagothane and Dahej complexes generated the strongest broad-based gains. Category-wise profitability increased by 93.11%, short-term solvency by 93.72%, and long-term solvency by 92.03%. This suggests that manufacturing integration generated exceptionally powerful operating and financial synergies.

Third, the 2002 merger generated very strong gains, but it also displayed the most dramatic increase in leverage. The long-term solvency category rose by 113.93% on average, but part of that increase reflected a sharp rise in the debt-equity ratio. Therefore, the 2002 event strengthened scale and financial capacity while also increasing exposure to long-term financing risk.

Fourth, the 2012 acquisition delivered the most moderate improvements, though these were still substantial and consistent. This pattern may indicate that the acquisition was strategically valuable, but its financial contribution was more incremental than transformative when compared with the earlier transactions.

8. Discussion

The results strongly align with the strategic logic of M&A in capital-intensive sectors. In the case of RIL, improved profitability can be linked to economies of scale, synergies in operations, stronger asset utilization, and deeper vertical integration. The rise in ROCE across all events suggests that capital was used more productively after consolidation. The increase in P/E ratios also indicates that market participants viewed these moves as value-enhancing.

The improvement in short-term solvency is equally important. In industries where production, refining, and petrochemical processing require high working capital and efficient input-output coordination, stronger liquidity contributes directly to operational resilience. The observed increases in current and cash ratios imply that RIL's strategic transactions improved its ability to manage short-term commitments without compromising business continuity.

Long-term solvency results are more complex. On one hand, rising proprietary ratios and total long-term solvency ratios point to a stronger underlying financial base. On the other hand, higher debt-equity ratios suggest that part of the post-event expansion was financed through additional leverage. This dual movement is typical of large-scale industrial restructuring: growth opportunities improve, but capital structure becomes more sensitive to financial risk. Therefore, the net conclusion is not that M&A eliminated long-term risk, but rather that it improved long-term capacity while increasing the importance of prudent leverage management.

The findings are broadly consistent with prior studies that report positive but conditional effects of M&A on firm performance. They also reinforce the view that integration quality matters. The 2008 event appears to have delivered the strongest gains because it combined asset integration with manufacturing scale and likely operational complementarities. This suggests that M&A creates the greatest value when transactions are strategically coherent and operationally integrative, not merely financially motivated.

9. Managerial and Policy Implications

For corporate managers, the study shows that well-planned M&A can improve both profitability and liquidity when it enhances scale, secures feedstock, or strengthens value-chain control. However, managers should evaluate not only post-deal earnings but also capital-structure sustainability.

For investors and creditors, the evidence highlights the importance of using a multidimensional evaluation framework. Rising profitability alone does not tell the full story; the leverage consequences of M&A must also be assessed.

For policymakers, the case suggests that industrial consolidation in strategic sectors can produce positive efficiency effects. At the same time, oversight should ensure that growth through acquisitions does not create excessive systemic leverage in already capital-intensive industries.

10. Conclusion

This paper examined the impact of three major M&A-related events associated with RIL in the Indian

petrochemical sector. By comparing five years of pre-event and five years of post-event ratio data, the study found clear improvement in profitability and short-term solvency across all three strategic interventions. Long-term solvency also strengthened in broad terms, although the rise in debt-equity ratios indicates that expansion was accompanied by greater leverage.

The evidence therefore supports the conclusion that M&A functioned as an effective strategic instrument for RIL. The 2002 merger strengthened scale and market position, the 2008 integration generated the most powerful all-round improvements, and the 2012 acquisition delivered steady gains through greater vertical integration. Overall, the study demonstrates that in the Indian petrochemical sector, well-structured M&A can contribute significantly to operating efficiency, financial strength, and investor confidence.

At the same time, the study underscores the need for balanced interpretation. Financial improvement after M&A should not be judged solely by higher returns or liquidity; capital-structure quality and leverage sustainability remain essential. This makes post-merger integration and financing discipline as important as the strategic decision to merge or acquire.

11. Limitations and Scope for Future Research

The paper is limited to one corporate case and is based exclusively on secondary data compiled in the attached source document. As a result, the findings should not be generalized automatically to the entire Indian chemical sector.

Future research may extend the analysis to multiple firms, apply panel-data or event-study techniques, and distinguish more rigorously between merger effects, acquisition effects, and broader industry cycles. Additional work may also examine whether post-merger improvements are sustained over longer periods and whether they vary across ownership structures, financing models, and product segments within the chemical industry.

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