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# Macroeconomic Variables And Stock Market Return In Equity Markets: A Review Of Empirical Literature

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## Abstract

Downside risk has become an increasingly important concern for investors in both developed and emerging markets. As financial systems evolve and markets become more sensitive to macroeconomic fluctuations, understanding how economic variables influence downside risk is critical. This paper presents a comprehensive review of empirical literature up to 2017, examining the relationship between macroeconomic indicators—including inflation, interest rates, exchange rates, money supply, and industrial production—and stock market volatility. The review covers over four decades of studies using diverse econometric techniques such as VAR, VECM, and cointegration analysis. The findings highlight recurring patterns: inflation and interest rates generally increase downside risk, while money supply and industrial output tend to reduce it. Nonetheless, evidence varies across countries and time periods. The paper identifies methodological gaps, especially in emerging market contexts, and calls for further research on asymmetric effects and structural breaks. The review provides useful insights for investors, policymakers, and academics concerned with financial stability and risk management.

**Keywords:** Macroeconomic Variables, Stock Market Volatility, Emerging Markets, Downside Risk.

## 1. Introduction

Identification and measurement of risk play a foundational role in finance. Investors, portfolio managers, and foreign institutional investors (FIIs) often hesitate to commit resources in environments with heightened uncertainty due to the fear of substantial capital losses. One particularly concerning form of uncertainty is downside risk—the risk of a significant drop in the value of an asset or portfolio. Estimating this type of risk becomes essential for informed decision-making. One widely accepted measure of downside risk is Value at Risk (VaR), which estimates the potential maximum loss over a specific time period with a given confidence level. The VaR model has become a fundamental tool for risk managers, regulators, and institutional investors. It helps quantify the worst expected loss in a normal market environment.

Macroeconomic variables—such as interest rates, inflation, exchange rates, money supply, and industrial production—are frequently cited as the primary drivers of stock

market fluctuations. A significant body of empirical literature has examined how changes in these variables affect stock prices and volatility. Seminal works by Fama (1981), French and Fama (1989), Schwert (1990), and others have emphasized the influence of macroeconomic forces on stock returns and asset pricing. Understanding the interplay between macroeconomic variables and downside risk is particularly important in emerging markets, where financial systems are more vulnerable to external shocks and volatility. The current paper conducts an extensive review of the literature on how downside risk in stock markets is shaped by macroeconomic variables, with a focus on empirical studies from diverse global contexts. The objective is to highlight patterns, contradictions, and gaps in the literature and to offer directions for future research.

## **2 Problem Statement**

While significant literature exists on the relationship between macroeconomic variables and stock returns, fewer studies specifically focus on downside risk—the risk of large and asymmetric losses. Furthermore, the empirical evidence is often inconsistent across markets and time periods. Given the increased financial integration and volatility in global markets, understanding the impact of macroeconomic variables on downside risk has become essential yet remains insufficiently explored.

## **3 Objectives of the Study**

To examine empirical studies that analyze the relationship between macroeconomic variables and downside risk.

To identify which macroeconomic variables most consistently influence stock market volatility and downside risk.

To highlight gaps in the literature and suggest areas for future research.

To assess the methodologies used in prior studies and evaluate their robustness.

## **4 Literature Review**

### **4.1 Macroeconomic Variables and Stock Market Volatility**

Volatility in financial markets is often driven by both firm-specific and market-wide information. The former causes diversifiable risk, while the latter contributes to systematic risk, which cannot be diversified even in well-structured portfolios. The Capital Asset Pricing Model (CAPM) (Sharpe, 1964) and Arbitrage Pricing Theory (APT) (Ross, 1976) are foundational models in this area, linking systematic risk to expected returns. Ross (1976) proposed that macroeconomic factors could serve as systematic risk sources. His model showed that variables such as inflation, interest rates, and industrial production directly influence expected returns. Fama and Schwert (1977) and Fama (1981) further supported this by linking inflation and money supply to stock prices. Chen et al. (1986) used APT to demonstrate that industrial production, term structure, and risk premium significantly affect stock returns. Unexpected inflation and its volatility also emerged as key variables. Inflation erodes the real value of corporate earnings and increases discount rates, thereby negatively impacting stock prices (Defina, 1991).

### **4.2 Money Supply and Liquidity Effects**

Money supply changes are generally expected to have a positive impact on stock prices due to increased liquidity and expansionary economic activity. Fama (1981) suggested that a rise in real economic activity raises demand for money and boosts stock markets. Empirical studies from the U.S. (Bulmash & Trivoli, 1991), Singapore, and Japan (Mukherjee & Naka, 1995) confirm this positive relationship.

### **4.3 Interest Rates and Exchange Rates**

Higher interest rates typically increase the opportunity cost of holding stocks, leading to substitution effects that negatively impact stock prices. Mukherjee and Naka (1995) showed that in Japan, long-term interest rates negatively correlated with stock prices, while short-term rates had a positive effect. Liu and Shrestha (2008) found a negative relationship between interest rates and stock prices in China. Similarly, studies by Korkeamäki (2011) and Czaja et al. (2010) confirmed that interest rate increases generally depress stock prices due to higher discount rates and capital outflows.

### **4.4 Industrial Production**

Industrial production is often a proxy for real economic activity and is usually expected to have a positive influence on stock prices. Fama (1990) and Geske and Roll (1983) established that higher industrial output boosts corporate earnings and stock valuations. However, the magnitude of the effect may vary by country. For instance, Park and Ratti (2007) and Humpe (2007) found that industrial production has a stronger influence on U.S. stock prices than in Japan, possibly due to Japan's prolonged economic stagnation during the 1990s.

### **4.5 Oil Prices and Global Shocks**

Oil price volatility has emerged as a significant macroeconomic force. Basher and Sadorsky (2006) found strong linkages between oil prices and emerging market returns. Masulis and Stoll (1996) and Filis (2010) concluded that rising oil prices generally depress stock markets by increasing input costs and reducing corporate margins.

## **5 Theoretical Framework**

The review is grounded in the Arbitrage Pricing Theory (APT) framework, which posits that multiple macroeconomic factors simultaneously influence asset returns. According to APT, an asset's return can be modeled as a linear function of various economic factors, each with its associated sensitivity or beta. This multi-factor approach is particularly useful when analyzing downside risk, as it allows researchers to isolate the effects of specific variables like inflation or interest rates. Additionally, the Efficient Market Hypothesis (EMH) provides context by suggesting that all publicly available information, including macroeconomic announcements, is already reflected in stock prices. If markets are semi-strong form efficient, macroeconomic shocks should quickly affect stock valuations, intensifying downside risks in the short term.

## **6 Findings and Research Gaps**

**Inflation:** Most studies confirm a negative relationship with stock prices (Fama & Schwert, 1977; Mukherjee & Naka, 1995). **Interest Rate:** Consistently found to negatively impact stock markets due to increased discount rates (Liu & Shrestha, 2008). **Money Supply:** Mixed results; while many studies find a positive effect, its significance varies across countries and time frames. **Industrial Production:** Generally exhibits a positive association with stock market performance (Fama, 1990). **Oil Prices:** Higher oil prices usually lead to lower stock returns, particularly in oil-importing countries (Basher & Sadorsky, 2006).

## **7 Future Research Directions**

Lack of studies explicitly focusing on downside risk as opposed to general volatility. Underrepresentation of African and South Asian economies. Limited application of high-

frequency and asymmetric volatility models. Few studies account for structural breaks, regime shifts, or nonlinear effects.

## 8 Conclusion

This paper reviews the extensive empirical literature on the relationship between downside risk and macroeconomic variables. The evidence largely supports the notion that inflation and interest rates increase downside risk, while money supply and industrial production may reduce it. However, findings vary based on methodological approaches, regional context, and sample periods. The literature has evolved from simple regression models to complex time-series techniques, but significant research gaps remain, especially in emerging markets and in modeling asymmetric responses to shocks.

## 9 Research Implications

For Investors: Awareness of macroeconomic triggers can help in portfolio diversification and the application of hedging strategies using derivatives. For Policymakers: Understanding how economic policy tools influence market risk can lead to more stable financial environments. For Academics: There is a need for more targeted studies on downside risk, especially in underexplored regions like Africa, South Asia, and Latin America. Methodologically, future research should integrate nonlinear models, machine learning techniques, and high-frequency data to better capture dynamic risk behavior.

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