

# **Financial Development and Economic Growth in India: Long-Run Dynamics and Policy Implications for Viksit Bharat 2047**

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## **Abstract:**

This study examines the relationship between financial development and real economic growth in India in the context of the Viksit Bharat 2047 vision. Quarterly secondary data covering April 2011 to March 2025 (56 observations) are used to evaluate Real GDP alongside three channels of financial development: Non-Food Bank Credit, market capitalization, and Foreign Direct Investment (FDI). The empirical strategy combines the Augmented Dickey-Fuller test, Ordinary Least Squares regression, Johansen cointegration, a Vector Error Correction Model (VECM), and pairwise Granger causality tests. All four series are non-stationary at level and stationary after first differencing, supporting an I(1) time-series framework. The Johansen trace statistics indicate long-run cointegrating relationships among the variables. The estimated error-correction coefficient for GDP is -0.28 ( $t = -3.92$ ), implying that approximately 28% of a disequilibrium is corrected within a quarter. Granger-causality results show predictive precedence from bank credit to GDP ( $p = 0.01$ ) and from FDI to GDP ( $p = 0.04$ ), whereas market capitalization does not predict GDP at the 5% level ( $p = 0.07$ ); GDP, however, predicts market capitalization ( $p = 0.03$ ). The findings suggest that the composition and productive allocation of finance matter as much as its scale. For the Viksit Bharat 2047 agenda, policy should emphasize productive credit, capital-market depth linked to real investment, and stable long-horizon FDI. The study also cautions against interpreting rapid financial expansion as growth-enhancing in every circumstance and highlights the need to keep financial deepening aligned with real-sector capacity.

**Keywords:** Financial Development, Economic Growth, Real GDP, Bank Credit, Market Capitalization, Foreign Direct Investment, Viksit Bharat 2047

## **1. Introduction**

Financial development is central to the process through which savings are mobilized, risks are allocated, investment is financed, and capital is directed toward productive activity. For India, this relationship has acquired renewed policy significance because the Viksit Bharat 2047 vision requires sustained expansion of productive capacity, infrastructure, technology, employment, and private investment. During the last

decade, India has simultaneously experienced expansion in bank credit, deeper capital markets, greater domestic participation in equities, and substantial cross-border investment flows. The policy question is therefore not simply whether finance expands, but whether financial expansion is transmitted into real output in a stable and sustainable manner.

Prior research does not provide a single answer. Several India-focused studies report that financial development supports long-run growth [1, 4, 6, 11, 12], while others identify reverse causality, weak short-run effects, or adverse effects when financial development becomes excessive [3, 5, 7, 13, 14]. Banking-sector studies emphasize the importance of credit quality and access [9, 22, 23], capital-market studies show both growth-supporting and demand-following relationships [3, 4, 5, 12], and FDI studies generally identify a positive contribution to economic activity [18, 25]. These mixed findings justify an empirical framework that permits long-run equilibrium, short-run adjustment, and bidirectional predictive relationships rather than imposing a one-way finance-to-growth assumption.

The present study contributes by jointly examining Non-Food Bank Credit, market capitalization, and FDI against Real GDP using quarterly data through March 2025. This period captures both the COVID-19 disruption and the subsequent expansion of domestic credit and equity-market activity. The use of unit-root testing, Johansen cointegration, VECM, and Granger causality allows the finance-growth relationship to be examined dynamically. Rather than treating every increase in financial indicators as automatically beneficial, the study evaluates whether financial and real-sector variables remain connected in long-run equilibrium and which financial channels possess predictive information for real output.

## **2. Literature Review and Research Gap**

### **2.1 Financial Development and Economic Growth**

Lenka (2015) found that financial development supports Indian economic growth in the long run, although short-run effects may be weak [1]. Kumar (2015) similarly reported a positive long-run finance-growth relationship and evidence consistent with the supply-leading hypothesis [6]. Dogra (2017), however, observed positive short-run effects but a negative long-run relationship [7]. Tripathy (2019) showed that both banking and stock-market indicators can influence industrial growth [11], while Sinha and Shastri (2022) reported positive short-run but negative long-run effects [14]. International evidence also indicates non-linearity: Matei (2020) found that financial development may support growth up to a point, after which excessive financialization can become harmful [13]. These studies suggest that the magnitude, composition, and stage of financial development are important.

### **2.2 Banking Credit, Capital Markets and FDI**

Banking remains a major channel of financial intermediation in India. Mishra and Pradhan (2011) identified bank credit as an important driver of growth [4], while Singh et al. (2016) found that in some sectors output growth can precede and generate demand for credit [22]. Dudhe (2021) linked wider financial inclusion with stronger economic performance [9], and Mishra et al. (2024) emphasized banking

efficiency and profitability rather than lending volume alone [23]. For capital markets, Palamalai and Prakasam (2014) found interaction between market capitalization and economic growth [12], whereas Chakraborty (2008) reported a negative stock-market effect during the post-reform period [5]. Negi (2020) provided evidence that economic growth can itself stimulate financial development [3].

FDI provides non-debt capital, technology, managerial knowledge, and access to global production networks. Shekhar et al. (2022) reported that FDI contributes to Indian economic development [18], while Ramudamu (2022) documented a strong positive association between FDI and GDP growth [25]. Taken together, the literature indicates that bank credit, capital-market development, and FDI need not affect growth identically, making a disaggregated empirical analysis preferable to a single composite measure.

### **2.3 Research Gap**

Three gaps motivate this study. First, much of the earlier India-specific literature relies on data ending before the post-pandemic financial expansion and therefore does not capture recent changes in credit, equity-market participation, and foreign investment. Second, many studies use static or single-equation models that are less suited to distinguishing long-run equilibrium from short-run adjustment. Third, the literature frequently frames finance as a predetermined driver of growth, even though reverse or bidirectional relationships are theoretically plausible and empirically documented. Accordingly, this study uses recent quarterly data and a dynamic time-series framework to test long-run cointegration, adjustment to disequilibrium, and predictive direction among Real GDP, bank credit, market capitalization, and FDI.

## **3. Research Methodology**

### **3.1 Problem Statement**

A strong financial system can facilitate growth by mobilizing savings and allocating capital; however, financial expansion that becomes detached from productive capacity may also increase instability. The study therefore investigates whether India's major financial-development indicators are associated with Real GDP in a stable long-run relationship and whether their past movements contain predictive information for economic growth.

### **3.2 Objectives of the Study**

1. To examine the overall association between selected financial-development indicators and India's economic growth.
2. To analyze the long-run relationship between Non-Food Bank Credit, market capitalization, FDI, and Real GDP.
3. To examine the direction of predictive causality between the selected financial indicators and Real GDP.

### **3.3 Hypotheses**

H01: The selected financial indicators and Real GDP do not share a significant long-run equilibrium relationship.

H11: The selected financial indicators and Real GDP share a significant long-run equilibrium relationship.  
H02: The selected financial indicators do not Granger-cause Real GDP.  
H12: At least one selected financial indicator Granger-causes Real GDP.

### 3.4 Research Design, Data and Variables

The research is quantitative, deductive, explanatory, and based on time-series analysis. Secondary quarterly data cover 14 financial years from April 2011 to March 2025, yielding 56 observations. Real GDP is obtained from the Ministry of Statistics and Programme Implementation (MoSPI); Non-Food Bank Credit from the Reserve Bank of India Database on Indian Economy (DBIE); market-capitalization data from Indian stock-exchange data portals; and FDI inflows from Department for Promotion of Industry and Internal Trade (DPIIT) and RBI records. The project uses EViews for econometric estimation and Microsoft Excel for database management, transformations, and charting.

Table 1: Variables Used in the Study

| Variable              | Role in Study                   | Financial Channel                   |
|-----------------------|---------------------------------|-------------------------------------|
| Real GDP              | Measure of real economic growth | Real economy                        |
| Non-Food Bank Credit  | Financial-development indicator | Banking sector                      |
| Market Capitalization | Financial-development indicator | Capital market                      |
| FDI Inflows           | Financial-development indicator | International financial integration |

### 3.5 Econometric Procedure

The empirical sequence is: (1) Augmented Dickey-Fuller (ADF) tests to determine the order of integration; (2) Ordinary Least Squares (OLS) regression as a baseline assessment of joint explanatory association; (3) Johansen trace tests to examine cointegration among the I(1) variables; (4) a Vector Error Correction Model to estimate adjustment toward long-run equilibrium; and (5) pairwise Granger causality tests using two lags to evaluate predictive precedence. Granger causality is interpreted as predictive causality and not as proof of structural cause-and-effect.

## 4. Results and Analysis

### 4.1 Stationarity of the Series

Table 2: Augmented Dickey-Fuller Test Results

| Variable          | Test Statistic | Probability | Stationarity Decision  |
|-------------------|----------------|-------------|------------------------|
| Real GDP          | -1.82          | 0.68        | No – Fail to reject Ho |
| FDI Equity        | -2.05          | 0.56        | No- Fail to reject Ho  |
| Market Cap        | -1.47          | 0.74        | No- Fail to reject Ho  |
| Bank Credit       | -2.12          | 0.52        | No- Fail to reject Ho  |
| $\Delta$ Real GDP | -4.91          | 0           | Yes- Reject Ho         |

|                      |       |   |                |
|----------------------|-------|---|----------------|
| $\Delta$ FDI Equity  | -5.23 | 0 | Yes- Reject Ho |
| $\Delta$ Market Cap  | -4.77 | 0 | Yes- Reject Ho |
| $\Delta$ Bank Credit | -5.01 | 0 | Yes- Reject Ho |

The level series for Real GDP, FDI, market capitalization, and bank credit fail to reject the unit-root null hypothesis. After first differencing, the variables become stationary at conventional significance levels. The series are therefore treated as integrated of order one,  $I(1)$ , providing the basis for testing whether a stable long-run cointegrating relationship exists.

#### 4.2 Baseline Regression Results

Table 3: Reported OLS Coefficients

| Variable    | Coefficient | Std. Error | t-Statistic | Probability |
|-------------|-------------|------------|-------------|-------------|
| C           | 51234.5     | 20345.2    | 2.52        | 0.01        |
| FDI         | 0.021       | 0.01       | 2.1         | 0.04        |
| Bank Credit | 0.45        | 0.05       | 9           | 0           |

Table 4: OLS Model Summary

| Statistic     | Value  |
|---------------|--------|
| R-squared     | 0.85   |
| Adj R-squared | 0.84   |
| F-statistic   | 178.45 |
| prob(F-stat)  | 0      |
| Durbin-Watson | 1.92   |

The reported OLS model has an R-squared of 0.85 and adjusted R-squared of 0.84, while the F-statistic is 178.45 with a reported probability of 0.0000. This indicates strong joint explanatory association in the baseline equation. The Durbin-Watson statistic of 1.92 does not indicate obvious first-order residual autocorrelation. Because the underlying level series are non-stationary, however, the OLS results are treated as descriptive baseline evidence rather than the primary basis for long-run inference; the cointegration and VECM results are more appropriate for that purpose.

#### 4.3 Johansen Cointegration Test

Table 5: Johansen Cointegration Trace Test

| Hypothesized Number of Cointegrating Equations | Trace Statistic | 5% Critical Value | Probability |
|------------------------------------------------|-----------------|-------------------|-------------|
| None                                           | 72.45           | 47.85             | 0           |
| At most 1                                      | 41.32           | 29.79             | 0.01        |

|           |       |       |      |
|-----------|-------|-------|------|
| At most 2 | 18.76 | 15.49 | 0.04 |
| At most 3 | 6.12  | 3.84  | 0.02 |

At each reported rank, the trace statistic exceeds the corresponding 5% critical value and the reported probabilities are below 0.05. On the basis of the project estimates, the null of no long-run relationship is rejected, indicating that Real GDP, bank credit, market capitalization, and FDI are linked through long-run equilibrium relationships. This result supports rejection of H01.

#### 4.4 Vector Error Correction Model

Table 6: Normalized Cointegrating Equation

| Variable    | Normalized Coefficient | Reported Standard Error and t-Statistic |
|-------------|------------------------|-----------------------------------------|
| GDP         | 1.000000               |                                         |
| Bank Credit | -0.62                  | (0.08) [-7.75]                          |
| Market Cap  | -0.45                  | (0.07) [-6.43]                          |
| FDI         | -0.09                  | (0.04) [-2.25]                          |
| C           | -52341.2               |                                         |

The normalized cointegrating vector reports coefficients of -0.62 for bank credit, -0.45 for market capitalization, and -0.09 for FDI when GDP is normalized to one. These estimates establish the relative signs and magnitudes within the estimated long-run equilibrium vector. They should be interpreted cautiously: the sign of a coefficient in a normalized cointegrating equation depends on the normalization and, by itself, does not prove that an increase in finance mechanically reduces GDP or that a financial bubble exists. Nevertheless, the relatively large coefficients on bank credit and market capitalization indicate that deviations in these variables are important components of the estimated long-run equilibrium relation.

Table 7: Error Correction Term Coefficients

| Dependent Variable   | Coefficient | Std. Error | t-Statistic | Significance    |
|----------------------|-------------|------------|-------------|-----------------|
| $\Delta$ GDP         | -0.28       | 0.07       | -3.92       | Significant     |
| $\Delta$ Bank Credit | -0.15       | 0.05       | -2.87       | Significant     |
| $\Delta$ Market Cap  | -0.21       | 0.06       | -3.45       | Significant     |
| $\Delta$ FDI         | -0.05       | 0.04       | -1.12       | Not Significant |

The error-correction coefficient in the GDP equation is -0.28 with a t-statistic of -3.92. Its negative and statistically significant sign is consistent with convergence toward long-run equilibrium: approximately 28% of the preceding period's disequilibrium is corrected within one quarter. Market capitalization (-0.21) and bank credit (-0.15) also show significant adjustment, while the FDI adjustment coefficient (-0.05; t =

-1.12) is not statistically significant. The results therefore suggest that GDP, bank credit, and market capitalization participate actively in restoring equilibrium after shocks, whereas FDI is comparatively weakly adjusting within this system.

#### 4.5 Granger Causality

Table 8: Pairwise Granger Causality Test at Two Lags

| Null Hypothesis                               | F-Statistic | Probability | Decision             |
|-----------------------------------------------|-------------|-------------|----------------------|
| Market Cap does not Granger Cause GDP         | 2.87        | 0.07        | Fail to Reject $H_0$ |
| FDI does not Granger Cause GDP                | 3.42        | 0.04        | Reject $H_0$         |
| GDP does not Granger Cause Market Cap         | 3.95        | 0.03        | Reject $H_0$         |
| GDP does not Granger Cause FDI                | 1.21        | 0.29        | Fail to reject $H_0$ |
| Bank Credit does not Granger Cause GDP        | 5.87        | 0.01        | Reject $H_0$         |
| GDP does not Granger Cause Credit             | 2.02        | 0.14        | Fail to reject $H_0$ |
| FDI does not Granger Cause Market Cap         | 1.34        | 0.26        | Fail to reject $H_0$ |
| Bank Credit does not Granger Cause Market Cap | 4.11        | 0.03        | Reject $H_0$         |

The Granger results distinguish the three financial channels. Bank credit predicts GDP at the 5% level ( $F = 5.87$ ,  $p = 0.01$ ), while the reverse direction from GDP to credit is not significant ( $p = 0.14$ ). FDI also predicts GDP ( $F = 3.42$ ,  $p = 0.04$ ), whereas GDP does not predict FDI ( $p = 0.29$ ). Market capitalization does not predict GDP at the 5% level ( $p = 0.07$ ), but GDP predicts market capitalization ( $F = 3.95$ ,  $p = 0.03$ ). Thus, the evidence supports rejection of  $H_{02}$  for bank credit and FDI, but not for market capitalization. The result is consistent with the interpretation that bank lending and foreign investment contain useful predictive information for real output, while market capitalization is more responsive to developments in the real economy over the study period.

#### 5. Discussion

The empirical results reinforce the view that financial development is multidimensional and that different channels interact with economic growth differently. The predictive role of bank credit is consistent with the supply-leading evidence reported in earlier Indian studies [4, 6, 11]. At the same time, the importance of efficient credit allocation emphasized by Joshi (2016) and Mishra et al. (2024) remains relevant [8, 23]:

a positive finance-growth connection does not imply that every form of credit expansion is equally productive.

The capital-market result is particularly informative. Market capitalization fails to Granger-cause GDP at the 5% threshold, while GDP Granger-causes market capitalization. This resembles demand-following evidence in which real economic expansion strengthens valuations and market depth [3, 4]. It also helps reconcile studies that report weaker or negative growth effects from stock-market expansion [5]. The finding does not imply that equity markets are unimportant; rather, market capitalization alone may capture valuation and investor sentiment as well as productive capital formation.

FDI shows predictive precedence for GDP and does not display a significant error-correction response in the reported VECM. This pattern is compatible with FDI operating as an external source of capital that is influenced by global and policy factors and can support domestic production [18, 25]. For the Viksit Bharat 2047 agenda, the combined evidence points toward a policy emphasis on the quality and destination of finance: credit and foreign capital should be directed toward activities that expand productive capacity, while capital-market growth should be assessed not only through valuation but also through its contribution to new investment and corporate financing.

## **6. Major Findings and Policy Implications**

First, the selected financial indicators are strongly associated with Real GDP in the baseline model, and the time-series evidence indicates a long-run equilibrium relationship among GDP, bank credit, market capitalization, and FDI. Second, the GDP error-correction term suggests relatively meaningful adjustment after shocks, with about 28% of disequilibrium corrected per quarter. Third, bank credit and FDI possess statistically significant predictive information for GDP, while market capitalization does not at the 5% level; instead, GDP predicts market capitalization.

These findings have three policy implications. Productive credit allocation should receive priority over credit volume alone, particularly for infrastructure, manufacturing, technology, green energy, and employment-generating sectors. Capital-market policy should encourage primary issuance and equity financing that translates market depth into real capital formation, while maintaining safeguards against excessive valuation-driven risk. FDI policy should prioritize stable, long-horizon and greenfield investment capable of adding physical capacity, technology, skills, and supply-chain integration. Together, these measures can help align financial deepening with the real-sector expansion required for the Viksit Bharat 2047 objective.

## **7. Conclusion**

This study provides recent quarterly evidence on the finance-growth relationship in India by jointly considering bank credit, market capitalization, and FDI. The results show that the financial and real sectors are connected over the long run, but the channels are not interchangeable. Bank credit and FDI show

predictive precedence for Real GDP, whereas market capitalization appears more responsive to GDP than predictive of it at the 5% significance level. The significant negative error-correction term for GDP indicates convergence after disequilibrium and supports the presence of an adjustment mechanism linking finance and output.

The central implication is that financial development should be evaluated by how effectively it supports productive capacity rather than by expansion in financial aggregates alone. For India to advance toward the Viksit Bharat 2047 vision, financial deepening should be accompanied by disciplined credit allocation, stronger links between capital markets and real investment, and FDI that contributes to technology, infrastructure, and productive employment. The evidence therefore supports calibrated financial development: finance should expand with, and not become detached from, the capacity of the real economy.

### **8. Limitations and Scope for Future Research**

The study is based entirely on secondary data and is therefore subject to revisions in official macroeconomic series. The selected indicators represent formal financial channels and do not capture informal credit. The sample contains 56 quarterly observations and includes a major structural disruption during the COVID-19 period. The project does not report structural-break tests, alternative lag-selection criteria, VECM residual diagnostics, stability tests, or robustness checks using alternative measures of financial development. Future research can extend the sample, test structural breaks, distinguish sectoral credit, separate greenfield and brownfield FDI, use measures of stock-market turnover and primary capital formation, and examine possible non-linear or threshold effects of financial deepening.

### **9. Authors' Biography**

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