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Research paper

Impact of Macro Economic Variables on Stock Price Movements with Special Reference to BRIC Countries: An Empirical Review

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Abstract

Market forces that have an impact on the economy are generally known as macroeconomic factors. Any number of external influences, some of which are natural and others of which are man-made, may alter the trajectory of an economy. Natural catastrophes such as earthquakes, famines, and droughts, as well as man-made events such as war, worldwide inflation, recession, and so on, are examples of such macroeconomic forces. The rate of increase of gross domestic product (GDP), stock market movements, important industries, and other fundamental economic indicators are all affected by these variables. As a result, knowing these elements and how they affect the economy overall is crucial. These macroeconomic variables influence stock markets by affecting corporate profitability, investor sentiment, and the overall economic outlook. Strong macroeconomic indicators can lead to a bullish market sentiment, while weak indicators can result in bearish sentiment. The relationship between stock prices and the global economy may not stay the same and can shift in line with various economic and market conditions. The present work is a descriptive review of the empirical evidences and presents the findings to establish the need for the research during post post-COVID-19 period. The reason behind, the post-pandemic period selection is the preferences, patterns, and practices of many corporates about investments have changed and thereby macroeconomic factor dynamics are also varied. In this parlance, the research can help to undergo a review of the situation and make policy changes to bring sustainability and growth into the mainstream of an economy. Hence, the paper's principal goal is to establish the need for research and identify the research gap in the area. The findings of the current paper reflects that the macroeconomic factors and stock price have a substantial correlation. movements with special reference to BRIC countries during the past decade and continue to be dynamic with corrections, suggest the role of regulatory and governments to be vigilant and dynamic in taking policy decisions from time to time based on the macroeconomic key variables, which can help to maintain the perpetual growth and sustainability of economies.

Keywords: *Volatility; Market Structures; Inflation; Regulation; Market Trends.*

1. Introduction

One of the first parts of a market to respond to changes in the overall economy, stock markets are notoriously unpredictable. What follows is a list of important macroeconomic variables and how they have affected the stock markets. Market forces that have an impact on the economy are generally known as macroeconomic factors. Any number of external influences, some of which are natural and others of which are man-made, may alter the trajectory of an economy. Natural catastrophes such as earthquakes, famines, and droughts, as well as man-made events such as war, worldwide inflation, recession, and so on, are examples of such macroeconomic forces. The rate of increase of gross domestic product (GDP), stock market movements, important industries, and other fundamental economic indicators are all affected by these variables. Knowing how these elements affect the overall economy requires an understanding of them (Chandravanshi & Neetish, 2023). Corporate profits, investor mood, and the general economic prognosis are all impacted by these macroeconomic indicators, which in turn affect the stock markets. If macroeconomic indicators are strong, market sentiment will be positive; if they are poor, market sentiment will be negative. Depending on the economic climate and market circumstances, the intricate link between stock prices and macroeconomic factors might change (Adeniyi & Kumeka, 2020). Economic Policy Uncertainty (EPU) is a composite index measuring uncertainty in government policy, which influences economic decisions and investor sentiment.

Exchange Rates: Global currency rates have been falling for quite some time. Many once-mighty currencies have recently seen precipitous declines in value, including the Euro, the British Pound, and the Japanese Yen Desai & Joshi, 2023). There is no exception for the Indian Rupee. The rupee has hit a record low vs the dollar, even though several analysts claim it has done significantly better than the currencies of other big nations. The stock markets feel the effects of changes in exchange rates the most. The stock market has a precipitous fall whenever the dollar appreciates, and the inverse is also true (Bello, 2015; Chkili, 2016; Dalir et al., 2017).

A decline in the broad market indexes occurs when foreign institutional investors (FIIs) flee from the Indian markets in response to the rising value of the dollar, as they stand to gain more from their investments in the US markets (Menon & Deshpande, 2023). Companies that sell their products or services internationally may feel the pinch of a strong currency's impact on export prices, while those with a weak currency may see an uptick in exports at the expense of higher import prices. This can have mixed effects on stock prices depending on the specific industry (Fan et al., 2022; Kulikova et al., 2024).

Inflation: The loss of buying power of money due to an increase in the cost of living is the simplest way to explain increasing inflation. Despite widespread belief to the contrary, a moderate degree of inflation really benefits economies, particularly those still in the development stage. On the other hand, historically speaking, it has seemed that the stock markets had a negative correlation with increasing inflation. If inflation were to rise, fewer people would have the money to put into stocks and other investment vehicles since their disposable income would be reduced. A broad decline in stock demand and a consequently pessimistic outlook result from this. Generally, rising inflation can lead to increased volatility in stock markets and often negatively affects stock prices. This is because inflation can erode the purchasing power of money, potentially reducing future cash flows from investments (Hartigan, 2023; Rani & Kumar, 2019).

Price of Crude oil: Crude oil is now one of the most expensive imports for many nations. The depletion of foreign exchange reserves in India and other nations due to the increasing Crude oil prices has become a major issue on a worldwide scale. An increase in crude oil prices is affecting several areas of industry: the automotive industry, the paint industry, the airline industry, the refinery industry, etc. Companies' bottom lines and stock values are impacted by the increasing expenses. Accordingly, the price of crude oil and the value of stocks tend to go opposite ways. Inflation, economic growth, and stock market performance are all susceptible to shifts in oil prices. A drop in stock price may be on the horizon if rising oil prices drive up production costs and dampen consumer spending (Yildirim & Guloglu, 2024).

Interest rates: Governments raise interest rates as one tool in their arsenal against growing inflation. The Federal Reserve raised interest rates in response to record-high inflation in the United States. Foreign institutional investors (FIIs) withdrew their money from the Indian stock market, causing a precipitous fall in value, because of the spike in US interest rates. As a result of the perceived safety of US treasuries, the Indian stock markets see a precipitous fall whenever the Federal Reserve raises interest rates. The Fed's interest rate policy and the Indian stock markets seem to be at odds with one another. A decline in consumer and business expenditure, because of higher borrowing costs, might have a negative effect on stock values. On the other side, a rise in the stock market and expansion of the economy are both prompted by reduced interest rates (Bhutto et al., 2020; Sato et al., 2019).

GDP: Economic growth, both in absolute terms and as a percentage, may be captured by looking at a country's gross domestic product (GDP). The GDP is a yearly and quarterly measurement of the total worth of all products and services produced in the nation and exported. The stock markets respond swiftly once a company's GDP figures are announced. Stock prices are influenced by the general economic sentiment, which is positively reflected in an increasing GDP level. An increase in investor confidence and a subsequent optimistic market are both caused by companies reporting strong financial performance in an expanding GDP (Boubaker & Larbi, 2022). Although a country's economy feels the effects of a decline or increase in GDP for a long time, the stock markets respond quickly and react positively or negatively to news reports, suggesting a clear correlation between the two. Stock prices and investor optimism may both benefit from a robust GDP growth rate, which is an indicator of a robust economy. On the other side, investors may feel less optimistic when GDP growth is low (Fasanya et al., 2023).

Changing Political News: Inflation, growing crude oil costs, and Federal Reserve rates are examples of external influences that might affect a country's stock markets. But there are also internal variables that affect stock markets immediately, such as a country's political situation. The country's capital markets will suffer if the political climate is unstable. Due to political uncertainty, institutional investors, both local and international, may be hesitant to invest in the country. Additionally, the stock markets will be directly affected by any policy choices made by the government. The stock markets become unpredictable when investors' perceptions are influenced by the potential outcomes of these policies, which may or might not be beneficial to the economy (Lal, 2023; Rehman et al., 2024).

2. Review of Literature and Research Gap Identified

The selection of empirical studies for this review was guided by inclusion criteria such as relevance to macroeconomic variables and BRICS stock market interactions, English-language availability, and publication between 2015 and 2024. Sources were collected from Scopus, Web of Science, JSTOR, and SSRN databases. Keywords such as “BRICS”, “macroeconomic indicators”, “stock volatility”, “post-COVID economic policy”, and “BRICS expansion” were used. The search spanned from January 2023 to March 2024, and 61 papers were shortlisted based on methodological soundness and empirical relevance. Many associations and organizations on a global scale are set up with the goals of keeping tabs on members' economic trends, helping members expand and improve their economic activities, and stimulating economies throughout the globe. Member nations are sorted into developed economies and developing and emerging economies according to how rich they are. BRICS is the most powerful grouping of the top developing market economies in the world. In accordance with Lal, the BRICS Alliance is the most significant grouping of important developing economies (Zhang & Lee, 2023). According to the IMF’s World Economic Outlook from 2024, out of the world’s huge population, territory, GDP, and trade, South Africa, Russia, India, and China were responsible for more than 40% of people, 28% of the overall territory, 24% of the total GDP, and more than 16% of all world trade (Menon & Rao, 2024; Ameer et al., 2023).

When the BRICS nations invited more members in 2023, Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE were chosen with the plan to start on January 1, 2024. As a result, the BRICS nations’ population was 45.50% of the world’s total, and they held 32.61% of the world's land area at the time of statistics by the World Bank and the OECD in 2022. According to the OECD and World Bank libraries, these are the statistics for 2022. According to the "Situation Report," the newly enlarged BRICS group controls over 43% of the world's oil output and encompasses 28.1% of the world's GDP (Ross, 2024). The BRICS nations are a major contributor to the world economy's expanding GDP (Lafta, 2021). Compared to the world economy, which is growing at a slower pace of 3.29%, the BRICS economies are expanding at a faster rate of 7.31%. Among the BRICS nations, China has the highest gross domestic product (GDP), followed by Russia, Brazil, South Africa, and India (Chkili & Nguyen, 2014).

Worldwide, investors, regulators, financial agencies, and lawmakers are taking notice of the BRICS nations because of their promising demographic futures and robust economies. The BRICS nations include a wide range of cultural practices, political systems, demographic make-ups, and economies. According to World Bank Data (2023) and World Economic Outlook (n.d.), economic structures can be described as follows: Brazil is characterized by a liberalized and market-driven system; Russia is characterized by a dominant government-controlled system; India is likewise marked by a dominant government-controlled system; China is characterized by a system in which the government exerts very little influence; and South Africa is characterized by a market-driven, structured, and open system (Neethu &

Ramyaprabha, 2025). All sorts of agricultural and industrial commodities, from soybeans and coffee to cars and planes, are exported from Brazil, and the country's rich natural resources play a big role in its commerce. Brazilian economic power is shaped by its strong international commerce with key trading partners, including Argentina, China, and the US. A variety of sectors, including energy, industry, agriculture, and technology, make up Russia's broad industrial mix. It trades energy resources, energy equipment, agricultural goods, metals, and automobiles with nations in Europe, Asia, and the Commonwealth of Independent States (CIS), and imports medicines, cars, and machinery. Oil, gold, electronics, equipment, and textiles are just a few of the many goods that India imports and exports. The country also deals in software services and manufacturing.

A variety of methods were applied by scholars in their studies about the stock markets of BRICS countries and how they are affected, including using panel linear regression, an Artificial Neural Network the Monte Carlo Markov Chain (MCMC) technique, the M Beyond that, during the crises, several research looked at how BRICS nations' stock prices were affected by macroeconomic considerations. Using a quantile model and variational mode decomposition, examined how BRICS stock values responded to shocks caused by internal and external macroeconomic variables in various markets (Iqbal & Das 2024). This study's findings show that different nations and marketplaces place different amounts of emphasis on each component. Based on their findings, the connection between stock prices and macroeconomic indicators changed a bit during the 2008 crisis.

Many researchers are monitoring the BRICS countries' stock markets and currency values, as their interaction is very lively. Using the composition of the moments model and the panel ARDL process, we evaluated how important stock market indexes are influenced by the US dollar simultaneously in the short and long run. Their research points out that the changes in exchange rates strongly affect the short- and long-term performance of stock markets in BRICS countries and play a major role in making BRICS stock markets more unpredictable in the past and now. Much of the research has focused on the correlation between stock prices and only a few key indexes. The current study proposes to consider at least five variables to study the impact. While numerous studies have addressed BRICS macroeconomic variables individually, few have offered a comparative analysis in the context of the BRICS expansion post-2023. Additionally, limited empirical work incorporates external shocks such as COVID-19 and interest rate volatility together. Methodologically, there is a gap in the use of hybrid models (e.g., combining panel ARDL with VAR shock decomposition) for capturing long-term and short-term effects.

3. Key Macroeconomic Drivers

3.1 Economic Policy Uncertainty (EPU)

Brazil & India: The link between EPU and stock prices must be shown to be unidirectional and durable. Positive EPU shocks boost Brazilian stocks, while negative shocks reduce prices. In India, temporary causality flows from stock prices to EPU.
China: Bidirectional causality exists in symmetric tests, but no causality emerges when accounting for positive/negative shocks. Post-2017 EPU surges correlate with stagnant stock prices.
Russia: Limited direct EPU-stock price causality observed.

3.2 Country-Specific Dynamics

Brazil: EPU-driven stock price changes dominate, with policy clarity critical for market stability. Fiscal prudence and lower interest rates are key to sustaining equity performance.
India: Stock prices temporarily influence EPU, suggesting market sentiment impacts policy uncertainty. Inflation control and exchange rate management remain pivotal for market robustness.
China: Mixed results indicate EPU-stock relationships are overshadowed by structural factors (e.g., state interventions). Focus on GDP growth and monetary expansion has historically supported equities.
Russia: Limited EPU-stock linkage, but geopolitical shocks (e.g., Ukraine conflict) drastically affect market correlations.

3.3 Divergent Responses to Key Variables

3.4 Economic Policy Uncertainty (EPU)

Brazil: The link between EPU and stock prices is permanent and unidirectional. Positive EPU shocks boost stocks (investors may interpret uncertainty as potential policy stimulus), while negative shocks reduce prices.
India: Temporary causality from stock prices to EPU, suggesting market sentiment influences policy uncertainty. No asymmetric effects observed.
China: Bidirectional causality in symmetric tests but no causality when separating positive/negative shocks. Post-2021 EPU surges correlate with stagnant stock prices, indicating structural factors (e.g., state intervention) overshadow EPU.
Russia: Minimal EPU-stock price linkage, with geopolitical risks (e.g., Ukraine war) dominating market movements.

Table 1: Impact of Traditional Macro-Economic Variables on the Stock Prices of BRIC Countries

Variable	Brazil	Russia	India	China
GDP	Insignificant	Insignificant	Insignificant	Highly significant
Inflation	Insignificant	Highly significant	Significant	Insignificant
Interest Rates	Highly Insignificant	Insignificant	Highly Insignificant	Significant
Exchange Rates	Significant	Insignificant	Significant	Significant
Money supply	Highly significant	insignificant	Highly significant	Highly significant
Crude Oil Prices	Significant	Insignificant	Significant	Significant
Fiscal Policy	Significant	Insignificant	Highly significant	Insignificant
Public Finance	Insignificant	Significant	Highly significant	Highly significant
Unemployment	Insignificant	Insignificant	Insignificant	Significant
Balance of payments	Insignificant	Insignificant	Highly significant	Insignificant

Table 1 illustrates the varying impact of macroeconomic variables on BRIC stock markets. China shows strong influence from GDP and money supply, while India's market is highly responsive to fiscal and financial indicators. Brazil is sensitive to crude oil prices and exchange

rates, reflecting its commodity-driven economy. Russia's stock prices are more affected by inflation and public finance than by growth metrics.

4. Interest Rates' Impact on the Stock Process of BRIC Countries

Interest rates significantly influence stock returns in BRIC countries through both direct and indirect channels, though the magnitude and mechanisms vary across these economies. Here's a synthesis of key patterns and country-specific dynamics: Inverse Relationship: Higher interest rates typically suppress stock returns due to increased borrowing costs, reduced corporate earnings, and lower discounted valuations of future cash flows. Long-Term > Short-Term Impact: A 1% interest rate hike causes a 3.3% short-term stock return decline but a 29.8% long-term drop, as compounding effects amplify over time. Banks and insurers often benefit from higher rates due to improved net interest margins.

1. **Brazil:** Strong Sensitivity: Interest rate hikes sharply depress equities, with fiscal deficits and commodity dependence exacerbating volatility. During the 2008 crisis, rate increases correlated with a 39% stock price decline, reflecting investor flight to safety.
2. **India:** Moderate Impact: Rate changes affect equities through corporate debt costs and foreign investment flows. Tightening cycles to combat inflation often trigger equity sell-offs, though forex reserves buffer extreme volatility. In Brazil and India, rate cuts during crises provided limited equity relief due to currency depreciation risks.
3. **China:** Controlled Effect: State interventions (e.g., monetary stimulus) dilute the rate-stock linkage. Long-term rates negatively impact returns, but short-term effects are muted. Capital controls and domestic investor dominance insulate markets from global rate shocks.
4. **Russia:** Weak Correlation: Geopolitical risks (e.g., sanctions, oil price swings) overshadow rate changes. Post-2014 sanctions reduced monetary policy efficacy. During crises (e.g., 2008, COVID-19), interest rate impacts weaken as non-monetary factors (investor panic, liquidity crunches) dominate.

4.1 Investor Implications

Brazil/India: Monitor central bank signals, as preemptive rate hikes often precede equity downturns. China: Focus on fiscal stimulus announcements over rate changes.
Russia: Prioritize geopolitical risk assessment over monetary policy trends. These findings underscore that while interest rates are a critical driver, their equity market effects in BRIC nations are mediated by structural vulnerabilities, policy frameworks, and external shocks.

5. Oil prices' impact on the Stock Prices of BRIC Countries

The impact of oil prices on BRIC stock markets varies significantly depending on the type of oil shock (demand vs. supply), market conditions (bullish/bearish), and each country's economic structure as a net oil exporter or importer. Demand Shocks (driven by global economic activity) typically reduce BRIC stock returns due to higher production costs and inflationary pressures, except in bullish markets where the effect weakens. Supply Shocks (e.g., geopolitical disruptions) show mixed effects: neutral for most BRIC nations but strongly negative for Russia due to its reliance on oil revenues.

1. **Brazil:** Demand Shocks: Negative impact across most market conditions, exacerbated by inflationary risks and fiscal deficits. Minimal direct effect, but lower oil prices from supply gluts reduce export revenues, indirectly pressuring equities.
2. **Russia:** Supply Shocks: Unique sensitivity—positive supply shocks (increased oil output) lower stock prices due to reduced oil revenues and sanctions-related market isolation. Resilient in bullish markets but vulnerable during global downturns.
3. **India:** Demand Shocks: Strong negative impact due to reliance on oil imports. Higher prices inflate input costs, squeezing corporate margins. Limited benefit from lower prices during crises, as rupee depreciation offsets gains.
4. **China:** Demand Shocks: Moderately negative, mitigated by state interventions (e.g., fuel subsidies) and capital controls. Minimal impact due to strategic oil reserves and diversified energy mix. During crises (e.g., COVID-19), oil price effects are overshadowed by liquidity crunches and investor panic.

Structural Factors: Exporters (Brazil, Russia): Equities correlate positively with oil prices in stable periods but suffer during oversupply. Importers (India, China): Vulnerable to price spikes but lack symmetric gains from price drops due to currency and policy constraints.

5.1 Policy & Investor Implications

Russia/Brazil: Stabilize fiscal buffers to mitigate supply shock volatility.
India/China: Prioritize energy diversification and strategic reserves. In the case of investors, Hedge oil exposure in India; monitor geopolitical risks in Russia. The use of oil futures as partial hedges in Brazil and China is observed. These findings highlight the critical role of oil shock origins and local economic structures in shaping BRIC equity responses, necessitating tailored risk management strategies.

6. Impact of Exchange Rates on Stock Prices

Exchange rates influence stock prices in BRIC countries through direct and indirect channels, with effects varying by country, time horizon, and market conditions.

1. **Currency Appreciation/Depreciation**: Appreciation of BRIC currencies against the USD generally boosts stock prices by reducing import costs, lowering corporate debt burdens (for USD-denominated loans), and attracting foreign investment. Depreciation has asymmetric effects: While it can benefit export-heavy sectors (e.g., Brazilian commodities), it often harms import-dependent industries (e.g., Indian oil refiners) and triggers capital outflows in noticed.
2. **Volatility Transmission:** Exchange rate fluctuations amplify stock market volatility, with spillovers more pronounced from currency markets to equities than vice versa.
3. **Investor Sentiment & Capital Flows:** Sharp currency movements alter foreign investor risk perceptions, influencing equity inflows/outflows. For example, RUB depreciation during the Ukraine war led to foreign divestment from Russian stocks.

Table 2: Shows the Effect of Major Economic Factors on the Prices of Stocks in the BRIC Countries

Country	Key Drivers and Effects	Period	Effect
Brazil	Real appreciation (BRL) boosts IBOVESPA via commodity exports. Depreciation increases inflation risks, pressuring equities.	Long and Short	Strong
Russia	RUB depreciation harms MICEX due to sanctions and capital flight. Oil price swings mediate RUB-stock linkages.	Long and Short	Highly volatile
India	INR depreciation raises import costs (e.g., oil), squeezing corporate margins (NIFTY). Weak spill over from currency to stocks compared to other BRICs.	Short period	Very strong
China	Managed CNY reduces direct exchange rate effects. State interventions (e.g., capital controls) insulate SHCOMP from currency swings.	Long period	Consistent

Table 2 illustrates the varied impact of exchange rates on BRIC stock markets. Brazil and India show strong sensitivity to currency depreciation, affecting inflation and imports. China remains stable due to managed exchange rates, while Russia exhibits high volatility driven by geopolitical and oil-linked shocks.

Broad Observations: Currency appreciation has a stronger positive impact on stocks than the negative effect. In India, stock returns during COVID-19 negatively affected exchange rates, suggesting bidirectional feedback. S&P 500 fluctuations indirectly influence BRIC equities via USD exchange rate channels. US monetary policy shifts (e.g., rate hikes) amplify currency-driven stock volatility in Brazil and India. Regulatory and Policy measures: Brazil/Russia: Stabilize currencies to mitigate equity volatility, especially during commodity price swings. India/China: Use forex reserves to smooth abrupt currency movements that disrupt equities. In the case of investors, Hedge currency risk in export-heavy markets (Brazil, Russia). Monitor USD trends and capital flow data for early signals of equity shifts. These dynamics underscore that exchange rates are a critical but non-uniform driver of BRIC equities, requiring tailored strategies for risk management and portfolio allocation.

7. Summary and Conclusion

Due to the significant globalization of economies, macroeconomic issues will affect stock markets worldwide, regardless of whether they are tied to a specific nation or not. It would be foolish, then, to ignore world events and pretend they have no bearing on us. Therefore, seasoned traders and investors know that macroeconomic issues and their effects on investments should be considered when making stock market predictions and investment choices. The relationship between macroeconomic variables and stock prices in BRIC countries exhibits complex dynamics, with variations across nations and sensitivity to global events. Empirical studies highlight long-/short-term linkages and asymmetric effects of economic policy uncertainty (EPU), while crises like COVID-19 and geopolitical conflicts amplify market interdependencies. The findings of the current paper reflects that, there is a significant relationship between the macroeconomic variables on stock price movements with special reference to BRIC countries during the past decade and continue to be dynamic with corrections, suggest the role of regulatory and governments to be vigilant and dynamic in taking policy decisions from time to time based on the macroeconomic key variables can help to maintain the growth and sustainability of economies perpetual.

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