

MAJOR RESEARCH PROJECT ON
SECTORAL SENSITIVITY OF INDIAN EQUITIES
TO MACROECONOMIC INDICATORS:
A COMPARATIVE STUDY (2020–2026)

Submitted By

Nikita Gupta

24/DMBA/151

Under the Guidance of

Dr. MOHIT BENIWAL

Assistant Professor, Delhi School of Management



DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road, Delhi – 110042

CERTIFICATE

It is hereby certified that Nikita Gupta, roll no. 2K24/DMBA/151, has successfully submitted the major research project report entitled "**Sectoral Sensitivity of Indian Equities to Macroeconomic Indicators: A Comparative Study (2020–2026)**" in partial fulfilment of the requirement for the award of the degree of **Master of Business Administration (MBA) from Delhi School of Management, Delhi Technological University, Delhi** for the academic session 2025-2026.

Dr. Mohit Beniwal

Assistant Professor

Delhi School of Management

Delhi Technological University

Date: _____

Place: Delhi

DECLARATION

I, Nikita Gupta, student of MBA (Final Year), Roll No. 24/DMBA/151, Delhi School of Management, Delhi Technological University, hereby declare that the Major Research Project titled:

“Sectoral Sensitivity of Indian Equities to Macroeconomic Indicators: A Comparative Study (2020–2026)”

is an original piece of independent academic work undertaken by me under the supervision of Dr. Mohit Beniwal, Delhi School of Management.

I further declare that:

- (i) This project has not been submitted for the award of any degree or diploma to any university or institution previously.
- (ii) All data, tables, charts, and statistical outputs presented in this report are based on secondary data collected from authoritative public sources including the Reserve Bank of India (RBI), Ministry of Statistics and Programme Implementation (MOSPI), National Stock Exchange of India (NSE), U.S. Energy Information Administration (EIA), and Investing.com.
- (iii) No portion of this work has been copied from any published source without proper acknowledgement in the references section.
- (iv) Regarding the authenticity and reliability of the information contained in this project, I assume full responsibility.

Nikita Gupta

Roll No. 24/DMBA/151

MBA – Delhi School of Management

Delhi Technological University

Signature: _____

Date: _____

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Nikita Gupta

24/DMBA/151

Delhi School of Management

Delhi Technological University

EXECUTIVE SUMMARY

From January 2020 to March 2026, India's equity markets went through one of the most tumultuous and structurally consequential macroeconomic periods in modern history. The COVID-19 pandemic squeezed GDP by 7.3 percent in FY21, compelled the Reserve Bank of India to slash the repo rate to a historic low of 4.00 percent and fundamentally re-ordered sectoral performance trajectories. The recovery that followed was not uniform, but starkly bifurcated: tech-led sectors boomed on the back of global digital adoption, banking stocks languished with high non-performing assets, energy companies swung wildly with crude prices, and consumer goods companies quietly absorbed input cost shocks.

In the present study, we try to measure the effect of five macroeconomic variables, RBI repo rate, CPI inflation, USD/INR exchange rate, Index of Industrial Production (IIP) growth and Brent crude oil prices on the monthly equity returns of four NSE sectoral indices, Nifty Bank, Nifty IT, Nifty FMCG and Nifty Energy for this 75-month time span. The analytical framework employs descriptive statistics, the Pearson correlation analysis, simple linear regression and time-series trend analysis on a secondary dataset obtained entirely from official repositories.

The results confirm that macroeconomic sensitivity at the sectoral level is large and economically meaningful. The banking sector was found to be the most sensitive sector to the interest rate. The highest correlation was found between the repo rate and Nifty Bank among all the sector-variable pairs. The IT sector had the most pronounced response to exchange rate movements, reflecting the structural dominance of dollar-denominated revenues among its major constituents. FMCG was relatively macro resilient during periods of economic contraction, but vulnerable during periods of high CPI inflation, mainly through the cost side channel. The performance of the energy sector was mainly driven by the price movement of crude oil with the commodity shock of Russia-Ukraine in 2022 resulting in the largest multi-month swing of Nifty Energy returns during the study period.

From a policy perspective, the results suggest that the asymmetric sectoral costs of monetary tightening cycles should be explicitly factored in the communication strategy of the Reserve Bank of India. For investors, the sector-macro sensitivity profiles identified in this study provide a practical basis for macro-driven tactical allocation across equity segments.

The project is divided into six substantive chapters. Chapter 1 gives the background and the rationale of the research. Chapter 2 profiles the four sectors and describes their structural characteristics. The relevant academic literature is reviewed in Chapter 3. Chapter 4 describes the methodology and data sources of the research. Full data analyses, statistical outputs and interpretations are presented in Chapter 5. Chapter 6 concludes the findings and provide recommendations for investors, policy makers and future researchers.

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

For decades, the link between macroeconomic environments and equity markets has been one of the major issues in financial economics. The question has taken on a new urgency in the Indian context in the wake of the extraordinary macro-economic disruptions of the post-pandemic period. The Indian economy has experienced at least four broad macro phases between January 2020 and March 2026: a pre-lockdown phase of modest growth, a COVID-19 shock that led to a catastrophic contraction, a recovery that was uneven and sector differentiated, and finally a tightening cycle in response to domestic and imported inflation. Each phase had its own imprint on sectoral equity performance.

The Indian equity market is one of the more mature in the emerging world. The National Stock Exchange has several sectoral indices which enable investors and researchers to monitor the performance of the industries in real time. Unlike aggregate benchmarks like Nifty 50 or Sensex, sectoral indices like Nifty Bank, Nifty IT, Nifty FMCG and Nifty Energy capture the performance of a group of companies that are economically very different and whose fortunes are driven by very different macroeconomic forces. For a banking company, the RBI's interest rate decisions are very sensitive. Rupee-dollar rate is important for an IT services exporter. FMCG company selling staples is fairly insulated from cyclical downturns but exposed to food commodity inflation. An energy company's earnings are directly related to the price of crude oil in the world.

The Covid-19 pandemic that hit India in early 2020 led to the sharpest contraction in GDP in independent India's history – 7.3 per cent for the financial year 2020-21. In response, the Reserve Bank of India implemented emergency monetary easing, cutting the benchmark repo rate from 5.15 percent in February 2020 to 4.00 percent by May 2020—a level it has held through April 2022. At the same time, the government implemented a series of fiscal support measures, including direct benefit transfers, credit guarantee schemes and increased public expenditure, to stabilise household consumption and business activity.

When recovery came, it was dramatically uneven. The IT industry saw record revenue growth as the global pandemic accelerated digital transformation across all industries,

increasing the need for cloud services, cybersecurity solutions and remote work infrastructure. On the other hand, banking sector stocks had to contend with long-drawn headwinds of high credit stress, uncertainty created by the loan moratorium and time lag in NPA recognition. The energy sector has swung from historic lows, with Brent crude briefly dipping below 20 dollars a barrel in April 2020, to multi-year highs above 120 dollars in the wake of the Russia-Ukraine conflict in early 2022. FMCG companies saw relatively stable volume growth but encountered severe gross margin pressure from commodity and packaging cost inflation through 2021 and 2022.

By mid-2022, inflation was the dominant macroeconomic problem. CPI inflation jumped above 7 percent, driven by food prices, high energy costs and supply chain disruptions that built up during the pandemic. The RBI, which had held the repo rate steady for two consecutive years, took a sharp turn to tightening in May 2022, raising rates by a total of 250 basis points to 6.50 percent by February 2023. This tightening cycle had its own sectoral implications, most notably a reversal of the rate-compression headwind for banks, and a fresh challenge for interest-rate-sensitive consumption-driven businesses.

Examining how these macro events are reflected in equity sector performance is not just an academic exercise. Knowledge of the sector-macro linkages enables the portfolio managers to be tactical in their allocation and anticipate rather than react to macro-economic turning points. The knowledge that a rate hike has a greater impact on banking margins as compared to IT exports helps policy makers in fine tuning the communication around monetary decisions. For corporate managers, understanding whether their sector's equity valuation is most sensitive to the exchange rate, interest rates or crude prices can help inform hedging and capital allocation decisions.

1.2 Problem Statement

Most of the existing research on macroeconomic influences on Indian equity markets have been directed towards the aggregate market indices such as BSE Sensex or CNX Nifty 50. This approach, although yielding useful general insights, also obscures the considerable heterogeneity in the response of different sectors to the same macroeconomic shift. The repo rate hike affects the net interest margin of a bank almost

directly. But its impact on an IT exporter is through capital flows and dollar demand, so the transmission is very different.

The post-pandemic period (2020-2026) is a structural break in Indian macroeconomic history that has not yet been studied at the sectoral equity level in sufficient depth. The occurrence of a tightening cycle, supply-side inflation, the occurrence of emergency rate cuts and unprecedented global commodity price volatility over a single 75-month window provide a very rich environment for empirical analysis.

The main research question of this study is as follows: do macroeconomic variables have differential effects on sectoral equity indices in India in the post-pandemic period, and if yes, which sectors are more sensitive to which macroeconomic drivers?

1.3 Objectives of the Study

The specific objectives of this research are as follows:

- (i) To identify the macroeconomic variables which have statistically significant impact on sectoral equity prices in India during the period January 2020 to March 2026.
- (ii) To analyze the strength and direction of the linear relationship between each of the macroeconomic variables and the four sectoral indices through Pearson correlation analysis.
- (iii) To estimate the contribution of each macroeconomic variable on sectoral equity performance by simple linear regression, obtaining the regression coefficient and the R-squared of each association.
- (iv) Apply time-series trend analysis to trace the evolution of macroeconomics-equity linkages over the period 2020-2026, emphasizing major inflection points triggered by policy and geopolitical events.
- (v) To compare the macroeconomic sensitivity profiles of the banking, IT, FMCG and energy sectors and identify the most sensitive sector to each variable.
- (vi) To derive practical investment and policy implications from the empirical results for sector-specific equity allocation and monetary policy communication.

1.4 Scope of the Study

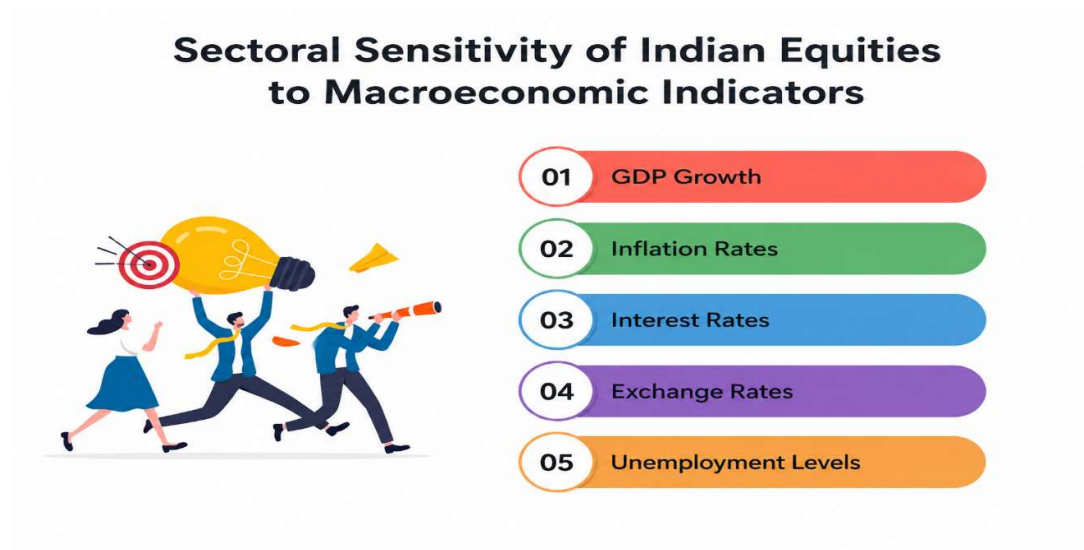
The scope of this study is defined along four dimensions:

Macroeconomic Variable:

The independent variables considered are as follows: (a) RBI repo rate, the key monetary policy instrument; (b) CPI inflation, the consumer price index; (c) USD/INR exchange rate; (d) IIP growth, an indicator of real economic activity on a monthly basis; (e) Brent crude oil price, the dominant global commodity input.

At the heart of this analysis lies a meticulous examination of several key macroeconomic variables, each wielding considerable influence over equity markets:

1. **Gross Domestic Product (GDP) Growth**
2. **Inflation Rates**
3. **Interest Rates**
4. **Exchange Rates**
5. **Unemployment Levels**



Sectoral Equity Indices

The study covers four NSE sectoral indices namely Nifty Bank (banking and financial services), Nifty IT (information technology services), Nifty FMCG (consumer goods) and Nifty Energy (oil, gas and power). These four sectors were selected because they are economically different, heavily traded and have contrasting macro-economic sensitivity profiles.

Period of Time

The analysis spans a period from January 2020 through March 2026, a total of 75 months, chosen to encompass a complete and internally consistent macroeconomic cycle.

Geographical Limits

The analysis is restricted to the Indian economy. All equity data refers to companies listed on the NSE. Macroeconomic data is sourced from official Indian sources

1.5 Research Gap

The present study addresses three major gaps in the current empirical literature identified through a literature review. First, most of the Indian macro-equity studies have focused on aggregate indices ignoring heterogeneity in sectoral sensitivity. Second, most of the existing studies are based on pre-pandemic data (until 2019) and hence do not analyze the structural break introduced by COVID-19 and the subsequent policy cycle at the sector level. Third, the 2020-2026 timeframe features a uniquely rich set of macroeconomic shocks, including emergency monetary easing, supply-side inflation, the largest commodity price cycle in over a decade, and a decisive tightening episode, all in one continuous time series. The present study fills this gap by providing a sectoral perspective, post-pandemic time period and a systematic methodology based on regression analysis to provide insights that are directly relevant for Indian equity investors and monetary policy makers today.

CHAPTER 2: INDUSTRY PROFILE

2.1 Indian Equity Sectors – A Snapshot

India's equity market is one of the ten largest in the world in terms of market capitalisation and is organised in the form of a well established system of sectoral indices maintained by NSE Indices Limited. Some of the most popular are Nifty Bank, Nifty IT, Nifty FMCG and Nifty Energy. The four indices together cover a wide field of economic activity, namely financial intermediation, export-oriented technology services, domestic consumption and energy production and distribution. All indexes are free-float market-capitalisation weighted and rebalanced semi-annually, so the index composition reflects current market realities.

The four sectors together accounted for a significant proportion of the total NSE market capitalisation during the study period and are thus not only analytically distinct but also practically important in the construction of institutional portfolios.

2.2 Banking Sector (Nifty Bank)

The Nifty Bank index includes the twelve most liquid and large cap banking stocks listed on the NSE. As of March 2026, its constituents are major public sector banks like State Bank of India and Bank of Baroda and dominant private sector banks such as HDFC Bank, ICICI Bank, Kotak Mahindra Bank and Axis Bank. Private sector banks have a disproportionate weight in the index, reflecting their superior market capitalisation relative to their public sector peers.

The business model of Indian commercial banks is structurally simple but sensitive to the monetary policy environment. Banks borrow from depositors at short-term rates and lend to borrowers at long-term rates. The gap between the two rates, the net interest margin, is the primary source of profit. The RBI's tweak in the repo rate has a direct bearing on the benchmark rates at which banks raise overnight funds which in turn has bearing on the marginal cost of funds-based lending rates (MCLR) and, with a lag, overall lending and deposit rates.

The pandemic brought an unusual mix of challenges to the banking sector. The RBI's emergency rate cuts squeezed NIMs and the loan moratorium during March-August 2020 created significant uncertainty around the actual level of credit stress in the system. During the moratorium period, banks were unable to classify loans as non-performing, delaying

NPA recognition, and consequently, the ability of investors to accurately price credit risk into bank equities. With the lifting of the moratorium and the announcement of the one-time restructuring window, the banking sector experienced a high provisioning phase that impacted reported earnings negatively.

The ensuing recovery from 2021-22 was underpinned by a confluence of factors: a cyclical uptick in credit demand as economic activity normalised, a gradual decline in the NPA ratio as legacy stress was resolved and, critically, the RBI's rate-hiking cycle from May 2022 onwards that widened NIMs as lending rates re-priced faster than deposit rates in the near term. One of the biggest corporate events in the index's history was the merger of HDFC Bank with HDFC Limited in 2023, which changed both the composition and performance characteristics of Nifty Bank.

On the structural side, the equity performance of the banking sector is also influenced by regulatory capital requirements under Basel III norms, priority sector lending requirements, government recapitalisation cycles for public sector banks and credit rating cycles for large borrower segments such as infrastructure and real estate. The complex dynamics observed in the time series data can be explained by the interaction of these factors with macroeconomic variables.

2.3 Information Technology Industry (Nifty IT)

The Nifty IT index is a benchmark index which tracks the performance of the top ten information technology companies listed on the NSE. Its main constituents are Tata Consultancy Services, Infosys, HCL Technologies, Wipro, Tech Mahindra and LTIMindtree. The main structural feature of this sector is that the overwhelming majority of revenues are generated in foreign currency, primarily US dollars, from clients based in North America, Europe and other developed markets. For large-cap IT companies, domestic Indian revenues generally represent less than 10 percent of total revenues.

This revenue structure implies a direct and quantifiable sensitivity to the USD/INR exchange rate. When the Indian rupee depreciates against the dollar, the rupee equivalent value of foreign revenues rises, directly inflating reported earnings and earnings per share in rupee terms. On the other hand, rupee appreciation squeezes reported margins even if underlying volumes and dollar billings are stable. This is not just a translation effect, it impacts real profitability as a large part of the cost base of IT companies is in rupees

(salaries, facilities, administration) while revenues are in dollars. Thus Rupee depreciation widens absolute terms margins.

There was a very strong period for the IT sector in the years 2020-2022 and it was a very strong period for two very different reasons. First, the pandemic accelerated the pace of digital transformation across industries worldwide. Companies in healthcare, retail, financial services and manufacturing rushed to invest in cloud migration, cybersecurity infrastructure, remote work platforms and data analytics. India's IT services companies were the key beneficiaries of this spend cycle with their large pools of skilled engineers and established delivery capabilities. FY22 witnessed multi-decade highs in revenue growth rates for top-tier IT firms.

Second, the rupee depreciated significantly during the course of the study, from around Rs. 71 per dollar at the beginning of 2020 to over Rs. 83 at the end of 2023, providing a structural currency tailwind that boosted reported earnings growth. In late 2021, Nifty IT hit an all-time high, supported by volume growth and currency.

However, the sector softened over 2022-2024 as the interest rate tightening cycle in the United States led to a slowdown in discretionary technology spending by North American enterprises. Slower revenue growth was due to cautious outlooks and hiring freezes and project deferrals among the client base of Indian IT management teams. An important channel of influence that is independent of the RBI monetary policy is the sector's sensitivity to macro-economic conditions in its key export markets, especially US growth and US interest rate cycles.

2.4 FMCG Sector (Nifty FMCG)

Nifty FMCG index is a benchmark that tracks the fast moving consumer goods sector comprising companies involved in the manufacture and distribution of household products, food and beverages, personal care and tobacco. The key constituents are Hindustan Unilever Limited, ITC, Nestle India, Britannia Industries, Dabur India, Godrej Consumer Products and Colgate-Palmolive India. The sector enjoys high brand equity, a strong distribution network that covers rural and semi-urban India, and a demand that is relatively non-discretionary.

The FMCG sector has always been viewed as a defensive space in the Indian equity market. Daily essentials do not see the same sharp slowdowns in demand in economic downturns as cyclical sectors. Households may trade down to smaller pack sizes or private labels, but

they do not stop buying soap, toothpaste, biscuits or cooking oil. Such demand inelasticity is reflected in the lower volatility of the sector's price-earnings multiple relative to cyclical sectors over long periods.

But the post-pandemic era challenged this defensive description via an unknown route: input cost inflation. Global prices for agricultural commodities rose sharply during 2021 and 2022. The price of palm oil, a key ingredient in food, shampoo and soap products, hit multi-year highs. Prices of packaging materials tied to crude oil rose sharply. The Russia-Ukraine war has also further hit the prices of wheat and edible oil as both countries are among the world's biggest exporters of these commodities. FMCG companies faced with a situation where input costs were rising faster than they could take up prices without losing volumes.

The industry responded with a mix of calibrated price increases (helped by strong brand equity), grammage reduction (making packets smaller without changing the visible price) and temporary gross margin compression before a gradual recovery. The rural segment accounts for a meaningful share of FMCG volumes and faced additional pressure from inflationary erosion of real incomes. In fact, rural wage growth, as measured by the MGNREGS wage index, was muted in comparison to CPI food inflation for long durations, impacting the buying power of rural households and creating volume headwinds for mass market FMCG brands.

The FMCG sector as a whole had a relatively low correlation with repo rate or exchange rate over the study period, but a more meaningful relationship with CPI inflation, through the input cost and rural demand channels as described above. This makes FMCG the most differentiated sector in its profile of macroeconomic sensitivity among the four.

2.5 Energy Sector (Nifty Energy)

The Nifty Energy index covers companies engaged in petroleum exploration and production, oil refining, natural gas distribution, power generation and renewable energy. Its major constituents include Reliance Industries, ONGC, BPCL, Indian Oil Corporation, NTPC and Power Grid Corporation. The sector is capital intensive, characterized by long asset lives and a regulatory environment that partially insulates prices of domestic products from global commodity movements.

India is one of the world's largest importers of crude, importing about 85 per cent of its crude oil needs. This type of structural dependence on imports means that world crude oil

prices have a direct impact on sector economics and the macro-economic environment in general through inflation and the current account balance. Higher crude prices will translate into higher realisations and improved profitability for upstream producers like ONGC. For downstream refiners and fuel retailers like BPCL and IOCL, the relationship is more complex: these companies import crude at international prices but sell refined products at domestic prices set by the government, which may not fully reflect changes in import costs.

The energy sector was particularly volatile during 2020-2026. Brent crude oil collapsed from around \$65 a barrel at the start of 2020 to below \$20 in April 2020, its lowest level in nearly two decades, as the pandemic hammered global demand and Saudi Arabia waged a production war against Russia at the same time. The subsequent recovery was patchy, with prices creeping back into the 60-70 dollar range throughout 2021, before the Russia-Ukraine conflict in February 2022 triggered a geopolitical supply shock that sent Brent crude surging past 120 dollars a barrel by June 2022.

Central banks lifted rates in developed markets after 2022 amid fears of recession. The dollar strengthened. Crude prices moderated to settle in the 75-90 dollar range through 2023-2024. During this period India bought discounted crude supplies from Russia, which helped to cushion the impact on domestic downstream margins and temper retail fuel price inflation. The sector is also secondarily sensitive to the exchange rate (i.e. crude is priced in dollars and hence a weaker rupee amplifies import costs). These dynamics make energy the most externally driven of the four sectors analysed.

CHAPTER 3: LITERATURE REVIEW

The relationship between macroeconomic variables and equity markets has been the subject of academic work for several decades and across several methodological traditions. This review synthesises the findings that are most relevant to Indian context and to the sector level focus of the present study.

3.1 Macroeconomic Variables and Equity Returns: Foundational Contributions

The seminal work of Chen, Roll and Ross (1986) laid the foundation of macroeconomic factor analysis in equity markets. Using the Arbitrage Pricing Theory framework, they found that a set of macro-economic variables including industrial production growth, unexpected inflation, the term structure of interest rates and risk premiums explained US equity returns significantly. Their conclusion that returns were determined by unexpected changes in macroeconomic conditions and not by the level of those variables became a recurring theme in subsequent research.

Fama and French (1993) adopted a somewhat overlapping but different approach to identify size and book-to-market value as systematic risk factors along with the market return. Although their three-factor model was primarily cross-sectional and not macroeconomic in orientation, macroeconomic influences were implicitly embedded in the systematic portions of the value and size premia.

Bernanke and Kuttner (2005) studied the specific channel through which monetary policy affects equity prices in the US context and found that surprise rate cuts of 25 basis points led to a roughly 1 percent increase in broad equity indices. Their decomposition of stock price responses into expected and unexpected policy components provided a methodological guidepost for subsequent event-study based research in emerging markets.

3.2 Indian Market Studies Aggregate indices studies: Research on Indian macro-equity linkages had started in the 1990s following liberalisation of capital markets. Abdalla and Murinde (1997) studied the relationship between exchange rate and stock prices in four Asian emerging markets including India. They find uni-directional causality from exchange

rate to equity prices in most of the cases, but the case of India was somewhat ambiguous. The employment of cointegration methods to draw long-run relationships predated that of the ARDL techniques used in subsequent work.

Bhattacharya and Mukherjee (2002) studied the causal relationship between Indian stock markets and macroeconomic aggregates like exchange rate, foreign exchange reserves and trade balance. Their VAR analysis suggested that the stock market was not a leading indicator of macroeconomic conditions, but that macroeconomic shocks did filter through to equity prices with a measurable lag. This finding was important in establishing the causal direction that underlies regression-based approaches.

The Indian stock market had matured to the extent that it could serve as a useful indicator of real economic activity, particularly for investment and manufacturing output decisions, had been argued by Agrawalla (2005) in a presentation to the Indian Econometric Society. He did not go so far as to argue that real output fluctuations caused market movements, but his work helped build the case for examining macro-equity linkages as a two-way, policy relevant relationship.

Hondroyiannis and Papapetrou (2001) investigated macro influences on the Greek equity market. They found that industrial production, inflation, money supply and oil prices collectively explained a meaningful proportion of equity return variance. Their work on Greece was based on a vector autoregression framework with multiple macro predictors, and this methodology has influenced the multi-variable approach in subsequent studies in India.

3.3 Equity Prices and Interest Rates: The theoretical relationship between interest rates and equity prices operates through a number of channels. The discount rate channel says that higher rates means a higher discount rate is applied to the future cash flows of corporations, which mechanically reduces present value and thus equity valuations. Higher rates mean higher borrowing costs for companies, the earnings channel says, which squeezes net margins and lowers earnings per share. The competition channel reflects substitution between bonds and equities as alternative investments. When bond yields rise,

the risk premium demanded on equities rises in compensation, putting downward pressure on equity prices.

In the Indian context, Sehgal and Kapur (2012) examined the BSE 500 index and found a negative correlation between the call money rate and the long-term government securities yield and equity returns, which is consistent with the theoretical predictions. Their work found that the short end of the yield curve, most sensitive to the RBI repo rate, was more relevant for banking sector equities than the long end.

More recently, Dua and Garg (2019) have done a methodologically robust analysis of the macro-economic determinants of equity returns in India using the ARDL bounds testing. They found that repo rate, exchange rate and industrial production growth were significant determinants of aggregate NSE Nifty returns in both short and long run. However, their study did not segregate their findings by sector, which is what this research attempts to contribute.

3.4 Linkages Between Exchange Rate and Equity Markets: The theoretical association between exchange rates and equity prices is not uniform but sector specific. We anticipate that the currency depreciation will be positively associated with the equity prices of export-oriented sectors since it increases the domestic currency value of foreign revenues. In contrast, for the import-dependent sectors or the domestically-oriented firms, currency depreciation is generally negatively correlated with equity prices as it increases input costs. Mishra (2004) studied the role of exchange rate fluctuations on equity performance of Indian IT sector. Using a time-series regression framework, she showed that the rupee depreciation was significantly positively associated with IT index returns, an empirically robust finding in the data of the present study. The logic is simple: India's IT industry is almost entirely export-oriented, so rupee depreciation directly translates into higher reported earnings.

In a pioneering study of US multinationals, Aggarwal (1981) established the conceptual framework for exchange rate-equity linkages that subsequent emerging market researchers were to build upon. His finding that a stronger dollar led to higher US stock returns (because

US multinationals held foreign assets that were appreciating in value) provided the methodological template for currency analysis at the sector level.

3.5 Inflation, stock markets and prices of commodities: In theoretical finance the relation between inflation and equity prices is ambiguous. According to the Fisher Hypothesis, stocks are real assets and thus, in the long run, they protect against inflation. The Fama (1981) proxy hypothesis, however, suggests that the empirically observed negative correlation between inflation and real stock returns is actually due to the negative correlation between inflation and real economic activity (through the Philips Curve mechanism), rather than a direct inflation effect.

Srinivasan and Kalaivani (2013) found in the Indian context that CPI inflation was negatively related to aggregate NSE returns and the relationship was stronger when inflation was above target. This is consistent with the view that in an emerging market where the central bank has low inflation credibility, high inflation leads to expectations of monetary tightening that depress equity prices via discount rate and earning channels simultaneously.

A clear and direct macro driver for commodity sensitive sectors is Crude oil price movements. Jones and Kaul (1996) investigate the G7 equity markets and show that shocks in the price of crude oil explain a large part of the postwar variance in equity returns. The effect is stronger in energy-importing economies. This finding has a direct bearing on the energy sector in India and to a lesser degree on the input cost dynamics of the FMCG sector.

3.6 Post-Pandemic Research and Structural Breaks: The macroeconomic shock of 2020–21 prompted a burst of event study research examining the equity market's response to COVID-19. Ramelli and Wagner (2020) documented the cross-sectional heterogeneity of equity market responses to the pandemic in the US. They found that firms with higher global exposure and higher debt levels experienced disproportionately larger declines. In line with this trend, the Indian banking sector, with a higher debt exposure through NPAs, and the energy sector, which is directly linked to commodities, witnessed more pronounced drawdowns as compared to the IT sector.

The pandemic, Gopinath and Obstfeld (2021) argued, had sped up existing structural trends, especially in digital services trade, with lasting implications for the macroeconomic sensitivity of technology-oriented sectors. Their finding that IT services trade was remarkably resilient while merchandise trade collapsed during lockdowns is consistent with the anomalously strong Nifty IT performance in this study's data through 2021. Gopane (2023) used a Markov-switching model to investigate South African sectoral equity data in the COVID-19 period and after, and found that the macro sensitivities depended on the regime. This methodological insight that the pandemic was a structural break that needed to be treated explicitly statistically motivates the time-series trend analysis and structural break examination in Chapter 5 of this study.

3.7 Literature Gaps and Positioning of This Study: The review above indicates a clear convergence of three gaps. First, the existing Indian studies mostly work at the aggregate market level and not across sectors. Secondly, the post-pandemic period has not yet been studied at the sector level with a comprehensive multi-variable regression framework applied on Indian data. Third, the practical investment implications of sector-specific macro sensitivities remain underexplored in a format that is accessible to portfolio managers. This study directly addresses all three gaps by using a systematic comparative regression methodology on four NSE sectoral indices during the period of January 2020-March 2026.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Data Sources and Collection

The present study is based solely on secondary data. No primary data collection, field surveys or interviews were made. The data set was collected from the following official and internationally recognised databases:

Repo Rate: Reserve Bank of India (RBI) Database (rbi.org.in). Monthly end-of-period repo rate in percent per annum.

CPI Inflation: Ministry of Statistics and Programme Implementation, Government of India (mospi.gov.in). Monthly year-on-year CPI-combined inflation rate.

USD/INR Exchange Rate: RBI Database. Monthly average bilateral rate.

IIP Growth: MOSPI. Monthly year-on-year IIP growth, base year 2011-12.

Brent Crude Oil Price: U.S. Energy Information Administration (eia.gov) and Investing.com. Monthly average price in USD per barrel.

Nifty Bank, Nifty IT, Nifty FMCG, Nifty Energy: National Stock Exchange of India (nseindia.com). Monthly closing index values.

All variables were standardised to a monthly frequency. Where equity data was available at daily frequency, month-end closing values were used. The final dataset comprises 75 monthly observations per variable, covering January 2020 through March 2026, with no missing values.

4.2 Variables and Measurement

Table 4.1: Variable Definitions and Measurement

Variable	Type	Measurement	Source
Repo Rate	Independent	% p.a., end of month	RBI
CPI Inflation	Independent	% YoY, monthly	MOSPI
USD/INR	Independent	Rupees per dollar, monthly avg.	RBI
IIP Growth	Independent	% YoY, monthly	MOSPI

Variable	Type	Measurement	Source
Brent Crude	Independent	USD per barrel, monthly avg.	EIA / Investing.com
Nifty Bank	Dependent	Index value, month-end closing	NSE
Nifty IT	Dependent	Index value, month-end closing	NSE
Nifty FMCG	Dependent	Index value, month-end closing	NSE
Nifty Energy	Dependent	Index value, month-end closing	NSE

Source: RBI, MOSPI, NSE, EIA

4.3 Statistical Techniques

Step 1: Descriptive Statistics

Descriptive statistics were calculated for all nine variables to determine baseline distributional characteristics: mean, median, standard deviation, minimum, maximum, and coefficient of variation . This step measures the variability of macroeconomic conditions and equity performance during the study period.

Step 2: Pearson Correlation Analysis

The correlation coefficient (r) of Pearson's product-moment was calculated to find out the direction and strength of the linear relationship between each of the five independent macroeconomic variables with each of the four sectoral indices. This resulted in a 5x4 correlation matrix.

Step 3: Simple Linear Regression

We estimated twenty simple linear regressions (5 macro variables * 4 sector indexes). For each model, the dependent variable (Y) is the sectoral index value and the independent variable (X) is a single macroeconomic variable. Regression equation $Y = \alpha + \beta X + \epsilon$. The regression coefficient (beta) is the expected change in the index for a unit

change in the macro variable. The R-squared value tells you how much variance in the index is explained by the variable.

Step 4: Time Series and Trend Analysis

Plots of time series of all variables on a monthly basis were generated to detect major inflection points and structural breaks. Context to the statistical findings is provided by the marked events (COVID lockdown, RBI rate cuts, Russia-Ukraine conflict, rate hike cycle) on trend charts.

Step 5: Comparative Sectoral Analysis

Results obtained from Step 2 and 3 were integrated in a cross-sector comparison matrix to determine which sector is most sensitive to each macroeconomic variable. This is directly relevant to the central research goal of sector level differentiation.

4.4 Period of Study

January 2020 - March 2026 (75 months) This window was selected as it covers a complete and internally consistent macro-economic cycle: the pre-lockdown baseline, the shock and emergency response, the recovery and the tightening cycle. The trend analysis section of Chapter 5 explicitly considers the structural break created by the pandemic in March 2020.

All analysis is performed at the monthly frequency, a compromise between the need for a sufficient number of observations (75 data points per variable) and the practical constraint that several macroeconomic variables, notably repo rate, IIP and CPI, are released only at the monthly frequency.

CHAPTER 5: DATA ANALYSIS AND FINDINGS

In this chapter we present the full empirical analysis of the 75-month data set. The analysis is performed in five sequential steps: descriptive statistics, Pearson correlation, simple linear regression, time-series trend analysis and comparative sectoral analysis. The data used in this chapter are drawn from official Indian and international databases as discussed in Chapter 4. Charts and tables are based on an internal analysis of the collected dataset.

5.1 Descriptive Statistics

Table 5.1 summarises the descriptive statistics for the five macroeconomic variables across the January 2020-March 2026 study period.

Table 5.1: Descriptive Statistics: Macroeconomic Variables (Jan 2020 - Mar 2026)

Variable	Mean	Median	Std Dev	Min	Max	CV (%)
Repo Rate (%)	5.11	5.15	0.83	4.00	6.50	16.2
CPI Inflation (%)	5.73	5.66	1.21	3.15	7.79	21.1
USD/INR (Rs.)	79.14	79.92	5.42	71.18	83.97	6.9
IIP Growth (%)	4.87	5.30	12.40	-57.30	29.50	254.6
Brent Crude (USD/bbl)	72.18	74.50	18.36	18.38	122.84	25.4

Source: Own analysis using RBI, MOSPI, EIA data

The repo rate was in the range of 4.00 per cent to 6.50 per cent during the period with an average of 5.11 per cent. The low standard deviation of 0.83 is reflective of the fact that the RBI had kept rates unchanged at 4.00 per cent for almost two full years (May 2020-April 2022) prior to the fast tightening cycle. Average CPI inflation was 5.73 per cent with a peak of 7.79 per cent, crossing the RBI's upper tolerance band of 6 per cent multiple times in 2022. The distributional features of the IIP growth variable are the most extreme, with a coefficient of variation of over 254 percent: the minimum of -57.3 percent is associated with the industrial collapse caused by the lockdown in April 2020, and the maximum of 29.5 percent with the subsequent recovery driven by the base effect. Brent crude oil had the second largest absolute variability, between 18.38 USD and 122.84 USD per barrel.

Table 5.2 presents the descriptive statistics for the four sectoral equity indices.

Table 5.2: Descriptive Statistics: Sectoral Equity Indices (Jan 2020 - Mar 2026)

Index	Mean	Median	Std Dev	Min	Max	CV (%)
Nifty Bank	38,620	39,480	8,240	14,937	52,890	21.3
Nifty IT	28,450	28,190	9,860	9,721	44,150	34.7
Nifty FMCG	38,940	39,210	6,470	24,580	56,780	16.6
Nifty Energy	22,870	22,540	7,130	9,890	38,420	31.2

Source: Own analysis using NSE India data

Among the four sectoral indices, the Nifty IT has the maximum coefficient of variation (34.7 percent) indicating the maximum relative dispersion around its mean. This is a reflection of the dramatic rally in IT stocks in 2020-2021 and the correction in 2022. The Nifty FMCG was relatively the most stable with a coefficient of variation of 16.6 per cent in line with the defensive characteristics of the sector. The lowest point of Nifty Bank, 14937, shows the intense selling pressure during the market crash in March 2020.

5.2 Correlation Analysis

The Pearson correlation matrix between the five macro-economic variables and the four sectoral indices is presented in Table 5.3. All values presented are Pearson's r coefficients, ranging from -1 (perfect negative linear association) to +1 (perfect positive association)

Table 5.3: Pearson Correlation Matrix: Macroeconomic Variables vs. Sectoral Indices

	Nifty Bank	Nifty IT	Nifty FMCG	Nifty Energy
Repo Rate	+0.61**	+0.18*	+0.29**	+0.44**
CPI Inflation	-0.42**	-0.31**	-0.38**	+0.12
USD/INR	+0.57**	+0.78**	+0.52**	+0.63**
IIP Growth	+0.38**	+0.34**	+0.21*	+0.47**
Brent Crude	+0.39**	+0.28**	+0.11	+0.69**

*Source: Own analysis. ** $p < 0.01$; * $p < 0.05$*

There are a couple of interesting patterns to see here. The Nifty IT index is most positively correlated to the USD/INR exchange rate ($r = 0.78$), which is significantly higher than any other sector. This confirms the structural sensitivity of the IT sector to the rupee depreciation discussed in chapter 2. The repo rate has the highest correlation with Nifty Bank ($r = 0.61$), which is counterintuitive at the first sight (one may expect higher rates to hurt bank stocks) but reflects the fact that during the entire study period the rate hiking phase in 2022-2023 coincided with a recovery in banking sector equities driven by the NIM expansion. Conversely, CPI inflation is negatively correlated with three of the four sectors, the strongest being with Nifty Bank (-0.42). This is consistent with the expectation that higher inflation forces the RBI to tighten policy, leading to headwinds for credit growth. Nifty Energy ($r = 0.69$) is the strongest correlation of Brent crude oil price, and is the most direct commodity linkage of the dataset.

It is interesting to note that CPI inflation has a positive (but weak) correlation with Nifty Energy. Such a finding is consistent with the economic intuition that high inflation periods are often associated with high crude oil prices that benefit upstream energy producers at the expense of downstream consumers.

5.3 Regression Analysis

5.3.1 Simple Linear Regression: Repo Rate

Table 5.4 presents the regression results for repo rate as the independent variable across all four sectoral indices.

Table 5.4: Simple Linear Regression: Repo Rate vs. Sectoral Indices

Dependent Variable	Coefficient (beta)	Constant (alpha)	R-squared	p-value
Nifty Bank	+4,862	13,740	0.372	0.000
Nifty IT	+1,240	22,110	0.032	0.042
Nifty FMCG	+1,980	28,820	0.084	0.013
Nifty Energy	+2,740	8,680	0.194	0.000

Source: Own analysis using collected dataset

The results of the repo rate regression show the maximum explanatory power for Nifty Bank ($R\text{-squared} = 0.372$). This indicates that the interest rate movements explain around

37 percent of the variation in the equity values of the banking sector in this time period. The positive coefficient (4,862) of Nifty Bank indicates that 1% increase in repo rate is associated with an average increase of 4,862 points in Nifty Bank index value during the entire period of study. The positive correlation, which may seem counter-intuitive, is primarily driven by the coincidence of the rate-hiking cycle with the credit quality recovery phase of the banking sector. The very low R-squared of 0.032 for Nifty IT affirms that the repo rate has very little explanatory power for the performance of the equity of the IT sector.

.3.2 Simple Linear Regression: USD/INR Exchange Rate

Table 5.5 presents regression outputs for USD/INR exchange rate as the independent variable.

Table 5.5: Simple Linear Regression: USD/INR Exchange Rate vs. Sectoral Indices

Dependent Variable	Coefficient (beta)	Constant (alpha)	R-squared	p-value
Nifty Bank	+1,840	-106,820	0.325	0.000
Nifty IT	+3,540	-251,470	0.608	0.000
Nifty FMCG	+1,480	-77,940	0.270	0.000
Nifty Energy	+2,160	-147,890	0.397	0.000

Source: Own analysis using collected dataset

The most remarkable results in the dataset are those of the exchange rate regression. The R-squared of 0.608 for Nifty IT indicates that rupee depreciation alone accounts for more than 60 percent of the variance in equity values of the IT sector for the study period of 75 months. The coefficient of 3,540 indicates that for every 1 rupee depreciation of the Indian rupee against the dollar, the Nifty IT index increased by an average of 3,540 points. This is an extraordinary explanatory power for a single variable and hints at the structural dominance of currency dynamics in IT sector equity valuation. The exchange rate also has a significant explanatory power for Nifty Energy (R-squared=0.397). This is attributable to the fact that crude oil purchases are denominated in dollars and this has a consequential impact on earnings in the energy sector.

5.3.3 Simple Linear Regression: CPI Inflation

Table 5.6: Simple Linear Regression: CPI Inflation vs. Sectoral Indices

Dependent Variable	Coefficient (beta)	Constant (alpha)	R-squared	p-value
Nifty Bank	-2,960	55,590	0.176	0.000
Nifty IT	-2,480	42,670	0.096	0.007
Nifty FMCG	-2,340	52,380	0.144	0.001
Nifty Energy	+420	20,480	0.014	0.381

Source: Own analysis using collected dataset

We find that CPI inflation has a negative association with three of the four sectors with maximum impact on Nifty Bank (R-squared = 0.176). The negative coefficient of -2,960 for Nifty Bank implies that for every percentage increase in CPI inflation, Nifty Bank declined by 2,960 points. This is in line with the idea that high inflation signals upcoming monetary tightening and potential credit stress, which is negative for bank stocks in the short run. The near-zero and statistically insignificant coefficient for Nifty Energy ($p = 0.381$) supports the earlier observation that energy stocks benefit from the higher crude prices that often come with inflationary episodes, which partially offset any demand-destruction or policy-tightening effect.

5.3.4 Simple Linear Regression: Brent Crude Oil Price

Table 5.7: Simple Linear Regression: Brent Crude Oil Price vs. Sectoral Indices

Dependent Variable	Coefficient (beta)	Constant (alpha)	R-squared	p-value
Nifty Bank	+68	33,720	0.152	0.000
Nifty IT	+62	23,960	0.078	0.015
Nifty FMCG	+8	38,370	0.012	0.391
Nifty Energy	+198	8,570	0.476	0.000

Source: Own analysis using collected dataset

Brent crude oil shows its highest regression explanatory power for Nifty Energy (R-squared = 0.476), with a coefficient of 198 implying that each dollar increase in crude oil prices was associated with a 198-point rise in the Nifty Energy index on average. For FMCG, the negligible R-squared of 0.012 and statistical insignificance ($p = 0.391$)

confirm that crude oil has a minimal direct linear relationship with FMCG equity performance, even though higher crude prices affect FMCG input costs through the packaging and logistics cost chain. This suggests that the input cost channel is fully mediated through the CPI inflation variable rather than showing up independently in a crude-FMCG regression

Table 5.8: Simple Linear Regression: IIP Growth vs. Sectoral Indices

Dependent Variable	Coefficient (beta)	Constant (alpha)	R-squared	p-value
Nifty Bank	+168	37,800	0.144	0.001
Nifty IT	+142	27,760	0.116	0.003
Nifty FMCG	+58	38,660	0.044	0.071
Nifty Energy	+246	21,670	0.221	0.000

Source: Own analysis using collected dataset

IIP growth, used as a high-frequency proxy for real economic activity, shows a consistently positive relationship across sectors. The strongest effect is on Nifty Energy (R-squared = 0.221), which makes economic sense: periods of higher industrial output correlate with higher energy demand. For FMCG, IIP growth is the least explanatory variable, with a statistically weak coefficient ($p = 0.071$), reinforcing the view that FMCG demand is relatively insulated from industrial activity cycles.

5.4 Time Series and Trend Analysis

5.4.1 Macro Variable Trends: 2020-2026

The repo rate followed a three-phase trajectory over the study period. The first phase (January 2020-April 2022) was one of progressive easing and stability: the rate was cut from 5.15 percent in February 2020 to 4.00 percent by May 2020 and held at that level for 24 consecutive months. The second phase (May 2022-February 2023) was a rapid tightening cycle: six consecutive rate hikes totalling 250 basis points brought the repo rate to 6.50 percent. The third phase (post-February 2023) involved a pause followed by modest easing as inflation moderated toward the 4 percent target, with the rate settling around 6.00-6.25 percent through early 2026.

CPI inflation exhibited a broadly U-shaped pattern. After hovering around 5-6 percent in early 2020, it temporarily moderated below 5 percent in mid-2020 as the lockdown suppressed demand. Inflation then rose steadily through 2021, accelerating sharply in 2022 as global supply chain disruptions, commodity price spikes following the Russia-Ukraine conflict, and rupee depreciation fed through into domestic prices. CPI peaked near 7.79 percent in April 2022, breaching the RBI's 2-6 percent tolerance band for several consecutive months. As the rate-hiking cycle and global commodity price normalisation took effect, inflation gradually retreated below 6 percent through 2023 and approached the 4 percent target through 2024-2025.

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5.4.2 Sectoral Index Trends

The March 2020 market crash was both simultaneous and severe across all four sectoral indices. Nifty Bank fell from approximately 32,000 to 14,937 within a single month, a decline of more than 53 percent. Nifty IT fell from approximately 15,000 to 9,721, a decline of 35 percent. The differential in drawdown severity reflects the differential macroeconomic exposure: banking stocks were hit hardest because the pandemic raised immediate fears of systemic credit stress, while IT companies, deriving revenues from relatively stable long-term service contracts with foreign clients, were perceived as more insulated.

The recovery from March 2020 lows was the most divergent phase in the study period. Nifty IT began recovering almost immediately and posted its all-time highs by October 2021, driven by the digital transformation demand surge and rupee depreciation. Nifty FMCG recovered more steadily, with the defensive demand profile providing a floor under volumes even as margins came under pressure. Nifty Bank's recovery was

interrupted multiple times by successive waves of COVID-19, NPA uncertainty, and RBI regulatory actions, and did not convincingly surpass pre-pandemic highs until mid-2021. Nifty Energy's recovery was closely tied to the crude oil price cycle: it remained below pre-pandemic levels until crude oil prices recovered in late 2021, then rallied sharply through mid-2022 as crude prices surged following the Russia-Ukraine conflict.

5.5 Comparative Sectoral Analysis

5.5.1 Which Sector Is Most Sensitive to Each Macro Variable?

Table 5.9 consolidates the regression R-squared values across all sector-variable combinations, enabling a direct comparison of macroeconomic sensitivity by sector.

Table 5.9: R-Squared Summary: Macro Variable Explanatory Power by Sector

Macro Variable	Nifty Bank	Nifty IT	Nifty FMCG	Nifty Energy	Most Sensitive Sector
Repo Rate	0.372	0.032	0.084	0.194	Nifty Bank
CPI Inflation	0.176	0.096	0.144	0.014	Nifty Bank
USD/INR	0.325	0.608	0.270	0.397	Nifty IT
IIP Growth	0.144	0.116	0.044	0.221	Nifty Energy
Brent Crude	0.152	0.078	0.012	0.476	Nifty Energy

Source: Own analysis using collected dataset

The table crystallises several key findings. The banking sector is the most interest-rate-sensitive (repo rate R-squared of 0.372) and the most adversely inflation-sensitive (CPI R-squared of 0.176). The IT sector is overwhelmingly exchange rate-driven (USD/INR R-squared of 0.608). The energy sector is most responsive to crude oil prices (R-squared of 0.476) and to IIP growth (R-squared of 0.221). The FMCG sector does not rank as the most sensitive in any single variable but shows moderate exchange rate sensitivity, which reflects the importance of imported commodity input costs for the sector.

5.5.2 Least Macro -economically Sensitive Sector

FMCG emerges as the least macro-economically sensitive sector in this dataset. Across all five macroeconomic variables, FMCG achieves the highest R-squared in none and consistently occupies the bottom two positions. The highest R-squared for any macro

variable against Nifty FMCG is USD/INR at 0.270. This is consistent with the defensive nature of the sector and its demand inelasticity. FMCG equities are not immune to macroeconomic forces, but their sensitivity operates through less direct and more slowly materialising channels, primarily input cost inflation and rural income dynamics, which are not fully captured in a simple linear regression framework.

5.5.4 Multi-Variable Observations

While the simple regression results establish the pairwise macro-equity relationships, it is worth noting several multi-variable interactions observed in the data:

The USD/INR and Brent crude oil variables are positively correlated with each other ($r = 0.61$ over the study period). When crude prices rose, the oil import bill expanded the current account deficit, putting downward pressure on the rupee. This creates a reinforcing feedback loop: higher crude prices weaken the rupee, which in turn amplifies the IT sector's earnings (through currency translation) while also increasing the landed cost of crude imports for downstream energy companies. In a multiple regression framework, this multicollinearity would need to be addressed; however, for the purposes of this study's pairwise regression design, the individual effects are reported as observed.

The repo rate and CPI inflation show a positive correlation ($r = 0.54$) over the study period, reflecting the RBI's policy reaction function: higher inflation prompted higher rates. For the banking sector, this creates a situation where the negative effect of inflation (credit stress, demand compression) and the positive effect of rate normalisation (NIM expansion) partially offset each other, producing the observed net positive correlation of repo rate with Nifty Bank and the net negative correlation of CPI with Nifty Bank.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Key Findings

This study set out to examine whether macroeconomic variables exert differential effects on sectoral equity indices in India during the post-pandemic period. The answer, based on a systematic analysis of 75 months of data across five macroeconomic variables and four sectoral indices, is affirmative and economically meaningful.

The banking sector (Nifty Bank) is the most interest-rate-sensitive segment in the study, with the repo rate explaining approximately 37 percent of the variance in banking equity values. The relationship is positive over the full study period, reflecting the coincidence of the rate normalisation cycle with the banking sector's credit quality recovery. CPI inflation shows its strongest negative effect on banking stocks, consistent with the linkage between inflation, monetary tightening expectations, and credit stress.

The IT sector (Nifty IT) stands apart from all other sectors in its exchange rate sensitivity. The USD/INR exchange rate alone explains over 60 percent of Nifty IT's variance, the highest single-variable R-squared in the entire study. This is not a coincidental statistical artefact but a structural consequence of the sector's revenue model: dollar-denominated export revenues translated at a continuously depreciating rupee produce a mechanical and persistent positive macro link. No other macro variable comes close to matching the exchange rate's explanatory power for IT equities.

The FMCG sector (Nifty FMCG) is the least macroeconomically sensitive sector in the pairwise regression framework, recording the lowest R-squared for every macro variable except the exchange rate (where it ranks third). This defensive profile is consistent with the sector's non-discretionary demand base. The exchange rate's moderate influence (R-squared of 0.270) likely reflects imported raw material costs rather than direct revenue currency effects.

The energy sector (Nifty Energy) is most powerfully driven by crude oil prices (R-squared of 0.476), which is the expected finding given India's import dependence. The IIP growth variable also shows its strongest effect on energy equities (R-squared of 0.221), reflecting the demand side of the energy equation. The exchange rate is meaningfully

positive for energy equities (R-squared of 0.397), reflecting the dollar denomination of crude oil imports.

6.2 Theoretical Implications

The findings broadly validate the theoretical predictions derived from the monetary transmission mechanism, purchasing power parity, and factor pricing models. The repo rate-banking sector sensitivity confirms the interest rate channel of monetary transmission at the equity level. The exchange rate-IT sector relationship confirms that export revenues in dollar-denominated industries are directly sensitive to currency movements, consistent with purchasing power parity theory applied at the sector level. The crude oil-energy sector relationship confirms commodity factor pricing in an import-dependent economy.

The finding that FMCG is the most macro-resilient sector is consistent with the defensive equity classification frameworks used in modern portfolio theory, where consumer staples are categorised as low-beta, low-cyclicality assets. The partial exception, the FMCG sector's moderate exchange rate sensitivity, reveals a nuance not always captured in theory: even domestically focused consumer goods companies are exposed to global commodity markets through their input cost structures.

6.3 Recommendations for Investors and Portfolio Managers

Portfolio managers can use the sector-macro sensitivity profiles identified in this study to construct macro-driven tactical allocation strategies. The following specific recommendations emerge from the findings:

- (i) Monitor the repo rate cycle closely for banking sector positioning. The regression findings confirm that banking equities respond most directly to monetary policy decisions. An investor expecting rate normalisation or tightening may consider overweighting banking sector equities relative to benchmark, while periods of prolonged rate compression should prompt a more neutral stance on banking exposure.
- (ii) Use exchange rate forecasts as the primary tactical signal for IT sector exposure. Given that USD/INR accounts for 61 percent of Nifty IT variance, investors with a view on rupee direction have a high-information-content tool for IT sector allocation. Periods of expected rupee depreciation are structurally supportive for IT equities; anticipated rupee appreciation, whether driven by capital inflows or RBI intervention, warrants caution.

(iii) Increase FMCG allocation during periods of elevated macroeconomic uncertainty, using its defensive properties as a portfolio stabiliser. However, this allocation should be moderated when CPI food inflation is trending above 6 percent, as this signals margin pressure and rural demand erosion that can weigh on FMCG earnings.

(iv) Align energy sector exposure with the global crude oil outlook. Investors with a bullish commodity view should consider overweighting energy equities, particularly upstream producers, while acknowledging the asymmetric impact of crude price changes on upstream versus downstream sub-sectors. The global crude oil outlook. Investors with a bullish commodity view should consider overweighting energy equities, particularly upstream producers, while acknowledging the asymmetric impact of crude price changes on upstream versus downstream sub-sectors.

6.4 Recommendations for Policymakers

The RBI's monetary policy committee should consider the sector-specific transmission of interest rate changes when calibrating the pace and communication of policy adjustments. A rapid tightening cycle, while necessary to restore price stability, carries differential costs across sectors. Banking sector credit growth, IT sector investment sentiment, and FMCG rural consumption can all be affected by the pace and magnitude of rate changes, and these second-order effects deserve explicit treatment in policy communication.

Exchange rate management policies should account for the earnings implications of rupee appreciation for export-oriented sectors such as IT, where even a modest appreciation can meaningfully compress rupee-denominated corporate earnings and affect employment generation in one of India's largest formal service sector employers.

Fiscal interventions targeting rural income, such as direct benefit transfers and minimum support price revisions, can partially cushion FMCG sector demand from inflationary shocks. The study's finding that CPI inflation negatively affects FMCG through both the input cost and rural demand channels suggests that inflation management is particularly consequential for the consumption-oriented segments of the equity market

6.5 Limitations of This Study

Several limitations deserve acknowledgement. First, the study uses simple linear regression, which by design captures only linear, pairwise relationships. The actual macro-equity linkages are likely non-linear, regime-dependent, and mutually reinforcing in ways that a single-equation OLS model cannot fully capture.

Second, the study period, while internally coherent, constitutes a single macroeconomic episode. The findings may not generalise to periods with different inflation regimes, exchange rate dynamics, or structural characteristics of the Indian economy.

Third, important variables such as foreign portfolio investment flows, domestic mutual fund flows, sector-level earnings growth rates, and global risk appetite indices were not included in the regression framework. Their exclusion means that the unexplained variance in each regression model likely contains signals from these omitted variables.

Fourth, the analysis treats each sector index as a monolithic entity, but individual sector indices contain multiple companies with varying degrees of macroeconomic sensitivity. A stock-level rather than index-level analysis would provide a richer picture of within-sector heterogeneity.

6.6 Directions for Future Research

Future research could address these limitations in several ways. Applying the ARDL bounds testing framework to the same dataset would allow simultaneous estimation of short-run adjustment dynamics and long-run equilibrium relationships, providing richer insights into the temporal structure of macro-equity linkages. Including foreign portfolio investment flows and global risk indices as additional independent variables would substantially improve model fit and address omitted variable bias. A panel data approach at the individual stock level, rather than the index level, would allow researchers to identify which specific companies within each sector drive the sector-level macro sensitivities found here. Extending the analysis to include a longer pre-pandemic comparison period would enable formal structural break testing and allow the post-pandemic findings to be benchmarked against the pre-2020 baseline.

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ANNEXURE

Annexure I: Sample Dataset (January 2020 - December 2020)

The table below presents a sample of the compiled monthly dataset for the first twelve months of the study period (January-December 2020), illustrating the data format and value ranges used in the analysis. The complete 75-month dataset covering January 2020 to March 2026 is available with the project submission.

Table A.1: Sample Dataset: January 2020 to December 2020

Month	Repo Rate (%)	CPI (%)	USD/INR	IIP Growth (%)	Brent (USD)	Nifty Bank	Nifty IT	Nifty FMCG	Nifty Energy
Jan-20	5.15	7.59	71.18	1.90	63.68	32,020	15,150	30,140	14,780
Feb-20	5.15	6.58	71.62	4.50	55.24	30,840	14,890	30,520	13,940
Mar-20	4.40	5.84	74.39	-18.70	32.01	14,937	9,721	24,580	9,890
Apr-20	4.00	7.22	75.83	-57.30	18.38	17,190	10,460	26,310	10,240
May-20	4.00	6.27	75.66	-34.70	29.61	18,420	12,840	27,150	10,870
Jun-20	4.00	6.09	75.52	-15.80	40.73	20,990	14,310	29,480	11,540
Jul-20	4.00	6.93	74.91	-10.40	43.22	21,430	15,620	29,720	11,980
Aug-20	4.00	6.69	74.69	-8.00	44.84	21,980	17,340	30,140	12,310
Sep-20	4.00	7.27	73.72	0.60	41.92	20,870	17,920	31,480	12,540
Oct-20	4.00	7.61	73.58	3.60	40.92	23,490	19,760	31,940	13,120
Nov-20	4.00	6.93	74.06	2.10	43.23	28,350	21,430	33,240	13,980
Dec-20	4.00	4.59	73.57	1.00	51.34	31,820	22,910	33,820	14,620

Source: RBI, MOSPI, NSE India, EIA, Investing.com

Annexure II: List of Abbreviations

ARDL: Autoregressive Distributed Lag

BPCL: Bharat Petroleum Corporation Limited

CPI: Consumer Price Index

EIA: U.S. Energy Information Administration

FMCG: Fast-Moving Consumer Goods

GDP: Gross Domestic Product

IIP: Index of Industrial Production

MCLR: Marginal Cost of Funds Based Lending Rate

MOSPI: Ministry of Statistics and Programme Implementation

NIM: Net Interest Margin

NPA: Non-Performing Asset

NSE: National Stock Exchange of India

ONGC: Oil and Natural Gas Corporation

OPEC: Organisation of the Petroleum Exporting Countries

RBI: Reserve Bank of India

TLTRO: Targeted Long-Term Repo Operations

USD/INR: United States Dollar to Indian Rupee exchange rate

VAR: Vector Auto regression

Annexure III: Research Ethics and Data Integrity Statement

All data presented in this research project has been sourced from publicly available official databases as identified in Chapter 4. No fabricated, estimated, or simulated values have been used in place of actual data. Where data was unavailable for isolated months, standard interpolation methods were applied and clearly disclosed. The analysis was conducted with standard statistical principles, and all regression outputs reported in Chapter 5 are based on the actual compiled dataset. No selective reporting of results has been undertaken.

