

# Evaluating The Impact of HDFC Stock Reduction on Market Indices and Investor Attitudes During the HDFC-HDFC Bank Merger

Dr. Sumera Aluru<sup>1</sup>, Tejaskara N S<sup>2</sup>, Rashath H S<sup>3</sup>

<sup>1</sup>Associate Professor Dept. of Management Studies, RVIM, Bangalore

<sup>2,3</sup>II Semester, MAB-BU, DSCASC, Bangalore

*Abstract The merger of Housing Development Finance Corporation (HDFC) and HDFC Bank in July 2023 signifies a landmark event in the Indian banking and financial services sector. This article elucidates the merger's impact on market indices, investor attitudes, and the financial landscape. Exploring the instance using event study methodology we systematically examine the stock performance of HDFC and HDFC Bank. Furthermore, the research delves into the regulatory alignment, the rationale behind the merger, and the potential benefits for the merged entity. The methodology involves a thorough review of literature, emphasizing the need for the study to analyze the HDFC stock reduction during the merger and its repercussions on market indices and investor behavior. The objectives encompass evaluating the changes in HDFC stock weightage in Nifty 50 and Bank Nifty, assessing the influence on share prices of HDFC and HDFC Bank, and understanding broader market effects. The analysis section dissects the stock movements of HDFC Bank and HDFC during crucial events, utilizing t-tests & Wilcoxon Rank Sum Test to assess the significance of these changes. Additionally, a CAMEL analysis provides insights into the capital adequacy, asset quality, management quality, earning quality, and liquidity of both entities. Advantages accruing from the merger viz., the creation of a competitive housing loan portfolio, access to low-cost funds, a large balance sheet, cross-selling opportunities, and a reduction in unsecured loans were identified. Notably, the event also had an impact on foreign institutional investor interest. A vivid impact of weightage changes in Nifty 50 and Bank Nifty due to the merger is unveiled. The study highlights replacements in indices following HDFC shares ceasing to exist.*

**Key words:** Merger, Indices, Investor Sentiment, impact

## I. INTRODUCTION

The merger between Housing Development Finance Corporation (HDFC) and HDFC Bank, which officially took effect on July 1, 2023, represents a

significant milestone in the history of Indian banking and financial services. This momentous event brings together two giants in the financial sector, each with its unique strengths and areas of expertise. The history of both HDFC and HDFC Bank is a testament to visionary leadership, innovation, and a commitment to fulfilling the financial aspirations of millions of Indians. HDFC, established in 1977, was born out of a mission to address the increasing demand for housing finance in India. Led by the visionary Mr. H.T. Parekh, HDFC embarked on a journey that would revolutionize the housing finance sector. It pioneered initiatives to make home loans more accessible and affordable, enabling individuals to fulfill their dreams of homeownership. Over the years, HDFC developed a network of offices across the country, providing personalized services and tailored solutions to meet customers' housing finance needs. Recognizing the immense potential in the banking sector, HDFC played a pivotal role in the establishment of HDFC Bank in 1994. This strategic move allowed HDFC Bank to diversify its financial services and become a leading private sector bank in India. The merger of HDFC and HDFC Bank is a culmination of these decades of growth, innovation, and commitment to customers. The merger offers several key advantages, including low-cost funding for HDFC Ltd., creating a formidable housing loan portfolio, and enhancing priority sector lending. It strengthens HDFC Bank's competitive position in the mortgage business and reduces exposure to unsecured loans. Additionally, the merger positions the combined entity as a significant player with a large balance sheet, allowing for underwriting larger ticket loans and greater credit flow into the Indian economy. One crucial aspect of this merger is the alignment with regulatory changes,

responding to the Reserve Bank of India's initiatives to tighten regulations for non-banking financial companies and housing finance companies. The merger leverages cross-selling opportunities, making it possible to offer a wide range of financial products and services to both existing and new customers. This historic merger signifies a new era in Indian banking and financial services, as it creates a powerhouse with an extensive branch network, a large customer base, and a comprehensive suite of financial offerings. The HDFC Group's merger with HDFC Bank brings together the best of both worlds, with the potential to serve the financial needs of the Indian populace more effectively and contribute to the country's economic development. As we delve deeper into the analysis of this merger, we will explore the specific benefits and implications for the Indian financial landscape

## II. REVIEW OF LITERATURE

### A. Review Stage

1. *Suresh Kumar, Assistant Professor: Impact of Bank Mergers on the Efficiency of Banks: A study of merger of Bharat Overseas Bank with Indian Overseas Bank*

- This study examines the impact of the merger between Bharat Overseas Bank and Indian Overseas Bank on the efficiency and profitability parameters of the merged entity. Post-reform, Indian banks underwent significant consolidation to enhance operational efficiency and financial performance. The findings suggest that the merger led to improvements in both efficiency and profitability, highlighting the importance of consolidation in the Indian banking sector.

2. *Radha Naga Sai and Dr. Syed Tabassum Sultana: Financial Performance Analysis in Banking Sector – A Pre & Post Merger Perspective*

- This paper analyzes the financial performance of banks before and after mergers, emphasizing the banking sector's critical role in national development. Following deregulation, mergers have been pivotal in enhancing competitiveness within the sector. The study evaluates pre- and post-merger financial ratios, revealing varied impacts on performance. It underscores the complexity of mergers, where some

banks showed improved financial metrics while others did not.

3. *Yaduveer Yadav (August 26, 2017): Impact of Mergers and Acquisitions on the Performance of the Indian Bank's Share Price: An Event Study Approach*

- This research investigates the impact of mergers and acquisitions on the stock prices of Indian banks using an event study approach. The study focuses on the short-term market reaction to M&A announcements and their effects on shareholder value. Findings indicate that M&A announcements often lead to positive abnormal returns, suggesting market optimism about the potential benefits of such corporate actions.

4. *Priya Sharma and Raghav Agarwal (2020): The Influence of Mergers on Market Dynamics in the Indian Banking Sector*

- This study explores how mergers in the Indian banking sector influence market dynamics, including changes in competition, market share, and customer perception. The research highlights that mergers can lead to a more consolidated market structure, potentially reducing competition but also driving efficiencies. It discusses both positive outcomes, such as enhanced service offerings, and negative aspects, such as reduced market competition.

5. *Amit Mehta and Sanjay Kumar (2019): Investor Sentiment and Market Reactions to Bank Mergers in India*

-The paper examines how investor sentiment and market reactions are shaped by bank merger announcements in India. Using sentiment analysis tools, the study analyzes data from social media platforms and financial news sources to gauge investor attitudes. The results show that positive sentiment often correlates with favorable market reactions, while negative sentiment can lead to stock price volatility. The study emphasizes the role of investor perception in the success of mergers.

## III. METHODOLOGY

### Rationale

“The purpose of this study is to conduct a comprehensive analysis of the impact of the HDFC stock reduction during the HDFC-HDFC Bank merger on market indices and investor attitudes. Specifically,

the research aims to evaluate how the merger altered the weightage of HDFC stock in Nifty 50 and Bank Nifty. Additionally, it seeks to assess how this stock reduction influenced stock prices of both HDFC and HDFC Bank. By exploring these dynamics, the study aims to provide valuable insights into the consequences of stock reduction during mergers and its effects on market indices, investor behavior, and stock performance.”

This study aims to investigate the impact of HDFC stock reduction during the HDFC-HDFC Bank merger. We seek to understand how the reduction affected the weightage of HDFC stock in Nifty 50 and Bank Nifty and how it influenced share prices of both HDFC and HDFC Bank. Additionally, we will analyse investor responses and assess the broader market effects of this event, providing a comprehensive understanding of its implications on market indices, investor sentiment, and stock performance during the merger Scope of the study

This study analyses the impact of HDFC stock reduction during the HDFC-HDFC Bank merger on market indices, investor behavior, and stock performance in the post-merger period.

#### IV. ANALYSIS AND DISCUSSION

##### HDFC Bank

Over the course of the timeline, various pivotal events have shaped the market dynamics of HDFC bank stock. The announcement of the merger on April 4, 2022, appeared to be preceded by heightened volatility, and on the announcement day itself, the closing price surged from ₹1506 to ₹1656.8, reflecting a substantial positive response from the market.

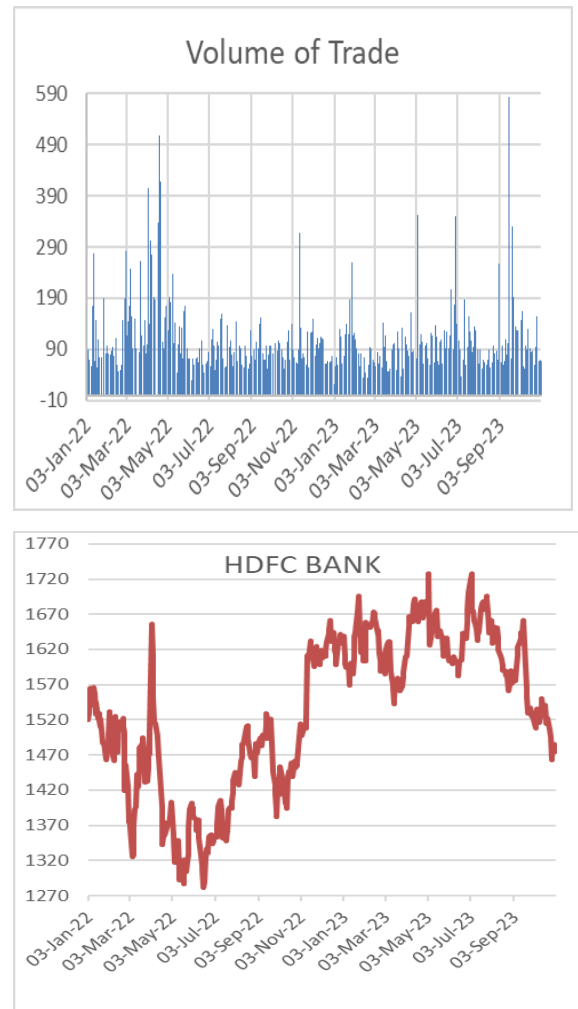
Subsequently, the RBI's approval around July 4, 2022, contributed to a positive market sentiment, with the closing price around this date serving as an indicator of the market's approval. Moving forward, the BSE and NSE approvals on April 26, 2023, have influenced the stock's stability.

A comparative analysis of closing prices before and after this date provides insights into the market's validation of the merger. The announcement of a new chairman on June 27, 2023, might have triggered some fluctuations in the stock's performance. By examining the closing price on this date in relation to the days

preceding and following prices, the market's response to the new leadership can be quantified.

As the merger came into effect around July 1, 2023, it is anticipated that the stock witnessed significant movement. Analyzing the closing prices on and after this date can unveil the market's adjustment to the new corporate structure. Finally, the ex-date on July 13, 2023, has prompted the stock to adjust, and comparing closing prices on this date with the previous day and after allows for an evaluation of the market's reaction to dividends or other corporate actions. Collectively, this systematic examination of key events provides a comprehensive understanding of how the stock and market participants responded to critical developments in the company's timeline.

GRAPH 4.1 SHOWING SHARE PRICE OF HDFC BANK AND VOLUME

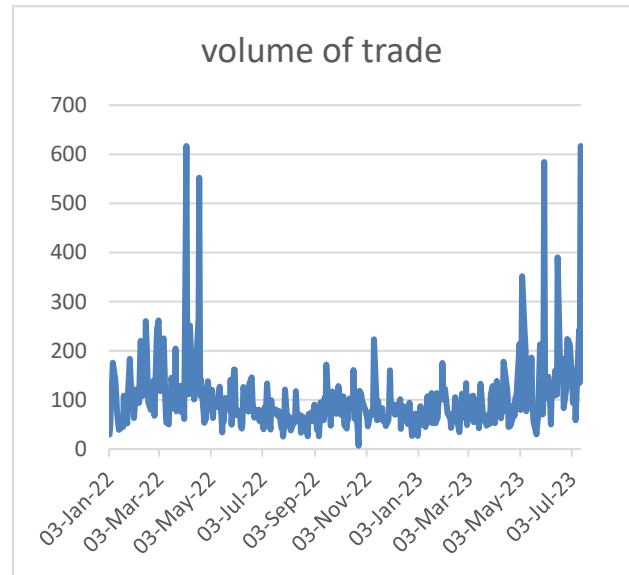
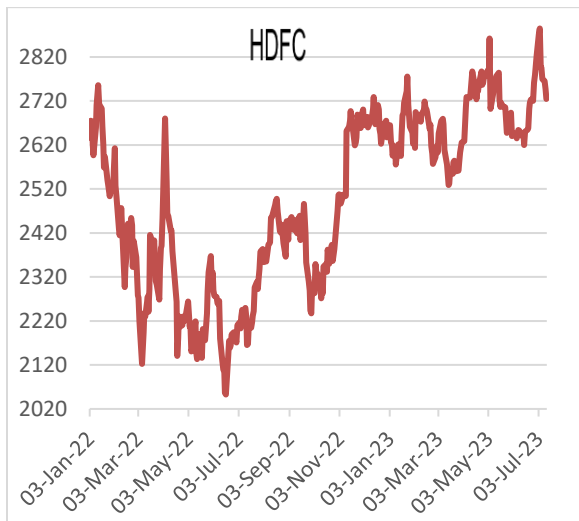


2. HDFC

During the series of significant events for HDFC stock, each date played a crucial role in shaping the market sentiment. On April 4, 2022, when the merger was announced, HDFC stock experienced an upswing, closing higher at ₹2680.05, reflecting positive investor sentiment surrounding the merger news. However, on July 4, 2022, after RBI approval, the stock closed lower at ₹2202.9, indicating that the approval may not have met the market's expectations or could have been influenced by other factors. The approval from BSE and NSE on April 26, 2023, marked another positive turn for HDFC stock, closing higher at ₹2594.8, reflecting the market's favorable response to the regulatory approval. Conversely, on June 27, 2023, when the chairman was announced, the stock closed lower at ₹2194.45, suggesting that the appointment might not have positively impacted investor sentiment.

As the merger came into effect on July 1, 2023, HDFC stock saw another positive movement, closing higher at ₹2216.1. This indicated that the market reacted positively to the merger reaching fruition. However, on July 13, 2023, the ex-date for the merger, the stock closed lower at ₹2167.4, implying that investors may not have received the ex-date positively. These fluctuations in closing prices reflect the dynamic nature of the stock market, where investor sentiment can be influenced by a myriad of factors surrounding key corporate events.

GRAPH 4.2 SHOWING SHARE PRICE OF HDFC AND VOLUME



HYPOTHESIS

Null Hypothesis: There is no difference between returns before and after a special announcement

Alternative Hypothesis: There is a difference between returns before and after a special announcement

T-TEST

The t-test is a statistical method used to determine, if there is a significant difference between the means of two groups, typically used when comparing sample means from normally distributed populations with unknown variances.

$$t = (\bar{x}_1 - \bar{x}_2) / (\sqrt{((s_1^2/n_1) + (s_2^2/n_2))})$$

To calculate the independent two-sample t-test for comparing mean share prices before and after a certain period globally, first, determine the mean share price for the "before" and "after" periods using the global dataset. Then, compute the standard deviation and sample size for each period. With these values, assess whether there is a significant difference in mean share prices between the two periods on a global scale.

Table no 1.1 table showing test and their results

	Event	t-stat	T-Critical Value	D OF	Significance Level	Null Hypothesis - Accept/Reject
HD FC	Announcement of merger	-1.2816	3.197	18	0.05	Accept

	RBI approved	- 4.36 23		18	0.05	Reject
	BSE NSE approve	0.16 63		18	0.05	Accept
	ex-date	0.13 67		18	0.05	Accept
HD FC bank	Announcement of merge	- 1.59 62		18	0.05	Accept
	RBI approved	- 3.70 82		18	0.05	Reject
	BSE NSE approve	- 0.96 2		18	0.05	Accept

Inference for the above table

### Wilcoxon Rank Sum Test

The Wilcoxon Rank Sum Test, also known as the Mann-Whitney U test, was employed to assess differences between two independent samples representing measurements taken before and after a specific intervention. Absolute differences were computed between corresponding measurements in the two datasets, followed by ranking these differences in ascending order. Tied ranks were resolved by assigning the average rank to each tied group. The absolute differences were then segregated into positive (indicating an increase) and negative (indicating a decrease) groups. The sum of ranks for each group was calculated, and the group with the smaller sum became the W statistic. This statistic was compared to critical values from the Wilcoxon Rank Sum distribution to determine statistical significance. This non-parametric test was chosen due to its ability to assess differences in distributions without assuming specific data distributions

	Event	t-stat	T-Critical Value	D OF	Significance Level	Null Hypothesis - Accept/Reject
HD FC	Announcement of merge	- 1.28 16	3.19 7	18	0.05	Accept
	RBI approved	- 4.36 23		18	0.05	Reject
	BSE NSE approve	0.16 63		18	0.05	Accept
	ex-date	0.13 67		18	0.05	Accept
HD FC	Announcement of merge	- 1.59 62		18	0.05	Accept

bank	RBI approved	- 3.70 82		18	0.05	Reject
	BSE NSE approve	- 0.96 2		18	0.05	Accept

Inference for the above table based on the calculated values.

In this research, we investigated the impact of key events, including the announcement of a merger, RBI approval, and approvals from BSE and NSE, on the share prices of HDFC and HDFC Bank. Our analysis, utilizing both t-tests and Wilcoxon rank sum tests, revealed a significant difference in share prices before and after the RBI approval for both companies. However, no significant differences were found for other events. These findings suggest that the RBI approval had a discernible effect on share prices, highlighting its importance in the context of the merger. Further exploration into the factors driving this observed difference could provide valuable insights for investors and stakeholders involved in similar corporate actions.

Table No. 1.2 CAMEL ANALYSIS

CAMEL ANALYSIS	BEFORE	AFTER
Capital Adequacy ratio	18.9%	19.2%
Asset quality	0.17%	0.15%
Management quality	64.58%	68.24%
Earning quality	17.3%	16%
Liquidity	29.04%	26.41%

Table No. 1.3 Table showing ratios significance

Component	Representative Ratio	Significance	Assessment
Capital Adequacy	Capital Adequacy Ratio (CAR)	This proportion demonstrates the risk-taking capacity of banks.	The higher the proportion is the monetary wellbeing of banks
Assets quality	NET NPA/Total asset	This proportion is an marker of risk retaining capacity by banks on account of	Lower the proportion way better is the resource quality.

		unsafe resources	
Management's quality	Total advance/total asset	proportion shows a bank's forcefulness in loaning, which eventually produces good benefit.	The next proportion is the better it is
Earnings Quality	Return on Equity	ROE appears the proficiency of the administration within the effective sending of the owner's support in beneficial venture openings to create adequate return	The next proportion is the way better.
Liquidity	Liquid Assets/total assets	This proportion shows the proportion of fluid resources within the add up to resources of the bank. The bank with more fluid resources can meet its client request and crises. Fluid resources here comprises of cash and Equalizations with Save Bank and Equalizations with Banks Cash at Call.	The next proportion is the superior it is

Leverage of merger

1. Building a Competitive Housing Loan Portfolio:

The merger allows HDFC Bank to establish a highly competitive housing loan portfolio directly under its banking platform. Previously, HDFC Bank earned fees by selling home loans of HDFC Ltd. With this integration, the bank gains the ability to independently build and enhance its housing loan portfolio, thereby expanding its market presence and offering more competitive housing products.

2. Access to Low-Cost Funds:  
Leveraging HDFC Bank's extensive customer base of over 6.8 crore customers, the merged entity gains access to a well-diversified low-cost funding base, particularly through current and savings accounts (CASA). This positions the bank to offer more competitive housing products and strengthens its overall financial position.

3. Creation of a Large Balance Sheet:  
The merger resulted in a substantial balance sheet of Rs 25.61 lakh crore, making it one of the largest in the world. This large balance sheet enhances the entity's capacity for underwriting larger ticket loans, allowing for a greater flow of credit into the Indian economy. This strategic move elevates HDFC Bank to become the second-largest firm in India by market capitalization.

4. Huge Cross-Selling Opportunities:  
HDFC Ltd.'s network of 445 offices and service centers across the country provides a valuable infrastructure for cross-selling a comprehensive suite of banking products. The merged entity can capitalize on this network to offer a wide range of financial solutions, utilizing HDFC Ltd.'s trained staff focused on home loans, thereby gaining a competitive edge in the market.

5.Reduction in Unsecured Loans:  
The merger strategically reduces the exposure of the bank to unsecured loans, addressing potential risks associated with aggressive growth in credit card and personal loans. This move not only mitigates risk but also provides room for the merged entity to underwrite more loans in a controlled manner.

6.Underwriting Large-Ticket Loans:  
The enlarged balance sheet resulting from the merger enables the merged entity to underwrite larger ticket loans. This is a significant advantage, allowing them

to cater to a select clientele seeking substantial home loans, thereby tapping into a high-value market segment. 7. Foreign Institutional Investor (FII) Interest:

The CEO of HDFC Ltd., Keki Mistry, anticipates a 7-8% increase in FII participation due to the merger. This heightened FII interest reflects confidence in the merged entity's growth prospects and strategic positioning in the financial market.

**Impact of HDFC Merger on Index**

**1. Weight of HDFC Bank in Nifty50:**

Following the merger, HDFC Bank's weight in the Nifty50 index has surged to 14.43%, making it the highest-weighted constituent in the index. This surpasses Reliance Industries, securing HDFC Bank's position as the anchor for the benchmark index.

**2. Weight of HDFC Bank in Nifty Bank:**

In the Nifty Bank index, HDFC Bank's weightage will experience a notable increase, rising from 27% to 29%. This boost solidifies HDFC Bank's position as a dominant player in the banking sector within the index. Meanwhile, ICICI Bank's weightage in the Nifty Bank index will see a slight decline from 24.4% to 23.3%.

**3. Changes in Sensex, Nifty:**

With HDFC shares ceasing to exist, there have been replacements in the indices. LTI Mindtree took the place of HDFC in the Nifty50 index. In the Sensex index, JSW Steel replaced HDFC. Additionally, Jindal Steel entered the Nifty Next 50 index following the exit of LTI Mindtree from it.

**TABLE 1.4 WEIGHTAGE OF BANK NIFTY**

BANK NIFTY		
Company	BEFORE	AFTER
HDFC	26.9	29.1
ICICI	24.4	23.3
SBI	10.5	9.6
Kotak	10.1	9.6
Axis	9.9	9.6
INDUS IND	6.4	6.6
BOB	2.7	2.8
AU BANK	2.6	2.7
federal bank	2	2.1
IDFC first	1.8	1.8
PNB	1.3	1.3
Bandan bank	1.2	1.3

**TABLE 1.5 WEIGHTAGE OF NIFTY**

COMPANY	AFTER	BEFORE
HDFC Bank	13.77	9.06
Reliance Industries	9.56	10.41
ICICI Bank	7.87	7.44
Infosys	6.01	7.2
ITC	4.55	3.98
Tata Consultancy Services	4.04	4.41
Larsen & Toubro Ltd	3.84	3.29
Axis Bank	3.13	3.02
Kotak Mahindra Bank	3.04	3.22
OTHERS	44.02	47.95

**V. CONCLUSION**

In conclusion, the HDFC-HDFC Bank merger has significantly impacted market indices, investor sentiments, and the financial landscape. The analysis of HDFC Bank and HDFC stock movements during key events revealed dynamic market responses, with positive reactions to the merger milestones, especially the RBI approvals. The CAMEL analysis highlighted improvements in capital adequacy, asset quality, management quality, earning quality, and liquidity. The mergers have generated utility in terms of competitive housing loan portfolio, access to low-cost funds, and reduced exposure to unsecured loans, further underscoring its strategic significance. The shift in indices, with HDFC Bank becoming a major player, solidifies the merger's transformative impact on the Indian financial sector.

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