

Two Decades of Market Patterns: Trends and Volatility in HDFC Bank's Share Price



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Siya Sibichen

**TWO DECADES OF MARKET
PATTERNS: TRENDS AND VOLATILITY
IN HDFC BANK'S SHARE PRICE**

A Research Monograph

By

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FOREWORD

I am pleased to present this book, which serves as a significant outcome of the workshop conducted by the PG Department of Commerce on “*Secondary Data and AI-Assisted Research Tools*.” This publication reflects the department’s commitment to strengthening the research culture of the institution by embracing modern analytical techniques and technological advancements.

The initiative taken by the Commerce Department is highly commendable. By integrating artificial intelligence into academic research practices, the department has set an excellent example for others to follow. This book stands as a model that can inspire all departments to adopt similar innovative strategies to enhance the quality and visibility of their academic output.

This publication forms an important part of the department’s ongoing research initiatives, aimed at promoting a structured and progressive approach to academic inquiry. It also opens the possibility

for annual publications of PG and UG research works, thereby creating a continuous and sustainable platform for scholarly contributions from the department. In the future, the department hopes and aspires to bring out many more such publications, further strengthening its academic and research footprint.

I congratulate the PG Department of Commerce for its vision, dedication, and academic leadership. I am confident that this book will serve as a valuable reference for researchers, faculty members, and all those interested in quality-driven academic work.

Dr. M V Georgekutty

Principal, Christ College

PREFACE

This book presents a comprehensive analytical study on the share price behaviour of HDFC Bank Ltd. over a twenty-year period from June 2005 to May 2025. The study provides an in-depth examination of long-term trends, volatility patterns, crisis-period fluctuations, and trading dynamics using monthly secondary data. Through the application of descriptive statistics, time-series analysis, correlation techniques, and non-parametric tests, the work evaluates key aspects of stock behaviour including central tendency, dispersion, market resilience, and the relationship between price movements and trading turnover.

The findings reveal the bank's consistent long-term upward trajectory, predictable trading ranges, controlled volatility, and strong recovery from major global shocks such as the 2008 financial crisis and the COVID-19 pandemic in 2020. The study also highlights the limited alignment between price levels and trading volume,

emphasizing the influence of external market factors and investor sentiment. By presenting these insights, this book contributes meaningfully to academic literature on financial markets and offers a valuable reference for researchers, analysts, and academicians seeking to understand stock price behaviour in the Indian banking sector.

The relevance of this work lies in its structured, data-driven approach supported by analytical tools that enhance the accuracy and depth of interpretation. By focusing on one of India's most prominent and stable banking institutions, the study provides a model framework for conducting stock market research using secondary data and systematic statistical methods. It is hoped that this work promotes evidence-based financial research and encourages further academic inquiry into market behaviour and investment trends.

I express my sincere gratitude to Dr. Bobby Thomas of Pavanatma College, Murickassery, Idukki for his continuous support, expert guidance, and academic encouragement throughout the

development of this study. His mentorship played a crucial role in shaping the clarity, structure, and rigour of this work. I also acknowledge that this publication is inspired by and developed as part of the workshop on “Secondary Data and AI-Assisted Research Tools” conducted by the PG Department of Commerce, which provided both the conceptual foundation and motivation for undertaking this research.

Siya Sibichen

ABSTRACT

This study investigates the long-term share price behaviour of HDFC Bank Ltd. over 20 years (2005–2025) using monthly secondary data. It examines central tendency and dispersion measures, price trends, volatility phases, and the relationship between stock prices and trading turnover through descriptive statistics, time-series tools, correlation analysis, and non-parametric tests. The results indicate a strong upward trend in HDFC Bank's share prices, supported by controlled volatility and quick recovery during major disruptions such as the 2008 global crisis and the COVID-19 pandemic. Although prices show stable growth, turnover displays only a weak and inconsistent association with price levels, suggesting the influence of external forces and investor sentiment. The study contributes valuable insights for stock market research in the Indian banking sector.

Chapter 1

INTRODUCTION AND FRAMEWORK

1.1 Introduction

The Bombay Stock Exchange's flagship index—the BSE Sensex—is a barometer of India's stock market, comprising 30 of the country's largest and most liquid companies spanning diverse sectors like finance, energy, information technology, consumer goods, and industrials. These firms are chosen by the S&P BSE Index Committee based on clear eligibility criteria large to mega-cap status, strong liquidity and trading frequency, robust core business revenue, and representation across key economic sectors. The index is reviewed and if needed, rebalanced on a semi-annual basis, typically in June and December, to ensure it continues to accurately reflect the evolving Indian market; companies that no longer meet the criteria may be replaced accordingly.

1.2. Company Profile

HDFC Bank, one of India's largest private sectors banks, plays a crucial role in the country's financial system and stock market indices. Following its 2023 merger with HDFC Ltd, it became a financial giant offering a full range of banking and housing finance services. Known for its strong digital presence and extensive retail banking network, HDFC Bank is a top-weighted stock in major indices like the Nifty 50 and BSE Sensex, significantly influencing market movements. It also attracts substantial foreign investment, reflecting global confidence in its stability and growth.

1.3. Need for the study

Analysing the stock price behaviour of HDFC Bank over time is important to understand its financial health, market sentiment, and growth potential. As a major component of key indices like Nifty 50 and Sensex, its price movements can impact the overall market. Long-term trends also reflect how well the bank adapts to economic

changes, regulatory shifts, and competition. For investors, this analysis helps in making informed decisions regarding portfolio allocation and timing of investments.

1.4. Objectives of the study

1. To describe the central tendency and dispersion characteristics of stock prices of HDFC Bank.
2. To analyze the monthly price movements of over a 20-year period from 2005-2025.
3. To examine the relationship between monthly stock prices and trading turnover.
4. To identify any long-term trends in the performance of the stock.

1.5. Research Questions

- a) What do the descriptive statistics indicate about the average level, variability, and distribution of monthly stock prices during the 10-year period?

- b) What patterns and fluctuations can be observed in the monthly stock price movements throughout the study period?
- c) Is there a directional difference between the monthly high prices and closing prices of the stock over the study period?
- d) Is there a statistically significant relationship between monthly stock prices and trading turnover during the study period?

1.6. Research Hypothesis

- $H_{0\ 1}$ There is no directional difference between the monthly high prices and closing prices of the stock.
- $H_{0\ 2}$ There is no linear correlation between stock price and turnover
- $H_{0\ 3}$ There is no directional difference between the monthly high prices and closing prices of the stock.

H₀ 4 There is no significant difference in the variability of monthly stock prices across different years within the study period.

H₀ 5 There is no significant trend in the monthly stock prices of HDFC Bank over the study period.

1.7. Scope of the study

The study examines the trends and volatility in HDFC Bank's share prices from January 2005 to December 2025 using monthly data. It aims to identify long-term price movements, cyclical patterns, and periods of high volatility, linking them to key economic or policy events. The analysis will be conducted exclusively using Gretl software, applying time-series techniques such as moving averages, variance analysis, and possibly GARCH models. While focused solely on HDFC Bank, the study offers insights into its stock behaviour over two decades, serving as a reference for investors and researchers. Fundamental analysis and peer comparisons are beyond scope.

1.8. Research Methodology

1.8.1 Research Design: The present study adopts a quantitative and analytical research design. It focuses on historical stock price data to examine patterns, fluctuations, and statistical relationships over time. It involves examining trends, variability, and relationships in stock price data over a long-term period using statistical and econometric tools.

1.8.2 Sources of data: The study is based on secondary data collected from reliable financial sources, primarily the Bombay Stock Exchange (BSE). Monthly data on stock prices and trading turnover of HDFC Bank were obtained for the purpose of analysis.

1.8.3 Period of the study: The research covers a 20-year period from January 2005 to May 2025, using monthly observations of stock price data and trading turnover.

1.8.4 Variable considered: The key variables considered for the study include:

- Monthly Opening Price

- Monthly Closing Price
- Monthly High Price
- Monthly Low Price
- Trading Volume (Turnover)

These variables are used to evaluate the stock's central tendency, dispersion, directional movement, and correlation with volume.

1.8.5 Software used: All statistical and econometric analyses for the study were performed using Gretl software.

1.8.6 Tools of analysis:

- Descriptive Statistics (Mean, Median, Standard Deviation, Skewness, Kurtosis)
- Trend Analysis
- Paired Sample t-Test (for comparing high and closing prices)
- Correlation Analysis (between stock prices and turnover)
- Tests for Normality (Jarque-Bera test)

- Analysis of Variance (ANOVA) (for variability across years)

1.9 Limitations of the study

1. The study focuses exclusively on HDFC Bank, limiting the generalizability to other companies, sectors, or indices within the Indian stock market.
2. It relies solely on secondary data from the Bombay Stock Exchange (BSE), excluding data from other exchanges such as the National Stock Exchange (NSE).
3. The analysis uses monthly data, omitting daily or intraday price movements that could reveal short-term volatility.
4. The study period is from January 2005 to May 2025; it does not consider events occurring beyond this timeframe.
5. All analyses were conducted using Gretl software; results may vary if alternative tools or models are used.

1.10 Chapter Scheme

Chapter 1: Introduction and Framework

This chapter outlines the background of the study, research problem, objectives, research questions, hypotheses, scope, limitations, and methodology adopted for the analysis.

Chapter 2: Review of Literature

This chapter presents a review of past studies related to stock price behavior, turnover analysis, trend analysis, and statistical techniques used in stock market research. It also identifies research gaps and establishes the theoretical foundation for the study.

Chapter 3: Data Analysis

This chapter includes descriptive statistics, time series plots, Sign Test results, and correlation analysis to answer the research questions.

Chapter 4: Findings and Suggestions

This chapter discusses the major findings derived from the analysis, interprets the results considering

the research objectives, and provides suggestions for investors, researchers, and policymakers.

Chapter II

LITERATURE REVIEW

2.1 Introduction

Understanding stock price behavior is essential for evaluating the financial performance and market perception of firms, especially in the banking sector. HDFC Bank, as a major constituent of the BSE Sensex and one of the largest private sector banks in India, holds considerable influence in the Indian capital market. Its stock price movements not only reflect the bank's internal financial health but also respond to broader economic developments and investor sentiment. In this context, analyzing the historical behavior of HDFC Bank's stock over an extended period provides meaningful insights into market dynamics, risk-return profiles, and investment potential.

A substantial body of literature has examined stock market volatility, macroeconomic linkages, and forecasting techniques using traditional statistical

models such as GARCH, ARIMA, and regression-based approaches. While these models offer valuable perspectives, they often fall short in capturing the complex, nonlinear, and dynamic behavior of stock prices—particularly in the banking sector, where market sensitivity is pronounced. Moreover, only a limited number of studies have focused on bank-specific stock behavior using micro-level monthly data and statistical tools that investigate not just volatility but also price patterns and investor-driven indicators such as trading turnover.

This chapter presents a comprehensive review of existing studies related to stock market behavior, price volatility, comparative bank performance, and forecasting methods. It sets the foundation for the current study, which is distinct in its focused exploration of the stock price behavior of HDFC Bank over a period (2005–2025), using monthly data and applying tools such as descriptive statistics, Sign Test, correlation analysis, and time series visualization in Gretl. The chapter highlights the need to examine trends in central tendency,

dispersion, directional price differences, and the relationship between stock prices and turnover, thereby offering insights valuable to investors, analysts, and policymakers.

2.2 Stock Price Behaviour

This study develops an equilibrium model of stock price behavior, assuming normally distributed, exponentially de-trended dividends and prices. It explores how exogenous noise traders and risk-averse smart-money investors influence market dynamics. The model explains U.S. stock return volatility and predictability from 1871 to 1986, under two scenarios: a low discount rate with a high constant risk premium or a higher discount rate with noise trading correlated with fundamentals. However, the data cannot clearly distinguish between these competing explanations. (Campbell and Kyle, 1993)

This study tests the random walk hypothesis and weak-form market efficiency in seven Asian emerging markets, focusing on the impact of financial market integration. Using variance ratio

tests and a nonparametric runs test, it analyzes whether stock prices follow a random walk. Results show that in the pre-liberalization period, stock prices did not exhibit random walk behavior. However, post-liberalization, most markets (except Indonesia and Thailand) showed weak-form efficiency at the 5% level. The findings suggest that financial integration reduces return predictability, limiting domestic investors' ability to earn abnormal returns through trading strategies. (Fuss, 2005)

This study examines the relationship between dividend policy and stock price behavior in the Indian corporate sector using panel data from 500 BSE-listed firms across six industries during 1996–2006. Employing a fixed-effects model, it analyzes the impact of dividend-retention ratio, firm size, and debt-equity ratio on stock returns. The findings suggest these factors significantly influence stock price behavior, with firm-level effects indicating a possible clientele effect in certain industries. While the results are less robust compared to developed markets, the study offers

valuable insights into dividend policy dynamics in India's evolving financial landscape. (Pani, 2008)

This study analyzes the behavior of Indian stock price indices from 1990 to 2001, a period marked by major economic reforms and market liberalization. It examines return volatility, its time-varying nature, and tests for market efficiency. The study also investigates the impact of foreign capital inflows on index volatility and explores the correlation of Indian indices with those of selected Asian and developed markets. Highlighting the market's heightened volatility and structural shifts, the study provides key insights into the evolving dynamics of the Indian stock market during a transformative period. (Pradhan, 2003)

This study tests the weak form of market efficiency and the Random Walk Hypothesis in the Indian stock market during 2007–2008, using daily returns and closing prices of S&P CNX 500, CNX 100, and BSE 200 indices. It investigates anomalies such as the Monday Effect, Friday

Effect, and Day-of-the-Week Effect. The findings reveal no evidence of these anomalies, indicating informational efficiency in the market. Additionally, serial correlation and run tests support the Random Walk Theory, reinforcing the presence of weak-form market efficiency in the Indian stock market during the study period. (Mittal, 2009)

This study applies a dynamic present value model to estimate fundamental stock prices based on expected dividends and earnings across developed and Asian emerging markets. It compares these fundamental values with actual stock prices to assess market behavior. The findings indicate that the model, using varied cash flow definitions, effectively explains stock price movements in many markets. In cases where significant deviations from fundamental values occur, the study explores investor behavior as a possible cause. Overall, the research provides insights into how expectations and behavioral factors influence stock price deviations from intrinsic value. (Chen, 2010)

2.3 Correlation Analysis on Stock Market Price

This study constructs complex networks to analyze correlations among all US stocks traded during two periods (2005–2007 and 2007–2009), using stock prices, returns, and trading volumes. Nodes represent stocks, and edges are defined using a winner-take-all approach based on high cross-correlations. The resulting networks exhibit scale-free degree distributions, indicating that a small number of stocks heavily influence market behavior. The study introduces a new method for index construction based on highly connected stocks and finds that the financial sector dominates the network. This approach offers deeper insights into stock interdependence and market structure. (Tse, 2010)

This study analyzes stock market volatility in India using random matrix theory, focusing on correlations among 70 BSE-listed stocks from 2000–2002. Daily returns for 2001 are used in 85-day time windows to construct correlation matrices. Key findings include: the largest

eigenvalue of the correlation matrix strongly correlates with market volatility; its eigenvector components shift across volatility regimes; the inverse participation ratio of this eigenvector anti-correlates with market fluctuations; and a derived Correlation Index (CI) effectively tracks overall market volatility. The study highlights a quantitative link between stock correlations and market volatility. (Kulkarni, 2007)

This study explores the causal relationship between stock market performance and key macroeconomic variables in India using monthly data from July 1997 to June 2011. Employing methods like factor analysis, unit root tests, regression, ARCH model, Granger causality, and Johansen co-integration, the study identifies inflation, interest rate, and exchange rate as principal macroeconomic factors. Results show significant correlations between stock market indicators and these variables. Impulse response analysis reveals how stock markets react to economic shocks, and the findings indicate unidirectional causality from the stock market to

the real economy, with moderate explanatory power for Sensex, market capitalization, and turnover. (Tripathi & Seth, 2014)

This study investigates stock market volatility in India using random matrix theory, focusing on correlations among 70 BSE stocks from 2000 to 2002. Using daily returns in 85-day windows for 2001, the study analyzes the correlation matrix (C) to understand volatility dynamics. Key findings include: the largest eigenvalue of C strongly correlates with market volatility; its eigenvector shifts across volatility regimes; the inverse participation ratio of this eigenvector anti-correlates with market fluctuations; and a derived Correlation Index (CI) effectively tracks market volatility. The study highlights a quantitative link between stock coupling and market volatility behavior. (Deo, 2007)

2.4 HDFC Bank

This study evaluates the financial performance of HDFC Bank, one of India's leading private sector banks, over the five-year period from 2017 to

2021). With a widespread network and diverse financial services, HDFC Bank's performance is assessed using ratio analysis, including current ratio, liquid ratio, fixed assets ratio, debt-equity ratio, and net profit ratio. Each ratio is interpreted to determine the bank's financial stability. The analysis concludes that HDFC Bank maintained satisfactory financial soundness throughout the study period, reflecting its strong position in the Indian banking sector. (Lokare, Suryavanshi, 2021)

2.5 Study on Indian Stock Market Data

This study analyzes the relationship between returns and volatility in the Indian stock markets (NSE and BSE) from 2005–06 to 2013–14 using GARCHM and EGARCH models. It investigates volatility clustering, persistence, asymmetry, and the leverage effect. Findings show that both markets exhibit significant volatility clustering and persistent volatility, with recent and past news influencing volatility. The EGARCH model confirms the presence of a leverage effect, where

negative news impacts volatility more than positive news. However, the relationship between returns and volatility is found to be statistically insignificant in both markets, highlighting the complex nature of volatility dynamics. (Ali, 2016)

A study conducted by Thomas.B on daily stock price dynamics of IRCTC and RVNL show contrasting behaviours, with IRCTC trading at higher and more stable prices, while RVNL remains lower-priced and more volatile. Unit root tests confirm both stocks are $I(1)$, supporting further long-run linkage analysis. However, Engle–Granger results indicate no cointegration, suggesting an absence of long-term equilibrium between the firms despite their sectoral connection. VAR findings reveal significant short-run influence of IRCTC on RVNL, indicating short-term shock transmission. Overall, IRCTC emerges as a leading indicator in India’s railway-linked stock movements (Thomas, 2025).

This study aims to forecast stock market index movements using stochastic time series analysis,

specifically the ARIMA model. It checks the stationarity of time series data and selects the best-fit ARIMA (0,1,0) model for predicting BSE_CLOSE and NSE_CLOSE based on statistical criteria like AIC, BIC, RMSE, and Adjusted R². Weekly data from January 2014 to December 2017 (187 observations) was used to forecast values for January to June 2018. The results demonstrate the ARIMA model's effectiveness for short-term forecasting, supporting its usefulness in aiding investors and traders in making informed, and profitable investment decisions. (C,2019)

This study tests the weak form of market efficiency in the Indian stock market during 2007–2008 using daily returns and closing prices of S&P CNX 500, CNX 100, and BSE 200 indices. It investigates anomalies such as the Monday Effect, Friday Effect, and Day-of-the-Week Effect. The findings indicate that none of these anomalies exist, suggesting the market is informationally efficient. Additionally, serial correlation and run tests support the Random Walk Theory, confirming the

presence of weak-form efficiency in the Indian stock market during the study period. (Mittal & Jain, 2009)

This study analyzes the impact of exchange rate fluctuations on the Indian stock market, emphasizing their importance for foreign investors, businesses, and policymakers. Exchange rates significantly influence investment portfolios, trade competitiveness, debt repayments, and economic cycles. Triggered by observations during the Asian financial crisis (1997–1998), the study highlights the link between exchange rate changes and stock prices. It underscores how global trade intensity and capital flows make exchange rates a key determinant of business profitability and equity valuation. Understanding this relationship is essential for assessing financial developments and shaping effective trade and industry policies in India. (Singh, 2020)

2.6 Sign Test on Stock Market Price

This paper evaluates a nonparametric sign test for abnormal security price performance in event

studies. The sign test statistic examined here does not require a symmetrical distribution of security excess returns for correct specification. Sign test performance is compared to a parametric t-test and a nonparametric rank test. Simulations with daily security return data show that the sign test is better specified under the null hypothesis and often more powerful under the alternative hypothesis than a t-test. The performance of the sign test is dominated by the performance of a rank test, however, indicating that the rank test is preferable to the sign test in obtaining nonparametric inferences concerning abnormal security price performance in event studies. (Corrado & Zivney, 1992)

This study examines weak-form market efficiency by analyzing whether current stock prices reflect all past price information, making future price predictions impossible. Using the runs test, the paper assesses price randomness to determine efficiency in selected companies listed on the National Stock Exchange (NSE). It highlights the roles of liquidity traders, who may cause price fluctuations, and information traders, who help

align market prices with intrinsic values. The study focuses on testing the weak-form Efficient Market Hypothesis, using historical stock price data to evaluate if patterns exist that could be exploited for predicting future price movements. (Gupta & Gedam, 2014)

This study investigates the impact of macroeconomic variables on Indian stock prices using the ARDL model, covering the period from April 2009 to March 2023. The findings reveal that macroeconomic factors significantly influence stock market returns in both the short and long term. Granger causality tests confirm the predictive power of domestic macroeconomic variables on stock prices. The study emphasizes the importance for investors, policymakers, and portfolio managers to monitor macroeconomic conditions to enhance returns and manage risks. It also recommends supportive policies by the Reserve Bank of India and government initiatives to maintain economic stability and foster market growth. (Ali, 2024)

2.7 Research Gap

While numerous studies have explored the volatility of Indian stock markets and the performance of sectoral indices using conventional econometric and statistical models, there remains a significant gap in focused research analyzing the detailed price behavior of individual banking stocks over an extended period. Specifically, studies concentrating on HDFC Bank—one of India's leading private sector banks and a major constituent of the BSE Sensex—have often been restricted to event-specific evaluations or short-term volatility analyses.

Existing literature rarely integrates the examination of monthly high and closing prices, measures of central tendency and dispersion, and the relationship between stock prices and trading turnover using simple yet effective statistical tools such as the Sign Test and correlation analysis. Furthermore, many studies overlook the value of utilizing open-source statistical software like Gretl,

which enhances the accessibility and replicability of financial research.

This study seeks to bridge these gaps by offering a comprehensive and data-centric analysis of HDFC Bank's stock price behavior from June 2005 to May 2025. By applying classical statistical methods and focusing on long-term monthly data patterns, the research provides novel insights into investor behavior and stock dynamics. It not only addresses theoretical deficiencies in the existing literature but also delivers practical implications for stakeholders aiming to assess market consistency and make informed investment decisions.

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Chapter III

DATA ANALYSIS AND INTREPRETATION

3.1 Introduction

This chapter presents the methodological framework adopted for examining the stock price behavior of HDFC Bank during the period from June 2005 to May 2025. It outlines the research design, data sources, variables considered, software tools utilized, and the analytical techniques applied. The methodology has been structured to ensure a systematic approach toward achieving the research objectives and testing the hypotheses. To carry out the analysis, a combination of software and statistical tools was employed. Microsoft Excel was used for preliminary data organization and visual representation, while Gretl software was utilized for conducting detailed statistical and time series analysis. Key analytical methods, including

descriptive statistics, time series plotting, the Sign Test, and correlation analysis, were applied to assess the patterns and trends in HDFC Bank's stock price behavior.

The specific objectives guiding this study are:

1. To describe the central tendency and dispersion characteristics of stock prices of HDFC Bank.
2. To analyze the monthly price movements of over a 20-year period from 2005-2025.
3. To examine the relationship between monthly stock prices and trading turnover.
4. To identify any long-term trends in the performance of the stock.

The results of the analysis are presented in the subsequent sections, accompanied by detailed interpretations based on the statistical findings.

3.2 Data Description

The present study is based on secondary data consisting of monthly stock price information of

HDFC Bank, collected from the official website of the Bombay Stock Exchange (BSE). The data includes essential stock market indicators such as the monthly high price, monthly closing price, and monthly trading turnover (volume of shares traded), which are vital for examining stock price behavior, market volatility, and trading patterns over time.

The study period spans twenty years, from June 2005 to May 2025, offering an extensive view of stock performance across varying economic and market conditions. With observations recorded monthly, the dataset comprises 240 data points (12 months $\times$ 20 years) for each variable. The data, sourced from credible financial platforms, includes the following variables for each month:

- Month – Time index from June 2005 to May 2025
- Open Price – Stock price at the beginning of the month
- High Price – Highest traded price during the month

- Low Price – Lowest traded price during the month
- Close Price – Last traded price at the end of the month
- Number of Shares – Total number of shares traded during the month
- Number of Trades – Number of individual transactions executed
- Total Turnover (Rs.) – Aggregate value of all trades conducted in Indian rupees

For this study, particular focus has been given to the High Price, Close Price, and Total Turnover (Rs.), as these variables are considered most relevant for analyzing price behavior and trading activity. Since the dataset is time-series in nature, it enables a longitudinal assessment of the stock price dynamics of HDFC Bank. Prior to analysis, the data was carefully cleaned and validated to ensure accuracy, reliability, and consistency throughout the study period.

3.3 Descriptive Statistics

This section presents the measures of central tendency and range for the monthly stock prices of HDFC Bank, offering a foundational insight into the stock's price behavior over the 20-year study period. The analysis focuses on key price variables, including Open, High, Low, and Close prices. Table 3.1 summarizes the computed measures of central tendency (mean, median) and the range (maximum, minimum, and range values) for each of these variables, providing an overview of the stock's performance across different market phases from June 2005 to May 2025.

Table 3.1

Descriptive Statistics: Central Tendency

	Mean	Median	Minimum	Maximum
Open Price	1322.6	1305.4	431.80	2527.0
High Price	1401.8	1449.4	470.05	2582.5
Low Price	1238.7	1220.5	400.45	2403.4

Close Price	1325.7	1333.7	427.05	2502.6
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Source: Secondary Data Gretl Output

Interpretation:

The descriptive statistics for HDFC Bank's stock prices over the 20-year period from June 2005 to May 2025 offer a clear understanding of the stock's price behavior over time. The mean Open Price was ₹1322.6, while the mean Close Price was ₹1325.7, indicating that the stock generally maintained its value throughout each month with minimal net movement. The mean High Price of ₹1401.8 and mean Low Price of ₹1238.7 reflect a moderate range of fluctuation within each month, typical of a stable and actively traded stock. The median values for Open (₹1305.4) and Close (₹1333.7) are close to their respective means, suggesting a relatively symmetrical distribution of data. The minimum prices ₹431.80 (Open), ₹470.05 (High), ₹400.45 (Low), and ₹427.05 (Close) highlight the lower bound of stock performance, likely reflecting market downturns or

economic slowdowns during the study period. Conversely, the maximum values ₹2527.0 (Open), ₹2582.5 (High), ₹2403.4 (Low), and ₹2502.6 (Close) demonstrate significant growth in stock value, indicating strong long-term performance and market confidence in HDFC Bank. Overall, the data shows consistent price stability with long-term upward movement, reflecting the bank's strong market position and financial resilience.

Table 3.2 shows the measure of dispersion and shape of the data.

Table 3.2

Descriptive Statistics: Measures of Dispersion

	SD	CV	Skewness	Ex. Kurtosis
Open Price	514.21	0.38880	0.23102	-0.7580
High Price	532.12	0.37959	0.18706	-0.7797
Low Price	490.98	0.39637	0.26285	-0.8082

Close Price	512.10	0.38630	0.22277	-0.7667
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Source: Secondary Data, Gretl Output

Interpretation:

The measures of dispersion and shape for HDFC Bank's stock prices over the 20-year period from June 2005 to May 2025 provide important insights into the stock's volatility and distribution. The standard deviation values range from ₹490.98 for the Low Price to ₹532.12 for the High Price, indicating a moderate degree of fluctuation around the mean. The coefficient of variation (CV), which reflects relative variability, lies between 0.37959 and 0.39637, suggesting that monthly prices fluctuated around 38–40% of their average values—a typical pattern for a stable, long-term investment in a dynamic market. Skewness values are slightly positive across all variables, indicating a mild right-skew in the distribution, where occasional higher prices were recorded. Additionally, the negative excess kurtosis values, ranging from -0.75800 to -0.80819, indicate that

the distributions are platykurtic, meaning they are flatter than the normal distribution with lighter tails. This suggests that extreme price movements were relatively rare during the study period. Overall, the analysis points to moderate volatility, limited outliers, and consistent price behavior, reflecting HDFC Bank's steady performance over time.

3.4 Price Movement Analysis

This section examines the monthly price movements of HDFC Bank over the 20-year period from June 2005 to May 2025. A time series plot of the Open, High, Low, and Close prices has been used to analyze both long-term trends and short-term fluctuations in the stock's performance. This visual representation helps in understanding the overall direction of the stock, periods of volatility, and significant market events that may have influenced price behavior.

Figure 3.1 presents the time series trend of HDFC Bank's stock prices during the study period.

Figure 3.4

Price Movement Analysis



Source: Secondary Data, Gretl Output

Interpretation

The time series plot of HDFC Bank's monthly High and Low stock prices from 2005 to 2025 illustrates key trends and fluctuations in the stock's performance over the 20-year period. The High Price consistently remains above the Low Price, indicating a stable and predictable trading range. From 2005 to 2008, the stock experienced steady growth, followed by a sharp decline during the 2008–2009 global financial crisis. A gradual recovery is observed from 2010 to 2015, marked by moderate growth. Between 2016 and 2020, the

stock shows a strong upward trend, reflecting robust performance and increased investor confidence. A significant drop appears in early 2020, coinciding with the onset of the COVID-19 pandemic and its impact on financial markets. However, the stock rebounds quickly, demonstrating resilience and entering a phase of short-term fluctuations with a general upward trend. Toward 2025, the prices show consistent growth, indicating renewed stability and long-term strength. Overall, the relatively narrow and stable gap between High and Low prices throughout the period suggests controlled volatility and a positive outlook for the stock over time.

3.5 Testing of Normality

Doornik-Hansen test for normality was applied to determine whether the data follows a normal distribution. The following hypothesis is formulated.

H_0 : The data for stock prices follows a normal distribution.

Table 3.3

Testing Normality

Particulars	Test Statistic Value	p-Value
Open Price	12.3973	0.00203
High Price	11.0264	0.00403
Low Price	15.8919	0.00035
Close Price	12.2485	0.00219

Source: Secondary Data, Gretl Output

Since the p-values for all variables are significantly less than 0.05, the null hypothesis of normality is rejected, indicating that the data do not follow a normal distribution. Hence, we move forward to non -parametric test in testing of all hypotheses.

3.6 Directional Analysis

This section evaluates whether the monthly High Prices of HDFC Bank's stock are consistently greater than the corresponding Close Prices over the study period. To conduct this analysis, the Sign

Test a non-parametric statistical method is applied. This test is useful for identifying the direction of differences in paired data without assuming a normal distribution. By analyzing the frequency of months in which the High Price exceeds the Close Price, the Sign Test helps determine whether there is a consistent directional pattern in price behavior, potentially reflecting underlying market dynamics, investor sentiment, or trading strategies. The following null hypothesis is formulated for the analysis:

H_0 : There is no significant directional difference between the monthly High Prices and Close Prices of the stock.

The Sign Test evaluates whether the number of positive and negative differences between the paired observations deviates significantly from what would be expected by random chance, thereby providing insights into potential pricing patterns in the market.

Sign Test

Test for difference between High Price and Close Price

Number of differences: $n = 240$

Number of cases with High Price $>$ Close Price: $w = 240$ (100.00%)

Under the null hypothesis of no difference, W follows $B(240, 0.5)$

$\text{Prob}(W \leq 240) = 1$

$\text{Prob}(W \geq 240) = 5.6598\text{e-}073$

Interpretation

The Sign Test results show that out of $n = 240$ observations, in every single case ($w = 240$; 100%), the High Price exceeded the Close Price. Under the null hypothesis, the number of differences is assumed to follow a binomial distribution $B(240, 0.5)$. However, the observed outcome (all 240 differences in the same direction) yields a probability value of approximately $p = 5.66 \times 10^{-73}$, which is essentially zero.

Since the p-value is far below any conventional significance level, the null hypothesis (H_{01}) is decisively rejected. This provides very strong statistical evidence that there is a consistent and significant directional difference between monthly high prices and closing prices, with the High Price being greater than the Close Price in all observed months.

3.7 Pearson Correlation Coefficient

To assess the relationship between stock price and trading turnover. Correlation coefficients, using the observations 2015:05 - 2025:05 5% critical value (two-tailed) = 0.1660 for $n = 240$

Table 3.4

Correlation matrix

Open Price	High Price	Low Price	Close Price	No. of shares	
1.000	0.992	0.395	0.939	0.231	Open Price

	1.000	0.948	0.953	0.237	High Price
		1.000	0.991	0.219	Low Price
			1.000	0.224	Close Price
				1.000	No. of shares

Interpretation of Correlation Matrix

Table 3.4 presents the correlation matrix of stock prices and the number of shares traded. The results show that the different stock price variables—Open, High, Low, and Close—are highly and positively correlated with each other. For instance, the Open Price has a very strong correlation with the High Price (0.9918) and Close Price (0.9393), while the Low Price also shows a strong association with both High (0.9477) and Close Prices (0.9910). This indicates that the stock prices tend to move together, reflecting a high degree of

interdependence in daily price fluctuations. On the other hand, the correlations between the number of shares traded and stock prices are relatively weak and positive, ranging from 0.2191 to 0.2370. This suggests that variations in trading volume do not strongly influence or align with changes in stock prices within the observed period. Overall, the analysis highlights strong internal consistency among price movements, but only a limited relationship between stock prices and trading activity.

Table 3.5

Correlation Analysis

Variables	Correlation	Interpretation
Open Price & High Price	0.991773	Very strong positive correlation — when Open Price increases, High Price tends to increase significantly.

Open Price & Low Price	0.947043	Very strong positive correlation — changes in Open Price are strongly associated with changes in Low Price.
Open Price & Close Price	0.939303	Very strong positive correlation — Open and Close prices move closely together.
Open Price & No of Shares traded	0.117919	Weak positive correlation — Open and No. of shares traded has a weak association with each other.
High Price & Low Price	0.947703	Very strong positive correlation.

High Price & Close Price	0.952476	Very strong positive correlation.
High Price & No of Shares traded	-0.060904	Strong negative correlation.
Low Price & Close Price	0.99103266	Very strong positive correlation.
Low Price & No of Shares traded	- 0.09468308	Strong negative correlation.
Close Price & No of shares traded	-0.083437	Strong negative correlation.

All price variables (Open, High, Low, Close) are very strongly correlated with each other (above 0.93). This is expected in stock/commodity price data where prices throughout the day move closely together. Total Turnover Rs only has negative

correlations (-0.09 to -0.08 range) with price variables. This suggests that turnover (trading volume $\times$ price) is not strongly influenced by price levels alone, it may be affected by other factors like market demand, speculation, or external events. The following null hypothesis is tested.

H_{03} There is no linear correlation between stock price and turnover

Spearman's rank correlation coefficient is used for testing the linearity between low price and total turnover.

Spearman's rank correlation

Spearman's rank correlation coefficient (ρ) = 0.40477509

Under the null hypothesis of no correlation: $t(238) = 6.82902$, with two-tailed p -value 0.0000

Interpretation

The Spearman's rank correlation coefficient between the variables is 0.405, indicating a moderate positive association. This means that as one variable increases, the other also tends to

increase, though not in a perfect linear fashion. To test the significance of this relationship, a t-statistic of 6.83 was obtained with 238 degrees of freedom, yielding a two-tailed p-value of 0.0000. Since the p-value is far below the conventional significance level of 0.05, the null hypothesis of no correlation is rejected. Thus, it can be concluded that there exists a statistically significant positive correlation between the two variables under study, suggesting that their movements are meaningfully related.

3.8 Conclusion

The analysis of HDFC Bank's stock prices over the 20-year period from June 2005 to May 2025 provides comprehensive insights into its price behaviour, volatility, and trading dynamics. Descriptive statistics revealed consistent growth with moderate fluctuations, indicating long-term stability and resilience. Measures of dispersion and shape highlighted moderate volatility, slight positive skewness, and limited outliers, confirming controlled price movements. The time series analysis captured key market events such as the

2008 financial crisis and the 2020 COVID-19 pandemic, while also reflecting the bank's strong recovery and upward trend in recent years. Normality testing showed that the data does not follow a normal distribution, justifying the use of non-parametric methods. The Sign Test decisively established a consistent directional difference, with High Prices always exceeding Close Prices. Correlation analysis demonstrated strong interdependence among price variables, though trading volume showed only weak or negative associations with prices. Finally, Spearman's rank correlation confirmed a statistically significant moderate positive relationship between prices and turnover. Overall, the findings portray HDFC Bank as a fundamentally stable and growing stock, with predictable price patterns and strong long-term performance despite external shocks.

Chapter IV

FINDINGS AND SUGGESTIONS

4.1 Introduction

This chapter presents the major findings derived from the detailed analysis of the share price movements and trading behaviour of HDFC Bank over the twenty-year period from June 2005 to May 2025. The analysis, which employed descriptive statistics, time series trends, correlation tests, and other statistical tools, provides a comprehensive view of the stock's performance and volatility across different market phases. The findings highlight not only the internal patterns in price fluctuations and turnover but also the influence of broader economic conditions, regulatory changes, and external market events on the bank's share price behaviour. The results are systematically discussed in line with the research objectives, offering a clear linkage between the analytical outcomes and the aims of the study. Based on these empirical insights, a set of practical

suggestions is put forward for investors, financial analysts, and academic researchers. These recommendations are intended to improve investment decisions, enhance market interpretation, and contribute to further research in the area of stock price behaviour and financial market dynamics.

Research Objectives

The specific objectives guiding this study are:

1. To describe the central tendency and dispersion characteristics of stock prices of HDFC Bank.
2. To analyze the monthly price movements of over a 20-year period from 2005-2025.
3. To examine the relationship between monthly stock prices and trading turnover.
4. To identify any long-term trends in the performance of the stock.

4.2 Summary of Findings

The analysis of HDFC Bank's share price movements from 2005 to 2025 revealed that the mean Open and Close prices were almost identical, showing minimal monthly net change, while the trading range and standard deviation reflected moderate stability and controlled volatility. The distribution was slightly right-skewed with limited outliers. Over the 20-year period, the stock experienced steady growth until the 2008 financial crisis, gradual recovery between 2010 and 2015, strong upward momentum from 2016 to early 2020, and a sharp fall in 2020 due to the COVID-19 pandemic, followed by a quick rebound. By 2025, the stock displayed consistent long-term growth with resilience to market shocks. Price variables were strongly correlated with each other, while trading turnover showed only weak to moderate correlation, indicating that external factors influenced trading activity. Overall, HDFC Bank shares demonstrated stability, predictable trading ranges, and strong recovery potential,

making it a fundamentally resilient and investor-confident stock.

4.2.1 Summary of Data

The study utilized monthly time-series data of HDFC Bank from June 2005 to May 2025, comprising 240 observations. The key variables analyzed include Open Price, High Price, Low Price, Close Price, Number of Shares Traded, Number of Trades, and Total Turnover (Rs.). This dataset captures stock price behavior and trading activity over a 20-year period, allowing for an in-depth examination of market trends, volatility, and relationships among price and volume variables. The data was cleaned, validated, and analyzed using Gretl and Excel to ensure reliability and accuracy for statistical interpretation

4.2.2 Central Tendency and Dispersion

1. The mean Open Price (₹1322.6) and mean Close Price (₹1325.7) were almost identical, indicating minimal net movement within months.

2. The stock's High Price (₹1401.8) and Low Price (₹1238.7) reflected a moderate trading range, typical of a stable stock.
3. Median values were close to their means, suggesting a relatively symmetrical distribution of monthly stock prices.
4. Standard deviation values (₹490–₹532) showed moderate fluctuations around the mean, indicating controlled volatility.
5. Positive skewness and negative excess kurtosis highlighted that the distribution was slightly right-skewed and flatter than normal, implying limited outliers.

The analysis of HDFC Bank's stock prices from 2005 to 2025 shows that the mean Open (₹1322.6) and Close (₹1325.7) prices were nearly identical, reflecting minimal monthly net movement. The High (₹1401.8) and Low (₹1238.7) prices indicated a moderate trading range, consistent with a stable stock. Median values closely matched the means, suggesting a symmetrical distribution of prices. Standard deviation values (₹490–₹532) confirmed moderate fluctuations, pointing to

controlled volatility. The distribution showed slight positive skewness and negative excess kurtosis, implying a right-skewed but flatter pattern with limited outliers. Overall, the results suggest that HDFC Bank's stock-maintained stability and resilience with predictable fluctuations across the study period.

Theoretical linkage- Efficient Market Hypothesis (EMH)

The central tendency and dispersion characteristics of HDFC Bank's stock prices align with the Efficient Market Hypothesis (EMH), particularly its semi-strong form. The close similarity between mean Open and Close prices indicates that the stock market efficiently absorbs available information, minimizing abnormal fluctuations within months. The moderate trading range and controlled volatility observed through standard deviation suggest that price adjustments occur in response to new information but within predictable limits, reflecting rational investor behaviour. The slightly right-skewed and flatter-than-normal

distribution, as shown by positive skewness and negative excess kurtosis, implies occasional upward price movements driven by favourable market news, while the absence of extreme outliers supports the idea of stability in an information-efficient market. These findings reinforce Malkiel's (1989) assertion that stock prices generally follow a random walk, where prices reflect available information and volatility emerges mainly from new market-relevant events.

4.2.3 Monthly Price Movements

1. Between 2005 and 2008, the stock exhibited steady growth, followed by a sharp fall during the global financial crisis (2008–2009).
2. From 2010 to 2015, HDFC Bank stock gradually recovered, showing moderate upward growth.
3. A strong upward trend was observed between 2016 and early 2020, reflecting investor confidence.

4. A sharp decline occurred in 2020 due to the COVID-19 pandemic, but the stock rebounded quickly thereafter.
5. By 2025, the stock displayed consistent growth with controlled volatility, reflecting renewed long-term strength.

The analysis of monthly price movements of HDFC Bank from 2005 to 2025 shows that the stock experienced steady growth until the 2008 global financial crisis, which caused a sharp decline. Between 2010 and 2015, the stock gradually recovered with moderate upward growth, followed by a strong bullish trend from 2016 to early 2020, reflecting investor confidence. The COVID-19 pandemic in 2020 led to a sudden drop, but the stock rebounded quickly and, by 2025, demonstrated consistent long-term growth with controlled volatility, highlighting its resilience and strength.

Theoretical Linkage- Random Walk Theory and the Efficient Market Hypothesis (EMH)

The monthly price movements of HDFC Bank over the two decades can be explained through the lens of the Random Walk Theory and the Efficient Market Hypothesis (EMH). According to Random Walk Theory, stock prices move unpredictably and incorporate new information as it becomes available, leading to fluctuations that cannot be consistently forecasted. The sharp fall during the global financial crisis (2008–2009) and the COVID-19 pandemic (2020) reflects sudden incorporation of global shocks into market prices, while the subsequent recoveries demonstrate the market's adjustment to improved economic and financial conditions. The sustained upward momentum between 2016 and early 2020 illustrates investor confidence and efficient absorption of positive financial information. EMH, particularly in its semi-strong form, further explains that these shifts occur because prices rapidly reflect publicly available macroeconomic events, policy changes, and company performance.

Thus, the long-term upward trajectory of HDFC Bank's stock, punctuated by short-term shocks, aligns with theoretical expectations that efficient markets react quickly to external events while maintaining overall growth trends in fundamentally strong stocks.

4.2.4 Monthly Stock Prices and Trading Turnover.

1. Price variables (Open, High, Low, Close) were strongly correlated with each other (above 0.93), indicating synchronized price movements.
2. Trading volume showed only weak positive correlations with stock prices (0.21–0.23), suggesting limited alignment between price changes and number of shares traded.
3. In some cases, the correlation between price and number of shares traded was negative, showing inverse movement trends.
4. Spearman's rank correlation coefficient ($\rho = 0.405$, $p < 0.05$) indicated a statistically

significant moderate positive relationship between prices and turnover.

5. These findings imply that while stock prices move closely together, trading activity is influenced by other factors like speculation, demand, or external market events.

The analysis shows that HDFC Bank's stock prices (Open, High, Low, Close) were strongly correlated with each other, reflecting synchronized price movements. However, trading volume showed only weak to moderate correlation with stock prices, and in some cases even negative relationships, suggesting that turnover does not always move in line with price changes. Spearman's rank correlation confirmed a statistically significant but moderate positive relationship, indicating that while prices rise and fall together, trading activity is also influenced by external factors such as speculation, demand shifts, or market events.

Theoretical Linkage- Efficient Market Hypothesis (EMH) and Liquidity Preference Theory

These results can be linked to the Efficient Market Hypothesis (EMH) and Liquidity Preference Theory. Under the semi-strong EMH, stock prices quickly adjust to new public information, explaining the strong internal correlation between price variables. However, the weaker relationship with trading turnover suggests that trading volume is not purely information-driven, but also shaped by investor sentiment, speculation, and liquidity needs. Liquidity Preference Theory further supports this by highlighting that trading intensity may vary depending on investors' risk perception and market conditions, rather than directly tracking price changes. Thus, while HDFC Bank's stock prices move efficiently with available information, trading activity remains event-driven and irregular.

4.2.5 Long-Term Trends in Performance

The descriptive and time-series results highlight consistent long-term upward growth in HDFC Bank's stock price.

1. Despite market shocks (2008 crisis and 2020 pandemic), the stock demonstrated resilience and strong recovery.
2. High Prices consistently exceeded Close Prices in all 240 months, showing a statistically proven directional pattern.
3. The stock maintained a predictable trading range with controlled volatility across two decades.
4. Overall, HDFC Bank has emerged as a fundamentally stable and growing stock, reflecting strong investor confidence and financial resilience over the long term.

The long-term analysis of HDFC Bank's stock performance from 2005 to 2025 revealed a consistent upward growth trend, supported by resilience during major shocks such as the 2008 global financial crisis and the 2020 COVID-19

pandemic. High Prices consistently exceeded Close Prices throughout the 240-month period, indicating a stable directional pattern. The stock also maintained predictable trading ranges with controlled volatility, confirming its reputation as a fundamentally strong and reliable investment. Overall, HDFC Bank demonstrated financial resilience, stability, and growing investor confidence over the two decades.

Theoretical Linkage- Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT)

These findings align with the Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT). Under EMH, the stock's ability to recover quickly from crises reflects efficient adjustment to new information, while the consistent long-term upward trend highlights the market's recognition of HDFC Bank's strong fundamentals. Modern Portfolio Theory supports the view that stable, resilient stocks like HDFC Bank provide predictable returns with controlled risk, making

them attractive for long-term investors seeking risk-adjusted growth. Together, these theories explain how the stock maintained long-term stability and growth despite short-term volatility.

4.3 Suggestions

1. **Safe Long-Term Investment:** Based on the controlled volatility and stable price distribution (Finding from Objective 1), HDFC Bank shares can be considered a reliable option for long-term investors.
2. **Crisis-Time Investment Strategy:** The patterns during the 2008 financial crisis and 2020 pandemic (Finding from Objective 2) suggest that buying during downturns and holding through recovery can yield strong returns.
3. **Cautious Use of Trading Volume Data:** Since trading turnover showed weak correlation with price movements (Finding from Objective 3), investors should avoid relying solely on volume trends for decision-making and instead focus on market fundamentals.

4. Focus on External Market Events: Trading activity was influenced more by speculation and global events than by price alone (Finding from Objective 3), so monitoring external factors can improve forecasting and investment strategies.
5. Encouragement for Long-Term Holding: The consistent growth trend and resilience to shocks (Finding from Objective 4) indicate that HDFC Bank is suitable for institutional investors and individuals seeking stable, long-term returns.
6. Benchmark for Banking Sector Studies: Given its predictable trading range and stable upward trajectory (Finding from Objective 4), HDFC Bank can serve as a benchmark for analysing the overall stability of the Indian banking sector.

4.3.1 Scope for Further Study

The present study has analysed the stock price movements of HDFC Bank from 2005 to 2025, but there is considerable scope for further research to broaden the understanding of its market behaviour. Future studies could conduct a comparative analysis with other leading banks such as ICICI,

Axis, and SBI to capture sector-wide patterns, or explore the impact of macroeconomic indicators like inflation, interest rates, and monetary policies on stock performance. An event study approach could also be applied to assess the effects of regulatory reforms, mergers, or RBI policy announcements. In addition, adopting a behavioural finance perspective would help examine investor reactions during crises such as the 2008 crash and the 2020 pandemic. Further, the use of high-frequency data (daily or intraday) could provide insights into short-term volatility and liquidity trends, while cross-market comparisons with HDFC Bank's performance in international markets, such as ADRs, could highlight global investor sentiment. Finally, predictive modelling using advanced econometric or machine learning techniques may be employed to forecast price movements and support more informed investment decisions.

4.4 Conclusion

The analysis of HDFC Bank's stock price behaviour over the twenty-year period (2005–2025) provides valuable insights into its stability, resilience, and long-term growth. The findings confirm that the stock maintained predictable price movements with moderate volatility, supported by strong fundamentals and investor confidence. Short-term disruptions caused by global shocks, such as the 2008 financial crisis and the 2020 COVID-19 pandemic, were efficiently absorbed by the market, with the stock demonstrating quick recovery and regaining upward momentum. While the price variables moved closely together, trading turnover showed only weak to moderate correlation with prices, highlighting the influence of speculation, demand, and external factors on trading activity. The consistent long-term upward trend, coupled with controlled volatility, positions HDFC Bank as a fundamentally strong and reliable stock for long-term investors.

The study's theoretical linkages further strengthen these findings. The Efficient Market Hypothesis (EMH) explains the stock's responsiveness to new information and the efficient incorporation of global events into price movements. The Random Walk Theory supports the unpredictability of short-term fluctuations, while the Liquidity Preference Theory highlights the irregular nature of trading activity influenced by investor sentiment. Modern Portfolio Theory (MPT) reinforces the value of HDFC Bank as a stable component in diversified investment portfolios, offering predictable returns with controlled risk. Overall, the study demonstrates how HDFC Bank's share price reflects both efficient market dynamics and strong institutional fundamentals, making it a benchmark for stability within the Indian banking sector.

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