

Covid-19 and Determinants of Foreign Portfolio Investment (FPI) Flows to India

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ABSTRACT

Foreign Portfolio Investment (FPI) plays a vital role in deepening financial markets, enhancing liquidity, and integrating emerging economies like India into the global capital system. Unlike Foreign Direct Investment (FDI), FPI involves short-term, non-controlling investments in equities, bonds, and hybrid instruments, making it sensitive to global economic, financial, and political conditions. This study examines the determinants of Net FPI inflows into India across pre-COVID (April 2012–March 2020) and post-COVID (April 2021–March 2025) periods, highlighting shifts in investor behavior and market dynamics.

Using monthly data from RBI, NSDL, NSE, MOSPI, Bloomberg, and S&P Dow Jones, the study applies the Augmented Dickey-Fuller (ADF) test for stationarity and the Autoregressive Distributed Lag (ARDL) model to analyze short-run relationships between Net FPI and key domestic and global factors, including inflation (CPI), industrial production (IIP), broad money supply (M3), stock market performance (Nifty 50 and S&P 500 growth), exchange rate (INR/USD), market volatility (NSE VIX and USA VIX), and the Global Economic Policy Uncertainty (GEPU) index.

Results indicate that pre-COVID inflows were influenced by past FPI trends, domestic inflation, exchange rate movements, stock market returns, and global policy uncertainty, while industrial production and S&P 500 returns had counter-cyclical effects. Post-COVID, determinants shifted toward domestic growth fundamentals, currency movements, and global uncertainty, with inflation and volatility losing significance. Global market performance, particularly the S&P 500, consistently showed a substitution effect. Diagnostic tests confirm model stability, and R-squared values indicate strong explanatory power. The study suggests that post-COVID, foreign investors prioritize growth fundamentals and global risk over short-term domestic fluctuations. For policymakers, this underscores the importance of macroeconomic stability, clear communication, and effective risk management to attract and sustain FPI. By integrating long-term monthly data with advanced econometric techniques, the research provides actionable insights for portfolio managers, regulators, and corporate strategists navigating India's dynamic investment landscape.

Keywords: Foreign Portfolio Investment (FPI), Net FPI inflows, Pre-COVID and Post-COVID periods, Macroeconomic determinants, Stock market performance, Market volatility

INTRODUCTION

Foreign Portfolio Investment in India: Overview and Significance

Foreign Portfolio Investment (FPI) plays a pivotal role in the development of emerging economies like India by channelling overseas capital into equities, bonds, and other financial instruments. Unlike Foreign

Direct Investment (FDI), which involves long-term strategic stakes, operational control, and infrastructure development, FPI represents non-controlling, liquid investments that are highly sensitive to short-term global financial, economic, and political conditions. While FDI primarily promotes structural growth through technology transfer, employment generation, and long-term capital formation, FPI enhances market depth, facilitates efficient price discovery, strengthens corporate governance, and integrates domestic capital markets with the global financial system. In India, FDI is governed under the Foreign Exchange Management Act (FEMA), whereas FPI is regulated by the Securities and Exchange Board of India (SEBI), ensuring transparency, investor protection, and compliance. Understanding these distinctions is essential for policymakers to balance market dynamism with economic stability.

FPI inflows are central to the efficiency and deepening of financial markets. By boosting liquidity, they enable smoother trading, accurate pricing, and reduced transaction costs. Foreign participation also introduces global best practices in corporate governance, risk management, and market transparency, enhancing market resilience. At the macroeconomic level, FPI contributes to economic growth by funding key sectors, stabilizing currency dynamics, and bolstering investor confidence. As such, FPI serves both as a catalyst for financial market development and a contributor to broader economic progress.

The rapid advancement of technology, liberalization of trade and investment policies, and financial deregulation have accelerated globalization, integrating emerging markets like India into the global capital system. This integration provides domestic markets with access to capital, advanced investment practices, and international expertise, but it also exposes them to external risks such as sudden capital reversals and heightened global volatility. Strengthening financial institutions, enforcing robust regulations, and maintaining consistent macroeconomic policies are therefore critical to harness the benefits of globalization while mitigating its risks.

In terms of trends, India has witnessed significant FPI inflows in recent years. As of March 2025, net FPI inflows totaled ₹20,018 crore, encompassing equity, debt—including the Fully Accessible Route (FAR) and Voluntary Retention Route (VRR)—and hybrid instruments. These inflows have enhanced market liquidity, supported the Indian rupee, and reinforced the financial sector. Consistent buying patterns and substantial inflows reflect sustained global investor confidence. Key contributors include the United States (39.2%), Singapore (9.8%), Luxembourg (7.1%), as well as Ireland, Mauritius, the United Kingdom, Norway, Japan, Canada, and the Netherlands, indicating diversified international participation influenced by regulatory frameworks, tax treaties, and strategic investment objectives.

The regulatory framework further strengthens FPI's role in India. SEBI's FPI Regulations (2019) classify foreign investors into structured categories to simplify participation and ensure compliance. Initiatives like the Indian Government Bonds–FPI (IGB-FPI) scheme facilitate investment in government securities by reducing procedural barriers. The FPI process requires registration through a Designated Depository Participant (DDP), opening demat, custodian, and bank accounts, completing KYC verification, adhering to reporting and tax obligations, and ensuring transparency and investor protection. FPI remains a dynamic and strategic component of India's financial markets, balancing liquidity, market efficiency, and investor confidence while facing challenges from global integration and financial shocks, such as COVID-19. Understanding the determinants of FPI flows in such contexts is crucial for informed policy design, investor strategy, and financial stability, forming the foundation for this study.

REVIEW OF LITERATURE

1. **Thakrar, N. (2025)** analyses FPI trends in India's equity and debt markets (2019–2024), showing that

interest rates, exchange rates, market corrections, and global events like COVID-19 and U.S. monetary tightening significantly influence flows. The study emphasizes FPI's sensitivity to investor sentiment and concludes that stable macroeconomic conditions, investor-friendly policies, and strong risk management are crucial to attract and retain FPI.

2. **Kumar, V. (2025)** studies the impact of domestic monetary policy shocks on FPI using a Structural VAR model. Findings reveal that domestic shocks explain 10.1% of FPI variation, primarily affecting debt flows. An increase in interest rate differentials boosts FPI, while excess money supply reduces it, highlighting the role of monetary policy in managing capital flows.
3. **Mishra, R. R., & Mishra, S. (2025)** examine the effects of FIIs and DIIs on Indian stock market volatility (2014–2023). Using GARCH and Granger causality models, they find FIIs amplify volatility while DIIs stabilize markets. Global and domestic shocks, including COVID-19, also affect flows, underscoring the need for further research on broader economic determinants.
4. **Mishra, M., Sharma, M., Bilantu, P., & Acharya, A. (2024)** explore how unconventional monetary policies in developed economies influence FPI in emerging markets. Quantitative easing by the U.S., ECB, and BOJ expands liquidity, affecting FPI flows through portfolio rebalancing and investor confidence, while impacting exchange rates and yields.
5. **Kuruvila, R. J., & Thomas, A. M. (2024)** investigate sectoral variations in FPI inflows. Oil and gas attract steady FPI, while healthcare, telecom, and mining see volatile flows. Economic events like demonetization, GST, and COVID-19 significantly affect investor behavior, providing insights for sector-specific investment strategies.
6. **Goenka, M. S., Singh, M. S., Agrawal, P. K., Kumar, M., & Srivastava, M. R. (2024)** find that FPIs increase short-term market volatility, whereas DIIs provide stability through long-term investment. FPIs respond quickly to global cues, DIIs moderate swings, and both influence market liquidity and returns, highlighting policy implications.
7. **Gupta, A., & Kumar, P. (2024)** examine different FPI categories, noting that Category 2 (banks and pension funds) contributes most but is highly volatile. Equity markets receive most inflows, influenced by inflation, exchange rates, stock returns, money supply, and global indicators. Findings assist policymakers in attracting diversified and stable FPI.
8. **Prabheesh, K. P., et al. (2023)** highlight FPI's sensitivity to global uncertainty. During COVID-19, over \$100 billion exited emerging markets, causing stock declines. Using the COVID-19 Uncertainty Index, the study shows evolving relationships between FPI and stock returns, emphasizing India-specific research needs.
9. **Mishra, M., & Shrivastava, S. (2023)** analyze FPI's impact on India's industrial sectors, focusing on automobiles. While FPI boosts capital and market integration, it remains volatile and short-term, with domestic factors playing a larger role in sector growth. Policy reforms are necessary to optimize FPI benefits.
10. **Hussain, M., & Goswami, B. (2022)** investigate short- and long-term FPI determinants using Panel ARDL (2012–2020). Short-term inflows are positively linked to IIP, FDI, and market capitalization, but negatively to USD exchange rates. Long-term inflows respond positively to international liquidity and REER, while IRD, MC, and exchange rates exert negative effects. Sector-specific responses emphasize the need for tailored strategies to attract sustainable FPI.

RESEARCH GAP

While several studies have investigated the factors affecting Foreign Portfolio Investment (FPI) in India, most either focus on the time before COVID or examine domestic and global factors separately. Very few take an integrated approach to evaluate their combined impact.

Research after COVID is still developing but often covers short timeframes or specific sectors. This is despite the pandemic having a major influence on investor behaviour and capital flows. There is limited awareness of how FPI factors have changed from the pre- to the post-COVID periods.

Additionally, few studies use long-term monthly data along with techniques like the Autoregressive Distributed Lag (ARDL) model, which effectively captures short-term relationships. Important variables such as Nifty returns, GEP, India VIX, US VIX, and USD/INR are rarely analyzed together.

This study fills those gaps by using monthly data from 2012 to 2025 and the ARDL model to explore changing short-term factors affecting Net FPI inflows. It aims to provide timely insights for policymakers.

RESEARCH OBJECTIVES

1. To identify and analyse the key domestic and global macroeconomic factors influencing Net Foreign Portfolio Investment (FPI) flows to India.
2. To assess whether the determinants of FPI inflows have significantly changed between the pre-COVID period (April 2012 – March 2020) and the post-COVID period (April 2021 – March 2025).
3. To evaluate the short-run relationships between Net FPI and variables such as inflation, exchange rate, stock market performance, and global financial volatility.
4. To examine the influence of investor sentiment, market volatility, and global risk factors on the timing and magnitude of FPI movements into India.
5. To derive policy-relevant insights that can support the stability and resilience of FPI flows amid global economic uncertainties

RESEARCH METHODOLOGY

This study employs a dual research design, combining descriptive and analytical approaches. The descriptive component examines trends in Net Foreign Portfolio Investment (FPI) in India across two periods: pre-COVID (April 2012 – March 2020) and post-COVID (April 2021 – March 2025), highlighting structural changes in capital flows and market dynamics. The analytical component investigates the relationship between Net FPI and key domestic and global economic factors, including CPI (India), Index of Industrial Production, broad money supply, Nifty growth, NSE VIX, USD/INR exchange rate, S&P 500 growth, USA VIX, and the Global Economic Policy Uncertainty (GEP) index. Secondary monthly data from RBI, NSDL, NSE, MOSPI, S&P Dow Jones, CBOE, and Bloomberg are used to ensure accuracy and consistency. The fiscal year 2020–21 is treated as a transition period and excluded to mitigate extreme COVID-19-induced volatility.

Data processing and visualization are conducted using Microsoft Excel, while econometric analysis is performed in EViews. Stationarity is tested using the Augmented Dickey-Fuller (ADF) test, and short- and long-run relationships are estimated through the Autoregressive Distributed Lag (ARDL) model, which accommodates mixed $I(0)$ and $I(1)$ variables. Diagnostic checks validate model robustness, providing actionable insights into the determinants of FPI in India across pre- and post-pandemic periods.

HYPOTHESIS

Ha1: There is a significant relationship between the Global Economic Policy Uncertainty Index and Net FPI flows.

Ha2: There is a significant relationship between the S&P 500 Growth Rate and Net FPI flows.

Ha3: There is a significant relationship between the USA VIX and Net FPI flows.

Ha4: There is a significant relationship between the USD/INR Exchange Rate and Net FPI flows.

Ha5: There is a significant relationship between the Consumer Price Index (India) and Net FPI flows.

Ha6: There is a significant relationship between the Index of Industrial Production (India) and Net FPI flows.

Ha7: There is a significant relationship between the Broad Money Supply (M3 – India) and Net FPI flows.

Ha8: There is a significant relationship between the Nifty 50 Growth Rate and Net FPI flows.

Ha9: There is a significant relationship between the NSE VIX and Net FPI flows.

DATA ANALYSIS AND INTERPRETATION

Econometric Analysis: Pre-COVID Period (April 2012 – March 2020)

Augmented Dickey-Fuller (ADF) test Results

Variables	t-Statistic	Probability	Conclusion
Net FPI	-6.619820	0.000	Stationary
Broad Money (M3)	-3.832609	0.0037	Stationary
Consumer Price Index	-2.063457	0.2599	Not-Stationary
1 st Difference	-7.205315	0.000	Stationary
Global Economic Policy Uncertainty Index	-1.785490	0.3856	Not-Stationary
1 st Difference	-15.54839	0.0001	Stationary
Index of Industrial Production	-3.163183	0.0254	Stationary
Nifty Growth Rate	-2.418197	0.1395	Not-Stationary
1 st Difference	-3.814441	0.0041	Stationary
NSE Volatility Index	-1.532933	0.5128	Not-Stationary
1 st Difference	-7.272625	0.000	Stationary
S&P 500 Growth Rate	-3.157311	0.0258	Stationary
USD/INR Exchange Rate	-1.341151	0.6077	Not-Stationary
1 st Difference	-10.37068	0.000	Stationary
US Volatility Index	-1.776923	0.3898	Not-Stationary
1 st Difference	-11.33986	0.0001	Stationary

ADF Test Interpretation (Pre-COVID: April 2012 – March 2020)

- Net FPI, Broad Money (M3), Index of Industrial Production (IIP), and S&P 500 Growth Rate are stationary at level [I(0)] because their p-values are below 0.05.
- The other variables, CPI, GEPU Index, Nifty Growth, NSE VIX, USD/INR, and US VIX, are non-stationary at level, but they become stationary after first differencing [I(1)].
- The presence of both I(0) and I(1) variables makes the dataset suitable for ARDL modelling, which requires that no variable be integrated of order 2 [I(2)].

Autoregressive Distributed Lag (ARDL) Short-Run Model Output

This section examines the short-term trends of Foreign Portfolio Investment (FPI) in India from April 2012 to March 2020, before COVID. It uses an Autoregressive Distributed Lag (ARDL) model to determine which macroeconomic and global factors significantly influenced Net FPI inflows in the short run.

We estimated the ARDL model with EViews software. We selected the best lag structure using the Akaike Information Criterion (AIC), which helps identify the right model by balancing fit and simplicity. We then analyzed the short-run coefficients with p-values to assess statistical significance and evaluated the signs of the coefficients to understand how each variable affects the results.

ARDL Short-Run Dynamic Coefficients and Significance Levels

Variable (with Lag)	Coefficient	P-Value	Significance
Net FPI (Lag -3)	+0.2262	0.0351	Significant
Consumer Price Index – India (Lag -2)	+0.1068	0.0320	Significant
USD/INR Exchange Rate (Lag -1)	+0.0554	0.0065	Significant
Global Economic Policy Uncertainty Index (Lag -2)	+0.0020	0.0019	Significant
Index of Industrial Production – India (Lag -3)	−0.1812	0.0009	Significant
M3 Broad Money (Current)	−0.0003	0.9817	Not Significant
Nifty Growth Rate (Current)	+0.0101	0.0035	Significant
National Stock Exchange Volatility Index (Lag -3)	+0.0957	0.0137	Significant
S&P 500 Growth Rate (Lag -2)	−0.0127	0.0159	Significant
United States Volatility Index (Current)	+0.0134	0.6715	Not Significant

ARDL Model - Short-Run Dynamic Coefficients and Significance

1. Net FPI (Lag -3)

Coefficient: +0.2262

p-Value: 0.0351

A one-unit increase in Net FPI three months prior is linked to a 0.2262 unit increase in current FPI inflows. The positive and statistically significant coefficient indicates momentum behaviour in FPI decisions. Foreign investors may be swayed by past flows, continuing investment trends based on earlier optimism or market dynamics.

2. Consumer Price Index – India (Lag -2)

Coefficient: +0.1068

p-Value: 0.0320

An increase in India's CPI, which measures inflation, two months earlier results in a 0.1068 unit rise in Net FPI. This strong relationship shows that moderate inflation is seen as a sign of growing domestic demand and economic activity, which draws in foreign capital. In this environment, investors might also look for returns that are protected against inflation.

3. USD/INR Exchange Rate (Lag -1)

Coefficient: +0.0554

p-Value: 0.0065

A depreciation in the Indian rupee, meaning a higher INR/USD rate, one month ago leads to a 0.0554 unit increase in the current Net FPI. This unexpected positive relationship suggests that some foreign investors see depreciated Indian assets as attractively priced, which encourages portfolio flows.

4. Global Economic Policy Uncertainty Index (Lag -2)

Coefficient: +0.0020

p-Value: 0.0019

A one-point increase in global policy uncertainty two months ago leads to a 0.0020 unit rise in Net FPI. This strong positive effect suggests that India might be viewed as a more stable or safe place for investment during global unrest. As a result, it draws in foreign investors looking for security.

5. Index of Industrial Production – India (Lag -3)

Coefficient: -0.1812

p-Value: 0.0009

A one-point increase in India's industrial output three months ago corresponds with a 0.1812 unit decrease in current FPI. This significant inverse relationship may indicate that foreign investors behave in a counter-cyclical way, where capital inflows rise when past industrial activity declines, possibly in anticipation of a recovery or government support.

6. M3 Broad Money (Current)

Coefficient: -0.0003

p-Value: 0.9817

The coefficient is minimal and not statistically significant. This shows that changes in the broad money supply do not affect FPI flows in the short term. Liquidity conditions, measured by M3, do not seem to directly or immediately impact foreign investment behaviour in this context.

7. Nifty Growth Rate (Current)

Coefficient: +0.0101

p-Value: 0.0035

A 1% increase in the Nifty index growth rate leads to a 0.0101 unit increase in Net FPI. The strong and positive relationship indicates return-chasing behaviour. Foreign investors react positively to strong stock market performance, which makes Indian equity markets more appealing.

8. National Stock Exchange Volatility Index – NSE VIX (Lag -3)

Coefficient: +0.0957

p-Value: 0.0137

An increase in domestic market volatility three months earlier is linked to a 0.0957 unit rise in current Net FPI. The positive and significant coefficient suggests that foreign investors may have a risk-seeking outlook. They might enter markets after volatility, expecting higher returns or a market correction.

9. S&P 500 Growth Rate (Lag -2)

Coefficient: -0.0127

p-Value: 0.0159

A 1% increase in the S&P 500 growth rate two months ago is linked to a 0.0127 unit decrease in Net FPI to India. This negative and significant relationship shows a substitution effect. As U.S. stocks do better, funds move away from emerging markets like India.

10. United States Volatility Index – USA VIX (Current)

Coefficient: +0.0134

p-Value: 0.6715

Although the coefficient is positive, the relationship is not statistically significant. Therefore, short-run U.S. market volatility does not have a meaningful impact on FPI flows into India during this time.

Model Fit Evaluation: R-Squared and Adjusted R-Squared

R-Squared: 0.7563

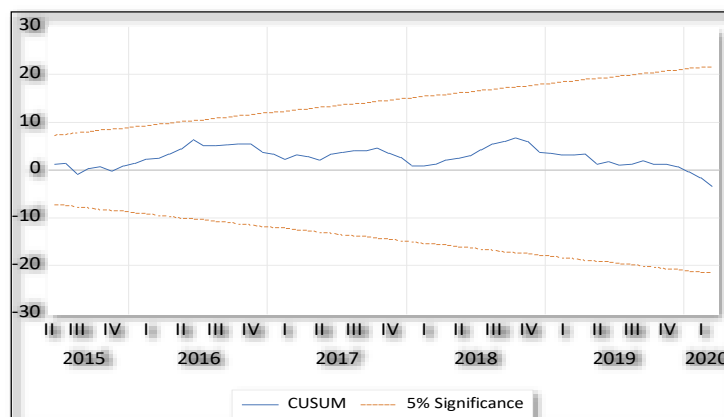
The R-squared value of 0.7563 shows that about 75.63% of the changes in Net FPI inflows are explained by the independent variables in the short-run model. These variables include past FPI flows, inflation, exchange rate, global uncertainty, market volatility, and stock returns. This relatively high R-squared indicates a strong fit of the model. It implies that the chosen variables are effective in capturing the short-run factors affecting foreign portfolio investments in India.

Adjusted R-Squared: 0.6177

The Adjusted R-squared value of 0.6177 indicates that 61.77% of the change in Net FPI inflows is explained by the model after adjusting for the number of predictors. Unlike the regular R-squared, the adjusted value considers the risk of overfitting by penalizing unnecessary variables. Although it is slightly lower than R-squared, it still shows a moderately strong explanatory power. This means that most of the included variables are relevant and play an important role in explaining FPI flows in the short run.

Diagnostics Tests for Model Stability

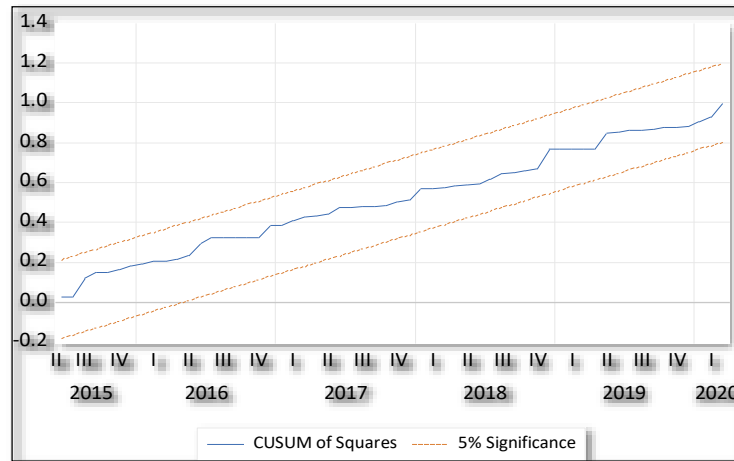
Model Stability Diagnostics in EViews are tests used after running a regression to check if your model behaves consistently over time. They help you find out whether the relationship between variables stays the same or suddenly changes. The two main tests in EViews are the CUSUM and CUSUM of Squares tests. These tests show graphs — if the line stays within the shaded area, your model is stable. If the line goes outside, it means your model might not be reliable for all time periods.



CUSUM Test Graph

The CUSUM (Cumulative Sum Test) test checks whether your model's results, such as the effect of one variable on another, remain stable over time. It examines the errors, or residuals, from your regression and sums them up step-by-step. These cumulative errors are plotted on a graph with two boundary lines. If the line stays within the boundaries, your model is stable. If the line moves outside, it indicates that something changed in the relationship between variables; the model may not be reliable over time.

The CUSUM stability test graph shows that the blue line, CUSUM, stays within the 5% significance bounds. This indicates that the regression model is stable over time. It means that the relationship between the variables in the model does not change much during the sample period.



CUSUM of Squares (CUSUMSQ) Test Graph

The CUSUM of Squares test checks if the spread or variation of the errors, not just the values, remains stable over time. It is more sensitive to sudden changes, such as a financial crisis or policy shock.

Like CUSUM, it creates a plot with boundary lines. If the line stays within the boundaries, your model's error variance is stable. If it crosses the bounds, it indicates that your model's reliability may change due to unstable variance in errors.

The CUSUM of Squares line remains within the 5% significance bounds. This indicates that the model's variance is stable over time. There are no sudden changes or structural breaks, so the model is reliable and consistent throughout the sample period.

Together, the CUSUM and CUSUMSQ tests show that the model is stable and reliable for short-run policy decisions during the pre-COVID period.

Econometric Analysis: Post-COVID Period (April 2021 – March 2025)

Augmented Dickey-Fuller (ADF) test Results

Variables	t-Statistic	Probability	Conclusion
Net FPI	-4.562639	0.0006	Stationary
Broad Money (M3)	-3.471057	0.0132	Stationary
Consumer Price Index	-1.636195	0.4562	Not Stationary
1 st Difference	-7.222018	0.000	Stationary
Global Economic Policy	-1.793795	0.3790	Not Stationary
Uncertainty Index	-1.793795	0.3790	Not Stationary
1 st Difference	-7.399244	0.000	Stationary
Index of Industrial Production	-2.897806	0.0537	Not Stationary
1 st Difference	-12.50108	0.000	Stationary
Nifty Growth Rate	-1.910733	0.3247	Not Stationary
1 st Difference	-6.723648	0.000	Stationary

NSE Volatility Index	-0.606358	0.8593	Not Stationary
1 st Difference	-7.173957	0.000	Stationary
S&P 500 Growth Rate	-2.038360	0.2700	Not Stationary
1 st Difference	-8.249272	0.000	Stationary
USD/INR Exchange Rate	-1.108307	0.7050	Not Stationary
1 st Difference	-8.082362	0.000	Stationary
US Volatility Index	-1.011479	0.7418	Not Stationary
1 st Difference	-5.548498	0.000	Stationary

ADF Test Interpretation (Post-COVID: April 2021 – March 2025)

- Out of all the variables tested, Net FPI and Broad Money (M3) are stationary at level [I(0)] because their p-values are below 0.05.
- The remaining variables, CPI, GEPU Index, IIP, Nifty Growth, NSE VIX, S&P 500 Growth, USD/INR, and US VIX, are non-stationary at level but become stationary after first differencing [I(1)].
- This mix of I(0) and I(1) variables makes the dataset suitable for ARDL modelling, which allows such combinations as long as no variable is I(2).

Autoregressive Distributed Lag (ARDL) Short-Run Model Output

This section examines the short-term trends of Foreign Portfolio Investment (FPI) in India from April 2021 to March 2025, after COVID. It uses an Autoregressive Distributed Lag (ARDL) model to determine which macroeconomic and global factors significantly influenced Net FPI inflows in the short run.

We estimated the ARDL model with EViews software. We selected the best lag structure using the Akaike Information Criterion (AIC), which helps identify the right model by balancing fit and simplicity. We then analyzed the short-run coefficients with p-values to assess statistical significance and evaluated the signs of the coefficients to understand how each variable affects the results.

ARDL Short-Run Dynamic Coefficients and Significance Levels

Variable (with Lag)	Coefficient	P-Value	Significance
Net FPI (Lag-2)	-0.6336	0.0039	Significant
Consumer Price Index - India (Lag -2)	+0.0771	0.1339	Not Significant
Global Economic Policy Uncertainty (Lag-1)	+0.0017	0.0262	Significant
Index of Industrial Production - India (Lag-2)	+0.6048	0.0228	Significant
INR/USD Exchange Rate (Lag-1)	+0.0773	0.0305	Significant
M3 Broad Money (Lag-2)	+0.0482	0.0647	Marginally Significant
Nifty Growth Rate (Current)	+0.0185	0.0025	Significant
NSE Volatility Index (Lag-1)	-0.1030	0.1254	Not Significant
S&P 500 Growth Rate (Lag-2)	-0.0106	0.0378	Significant
USA Volatility Index (Lag-2)	+0.1342	0.0645	Marginally Significant

ARDL Model – Short-Run Dynamic Coefficients and Significance

1. Net FPI (Lag -2)

Coefficient: -0.6336

p-Value: 0.0039

A one-unit increase in Net FPI two months prior leads to a 0.6336 unit decrease in current Net FPI. This strong negative relationship shows a reversal or correction in investment trends. It suggests that high inflows might be followed by a slowdown or profit-taking.

2. Consumer Price Index - India (Lag -2)

Coefficient: +0.0771

p-Value: 0.1339

A one-unit increase in CPI (inflation) in India two months ago results in a 0.0771 unit increase in Net FPI. However, this finding is not statistically significant. This suggests that inflation may not play a key role for foreign investors during the post-COVID period.

3. Global Economic Policy Uncertainty (Lag -1)

Coefficient: +0.0017

p-Value: 0.0262

A one-unit rise in global economic policy uncertainty from a month ago is linked to a 0.0017 unit increase in Net FPI. This important finding indicates that foreign investors may see India as a safer or more appealing place to invest during uncertain global conditions.

4. Index of Industrial Production – India (Lag -2)

Coefficient: +0.6048

p-Value: 0.0228

A one-unit increase in India's IIP two months earlier leads to a 0.6048 unit rise in Net FPI. This clear positive connection suggests that higher industrial output increases investor confidence in India's economic fundamentals, which draws in more FPI inflows.

5. INR/USD Exchange Rate (Lag -1)

Coefficient: +0.0773

p-Value: 0.0305

A one-unit decline in INR against USD one month ago is associated with a 0.0773 unit rise in Net FPI. This notable positive sign suggests that a weaker rupee could draw in FPI. This might be due to expectations of currency gains or better valuation.

6. M3 Broad Money (Lag -2)

Coefficient: +0.0482

p-Value: 0.0647

A one-unit increase in M3 money supply two months earlier results in a 0.0482 unit rise in Net FPI. This finding is slightly significant, indicating that an increase in liquidity might help market activity and affect foreign investor sentiment to some degree.

7. Nifty Growth Rate (Current)

Coefficient: +0.0185

p-Value: 0.0025

A one-unit increase in the Nifty growth rate during the current period leads to a 0.0185 unit rise in Net FPI. This strong and significant result indicates that foreign investors react positively to rising trends in the Indian equity market.

8. NSE Volatility Index (Lag -1)

Coefficient: -0.1030

p-Value: 0.1254

A one-unit rise in the NSE VIX one month ago is linked to a 0.1030 unit decline in Net FPI. However, this result is not significant. This suggests that domestic market volatility did not strongly deter foreign investment in the post-COVID phase.

9. S&P 500 Growth Rate (Lag -2)

Coefficient: -0.0106

p-Value: 0.0378

A one-unit increase in the S&P 500 index growth two months ago leads to a 0.0106 unit decrease in Net FPI. This important negative relationship suggests a substitution effect. When the US market does well, FPI in India may decline as capital flows return to developed markets.

10. USA Volatility Index (Lag -2)

Coefficient: $+0.1342$

p-Value: 0.0645

A one-unit rise in US market volatility two months earlier leads to a 0.1342 unit increase in Net FPI. This is slightly significant. It suggests that global risk or uncertainty can drive investors toward more stable or higher-yielding emerging market assets like India.

Model Fit Evaluation: R-Squared and Adjusted R-Squared

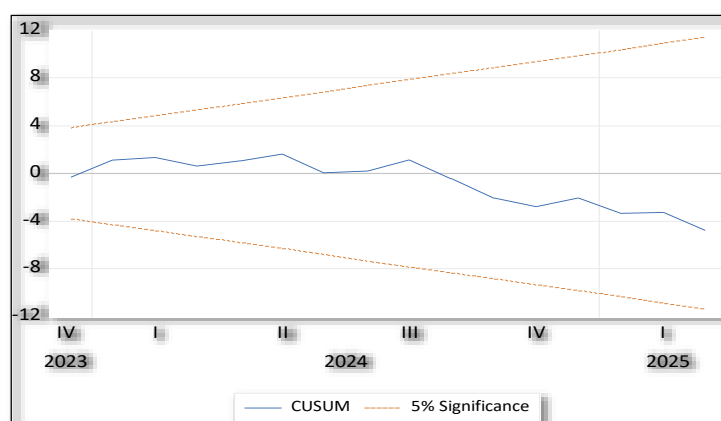
R-Squared: 0.8363

The R-squared value of 0.8363 shows that about 83.63% of the change in Net Foreign Portfolio Investment (FPI) is explained by the selected independent variables in the model. This indicates a strong overall fit, meaning the model can capture most of the factors influencing FPI inflows during the post-COVID period. A high R-squared suggests that the chosen macroeconomic and financial indicators together have significant power in explaining FPI behaviour.

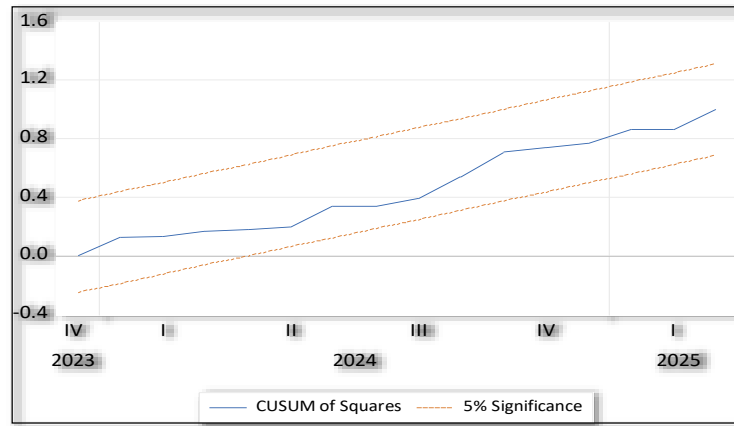
Adjusted R-Squared: 0.5498

The adjusted R-squared value of 0.5498 indicates that only about 54.98% of the variation in Net FPI is explained after accounting for the number of predictors in the model. Unlike R-squared, the adjusted version reduces the contribution of unnecessary variables, showing the model's true explanatory power. This moderate value suggests that while the model explains a reasonable amount of the variation, there may be some multicollinearity or inclusion of less important variables. This slightly lowers the model's ability to explain FPI movements.

Diagnostics Tests for Model Stability



CUSUM Test Graph



CUSUM of Squares (CUSUMSQ) Test Graph

Hypothesis Testing Results: Pre-COVID vs Post-COVID

Hypothesis No.	Variable	Pre-COVID Result & Conclusion	Post-COVID Result & Conclusion
H01 / Ha1	Global Economic Policy Uncertainty Index	Significant (p = 0.0019) → Reject H ₀	Significant (p = 0.0262) → Reject H ₀
H02 / Ha2	S&P 500 Growth Rate	Significant (p = 0.0159) → Reject H ₀	Significant (p = 0.0378) → Reject H ₀
H03 / Ha3	USA VIX	Not Significant (p = 0.6715) → Do not reject H ₀	Marginally Significant (p = 0.0645) → Do not reject H ₀
H04 / Ha4	INR/USD Exchange Rate	Significant (p = 0.0065) → Reject H ₀	Significant (p = 0.0305) → Reject H ₀
H05 / Ha5	Consumer Price Index (India)	Significant (p = 0.0320) → Reject H ₀	Not Significant (p = 0.1339) → Do not reject H ₀
H06 / Ha6	Index of Industrial Production (India)	Significant (p = 0.0009) → Reject H ₀	Significant (p = 0.0228) → Reject H ₀
H07 / Ha7	Broad Money Supply (M3 – India)	Not Significant (p = 0.9817) → Do not reject H ₀	Marginally Significant (p = 0.0647) → Do not reject H ₀
H08 / Ha8	Nifty 50 Growth Rate	Significant (p = 0.0035) → Reject H ₀	Significant (p = 0.0025) → Reject H ₀
H09 / Ha9	NSE VIX	Significant (p = 0.0137) → Reject H ₀	Not Significant (p = 0.1254) → Do not reject H ₀

MANAGERIAL IMPLICATIONS

The findings of this study offer important insights for policymakers, portfolio managers, and corporate strategists regarding Foreign Portfolio Investment (FPI) in India. Both pre- and post-COVID periods show that global economic policy uncertainty significantly influences FPI, indicating that India is perceived as a relatively stable destination during global turmoil. The Nifty 50 growth rate consistently attracts FPI,

highlighting return-chasing behaviour, while the INR/USD exchange rate significantly affects inflows, emphasizing the importance of currency management, hedging, and macroeconomic stability. Notably, industrial production has gained prominence post-COVID, reflecting a shift in investor focus toward growth fundamentals rather than inflation signals, which now show limited impact. Market volatility demonstrates mixed effects: domestic volatility attracted short-term inflows pre-COVID, whereas post-COVID investors appear more cautious, suggesting the need for risk management and transparent market communication. Additionally, global market performance, particularly the S&P 500, exhibits a substitution effect, highlighting the need for strategic portfolio diversification. Liquidity conditions, measured through M3, have marginal post-COVID influence, underlining the role of monetary policy in shaping investor sentiment. Overall, these insights suggest that aligning economic policies, financial stability, and market communication is critical for sustaining long-term FPI inflows and enhancing India's attractiveness as an emerging market investment destination.

FINDINGS

- 1. Determinants of Net FPI:** The study identifies both domestic and global factors as significant drivers of Net FPI in India. Pre-COVID, Net FPI inflows were positively influenced by past FPI trends, domestic inflation (CPI), the INR/USD exchange rate, Nifty growth, NSE volatility, and global economic policy uncertainty, while industrial production and S&P 500 growth exhibited negative effects. Post-COVID, the determinants shifted: Nifty growth, industrial production, INR/USD exchange rate, and global policy uncertainty remain positive drivers, whereas past FPI shows a negative correction effect. CPI and domestic volatility (NSE VIX) lost significance, while global risk indicators (USA VIX) gained marginal importance.
- 2. Shifts Between Pre- and Post-COVID Periods:** The determinants of FPI inflows have evolved. Pre-COVID, investors were more reactive to domestic inflation and short-term volatility, indicating a mix of return-chasing and risk-tolerant behaviour. Post-COVID, emphasis has shifted toward growth fundamentals (industrial production, stock market performance) and global risk factors, suggesting more strategic, cautious investment decisions.
- 3. Short-Run Relationships:** ARDL models reveal that short-run dynamics play a critical role. Positive lagged effects of Nifty growth and industrial output in the post-COVID period indicate that foreign investors respond quickly to favourable domestic market conditions. Exchange rate depreciation continues to attract FPI, while strong S&P 500 returns reduce flows, highlighting the substitution effect with developed markets.
- 4. Investor Sentiment and Market Volatility:** Domestic market volatility (NSE VIX) significantly attracted pre-COVID inflows, suggesting risk-seeking behaviour, whereas post-COVID, it became less relevant. Global volatility (USA VIX) gained slight significance post-COVID, showing that global uncertainty now drives investors toward India as a relatively safe emerging market.
- 5. Policy Implications:** The findings suggest that macroeconomic stability, growth-oriented policies, and clear communication of economic fundamentals are critical to sustaining FPI. Policymakers should monitor exchange rate movements, industrial production, and global policy uncertainty to attract and retain foreign capital, especially under post-crisis conditions.

Foreign investors have become more strategic post-COVID, prioritizing domestic growth fundamentals and global risk considerations over short-term inflation or domestic volatility, indicating a shift toward more informed and cautious FPI decision-making.

CONCLUSION

The short-run analysis of Net Foreign Portfolio Investment (FPI) in India uses ARDL modelling and is divided into pre- and post-COVID periods. This analysis offers valuable insights into how foreign investor behaviour and macroeconomic sensitivities have changed over time. The findings show a clear shift in the importance of domestic factors compared to global ones. This change reflects the evolving market dynamics, policy environments, and risk perceptions.

Variable Significance in Net FPI: Pre & Post-COVID

Variable	Pre-COVID	Post-COVID
Net FPI (Lag)	Significant	Significant
CPI – India	Significant	Not Significant
INR/USD Exchange Rate	Significant	Significant
Global Economic Policy Uncertainty	Significant	Significant
IIP – India	Significant	Significant
M3 Broad Money	Not Significant	Marginally Significant
Nifty Growth Rate	Significant	Significant
NSE VIX (India Volatility Index)	Significant	Not Significant
S&P 500 Growth Rate	Significant	Significant
USA VIX	Not Significant	Marginally Significant

Before COVID, FPI flows were largely influenced by past investment trends, local inflation, exchange rate changes, global policy uncertainty, and stock market behavior. Higher industrial output (IIP) negatively affected FPI, indicating that foreign investors responded in a counter-cyclical way. Domestic market volatility (NSE VIX) seemed to attract investors, suggesting that they were either willing to take risks or looking for opportunities. Additionally, strong performance in the US equity market (S&P 500) drew capital away from India, highlighting the global substitution effect. Overall, the model had good explanatory power, with an R-squared of 0.7563 and an adjusted R-squared of 0.6177.

In the post-COVID period, FPI behavior became more sensitive to global uncertainties, industrial performance, stock market strength, and currency value. A key finding was the significant negative autocorrelation in FPI flows, signaling short-term reversals or corrections. Foreign investors reacted positively to rising global uncertainty (GEPU) and US market volatility, reaffirming India's appeal as a stable or more profitable emerging market. The growth rate of the Nifty and IIP became strong local attractors. A weaker rupee (INR/USD) also attracted FPI, likely due to better valuation or expected profits. While CPI and NSE VIX showed some direction, they lacked statistical significance, indicating less sensitivity to inflation and domestic volatility. The S&P 500 once again showed a notable negative impact, reinforcing the idea that better prospects in the US market reduce FPI in emerging markets. This model reached a higher R-squared of 0.8363, but the moderate adjusted R-squared of 0.5498 suggested possible multicollinearity or overfitting issues.

In summary, the results show a clear shift in foreign investor behavior after COVID. It moved from a more cyclical and risk-tolerant strategy to one that is increasingly influenced by global factors and momentum. The findings emphasize the rising importance of global push factors, such as policy uncertainty and performance in developed markets, in shaping FPI decisions. They also highlight the need for

policymakers to maintain macro-financial stability, encourage industrial growth, and build investor confidence to sustain healthy FPI inflows in a volatile global context.

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