Comparative Analysis of Sectoral Sensitivity to Macroeconomic Policy Announcements: Evidence from Indian Equity Markets

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ABSTRACT

This study analyses the sensitivity of the Indian equity markets to sectoral macroeconomic policy announcement with emphasis made on the Union Budget announcements as major information events. Using an event study methodology, the paper analyses cumulative abnormal returns (CARs) of selected Nifty sectoral indices over short-, medium-, and long-term event windows during the period 2015–2024. Sectors are classified into policy-driven (Infrastructure), cyclical (Commodities), and defensive (Healthcare) categories based on their dependence on fiscal policy and government expenditure. The findings reveal significant heterogeneity in sectoral responses to policy announcements. Policy-driven sectors exhibit stronger and more persistent abnormal returns, particularly over short and medium event windows, while cyclical sectors display medium-term sensitivity with limited persistence. Defensive sectors show largely insignificant abnormal returns, indicating higher informational efficiency. The results contribute to the literature on sectoral market efficiency and fiscal policy transmission in emerging markets and offer implications for policymakers and investors.

Keywords: Event Study, Sectoral Indices, Union Budget, Macroeconomic Policy, Indian Equity Market, Abnormal Returns.
JEL Classification: C1, C58, G1, G14, H61.

Introduction

The announcements of the macroeconomic policy are of utmost importance in influencing stock market behaviour and investor expectations. In emerging economies such as India, fiscal policy announcements—particularly the announcement of Union Budget—represent significant information events due to their wide-ranging implications for government spending, taxation, and sector-specific incentives. Government also use Budget speech as mechanism for announcing important new policy measures and for briefly outlining some plans for economy policy (Thomas and Shah,2001).These policies initiatives are aimed at the development of various sectors and therefore impact the financial health of the economy (Sardana, Goyal and Gupta, 2019). Consequently, financial markets closely monitor budget announcements to reassess future cash flows and risk perceptions.

Although earlier researchers have done extensive research on market-wide responses following macroeconomic announcements, however evidence suggests that stock market responses are not uniform across sectors. Different sectors exhibit varying degrees of sensitivity depending on their dependence on government expenditure, exposure to economic cycles, and structural characteristics.

Understanding such sectoral heterogeneity is essential for assessing market efficiency and the effectiveness of policy communication.

This study contributes to the literature by conducting a comparative analysis of sectoral responses to macroeconomic policy announcements in India. Based on an event study model, the study assesses abnormal returns of the selected Nifty sectoral indices around the period of announcement of the Union Budget within 2015-2024. Sectors are categorically grouped into policy-driven, cyclical and defensive to analyze variation in event windows sensitivity. The study addresses the following research questions:

- Do macroeconomic policy announcements generate abnormal returns at the sectoral level?
- Does sectoral sensitivity vary across policy-driven, cyclical, and defensive sectors?
- What do sectoral reactions imply about informational efficiency in the Indian equity market?

Review of Literature

The relationship between macroeconomic announcements and stock market behavior has been widely studied using event study methodologies. Early studies, e.g., Brown & Warner, 1985; Dyckman, Philbrick and Stepha (1984);Binder (1998)) establish the event study as an effective tool for measuring abnormal returns around information events. Response to stock prices due to macroeconomic event i.e. announcement of Union budget has received considerable attention of the researcher. Gupta and Kundu (2006) analysed the impact of Union Budgets on Indian stock prices. The impact was analysed for over 17 budgets from 1991 to 2005. The results revealed that as per as return is concerned the investors can earn abnormal profits or losses in short term and medium term upto15 days around the budget.Soni (2010) in his study sets to examine the impact of the announcement of union budget and monetary policy on the Sensex group of stocks.The findings of the paper revealed that the union budget and monetary policy announcements have maximum impact in the short term.Varadharajan &Vikkraman(2011) has tried to examine the volatility of Indian stock market from the year 2002 to 2011 and the impact of budget over the years. The researcher also compared NSE and BSE on the basis of volatility and turnover. It was found that the volatility is higher in post budget period in compared to pre-budget period. And the turnover and volatility in NSE is much higher than BSE which may be due to technological sophistication, transparency, efficient payment system and settlement framework of NSE.Further, a wide range of empirical studies—such as Saraswat and Banga (2012), Babu and Venkateswarlu (2013), Khanna and Gogia (2014), Singhvi (2014), Dutta et al. (2015), Gakhar, Kushwaha and Ashok (2015), Patel, Dave and Shah (2016), Sireesha (2016), Gayathiri and Ganesamoorthy (2018), Joshi and Mehta (2018), Sardana (2018), Teja (2019), Maheshwari, Johri and Kute (2020),Augustin et al.,(2021),Jabeen and Kettiramalingam (2023), Jain and Mahapatra (2024), Shingade, et al (2025)—have examined the impact of Union Budget announcements on stock market returns and volatility using different indices, time periods, event windows, and methodologies. While several studies report short-term abnormal returns or heightened volatility immediately around the budget announcement, others find no statistically significant impact on returns or sectoral performance, particularly in the medium and long run. The empirical evidence therefore remains mixed and inconsistent across studies, reflecting variations in market conditions, indices considered, and analytical windows. Consequently, the existing literature does not provide conclusive evidence regarding the informational efficiency of the Indian stock market in response to Union Budget announcements, especially with respect to the persistence of abnormal returns.

Research Gap

Despite the growing literature on policy announcements and market reactions, limited studies provide a comparative sectoral analysis within the Indian context using consistent event windows and multiple years of data. This study addresses this gap by examining sectoral sensitivity using a structured classification framework.

Objectives and Hypotheses

Objectives

- To examine sectoral abnormal returns around macroeconomic policy announcements in India
- To compare the sensitivity of policy-driven, cyclical, and defensive sectors
- To assess sector-level market efficiency across different event windows

Hypotheses

H₁: Policy-driven sectors exhibit significant cumulative abnormal returns around macroeconomic policy announcements.

H₂: Cyclical sectors demonstrate stronger short-term reactions than defensive sectors.

H₃: Defensive sectors exhibit insignificant abnormal returns, indicating higher informational efficiency.

H₄: Sectoral sensitivity varies across short-, medium-, and long-term event windows.

Data and Methodology

- **Data Description**

The research uses daily closing prices of selected Nifty sectoral indices. The required data has been obtained from the website of National Stock Exchange of India. The sample period covers Union Budget announcements from 2015 to 2024. For the descriptive statistics the data has been calculated using daily closing price returns over the entire sample period. To assess sector level efficiency around the macroeconomic policy announcement event study has been employed.

- **Sector Classification Framework**

Sectors are classified based on their dependence on fiscal policy and government expenditure:

Nature of Classification	Selected Sectoral Index	Reason for selecting the sector
Policy-driven sector	Nifty Infrastructure	Directly influenced by public capital expenditure, infrastructure allocation, and policy initiatives.
Cyclical sector	Nifty Commodities	Reflects sensitivity to economic growth expectations, industrial demand, and fiscal measures such as import duties.
Defensive sector	Nifty Healthcare	Healthcare demand is relatively stable and less dependent on short-term fiscal announcements.

- **Event Study Methodology**

Budget announcement dates over the sample period 2015 to 2024 are identified as event dates (t = 0). Further, Abnormal returns are calculated using a standard market-adjusted/mean-adjusted model. The estimation window precedes the event window, while three event windows are analyzed:

- Short-term: ±7 days
- Medium-term: ±31 days
- Long-term: ±61 days

Cumulative Abnormal Returns (CARs) are computed by aggregating abnormal returns over each event window. The statistical significance of CARs is tested using t-statistics to evaluate whether abnormal returns differ significantly from zero.

- **Magnitude of CARs**

Cumulative Abnormal Returns (CARs) provide a measure of the total abnormal market reaction over the event window (Brown & Warner, 1985; MacKinlay, 1997). In interpreting the economic significance of CARs beyond statistical significance, researchers commonly relate larger absolute CAR values to stronger market reactions. Based on this practical convention, Absolute value of CARs has been used by classifying the categories according to the most accepted and realistic for index-level event studies.

Level of Magnitude	|CAR|
High magnitude	≥ 3% (0.03)
Moderate magnitude	1–3%
Low magnitude	< 1%

- **Sectoral Sensitivity**

To identify and compare the sectoral sensitivity to the macroeconomic policy announcement the significance of the sectors and the magnitude of CARs has been combined;

▪ **Window-wise Sensitivity Classification**

Condition	Sensitivity
Significant + High/moderatemagnitude CAR	High
Significant + Low magnitude CAR	Moderate
Insignificant + Any magnitude CAR	Low

▪ **Overall Sector Sensitivity**

Pattern Across Windows	Overall Sensitivity
High/Moderate Sensitivity in ≥2 windows	High
High/Moderate Sensitivity in 1 window only	Moderate
Low Sensitivity in all windows	Low

Empirical Results

- **Descriptive Statistics**

Table 1: Descriptive Statistics of Sectoral Index Volatility and Return Behaviour Across Sectors

Sector	Index	Mean Return	Std. Deviation	Min Return	Max Return
Policy Driven Sector	Nifty Infrastructure	0.00041	0.012018	-0.12836	0.069284
Cyclical Sector	Nifty Commodities	0.00044	0.012841	-0.13066	0.073272
Defensive Sector	Nifty Healthcare	0.00034	0.011009	-0.08693	0.087976

Self computed

- **Cumulative Abnormal Returns (CARs)**

Table 2: Cumulative Abnormal Returns (CARs) along with t Statistic Value

	CAR(7days)	t-value	CAR(31 days)	t-value	CAR(61days)	t-value
Nifty Infrastructure	1%	1.97450	-2%	-2.21765	-2%	-0.57904
NIfty Commodities	-0.3%	-0.42964	-2.7%	-2.15859	-5.8%	-1.57300
Nifty Healthcare	0.2%	0.19425	-1.4%	-0.64904	-2.2%	-0.83368

Self computed

- **Comparative Sectoral Sensitivity to Macroeconomic Policy Announcements**

Table 3: Comparative Sectoral Sensitivity

Sector Category	Sector	Short-term (±7)	Medium-term (±31)	Long-term (±61)	Overall Sensitivity
Policy-driven	Infrastructure	Moderate	Moderate	Low	High
Cyclical	Commodities	Low	Moderate	Low	Moderate
Defensive	Healthcare	Low	Low	Low	Low

Self computed

- **Result of Hypotheses Testing**

Hypothesis	Result	Evidence
H1: Policy-driven sectors show significant CARs	Supported	Infrastructure CARs significant at±7 and ±31
H2: Cyclical sectors react more strongly	Supported	Commodities significant at ±31
H3: Defensive sectors show insignificant CARs	Supported	Healthcare insignificant at ±7; ±31 and±61
H4: Sensitivity varies across windows	Supported	Every window has different level of sensitivity

Discussion of Findings

The results indicate that macroeconomic policy announcements do not affect all sectors uniformly. Infrastructure indices display more frequent and larger magnitude CARs, particularly over medium- and long-term event windows. Short-term reactions are comparatively weaker. The commodities sector demonstrates mixed CAR behavior. Significant abnormal returns appear primarily in

medium-term windows, reflecting rapid market response to fiscal signals. However, the absence of persistent CARs indicates that these effects dissipate quickly. The healthcare sector shows largely insignificant CARs across all event windows and years. The magnitude of abnormal returns remains low, suggesting limited sensitivity to policy announcements. Overall, policy-driven sectors exhibit the highest sensitivity to macroeconomic policy announcements, followed by the cyclical sector, while the defensive sector shows minimal reaction. This confirms sectoral heterogeneity in policy transmission. This finding may suggest that policy-driven sectors react more strongly due to their direct dependence on government spending and policy support. The delayed and persistent CARs observed in these sectors suggest gradual information assimilation, consistent with partial semi-strong inefficiency. And Cyclical sectors respond quickly but temporarily, reflecting sensitivity to growth expectations tempered by external factors such as global commodity prices, while defensive sectors remain largely insulated from policy-induced shocks, supporting the notion of higher informational efficiency. Hence, these findings align with international evidence on sectoral heterogeneity and contribute to the understanding of fiscal policy transmission in emerging markets.

Policy and Investment Implications

- Policymakers should recognize that fiscal announcements have uneven sectoral impacts.
- Investors may benefit from sector rotation strategies around policy announcements.
- Policy-driven sectors offer opportunities but also carry higher post-event risk.

Robustness and Limitations

While the study employs multiple event windows and a long sample period, results may be influenced by overlapping macroeconomic events and global shocks. Future research could incorporate alternative models or intraday data for further robustness.

Conclusion

This study provides empirical evidence on sectoral sensitivity to macroeconomic policy announcements in the Indian equity market. The findings demonstrate clear heterogeneity across policy-driven, cyclical, and defensive sectors, offering insights into market efficiency and fiscal policy transmission. The study contributes to emerging market finance literature and provides practical implications for investors and policymakers.

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