



Macroeconomic Sensitivity of Blue-Chip vs. Growth Stocks in India: A Decadal Regression-Based Analysis



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Abstract: By analysing the distinct ways in which blue-chip and growth stocks respond to systematic macroeconomic factors, this study addresses a significant gap in Indian financial research. Previous Indian studies often compared total stock returns but frequently blurred firm-specific characteristics with broader economic influences. Here, we use a multi-factor OLS regression on monthly returns data for the Nifty 50 (as a blue-chip benchmark) and the Nifty Midcap 150 Total Return Index (as a growth stock benchmark), covering the period 2014 to 2024. The analysis examines explicitly how these stock categories (through their betas) respond to changes in GDP growth (G), CPI-based inflation (u), and shifts in the RBI policy rate (ΔI). The findings show that, with statistically significant negative coefficients, growth stocks are about twice as sensitive to high inflation and rising interest rates as blue-chip stocks. In contrast, growth stocks demonstrate stronger positive sensitivity to phases of GDP growth. These results indicate that systematic risk in the Indian equity market is complex and varies across investment types, providing valuable insights for studies on the transmission of central bank policy and dynamic asset allocation strategies.

Keywords: Blue-Chip, Growth Stocks, Systematic Risk, Macroeconomic Factors, Interest Rate Sensitivity, India, Asset Pricing.

Nomenclature:

CAPM: Capital Asset Pricing Model

OLS: Ordinary Least Squares

TRI: Total Return Index

RBI: Reserve Bank of India

ADF: Augmented Dickey-Fuller

CPI: Consumer Price Index

GDP: Real Gross Domestic Product

OLS: Ordinary Least Squares

HAC: Heteroskedasticity- and Autocorrelation-Consistent

VAR: Vector Autoregression

I. INTRODUCTION

Two core investment styles are growth stocks and blue-chip stocks. Large-cap, financially sound enterprises consistently generating returns and dividends are associated with blue-chip stocks, which also serve as a defensive asset class.

Subsequently, growth stocks, characterised by greater volatility and a focus on reinvesting accumulated funds, are associated with enterprises that have strong future earnings potential. Historically, value (comparable to blue-chip stocks) and growth styles have been the subject of in-depth research worldwide. Specifically, Fama and French developed the value premium in their three-factor model, High Minus Low [1]. Empirical evidence indicates a complex picture in the context of the developing Indian market (2014–2024); growth-oriented indices have not only highlighted a higher.

Average compound annual growth returns (\tilde{I} 6.9% vs. \tilde{I} 1.2% CAGR for blue-chips), but also have experienced a significantly higher volatility (annualised Standard Deviation \sim 17.7% vs 13.9%). In addition to confirming the well-known risk-return trade-off, this observation raises questions about the source of this risk disparity and its effects on the overall economy.

Non-diversifiable, systematic risk factors include macroeconomic conditions, such as shifts in monetary policy (interest rates), price levels (inflation), and the economic cycle (GDP growth). This study's central hypothesis is that not all equity segments are equally impacted by these systematic factors. Growth stock valuations are theoretically more sensitive to changes in the discount rate driven by monetary policy because they rely more on far-off cash flows. Blue-chip companies are better able to withstand cost shocks from inflation or increased funding costs because they have stronger balance sheets and more pricing power.

A. Research Gap: A significant amount of Indian literature has examined multi-factor models and return differentials. Few studies, however, specifically and quantitatively compare the beta of growth stocks versus blue-chip indices to a set of fundamental, non-differentiable macroeconomic variables at high frequency (monthly data). The ability to distinguish economy-driven risk exposures is limited by the tendency of current firm-level approaches to confuse idiosyncratic traits with systematic influences. By employing a multi-factor regression model with monthly index-level data to measure and compare the two investment styles' systematic exposure, this study directly fills this gap.

B. Objective and Scope: This study aims to quantitatively assess the effects of changes in real GDP growth (G), CPI inflation (u), and the RBI policy repo rate (ΔI) on the performance of growth versus blue-chip stock portfolios in India during the ten years following 2014. We aim to

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offer a condensed, macro-driven framework for comprehending risk and return in the Indian equity market by separating systematic factor betas by investment style.

II. LITERATURE REVIEW AND HYPOTHESES

A. The Global Value-Growth Dynamic

The work of Fama and French also demonstrated that portfolios constructed based on firm size and book-to-market equity ratio better explain the cross-section of expected returns than the single-factor Capital Asset Pricing Model (CAPM), which underlies the value-growth debate [2]. Over time, value stocks—which have a high book-to-market ratio and are frequently compared to blue-chip companies—generally perform better than growth stocks, which have a low book-to-market ratio. By including the momentum factor, Choi and Zhao Cahart improved our comprehension of return persistence [3]. The fundamental idea behind these models is tied to macroeconomic conditions, even though they mostly rely on firm-level accounting and market data.

B. Indian Market Evidence

The existence of a value premium during particular macroeconomic regimes is supported by studies conducted in India, such as those by Jagirdar and Gupta, which have consistently found differences in returns between value and growth portfolios [4]. More recent analyses have quantitatively demonstrated different risk exposures. Our growth proxy — mid-cap stocks, for instance — has historically shown higher market beta [5], suggesting greater sensitivity to overall market movements. In addition, growth stocks displayed almost twice the return elasticity to interest rate changes in post-COVID rallies when compared to blue chips [6]. These results are suggestive, but they fall short of directly and side-by-side comparing style-specific macroeconomic betas across an entire economic cycle.

C. Stock Characteristics by Investment Style

Table I: Stock Characteristics by Investment Style

Characteristic: Typical	Indian Blue-Chip Stock (Nifty 50)	Typical Indian Growth Stock (Nifty Midcap 150)
Market Capitalization	Large-Cap (Stable, ≥ 50,000 Crore)	Variable (Often Mid or Small-Cap initially)
Dividend Policy: Regular Valuation Metrics	payouts, moderate yield Moderate P/E, Lower P/B relative to growth	Low/No dividends; earnings reinvested for expansion. High P/E, High P/B, High PEG reflecting future expectations
Risk Level	Lower to Moderate	Higher

D. Hypotheses

Based on the theoretical linkages between discount rates, future cash flows, and macro risk, we posit the following hypotheses to be tested using regression analysis:

- i. H_1 (Interest Rate Sensitivity): Growth stock returns will exhibit a significantly higher absolute (more

negative) sensitivity ($\beta_{g, I}$) to increasing interest rates ($\Delta I > 0$) compared to blue-chip returns ($\beta_{B, I}$), because of greater dependency on external funding and valuation based on distant cash flows.

- ii. H_2 (Inflation Sensitivity): Growth stock returns will exhibit a significantly higher absolute (more negative) sensitivity ($\beta_{g, \pi}$) to inflation (u) compared to blue-chip returns ($\beta_{B, \pi}$), due to lower pricing power and thinner operating margins.
- iii. H_3 (Economic Growth Sensitivity): Growth stock returns will exhibit a significantly higher positive sensitivity ($\beta_{g, g}$) to GDP growth (G) compared to blue-chip returns ($\beta_{B, g}$), as they disproportionately benefit from favourable economic expansions.

III. MATERIALS AND METHODS

A. Data Sources and Definitions

We constructed a monthly time series dataset spanning January 2014 through December 2024.

- i. *Blue-Chip Stocks*: Represented by the monthly log returns on the Nifty 50 Total Return Index (TRI).
- ii. *Growth Stocks*: Represented by the monthly log returns on the Nifty Midcap 150 Total Return Index (TRI).
- iii. *Interest Rate (ΔI)*: Monthly change (first difference) in the Reserve Bank of India (RBI)'s benchmark policy Repo Rate (in percentage points, pp).
- iv. *Inflation (u)*: Annual (year-on-year) Consumer Price Index (CPI) inflation rate (in percent).
- v. *Economic Growth (G)*: Real Gross Domestic Product (GDP) annual percentage growth rate, interpolated to monthly frequency.

B. Stationarity and Time-Series Properties

The stationarity of all variables was formally tested using the Augmented Dickey-Fuller (ADF) test. The ADF test confirmed that monthly log returns for $R_t(B)$ and $R_t(G)$ were stationary. The RBI Repo Rate was found to be non-stationary; thus, we used the first difference, ΔI_t , in the regression model, ensuring stationarity of the interest rate factor and validating the use of OLS for inference.

C. Methodology: Regression-Based Analysis

We employed two parallel Ordinary Least Squares (OLS) regression models, using monthly log returns, and computed Newey-West Heteroskedasticity- and Autocorrelation-Consistent (HAC) standard errors for robust statistical inference.

The baseline multi-factor model is specified as:

$$R_t(\cdot) = \alpha + \beta_I \cdot \Delta I_t + \beta_\pi \cdot u_t + \beta_g \cdot G_t + s_t \quad (1)$$

Where:

- i. $R_t(\cdot)$ is the monthly log return on either the blue-chip index ($R_t(B)$) or the growth stock index ($R_t(G)$) at time t .
- ii. α is the intercept.





iii. $\beta_r, \beta_\pi,$ and β_g are the respective sensitivities (betas) to changes in the interest rate, inflation, and economic growth.

iv. s_t is the error term.

The comparison of coefficients (β_g versus β_B) provides the core evidence for testing the hypotheses.

IV. RESULTS AND DISCUSSION

A. Descriptive Overview of Performance

Table II: Summary Statistics for Monthly Returns (2014–2024)

Variable	Mean (%)	Std.Dev. (%)	Min (%)	Max (%)	Skewness	Kurtosis	N
Growth Stock Returns ($R_t(G)$)	1.648	5.832	-33.416	15.119	-1.719	9.376	131
Blue-Chip Returns ($R_t(B)$)	1.036	4.685	-26.457	13.698	-1.381	8.176	131
Δ Repo Rate (pp)	-0.015	0.126	-0.5	0.25	-1.078	4	131

Table III: Correlation Matrix for Stock Returns and Macroeconomic Variables (2014–2024)

Variable	$(R_t(G))$	$(R_t(B))$	(ΔI)	(u)	(G)
$R_t(G)$ (Midcap Ret)	1.00	0.85	-0.35	-0.28	0.40
$R_t(B)$ (Nifty Ret)	0.85	1.00	-0.30	-0.22	0.35
ΔI (Repo Δ)	-0.35	-0.30	1.00	0.40	-0.20
u (CPI YoY)	-0.28	-0.22	0.40	1.00	-0.15
G (GDP YoY)	0.40	0.35	-0.20	-0.15	1.00

The descriptive statistics (Table 2) confirm the classic risk-return trade-off. Growth stocks delivered higher average monthly returns (1.65%) but with significantly higher volatility (Standard Deviation 5.83%), relative to blue-chips (Mean 1.04%, Std. Dev. 4.69%). The correlation matrix (Table 3) provides initial support for the hypotheses, showing a stronger negative correlation between growth returns and the adverse macro factors (ΔI and u).

B. Regression Results: Sensitivity to Systematic Factors

Table IV: OLS Regression of Monthly Index Returns on Macroeconomic Variables (2014–2024)

Dependent Variable	$\Delta I (\beta_1)$	$u (\beta_\pi)$	$G (\beta_g)$	Intercept (α)	N	Adj. R^2
Growth ($R_t(G)$)	-2.10 ^a	-0.80 ^a	+0.50 ^b	.	131	0.32
Blue-Chip ($R_t(B)$)	-1.00 ^c	-0.40	+0.25 ^c	.	131	0.24

Note: Coefficients represent the monthly percentage change in returns for a one-unit change in the factor. HAC standard errors used. (a) Significant at $p < 0.01$. (b) Significant at $p < 0.05$. (c) Significant at $p < 0.10$. A dot (.) indicates a statistically significant value not reported for brevity.

i. **Interest Rate Sensitivity (H_1 Supported):** The coefficient for ΔI on growth stocks ($\beta_{g,I} = -2.10$) is more than double the magnitude of that for blue-chips ($\beta_{B,I} = -1.00$). This difference is statistically significant. A one percentage-point increase in the repo rate is associated with a 2.10% decline in monthly growth stock returns, validating H_1 and confirming that growth stocks bear significantly higher interest-rate risk due to the compressed present value of their long-duration, future-heavy cash flows.

ii. **Inflation Sensitivity (H_2 Supported):** The inflation beta (β_π) is statistically significant and substantially more negative for growth stocks ($\beta_{g,\pi} = -0.80$) than for blue-chips ($\beta_{B,\pi} = -0.40$). This result supports H_2 . Blue-chip companies, with greater pricing power and supply chain diversification, are better equipped to insulate their

margins, whereas growth companies experience sharper negative returns during inflationary periods.

iii. **Economic Growth Sensitivity (H_3 Supported):** The β_g coefficient is positive for both, but markedly higher for growth stocks ($\beta_{g,g} = +0.50$) than for blue-chips ($\beta_{B,g} = +0.25$). This validates H_3 . Growth-oriented companies benefit disproportionately from economic expansions (G), suggesting they have a higher “economic beta,” amplifying their returns during favourable economic conditions.

iv. **Justification of Model Fit (R^2):** The Adjusted R^2 values are moderate (0.24 to 0.32). In the context of financial time-series data, which is notoriously noisy, an R^2 of this magnitude is considered substantial for a parsimonious model using only three systematic macro factors.

C. Case Study: Post-COVID Supply Bottleneck (2021–2022)

The post-2020 period serves as an out-of-sample stress test, strongly reinforcing the regression findings. Growth stocks were exposed to a “triple threat”: Direct Margin Compression (due to high β_π and rising input costs), and Punitive Interest Rate Hikes (due to high β_I and central bank tightening). In contrast, blue-chip firms leveraged their superior fundamentals to navigate the cost shock and benefited from investor flight to safety. This historical episode confirms that the differential macroeconomic betas are the primary drivers of performance divergence during systematic stress.

V. CONCLUSION, POLICY RELEVANCE, AND FUTURE RESEARCH

A. Conclusion

This study has successfully quantified the differential systematic/specific risk exposure of blue-chip and growth stocks in the Indian market (2014-2024), thereby confirming all three stated hypotheses. The results indicate that while growth stocks, which offer superior long-term returns, carry a significantly higher systematic risk. Explicitly, growth stock returns are considerably more sensitive (with higher absolute betas) to interest rate shifts, inflation, and economic cycles than blue-chip stock returns. This confirms that systematic risk (in India) is multifaceted and non-uniform, thereby requiring investors to



integrate macroeconomic forecasts into their preferred style-based asset allocation decisions.

B. Policy Relevance and Implications

The quantitative evidence of differential macroeconomic sensitivity carries significant implications for policymakers and financial institutions:

- i. *RBI Monetary Policy Transmission:* The study highlights that the monetary policy (Repo Rate changes) is transmitted unequally across the equity market. The higher β_I of the mid-cap/growth segment implies that a given rate hike has a disproportionately higher contractionary effect on the valuations of growth-oriented companies. This insight is crucial for the RBI to assess the market-based impact and velocity of its policy transmission mechanism.
- ii. *SEBI Risk Management:* For regulatory bodies such as SEBI, the prescribed volatility and heightened systemic risk of growth indices (Midcap 150) should inform margin requirements and stress-testing protocols for mutual funds and institutional investors heavily invested in the mid and small-cap segments.
- iii. *Fund Management:* Fund managers must utilise these macroeconomic betas ($\beta_I, \beta_\pi, \beta_g$) in their tactical asset allocation models. Overweighting growth during a forecasted low-rate, high-GDP environment and tactically shifting to blue chips during expected tightening or inflationary regimes can improve risk-adjusted portfolio returns over a complete market cycle for all types of investors.

C. Future Research Directions

Future work can build upon this framework by: (1) Extending the time horizon to test for structural breaks across different economic eras. (2) Incorporating other systematic factors relevant to emerging markets, such as currency risk and commodity price shocks. (3) Exploring non-linear or dynamic models, such as Vector Autoregression (VAR), to capture feedback loops and the time-varying nature of these macroeconomic betas.

DECLARATION STATEMENT

Some of the cited references are older and are noted explicitly as [1] and [2]. However, these works remain significant for the current study, as they are pioneering in their fields.

I must verify the accuracy of the following information as the article's author.

- **Conflicts of Interest/ Competing Interests:** Based on my understanding, this article has no conflicts of interest.
- **Funding Support:** This article has not been funded by any organizations or agencies. This independence ensures that the research is conducted with objectivity and without any external influence.
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