



**School of Management
Presidency University, Bengaluru
MBA 2022-2024 Batch
Organizational Study Guidelines**

DISSERTATION TOPIC

**Impact of Interest rate changes on
Stock Market Performance**

STOCK MARKET

Dissertation submitted in partial fulfilment of the requirements for the
award of the Degree of

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**PRESIDENCY UNIVERSITY
SCHOOL OF MANAGEMENT**

By

Neha Bathla

Reg. No. 20222MBA0098

Under the guidance of

Name of guide: Dr. Aurobindo KS

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DECLARATION BY THE STUDENT

This is to acknowledge that the dissertation entitled is made as a partial fulfillment of the Program by me, under the supervision of Dr. Aurobindo KS. I confirm that this dissertation truly represents my work and accomplishment undertaken as a part of my dissertation. This work is not a replication of work done previously by any other person. I also confirm that the contents of the dissertation and the views contained therein have been discussed and deliberated with the Industry Supervisor.

Place: PRESIDENCY UNIVERSITY

Name : NEHA BATHLA

Date: 31st May 2024

Register Number: 20222MBA0098



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CERTIFICATE BY THE GUIDE

Date:

This is to certify that Ms. Neha Bathla Regn. No. 20222MBA0098 has completed the Dissertation titled 'Impact of changes in Interest Rate on Stock Market Performance', under my guidance in partial fulfillment of the course of the Master of Business Administration program.

Signature of Faculty Guide

Date

Signature of Director / Principal /HOD

Date

.....



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creating platforms that foster academic dialogue and knowledge exchange.

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ABSTRACT

This paper seeks to investigate the impact of interest rates on stock market performance. As a result, the paper will attempt to identify and assess the factors that can influence stock market performance when interest rates change, and the implications of such changes. Specifically, this research will compare and contrast the effects of different interest rate regimes on stock market performance, with a particular focus on the impact of changes in short-term and long-term interest rates. Additionally, this paper will also discuss the economic and financial implications of a rise or fall in interest rates on stock market performance. Finally, the findings of this paper will provide insight into how to maximize returns in a volatile and uncertain economic environment, while helping to reduce the risks associated with investing in the stock market.

This paper examines the impact of interest rates on stock market performance. It reviews existing literature on the subject and provides an overview of the effects of interest rate changes on stock market performance. It looks at the effects of both short-term and long-term interest rate changes on stock market performance. The paper also examines the impact of changes in the cost of borrowing on the stock market. Finally, the paper looks at the impact of interest rate volatility on stock market performance. The paper finds that interest rates have a significant effect on stock market performance. It is found that interest rate changes affect stock market performance both in the short run and the long run. In the short run, interest rate changes affect stock market performance due to the cost of borrowing, which affects the demand for stocks. In the long run, interest rate changes affect stock market performance due to the effect of changes in the cost of capital, which affects the cost of equity. The paper also finds that interest rate volatility has a significant effect on stock market performance. It is found that higher volatility of interest rates is associated with lower stock market performance, as investors become more reluctant to invest in stocks when interest rates are volatile.

Finally, the paper finds that the impact of interest rate changes on stock market performance is not limited to the short run and the long run. It is found that the effects of interest rate changes on stock market performance are also seen in the medium term. Overall, the paper finds that interest rates have a significant effect on stock market performance. The paper provides a comprehensive overview of the effects of interest rate changes on stock market performance and its implications for investors.



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I. Background: Impact of Interest Rate Changes on Stock Market Performance

Interest rates are one of the most influential tools in an economy, directly affecting a wide range of financial activities and overall economic health. Central banks, like the Federal Reserve in the United States, the European Central Bank, or the Bank of England, use interest rates as a primary mechanism to control monetary policy, aiming to achieve objectives such as controlling inflation, managing employment levels, and maintaining financial stability. The relationship between interest rate changes and stock market performance is intricate, multifaceted, and a critical area of study for economists, investors, and policymakers.

The Role of Interest Rates in the Economy

Interest rates serve as the cost of borrowing money. When interest rates are low, borrowing becomes cheaper, encouraging businesses to invest in expansion and consumers to spend on big-ticket items like houses and cars. Conversely, high interest rates make borrowing more expensive, which can reduce spending and investment. Central banks adjust interest rates based on the economic outlook: lowering rates to stimulate the economy during downturns and raising them to cool off inflation when the economy overheats.

Mechanism of Interest Rates influence on Stock Market

Interest rates significantly influence stock markets through various mechanisms. Here's a detailed explanation of how interest rates affect stock markets:

1. Cost of Borrowing for Companies

Interest rates impact the cost of borrowing for businesses.

Lower Interest Rates: Reduce borrowing costs for companies, making it cheaper to finance expansion projects, new ventures, and operational improvements. This can lead to higher profitability and, consequently, higher stock prices.

Higher Interest Rates: Increase borrowing costs, which can restrict business expansion and reduce profitability, potentially leading to lower stock prices.

2. Discount Rate and Valuation

Stock prices are fundamentally the present value of future cash flows. Interest rates are a crucial component in discounting these future cash flows to their present value.

Lower Interest Rates: Reduce the discount rate, increasing the present value of future earnings. This can lead to higher stock valuations and prices.

Higher Interest Rates: Increase the discount rate, decreasing the present value of future earnings, which can result in lower stock valuations and prices.

3. Consumer Spending and Corporate Earnings

Interest rates affect consumer spending, which in turn impacts corporate revenues and earnings.

Lower Interest Rates: Make loans and credit more affordable for consumers, leading to increased



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spending on goods and services. This boosts corporate revenues and earnings, positively influencing stock prices.

Higher Interest Rates: Increase the cost of borrowing for consumers, potentially reducing spending and negatively impacting corporate revenues and earnings, which can lead to lower stock prices.

4. Investment Allocation Decisions

Interest rates influence where investors allocate their funds between different asset classes.

Lower Interest Rates: Make bonds and savings accounts less attractive due to lower returns. This can lead investors to seek higher returns in the stock market, increasing demand for stocks and driving up prices.

Higher Interest Rates: Make bonds and savings accounts more attractive due to higher returns. This can cause investors to move funds out of the stock market and into fixed-income securities, reducing demand for stocks and leading to lower prices.

5. Sector-Specific Impacts

Different sectors react differently to changes in interest rates.

Interest-Sensitive Sectors: Sectors like utilities and real estate, which rely heavily on debt financing, can benefit from lower interest rates due to reduced borrowing costs. Conversely, higher interest rates can hurt these sectors due to increased costs.

Consumer Discretionary Sector: Companies in this sector may benefit from lower interest rates as consumers have more disposable income to spend on non-essential goods and services. Higher interest rates can have the opposite effect.

6. Foreign Investment and Exchange Rates

Interest rates impact foreign investment flows and exchange rates, which can influence stock markets.

Lower Interest Rates: Can lead to a depreciation of the currency, making exports cheaper and potentially boosting the revenues of export-oriented companies, positively affecting their stock prices.

Higher Interest Rates: Can attract foreign investment seeking higher returns, leading to currency appreciation. This can make exports more expensive and potentially reduce the revenues of export-oriented companies, negatively affecting their stock prices.

7. Market Sentiment and Expectations

Interest rates influence investor sentiment and market expectations.

Expectations of Lower Interest Rates: Can create a bullish sentiment in the stock market as investors anticipate easier borrowing conditions and higher future profits for companies.

Expectations of Higher Interest Rates: Can lead to bearish sentiment as investors anticipate higher borrowing costs, lower consumer spending, and reduced corporate profitability.



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II. Historical Perspective on Interest Rates and Stock Market Reactions

Interest rate changes have historically had profound impacts on the stock market. Two significant periods in recent history—the late 1970s and early 1980s, and the period following the 2008 financial crisis—illustrate how interest rate policy can influence market behavior and economic conditions.

Late 1970s and Early 1980s: Volcker's Aggressive Rate Hikes

Economic Environment: The late 1970s were marked by stagflation, a combination of high inflation and stagnant economic growth. Inflation was running rampant, driven by factors such as the 1973 oil crisis.

Policy Response: Paul Volcker, appointed as Chairman of the Federal Reserve in 1979, took drastic measures to curb inflation. The Federal Reserve sharply increased the federal funds rate, which reached a peak of around 20% in 1980-1981.

Impact on the Stock Market:

Initial Negative Reaction: The stock market reacted negatively to the aggressive rate hikes. Higher interest rates made borrowing more expensive, squeezed corporate profits, and dampened consumer spending. The U.S. economy fell into a severe recession in the early 1980s, and the stock market suffered significant declines.

Long-Term Positive Outcomes: Despite the initial pain, Volcker's policies succeeded in bringing inflation under control. Once inflation rates began to stabilize and expectations were reset, the groundwork was laid for a period of economic recovery and growth. The stock market rebounded as the economy stabilized and moved into the growth phase of the economic cycle, benefiting from the reduced inflation and more predictable economic environment.

Post-2008 Financial Crisis: Low Interest Rates to stimulate the economy

Economic Environment: The 2008 financial crisis led to a severe global economic downturn, characterized by collapsing financial institutions, a plummeting housing market, and widespread economic uncertainty.

Policy Response: In response, central banks worldwide, particularly the Federal Reserve, cut interest rates to near zero. The Fed also implemented quantitative easing (QE), a policy of purchasing long-term securities to increase the money supply and encourage lending and investment.



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Impact on the Stock Market:

Prolonged Bull Market: The combination of ultra-low interest rates and QE created a favorable environment for the stock market. Low borrowing costs encouraged corporate investment and consumer spending, driving economic recovery. Investors, seeking higher returns amid low-interest environments, poured money into equities, fueling a prolonged bull market.

Asset Price Inflation: The policies also led to significant asset price inflation, as cheap money flowed into the stock market, real estate, and other assets. While this boosted stock prices, it also raised concerns about potential market bubbles and income inequality.

Gradual Normalization: As the economy recovered, the Federal Reserve began the process of normalizing interest rates gradually. The stock market showed resilience, although periodic volatility reflected concerns about the impacts of rising rates.

Other Historical Examples

1990s Tech Boom: During the 1990s, a period of relatively stable and low interest rates contributed to the technology-driven stock market boom. The low cost of capital supported rapid investment in tech companies, leading to the dot-com bubble, which eventually burst in the early 2000s when monetary policy tightened.

Great Depression: Conversely, during the Great Depression, a series of monetary policy missteps, including raising interest rates in response to deflationary pressures, exacerbated the economic downturn and led to prolonged stock market declines.

Historical shifts in interest rates underscore their significant influence on the stock market and the broader economy. High interest rates, used to combat inflation, can initially depress stock prices and economic activity but may set the stage for long-term stability and growth, as seen in the early 1980s. Conversely, low interest rates and expansionary policies, such as those post-2008, can drive significant stock market gains and economic recovery, though they carry risks of asset bubbles and long-term imbalances. Central banks' careful management of interest rates remains crucial in navigating economic cycles and ensuring market stability.

Problem Statement

We know that interest rates and stock markets are connected, but the exact relationship is complex. This study will explore how changes in interest rates affect stock markets.

Research Questions

- How do stock markets react to changes in interest rates in the short-term and long-term?
- Do different parts of the stock market (like tech or healthcare) react differently?
- Are there differences in how developed countries' and emerging markets' stock markets respond?
- How do investor expectations and behaviors influence this relationship?



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- Objectives
- To find out how interest rates affect stock markets overall and in different sectors.
- To compare reactions in different countries.
- To understand how investor expectations play a role.

III. Significance

This study is important for investors, policymakers, and companies. Each group can use the information to make better decisions and plan more effectively.

For Investors

Investors can use the insights from this study to make smarter investment choices. By understanding how changes in interest rates affect different types of investments, investors can adjust their portfolios to reduce risk and increase returns. This means they can choose investments that are likely to do well when interest rates change and avoid those that might lose value. This knowledge helps them decide the best times to buy or sell investments.

For Policymakers

Policymakers, who are responsible for setting interest rates, can use the study to see how their decisions affect the overall economy and specific industries. This understanding helps them create better policies that support economic stability and growth. For example, if the study shows that certain industries are very sensitive to interest rate changes, policymakers can take this into account to avoid harming those sectors. They can also use this information to predict and prevent negative effects on jobs, prices, and economic growth.

For Companies

Companies can benefit from the study by using it to plan their finances and investments better. Knowing how interest rate changes will affect their business, companies can make smarter decisions about borrowing money, investing in new projects, and managing their debt. They can also predict changes in customer behavior based on interest rate trends and adjust their strategies accordingly. For example, they might choose fixed-rate loans over variable-rate ones or decide when to issue new debt based on interest rate forecasts. This helps companies stay stable and grow, even when economic conditions change.



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IV. Literature Review: The Impact of Interest Rate Changes on Stock Market Performance

Interest rates, set by central banks, are a critical instrument of monetary policy that influence various aspects of the economy, including stock market performance. The relationship between interest rate changes and stock market performance has been extensively studied, given its implications for investors, policymakers, and economists. This literature review synthesizes research findings on how changes in interest rates affect stock market performance, examining theoretical perspectives, empirical evidence, and key factors mediating this relationship.

Theoretical Perspectives

Discounted Cash Flow Model: The foundational theory explaining the impact of interest rates on stock prices is the discounted cash flow (DCF) model. According to this model, the value of a stock is the present value of its expected future cash flows. When interest rates rise, the discount rate used to calculate the present value of future cash flows increases, leading to a decrease in the present value of these cash flows, and consequently, a drop in stock prices.

Capital Asset Pricing Model (CAPM): CAPM also suggests that interest rates impact stock prices by influencing the risk-free rate, a key component of the model. An increase in the risk-free rate raises the required return on equity, potentially lowering stock prices as investors demand higher returns to compensate for the increased opportunity cost.

Arbitrage Pricing Theory (APT): APT, developed by Ross (1976), extends the CAPM by incorporating multiple risk factors, including interest rates. Changes in interest rates can affect stock prices through multiple channels, such as inflation expectations, economic growth projections, and changes in risk premiums.

Empirical Evidence

Short-Term vs. Long-Term Effects: Research shows that the stock market's reaction to interest rate changes can vary in the short and long term. For example, it is found that stock prices tend to react negatively to unexpected increases in interest rates in the short term. However, the long-term impact depends on the broader economic context and the reasons behind the rate changes.

Interest Rate Surprises: The magnitude of the stock market's response often hinges on whether the rate change was anticipated. It highlighted those unexpected changes in interest rates, or interest rate surprises, tend to have a more pronounced effect on stock prices compared to anticipated changes, which are often already priced in by the market.

Sectoral Differences: Studies also indicate that the impact of interest rate changes can differ across sectors. Financial stocks, for instance, might benefit from rising interest rates due to higher interest margins, whereas utility and real estate stocks often suffer due to their reliance on



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borrowing.

Global Perspective: The relationship between interest rates and stock markets is not uniform across countries. It is observed that the impact of U.S. interest rates on global stock markets varies, with some markets being more sensitive to changes than others, depending on their economic linkages and market structures.

Mediating Factors

Economic Conditions: The broader economic context plays a crucial role in determining the impact of interest rate changes on stock markets. During periods of strong economic growth, the negative impact of higher interest rates may be offset by robust corporate earnings and positive investor sentiment.

Monetary Policy Communication: The way central banks communicate their policy changes can significantly affect market reactions. Clear and transparent communication can help manage market expectations and reduce volatility.

Investor Behavior: Behavioral finance suggests that investor sentiment and cognitive biases can mediate the impact of interest rate changes. For instance, overreaction to rate hikes due to fear of an economic slowdown can exacerbate market declines.

Changes in interest rates and the performance of the stock market have a complicated and multidimensional relationship. The importance of necessary returns and discount rates is highlighted by theoretical models, which offer a basis for comprehending this relationship. The significance of sectoral disparities, global viewpoints, interest rate surprises, and short-term versus long-term consequences is highlighted by empirical research. Important roles are also played by mediating factors like investor behavior, central bank communication, and economic conditions. To effectively negotiate the relationship between monetary policy and stock market performance, investors and policymakers must have a thorough understanding of these dynamics.



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V. Interest Rates & Economic Theory

Introduction

Interest rates are a fundamental aspect of economic theory and practice, playing a crucial role in the functioning of financial markets and the broader economy. They influence various economic activities, including investment decisions, consumer spending, and overall economic activity. This chapter delves into the theoretical underpinnings of interest rates, exploring different types of interest rates, the factors influencing them, and their impact on economic behavior and stock market performance.

Types of Interest Rates

Understanding the various types of interest rates is essential for grasping their economic implications. The main types include nominal interest rates, real interest rates, and policy rates.

➤ Nominal Interest Rate

The nominal interest rate is the percentage at which money lent out is charged by a lender to a borrower without taking into account inflation or other factors. It represents the basic rate of return on an investment or the cost of borrowing, expressed as an annual percentage. For instance, if a bank offers a nominal interest rate of 5% on a loan, this means that the borrower will pay 5% of the principal amount as interest over the course of a year. This rate is "nominal" because it does not reflect the real purchasing power of money, which can be eroded by inflation. Therefore, while the nominal rate is a straightforward and widely quoted figure in financial transactions, it does not provide a complete picture of the true cost or yield of an investment. To understand the real return or cost, one must consider the real interest rate, which adjusts the nominal rate by subtracting the rate of inflation. For example, if the nominal interest rate is 5% and the inflation rate is 2%, the real interest rate would be approximately 3%. The nominal rate is crucial in various financial contracts, including savings accounts, mortgages, and bonds, serving as a baseline for setting other rates and assessing financial performance.

CHARACTERISTICS

The nominal interest rate possesses several key characteristics that define its role in financial markets:

- **Unadjusted for Inflation:**

The nominal interest rate is the stated rate on a loan or investment and does not consider the effects of inflation. Inflation erodes the purchasing power of money over time, so the nominal



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rate does not accurately reflect the real cost of borrowing or the real yield on an investment. For instance, if you earn 5% interest on a savings account but inflation is 3%, the real increase in purchasing power is only about 2%.

- **Annual Percentage:**

The nominal interest rate is typically expressed as an annual percentage rate (APR). This standardization allows for easy comparison across different financial products. If a loan has a nominal rate of 6%, it means that 6% of the loan amount will be charged as interest over one year.

- **Quoted Rate:**

Financial institutions quote the nominal interest rate in their communications, making it the most visible rate for consumers. It appears in advertisements, loan agreements, and savings account brochures, providing a clear, though incomplete, indication of costs or returns.

- **Fixed or Variable:**

Nominal interest rates can be fixed or variable. A fixed nominal rate remains constant over the life of the loan or investment, providing predictable payments. A variable nominal rate can change based on market conditions or specific benchmarks, such as the prime rate or LIBOR, introducing potential variability in interest payments.

- **Basis for Calculations:**

The nominal interest rate serves as a foundation for various financial calculations. It helps determine monthly interest payments, total interest cost over the loan's duration, and the effective interest rate, which accounts for compounding periods within the year.

- **Influence by Monetary Policy:**

Central banks influence nominal interest rates through monetary policy. By setting benchmark rates, like the federal funds rate in the U.S., central banks indirectly affect the nominal rates that banks charge for loans and pay on deposits. Lower benchmark rates usually lead to lower nominal interest rates, stimulating borrowing and spending.

- **Market Conditions Impact:**

Market conditions, such as the supply and demand for credit, economic growth, and investor sentiment, impact nominal interest rates. For example, in a growing economy with high demand for loans, nominal rates might rise. Conversely, in a recession, central banks might lower rates to encourage borrowing and investment.



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▪ **Simplicity:**

The nominal interest rate provides a simple and easily understood metric for evaluating financial products. Despite not accounting for inflation, its straightforward nature makes it a convenient tool for initial comparisons. Consumers can quickly see how much interest they will be charged or earn without complex calculations.

▪ **Determinant for Real Interest Rate:**

The real interest rate is derived from the nominal interest rate by adjusting for inflation. The real interest rate reflects the true cost of borrowing and the actual yield on investments in terms of purchasing power. For example, if the nominal rate is 5% and inflation is 2%, the real interest rate is approximately 3%. This adjustment is crucial for understanding the economic impact of interest rates on borrowers and investors.

➤ **Real Interest Rate**

The real interest rate is an adjusted measure that reflects the true cost of borrowing and the actual yield on investments by accounting for inflation. It provides a clearer picture of the purchasing power of money over time, making it a critical metric for both borrowers and investors. To calculate the real interest rate, the nominal interest rate is adjusted by subtracting the inflation rate. For example, if a savings account offers a nominal interest rate of 5% and the inflation rate is 2%, the real interest rate would be approximately 3%. This adjustment is crucial because it reveals the actual return on investment or the genuine cost of a loan, excluding the eroding effects of inflation. The real interest rate thus offers a more accurate assessment of economic value, helping investors evaluate the true growth of their investments and enabling borrowers to understand the real cost of their debt. It also plays a significant role in economic policy and financial planning, as it influences decisions on spending, saving, and investing.

CHARACTERISTICS

Inflation-Adjusted:

The real interest rate accounts for inflation, providing a measure of the true cost of borrowing and the actual return on investments. By adjusting the nominal interest rate for inflation, it reflects the change in purchasing power over time, offering a clearer view of economic value. This adjustment ensures that the interest rate reflects the actual economic benefit or cost.

Reflects True Economic Value:

Unlike the nominal interest rate, which only shows the percentage increase in money, the real interest rate indicates how much the purchasing power of that money has increased. For instance, if the nominal interest rate on a loan is 5% but inflation is 3%, the real interest rate would be 2%, showing the actual increase in purchasing power.



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Derived from Nominal Interest Rate:

The real interest rate is calculated by subtracting the inflation rate from the nominal interest rate. The formula is often approximated as $\text{Real Interest Rate} = \text{Nominal Interest Rate} - \text{Inflation Rate}$. This derivation highlights the impact of inflation on the nominal rate, transforming it into a more meaningful economic indicator.

Economic Indicator:

The real interest rate serves as a critical economic indicator, influencing decisions by consumers, businesses, and policymakers. High real interest rates generally encourage saving and reduce borrowing and spending, while low real interest rates can stimulate borrowing and investing. It helps gauge the effectiveness of monetary policy and the health of the economy.

Impact on Investment and Consumption:

Real interest rates directly affect investment decisions and consumer behavior. Investors seek higher real returns, adjusting their portfolios based on real interest rates to maximize their purchasing power. Similarly, consumers consider real interest rates when deciding whether to save or spend, as these rates determine the real growth of their savings.

Guides Monetary Policy:

Central banks monitor real interest rates to design effective monetary policies. By influencing nominal interest rates, central banks indirectly manage real interest rates to control inflation, stabilize the economy, and promote growth. Adjusting real interest rates helps achieve economic goals like full employment and stable prices.

Varies with Inflation Expectations:

Real interest rates fluctuate with changes in inflation expectations. If inflation is expected to rise, nominal interest rates may increase to maintain positive real interest rates. Conversely, if inflation is expected to fall, nominal rates might decrease. This dynamic interplay affects long-term financial planning and economic forecasts.

Influences Exchange Rates:

Real interest rates can impact exchange rates by affecting international capital flows. Higher real interest rates attract foreign investment, increasing demand for the domestic currency and potentially strengthening it. Conversely, lower real interest rates might lead to capital outflows and currency depreciation.

Indicator of Economic Health:

The level of real interest rates is a key indicator of economic health. Positive real interest rates typically indicate a growing economy with controlled inflation, while negative real interest rates might signal economic challenges or excessive inflation. Policymakers and analysts use real interest rates to assess economic conditions and devise strategies accordingly.



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➤ Policy Rates

Policy rates, also known as key interest rates, are crucial tools used by central banks to influence a country's economic activity. These rates, such as the federal funds rate in the United States or the refinancing rate in the Eurozone, are the interest rates at which commercial banks can borrow from or lend to the central bank. By adjusting policy rates, central banks can control the cost of borrowing and the incentive to save, thereby managing inflation, consumption, and investment. Lowering policy rates generally reduces borrowing costs, encouraging spending and investment to stimulate economic growth. Conversely, raising policy rates can help curb inflation by making borrowing more expensive and encouraging saving. These adjustments influence overall economic conditions, including employment, consumer spending, and the stability of financial markets. Central banks also use policy rates as signals to guide market expectations and to provide forward guidance on future monetary policy actions.

CHARACTERISTICS

Policy rates, set by central banks, are crucial instruments in shaping a country's monetary policy and overall economic environment. These rates, including the federal funds rate in the United States or the European Central Bank's main refinancing rate, exhibit several defining characteristics:

Influence on Economic Activity:

Policy rates directly impact borrowing costs for commercial banks, which in turn affect interest rates for loans and deposits in the wider economy. Lower policy rates reduce the cost of borrowing, encouraging spending and investment, while higher rates increase borrowing costs, helping to control inflation and cool down an overheated economy.

Monetary Policy Tool:

As primary tools of monetary policy, policy rates are adjusted to achieve macroeconomic goals such as controlling inflation, managing employment levels, and stabilizing the currency. Central banks use these rates to either stimulate economic activity or restrain it, depending on current economic conditions.

Signalling Mechanism:

Changes in policy rates serve as signals to financial markets, businesses, and consumers about the central bank's economic outlook and policy intentions. For example, a rate cut might signal concern about economic slowdown, while a rate hike could indicate efforts to combat rising inflation.

Scheduled Reviews:

Central banks typically review and adjust policy rates during regular, scheduled meetings. These meetings allow policymakers to assess economic data, forecast future economic conditions, and decide on necessary adjustments. The predictability of these meetings provides a structured approach to monetary policy.



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Impact on Financial Markets:

Policy rates influence market interest rates, bond yields, and equity prices. Investors closely monitor central bank actions and statements regarding policy rates, as these can significantly impact asset valuations and investment strategies.

Transmission Mechanism:

The effects of policy rate changes are transmitted through the economy via various channels, including bank lending rates, consumer and business spending, exchange rates, and overall financial conditions. This transmission mechanism helps central banks steer the economy towards desired outcomes.

Role in Inflation Targeting:

Many central banks use policy rates as part of an inflation-targeting framework, where they set an explicit inflation target and adjust policy rates to steer actual inflation towards this target. By managing expectations and influencing economic activity, central banks aim to maintain price stability.

Macroprudential Implications:

Policy rates can also have broader implications for financial stability. For instance, prolonged low rates can encourage excessive risk-taking and asset bubbles, while high rates might strain borrowers and lead to financial distress.



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VI. Factors Influencing Interest Rates: An In-Depth Analysis

Interest rates are a fundamental aspect of the financial system, influencing a wide range of economic activities including saving, borrowing, and investment. Understanding the factors that determine interest rates is crucial for policymakers, investors, and businesses alike. This comprehensive analysis delves into the primary factors that influence interest rates, including central bank policies, inflation expectations, economic growth, and the market supply and demand for credit.

Central Bank Policies

Central banks, such as the Federal Reserve in the United States or the European Central Bank in the Eurozone, play a pivotal role in shaping interest rates through their monetary policy tools. The primary objective of central bank policies is to achieve macroeconomic goals such as controlling inflation, managing employment levels, and ensuring economic stability. The main tools used by central banks include open market operations, the discount rate, and reserve requirements.

Open Market Operations:

Open market operations involve the buying and selling of government securities in the open market. When a central bank buys securities, it injects liquidity into the banking system, increasing the money supply and typically lowering short-term interest rates. Conversely, selling securities withdraws liquidity, reducing the money supply and increasing interest rates.

Example: During an economic downturn, the central bank might purchase government bonds to lower interest rates and stimulate borrowing and spending. Conversely, during periods of high inflation, the central bank might sell bonds to raise interest rates and curb excessive spending.

Discount Rate:

The discount rate is the interest rate charged by central banks on short-term loans to commercial banks. By altering the discount rate, central banks can influence the cost of borrowing for commercial banks, which in turn affects the interest rates that banks charge their customers.

Example: Lowering the discount rate reduces the cost for banks to borrow from the central bank, encouraging them to increase lending to businesses and consumers at lower rates. Raising the discount rate has the opposite effect, making loans more expensive and reducing borrowing.

Reserve Requirements:

Reserve requirements are regulations on the minimum amount of reserves that banks must hold against deposits. By changing reserve requirements, central banks can directly influence the amount of funds available for lending.

Example: Reducing reserve requirements increases the funds that banks can lend, potentially lowering interest rates and stimulating economic activity. Increasing reserve requirements restricts lending, which can raise interest rates and slow down economic growth.

Impact of Central Bank Policies:

Central bank policies are designed to influence economic conditions through the manipulation of



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interest rates. Lowering policy rates generally stimulates economic activity by making borrowing cheaper, encouraging investment and consumption. Conversely, raising policy rates can help control inflation by making borrowing more expensive, reducing spending and investment.

Stimulation of Economic Activity:

When central banks lower interest rates, it reduces the cost of borrowing for consumers and businesses. This can lead to increased spending on goods and services, higher levels of investment in new projects, and overall economic growth.

Control of Inflation:

When the economy is growing too quickly and inflation is rising, central banks may raise interest rates to cool down economic activity. Higher interest rates increase the cost of borrowing, which can reduce spending and investment, helping to bring inflation under control.

Inflation Expectations

Inflation expectations are crucial in the financial ecosystem as they significantly influence the determination of interest rates. When investors and lenders foresee higher inflation in the future, they anticipate that the value of money will diminish due to the increased prices of goods and services. To counteract this anticipated reduction in purchasing power, they demand higher nominal interest rates on loans and investments. This adjustment ensures that the real return on their financial assets remains positive despite the inflationary pressures. For instance, if the expected inflation rate rises from 2% to 4%, lenders might raise nominal interest rates correspondingly, from 5% to 7%, to maintain a consistent real return. Central banks, like the Federal Reserve, also monitor inflation expectations closely and may adjust their policy rates pre-emptively to anchor inflation and influence economic activity. This interplay ensures that the real interest rates, which are nominal rates adjusted for inflation, remain attractive to investors while also managing the economy's growth and stability. Hence, inflation expectations are integral in shaping both short-term and long-term interest rates, affecting everything from mortgage rates to government bond yields.

Mechanism of Inflation Expectations:

Expectations and Rates:

When inflation expectations rise, lenders demand higher nominal interest rates to maintain their real returns. Real interest rates are adjusted for inflation, so if inflation is expected to be higher, nominal rates must also rise to ensure that lenders and investors are adequately compensated.

Example: If the inflation rate is expected to increase from 2% to 4%, a lender who wants a real return of 2% will need to charge a nominal interest rate of 6% (4% inflation + 2% real return) instead of 4% (2% inflation + 2% real return).

Bond Yields:

Inflation expectations significantly influence long-term bond yields. Investors in long-term bonds require higher yields if they expect inflation to erode the purchasing power of future interest payments.



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Example: If inflation expectations increase, the yields on long-term government bonds will rise as investors demand higher returns to compensate for the expected increase in inflation. This, in turn, affects other long-term interest rates in the economy, such as mortgage rates and corporate bond yields.

Impact on Economic Decision-Making:

Inflation expectations also influence consumer and business behaviour. If people expect higher inflation in the future, they may be more likely to borrow and spend now before prices rise, which can further fuel inflation. On the other hand, if inflation expectations are well-anchored, it can contribute to economic stability by reducing uncertainty.

Example: If businesses expect inflation to rise, they might increase their prices pre-emptively, leading to an actual increase in inflation. Similarly, consumers might accelerate their purchases of big-ticket items, increasing current demand and prices.

Economic Growth

The state of the economy plays a fundamental role in influencing interest rates through the dynamics of supply and demand for credit. During periods of robust economic growth, businesses and consumers are generally more confident about the future, leading to an increase in spending and investment. This heightened economic activity raises the demand for credit as companies seek to expand operations and individuals pursue major purchases like homes and cars. In response to this increased demand, financial institutions can raise interest rates to balance the higher need for loans with their available supply of funds. Additionally, central banks may also increase their policy rates to prevent the economy from overheating and to keep inflation in check.

Conversely, during economic downturns or recessions, the situation is markedly different. Economic activity slows down, leading to reduced consumer spending and business investment. To combat this, central banks often implement monetary easing policies, which include lowering interest rates to make borrowing cheaper and more attractive. Lower interest rates aim to encourage consumers and businesses to take out loans, thereby stimulating spending and investment to jumpstart economic growth. For instance, in the wake of a recession, central banks might reduce policy rates and implement measures such as quantitative easing to inject liquidity into the economy. These actions help to lower borrowing costs across various credit markets, from personal loans to corporate financing, thereby fostering an environment conducive to economic recovery. This cyclical adjustment of interest rates in response to economic conditions underscores the integral relationship between economic growth and interest rate policies.



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Mechanism of Economic Growth

Growth and Demand:

When the economy is growing strongly, businesses and consumers tend to borrow more to invest in new projects, expand operations, or purchase goods and services. This increased demand for credit can drive up interest rates as borrowers compete for available funds.

Example: In a booming economy, companies may take out more loans to finance expansion plans, and consumers may increase their borrowing for homes and cars. The higher demand for loans can lead banks to raise interest rates to balance the supply of credit.

Recession and Supply:

During economic downturns, central banks often lower interest rates to encourage borrowing and investment. Lower rates reduce the cost of borrowing, making it more attractive for businesses to invest in new projects and for consumers to purchase homes and other durable goods.

Example: During a recession, central banks may cut interest rates to near-zero levels to stimulate economic activity. Lower interest rates reduce monthly mortgage payments, making home purchases more affordable, and encourage businesses to invest in new equipment and technology.

Impact on Investment and Consumption:

Economic growth and interest rates are closely linked through their effects on investment and consumption. Lower interest rates reduce the cost of financing for investments in physical capital, research and development, and other productive activities. Higher interest rates can discourage such investments by increasing the cost of borrowing.

Example: When interest rates are low, companies might invest more in expanding their production capacities, hiring new employees, and developing new products. Consumers might also take advantage of lower interest rates to finance major purchases, such as homes and cars, boosting overall economic activity.

Supply and Demand for Credit

The supply and demand for credit in financial markets are pivotal in shaping the level of interest rates, operating through a mechanism akin to other markets where price is determined by the equilibrium between supply and demand. On the supply side, the availability of funds for lending, or credit supply, is influenced by factors such as monetary policy, bank reserves, and overall economic conditions. Central banks, through their monetary policy tools, play a significant role by adjusting benchmark interest rates and conducting open market operations to control the money supply. For instance, an expansionary monetary policy, which lowers interest rates and increases money supply, boosts the availability of credit as banks and financial institutions find it easier to lend. Conversely, restrictive policies tighten credit supply.

On the demand side, credit demand reflects the willingness of businesses, consumers, and governments to borrow. This demand is heavily influenced by economic growth, interest rates,



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and consumer confidence. During periods of robust economic activity, businesses seek loans for expansion and consumers are more likely to finance large purchases, driving up the demand for credit. Conversely, in economic downturns, demand for credit typically wanes as businesses and consumers become more cautious. Additionally, there is an inverse relationship between interest rates and credit demand: lower interest rates reduce borrowing costs and stimulate demand, while higher rates have the opposite effect.

The interaction between these forces determines the prevailing interest rates. When credit supply exceeds demand, competition among lenders drives interest rates down. Conversely, when demand outstrips supply, borrowers compete for available funds, pushing interest rates up. The equilibrium interest rate is thus a dynamic balance point where the amount of credit supplied meets the amount of credit demanded. This equilibrium can shift in response to changes in economic conditions, monetary policy, and other influencing factors, reflecting the constant flux in the financial markets. Understanding these dynamics is crucial for predicting interest rate trends and making informed financial decisions.

Mechanism of Supply and Demand for Credit:

Credit Supply:

The supply of credit is influenced by factors such as the availability of savings in the economy, monetary policy, and the overall health of the banking sector. When there is an ample supply of credit, interest rates tend to be lower because lenders compete to offer loans to borrowers.

Example: During times of financial stability, when banks have plenty of reserves and are confident in the economic outlook, the supply of credit increases. This abundance of credit can lead to lower interest rates as banks compete to attract borrowers.

Credit Demand:

High demand for credit can drive up interest rates as borrowers compete for available funds. Factors influencing credit demand include economic growth, consumer confidence, and business investment plans.

Example: In a growing economy, businesses may need more capital to expand operations, and consumers may seek loans for big purchases. This increased demand for credit can push interest rates higher as banks adjust rates to balance the increased demand.

Impact on Financial Stability:

The supply and demand dynamics for credit also impact financial stability. An excessive supply of credit, often driven by overly loose monetary policy or a surge in savings, can lead to asset bubbles and financial imbalances. Conversely, a sudden contraction in credit supply, such as during a financial crisis, can lead to higher interest rates and economic contraction.

Example: Before the 2008 financial crisis, an overabundance of cheap credit contributed to the housing bubble. When the bubble burst, the supply of credit sharply contracted, leading to a spike in interest rates and a severe economic downturn.



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VII. Impact of Interest Rates on Economic Activity and Stock Market Performance

Interest rates are a critical determinant of economic activity and play a significant role in shaping stock market performance. This comprehensive analysis explores the multifaceted impacts of interest rates on various aspects of economic activity, including investment decisions, consumer spending, overall economic performance, and ultimately, stock market performance. Additionally, theoretical frameworks such as Keynesian economics, Monetarist theory, and the Efficient Market Hypothesis are examined to provide insights into the relationship between interest rates and stock market behavior.

➤ Investment Decisions:

Interest rates exert a substantial influence on investment decisions for both businesses and individuals.

Business Investments:

Cost of Capital:

When interest rates rise, the cost of borrowing for businesses increases. This higher cost of capital can discourage businesses from undertaking new investment projects or expanding existing ones. Companies may find it less attractive to borrow funds for capital expenditures such as infrastructure upgrades, research and development, or expansion into new markets. As a result, there may be a slowdown in business investment, leading to reduced economic growth.

Discount Rate:

Interest rates serve as a crucial component in determining the discount rate used in financial analysis, such as net present value (NPV) calculations. The discount rate reflects the opportunity cost of investing money today rather than in the future. When interest rates are higher, the discount rate increases, which in turn reduces the present value of future cash flows. This can make long-term investment projects less appealing to businesses, as the expected returns may not outweigh the higher discount factor applied to future earnings.

Individual Investments:

Savings vs. Spending:

For individuals, higher interest rates can influence the decision between saving and spending. When interest rates on savings accounts, certificates of deposit (CDs), or other fixed-income investments rise, the return on savings increases. This incentivizes individuals to save more and spend less, as they seek to take advantage of higher yields on their savings. Consequently, higher interest rates can lead to decreased consumer spending, impacting sectors such as retail, hospitality, and entertainment.



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Asset Allocation:

Interest rates also play a significant role in determining the allocation of investments in individual portfolios. When interest rates are high, fixed-income securities such as bonds become more attractive to investors due to their relatively lower risk compared to equities. Investors may reallocate their portfolios away from stocks and towards bonds or other interest-bearing assets to capitalize on higher yields. This shift in asset allocation can have implications for equity markets, as decreased demand for stocks may lead to lower stock prices or reduced investment in equities.

➤ Consumer Spending

Consumer spending, a significant driver of economic activity, is directly impacted by interest rates.

Borrowing Costs:

High Interest Rate

When interest rates increase, the cost of borrowing rises for consumers across various types of loans. For example, higher mortgage rates result in increased monthly payments for homeowners, reducing their disposable income. Similarly, higher interest rates on auto loans mean higher monthly payments for car buyers. As borrowing becomes more expensive, consumers may decide to postpone or cancel major purchases, such as buying a home or a car, which can have a significant impact on industries reliant on consumer spending.

Income Effect:

Savings vs. Spending:

While higher interest rates may boost income for individuals with significant investments in interest-bearing assets like savings accounts or bonds, the overall impact on consumer spending is limited. This is because the majority of consumers hold relatively small amounts of wealth in interest-bearing assets compared to their debt obligations, such as mortgages, credit card debt, and student loans. Therefore, the increase in interest income is often outweighed by the decrease in discretionary income resulting from higher borrowing costs. As a result, consumer spending tends to be more sensitive to changes in borrowing costs than to changes in interest income.

Overall Economic Activity:

Expansionary Policy:

Lower interest rates are a key tool used by central banks to implement expansionary monetary policy aimed at stimulating economic growth. By reducing the cost of borrowing, lower interest rates incentivize consumers to increase spending on durable goods such as homes, cars, and appliances. This increased consumer spending drives demand, leading to higher levels of production and employment. Additionally, lower interest rates make it more affordable for businesses to invest in capital projects, further boosting economic activity and overall GDP growth.



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Contractionary Policy:

Conversely, higher interest rates are employed in contractionary monetary policy to combat inflation and prevent the economy from overheating. By raising borrowing costs, higher interest rates discourage consumer borrowing and spending. For instance, higher mortgage rates can deter potential homebuyers, leading to decreased demand in the housing market. Similarly, higher interest rates on auto loans can reduce consumer demand for new vehicles. This reduction in consumer spending can lead to a slowdown in economic activity, potentially resulting in job losses, particularly in industries sensitive to interest rate changes.

Impact on Stock Market Performance

Interest rates influence stock market performance through their effects on corporate profits, investor behavior, and economic conditions.

- **Corporate Profits:**

Borrowing Costs:

When interest rates rise, borrowing becomes more expensive for corporations. This affects businesses that rely heavily on debt financing to fund operations, expansion, or investments. Higher borrowing costs translate into increased interest expenses, which can eat into corporate profits. Companies with high levels of debt, such as those in capital-intensive industries like real estate or utilities, may experience a significant decline in profitability as a result of higher interest rates. Ultimately, reduced profitability can lead to lower earnings and stock prices for highly leveraged companies.

Consumer Demand:

Interest rates also influence consumer spending behaviour, which in turn impacts corporate revenues. Higher interest rates make borrowing more expensive for consumers, leading to reduced spending on big-ticket items such as homes, cars, and appliances. This reduction in consumer demand can disproportionately affect companies operating in sectors sensitive to changes in discretionary spending, such as retail, automotive, and leisure. Consequently, decreased consumer demand can lead to lower corporate revenues and, subsequently, lower stock prices for companies reliant on consumer spending.

- **Investor Behavior:**

Risk-Free Rate:

Interest rates play a crucial role in determining the risk-free rate of return, often represented by government bond yields. When interest rates rise, yields on Treasury securities and other fixed-income investments increase, making them more attractive relative to stocks. As a result, investors may reallocate their portfolios away from equities and towards safer assets offering higher yields, such as bonds. This shift in investment preferences can lead to decreased demand for stocks and downward pressure on stock prices, particularly during periods of rising interest rates.



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Risk Aversion:

In addition to influencing investment preferences, changes in interest rates can also affect investor risk tolerance. Higher interest rates can increase risk aversion among investors, prompting them to seek safer investments with guaranteed returns. This flight to safety can lead to reduced demand for stocks, especially those perceived as riskier or more volatile. Consequently, stocks may experience downward pressure as risk-averse investors reallocate their portfolios towards safer assets during periods of rising interest rates.

- **Economic Conditions:**

Economic Growth:

Interest rates have a profound impact on economic growth, which, in turn, affects corporate profits and stock market performance. Lower interest rates typically stimulate economic activity by making borrowing cheaper and encouraging spending and investment. This can lead to increased corporate earnings as businesses experience higher demand for their products and services. Consequently, stock prices may rise as investors anticipate improved profitability and economic growth prospects. Conversely, higher interest rates may slow economic growth by reducing consumer spending and business investment, potentially leading to lower corporate profits and stock prices.

Recession Risk:

Rising interest rates can increase the risk of an economic slowdown or recession. Higher borrowing costs constrain consumer spending and business investment, leading to reduced economic activity and corporate profits. In anticipation of weaker economic conditions, investors may become more cautious and adjust their portfolios accordingly. This can result in lower stock prices as investors sell equities and seek safer investments during periods of rising interest rates. Additionally, concerns about a potential recession may further exacerbate market volatility and contribute to downward pressure on stock prices.



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VIII. Theoretical Frameworks

Several economic theories provide insights into the relationship between interest rates and stock market performance.

▪ **Keynesian Economics:**

In Keynesian economics, interest rates play a pivotal role in influencing aggregate demand and economic activity. Lower interest rates are believed to stimulate investment and consumption by reducing the cost of borrowing for businesses and individuals. With cheaper credit available, businesses may increase capital expenditures, leading to higher levels of production and employment. Additionally, lower interest rates can encourage consumers to borrow for big-ticket purchases such as homes and cars, boosting consumption expenditure. This increase in investment and consumption fuels economic expansion, leading to higher output and potentially higher corporate profits. Consequently, stock prices may rise as investors anticipate improved economic conditions and earnings prospects.

Impact of Higher Interest Rates:

Conversely, higher interest rates in Keynesian economics are expected to dampen economic activity and reduce stock prices. When interest rates rise, borrowing becomes more expensive, leading to decreased investment and consumption spending. Businesses may delay or cancel investment projects due to higher borrowing costs, resulting in lower levels of production and potentially lower corporate profits. Similarly, consumers may reduce spending on durable goods like homes and vehicles, leading to decreased consumer demand and weaker economic growth. In such circumstances, stock prices may decline as investors adjust their expectations of future earnings downward in response to the economic slowdown.

Mechanism

• **Investment and Consumption:**

Impact on Investment:

Interest rates play a crucial role in shaping investment decisions for businesses. When interest rates are low, the cost of borrowing is reduced, making it cheaper for businesses to finance investment projects such as expansion, research and development, and capital expenditures. Lower borrowing costs incentivize businesses to undertake new projects or expand existing operations, leading to increased investment spending. This boost in investment can contribute to higher levels of production, employment, and corporate profits, ultimately driving stock prices higher as investors anticipate improved earnings prospects.

Influence on Consumption:

Interest rates also influence consumer spending behavior. When interest rates are low, borrowing costs for consumers decrease, making it more affordable to finance major purchases such as



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homes, cars, and appliances. Cheaper credit encourages consumers to increase spending on durable goods and other discretionary items, leading to higher levels of consumption expenditure. This uptick in consumer spending can stimulate economic activity and corporate revenues, contributing to higher stock prices as investors anticipate increased sales and profitability for companies.

- **Multiplier Effect:**

Spending Cycle:

Changes in interest rates can set off a multiplier effect through the spending cycle. For example, when interest rates are lowered by the central bank to stimulate economic activity, businesses and consumers are encouraged to borrow and spend more. Increased investment and consumption expenditure boost demand for goods and services, leading firms to increase production and hire additional workers. This rise in employment and income further stimulates consumer spending, creating a positive feedback loop of increased economic activity. As economic output expands, corporate profits rise, leading to higher stock prices as investors anticipate higher earnings and dividends.

Reverse Effect:

Conversely, when interest rates rise, borrowing becomes more expensive, leading to reduced investment and consumption spending. Decreased demand for goods and services can lead to lower production levels and potentially job losses, further dampening consumer spending. This downward spiral of reduced economic activity can negatively impact corporate profits and stock prices as investors adjust their expectations of future earnings downward. Thus, changes in interest rates can have a multiplied effect on economic activity and stock market performance through the spending cycle, amplifying the initial impact of the interest rate change on investment and consumption. Stock prices may decline as investors adjust their expectations of future earnings downward in response to the economic slowdown.

- **Monetarist Theory**

Monetarist theory, championed by Milton Friedman, focuses on the role of monetary policy and the money supply in determining economic activity and inflation. Interest rates are seen as a tool for controlling the money supply, which in turn affects stock market performance.

Monetarist theory, associated with economists like Milton Friedman, emphasizes the role of monetary policy in shaping economic activity and inflation. In this framework, interest rates are seen as a tool used by central banks to control the money supply, which in turn influences economic variables such as output, employment, and prices. When central banks lower interest rates, borrowing becomes cheaper, leading to an expansion of credit and an increase in the money supply. This liquidity injection stimulates economic activity, potentially leading to higher corporate profits and stock prices. Conversely, when central banks raise interest rates, borrowing becomes more expensive, leading to a contraction of credit and a decrease in the money supply. This tightening of monetary conditions can dampen economic activity, potentially resulting in lower corporate profits and stock prices.



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Impact of Interest Rate Changes:

In the monetarist framework, changes in interest rates can have significant implications for stock market performance. Lower interest rates are expected to be conducive to higher stock prices, as they stimulate economic activity and increase corporate profitability. Conversely, higher interest rates may lead to lower stock prices, as they can constrain economic growth and reduce corporate earnings. However, the precise impact of interest rate changes on stock prices may depend on various factors, including the magnitude and speed of the interest rate adjustment, as well as other economic conditions and policy measures.

Mechanism

- **Money Supply Control:**

Central Bank Tools:

Central banks utilize various tools to control the money supply, with interest rates being one of the most important mechanisms. When central banks adjust interest rates, they influence the cost of borrowing and the availability of credit in the economy. Lowering interest rates makes borrowing cheaper and stimulates borrowing and spending, leading to an expansion of the money supply. Conversely, raising interest rates makes borrowing more expensive and encourages saving, resulting in a contraction of the money supply.

Inflation Targeting:

Central banks often use changes in interest rates to manage inflation levels within an economy. By adjusting interest rates, central banks seek to achieve their inflation targets, typically aiming for low and stable inflation rates conducive to economic growth. When inflation is too high, central banks may raise interest rates to curb spending and reduce inflationary pressures. Conversely, when inflation is too low or the economy is in recession, central banks may lower interest rates to stimulate borrowing and spending, thereby boosting inflation and supporting economic recovery.

Impact on Economic Activity:

Changes in interest rates influence economic activity through their effects on borrowing, spending, and investment. Lower interest rates stimulate borrowing and spending, leading to increased investment, consumption, and economic growth. This can result in higher corporate profits, increased employment, and overall expansion of economic activity. Conversely, higher interest rates can dampen borrowing and spending, leading to reduced investment, consumption, and economic growth. This can result in lower corporate profits, decreased employment, and potentially a contraction of economic activity.

- **Market Signals:**

Economic Conditions:

Interest rates serve as important signals to investors about future economic conditions and central bank policies. Central banks adjust interest rates in response to changes in economic indicators



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such as inflation, unemployment, and GDP growth. For example, if inflation is rising above the central bank's target, investors may anticipate a potential interest rate hike to curb inflationary pressures. Similarly, if economic growth is slowing, investors may expect central banks to lower interest rates to stimulate economic activity.

Policy Expectations:

Interest rates also provide signals to investors about central bank policy expectations. Changes in interest rates signal shifts in monetary policy stance, with rate hikes indicating a tightening of monetary policy and rate cuts signaling an expansionary monetary policy. Investors closely monitor central bank communications, economic data releases, and market indicators to gauge future interest rate movements and adjust their investment strategies accordingly. For example, if central banks signal a dovish stance by indicating a willingness to lower interest rates, investors may adopt a risk-on approach, favoring equities and other riskier assets. Conversely, if central banks signal a hawkish stance by hinting at potential interest rate hikes, investors may adopt a risk-off approach, favoring safer assets such as bonds and cash.

Market Volatility:

Changes in interest rates can also impact market volatility, as investors react to shifts in economic conditions and central bank policies. Sharp movements in interest rates, such as unexpected rate hikes or cuts, can trigger volatility in financial markets as investors reassess their expectations and reposition their portfolios. Volatility can present both opportunities and risks for investors, with some investors capitalizing on market swings to generate returns through active trading strategies, while others may seek to mitigate risk through diversification and hedging techniques.

▪ **Efficient Market Hypothesis (EMH)**

The Efficient Market Hypothesis (EMH) posits that stock prices fully reflect all available information, including changes in interest rates. According to EMH, investors cannot consistently achieve higher returns through interest rate predictions, as stock prices quickly adjust to new information. In an efficiently functioning market, changes in interest rates are rapidly incorporated into stock prices through the actions of rational, profit-maximizing investors. Consequently, attempts to exploit interest rate movements to gain an edge in the market are unlikely to be successful in the long run.

Implications for Investors:

From an investor perspective, the Efficient Market Hypothesis suggests that attempting to outperform the market based on interest rate forecasts alone may be challenging. Instead, investors may focus on other factors such as company fundamentals, industry trends, and broader economic indicators when making investment decisions. Additionally, investors may adopt a diversified portfolio approach to mitigate risk and potentially achieve their financial goals over the long term.



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Mechanism

- **Information Efficiency:**

The Efficient Market Hypothesis (EMH) posits that stock prices fully reflect all available information, making it impossible for investors to consistently outperform the market through the analysis of publicly available information. According to EMH, stock prices adjust rapidly and accurately to new information, including changes in interest rates. In an efficient market, investors quickly incorporate information about interest rate changes into stock prices through their buying and selling activity. As a result, it becomes difficult for investors to generate excess returns by trading based on interest rate predictions alone.

Market Response to Interest Rate Changes:

When central banks announce changes in interest rates, such as rate hikes or cuts, market participants react swiftly to incorporate this information into stock prices. Investors assess the implications of interest rate changes for various sectors and industries, adjusting their investment strategies accordingly. For example, if interest rates are expected to rise, investors may anticipate higher borrowing costs for companies and reduced consumer spending, leading to lower earnings expectations for certain sectors such as housing or consumer discretionary. Consequently, stock prices in these sectors may decline as investors adjust their valuations based on the anticipated impact of interest rate changes on corporate profitability.

Impact on Valuation Models:

Changes in interest rates can also affect the valuation of stocks through their impact on discount rates used in valuation models such as the discounted cash flow (DCF) method. Higher interest rates increase the discount rate applied to future cash flows, leading to a lower present value of future earnings and dividends. Conversely, lower interest rates reduce the discount rate, resulting in a higher present value of future cash flows. As a result, changes in interest rates can influence the intrinsic value of stocks and may lead to adjustments in stock prices to reflect changes in expected future cash flows.

- **Random Walk:**

Theory of Random Walk:

The random walk theory suggests that stock price movements are unpredictable and follow a random pattern, making it impossible to consistently predict future price movements based on past price data or other information. According to this theory, stock prices incorporate all available information and reflect the collective wisdom of investors, leading to a random and unpredictable pattern of price changes over time. Interest rate changes are just one of many factors influencing stock prices, and their impact on stock market movements may be obscured by other factors such as earnings reports, economic indicators, geopolitical events, and investor sentiment.

Market Efficiency and Information Incorporation:

In a market following the random walk theory, changes in interest rates are quickly incorporated into stock prices through the actions of rational, profit-maximizing investors. However, the



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impact of interest rate changes on stock prices may be difficult to discern amidst the noise of other market factors. As a result, attempts to predict short-term stock price movements based solely on interest rate changes may be futile. Instead, investors may focus on long-term investment strategies based on fundamental analysis, diversification, and risk management techniques to navigate the unpredictable nature of stock market movements.

Implications for Investors:

For investors, the random walk theory suggests that attempting to time the market based on interest rate forecasts or other short-term factors may be unproductive. Instead, investors may adopt a disciplined, long-term approach to investing, focusing on factors such as company fundamentals, industry trends, and portfolio diversification to achieve their investment goals. By accepting the random nature of stock price movements and focusing on factors within their control, investors can build robust investment strategies designed to withstand market



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IX. Introduction to Methodology

The methodology section of our study is designed to provide a comprehensive and systematic approach to understanding the impact of changes in interest rates on stock market performance. This part of our research is crucial as it lays the foundation for how we will gather, analyze, and interpret data to draw meaningful conclusions. By detailing our research design, data collection methods, and analytical techniques, we aim to ensure that our findings are reliable and can offer clear insights into the complex relationship between interest rates and stock market behavior.

Research Design

The research design for this study is critical as it outlines the blueprint for how we will systematically investigate the impact of changes in interest rates on stock market performance. This section will detail the approach we will take, the methods for data collection and analysis, and the rationale behind our chosen methodologies. Our goal is to provide a robust framework that ensures the reliability and validity of our findings, ultimately offering clear insights into the relationship between interest rates and stock market behavior.

Research Approach

We have chosen a mixed-methods approach for this research, combining both quantitative and qualitative methodologies. This dual approach allows us to capture the broad trends and patterns through quantitative analysis while gaining deeper insights and understanding through qualitative research.

Quantitative Analysis: This involves statistical analysis of historical data to identify trends, correlations, and causations. The quantitative aspect will help us measure the direct impact of interest rate changes on stock market indices and sector-specific performances.

Qualitative Analysis: Through literature reviews, case studies, and expert interviews, we aim to understand the broader context and the underlying mechanisms that drive the observed quantitative relationships. This helps in interpreting the data more accurately and comprehensively.



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The study has been conducted from the period of 1991 to 2019(Forecast) and by calculating the regression analysis to check the relationship between the independent and dependent factors.

Interest Rate - Sum of the amount of interest due per quarter/year, as a proportion of the amount lent, borrowed or deposited. Principal sum, the interest rate, the compounding frequency, and the length of time over which it is lent deposited or borrowed are the factors on which total interest on an amount lent or borrowed depends. One of the factors that affect stock prices is expected earnings which, in turn, is affected by interest rates as companies operate with some borrowings in their balance sheet. If the repo rate continues to go up, banks will raise loan rates, sooner or later. This will lead to higher loan repayment costs for corporates. Rising costs reduce the net profit, which reflects in stock prices. This is applied to equity stocks in aggregate, it translates to a negative impact. Hence, when the interest rate cycle is on an upward trend, equities are unlikely to give high returns. The reverse happens when interest rates are cut. After studying the relationship between macroeconomic variables, we find that the independent variable Interest rate has a lesser impact on the indices than what inflation has on the indices wherein they have an even lesser impact on Sensex.

Inflation - Inflation can be defined in numerous ways but the apt test way which defines inflation is it is the increase in the overall average price level of the products/services and not an increase in any particular product/services. The most widely reported measure of inflation in India after 2014 (Governor - Raghuram Rajan) is the consumer price index (CPI) which measures the changes in the average prices of consumer goods and services. Kevin and Solman explain that inflation may be either demand-pull inflation or cost-push inflation. Demand-pull inflation is caused by persistent rises in aggregate demand thus the firms responding by raising prices and partly by increasing output. After studying the relationship between macroeconomic variables, we find that the independent factor Inflation has a very weak relationship with the dependent factor Nifty 50 and Sensex.

In India, the Reserve Bank of India (RBI) is India's central banking institution that decides the interest rate after looking into the condition and requirement of the economy of



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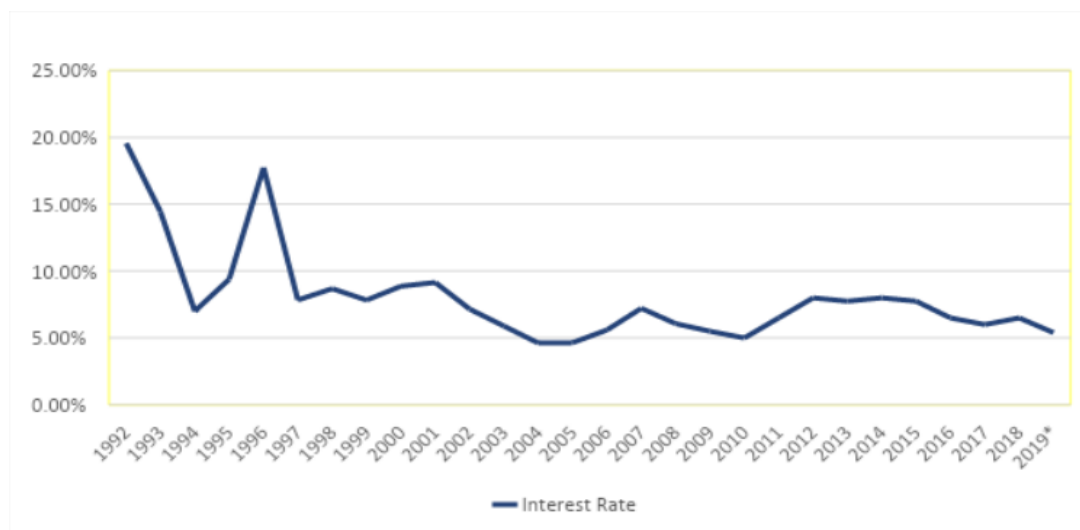
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the nation. After studying the data of the period 1991-2019 We have seen that there is a negative correlation between interest rates and Indian stock indices. Interest rate is the cost of borrowing for the borrowers so if the interest rate increases the expectation of the borrower from the stock market also increases as the rising interest rate regime, the cost of borrowing increases and profitability is affected.

In India, the stock market and rates are inversely related (Negative Correlation) i.e. related. When Interest is higher the value of the equity reduces and also increases the FD more favorable. Inverse when the interest rate is lower than it will give a boost to the stock market.

Interest rates from the period 1991-2019





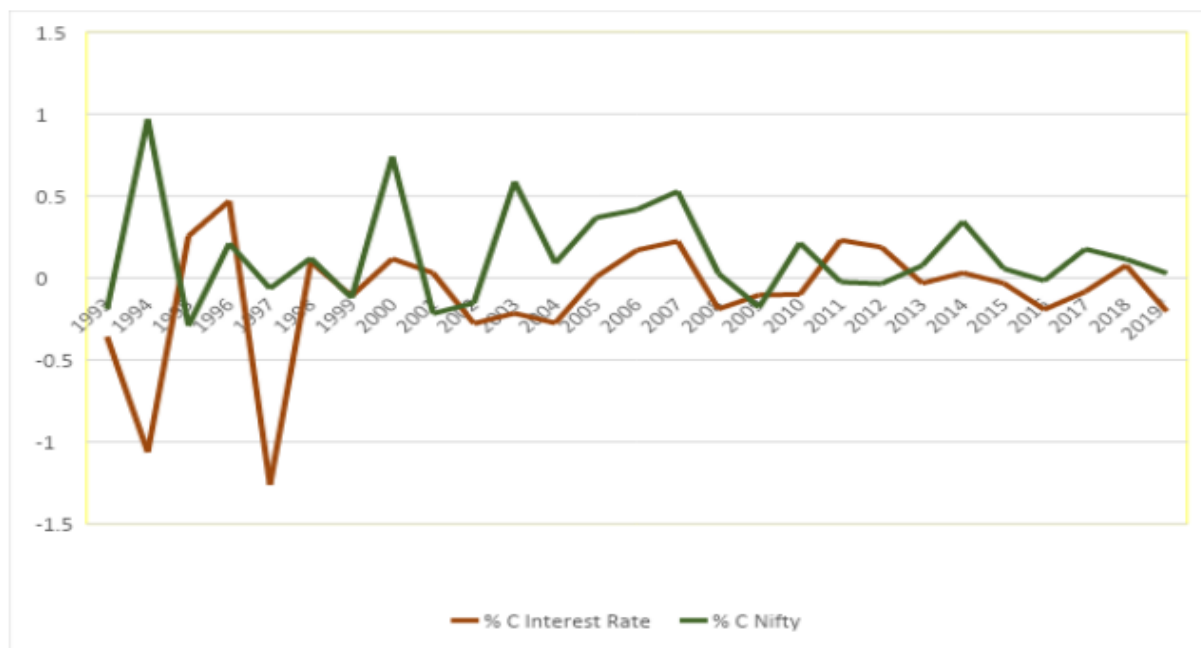
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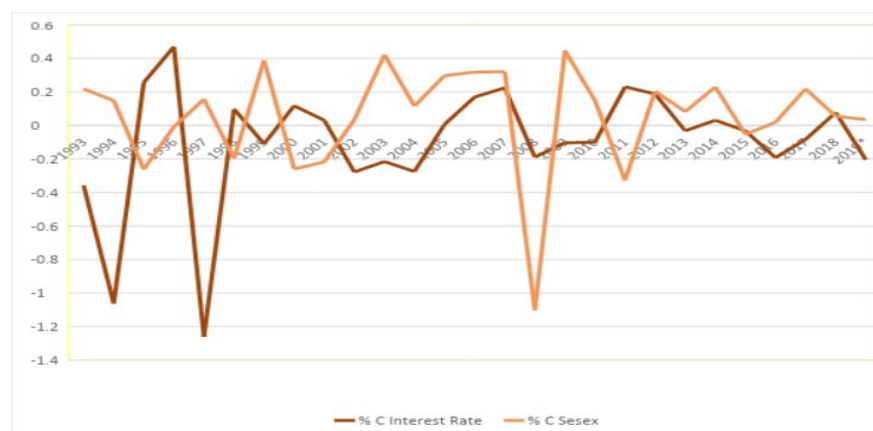
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Percentage Change in Nifty and Percentage change in Interest rate (1991-2019)



Percentage Change in Sensex and Percentage change in Interest rate (1991-2019)





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Inflation

Inflation can be defined in numerous ways but the apt way which defines inflation is it is the increase in the overall average price level of the products/services and not an increase in any particular product/services. Any unexpected rise in the inflation, CPI in India, is considered worrisome for the corporates as it takes several months for them to pass on higher input costs to consumers. Even customers feel the pinch when goods and services become pricier. They also tend to hold less liquid money in hand in such a scenario, as inflation eats away most of their savings and also the investors with less cash holding in their hand tend to invest less in the stock market during such periods. They also get confused since

the impact is likely to affect the economy and stock prices, however not at the same rate. Sometimes any rise in inflation is also considered good as it can help in stimulating growth in developed countries which is seen in countries like the US. But it can also impact profits of the corporates through higher input costs as firms stop hiring a greater number of employees. It's therefore much required for an investor to make wise decisions during periods of high inflation. After studying the data of the period 1991-2019 of inflation and testing the secondary data, we have seen a moderate negative correlation between inflation and the Indian stock market. In which Inflation affects less to Sensex compared to Nifty. Inflation and the Indian Stock market is in inverse relation if inflation increases, the stock market decreases and vice-versa.

Inflation (%) from the period of 1991-2019





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The graphs show the trend of inflation in 1991. This Graph shows the fluctuation in inflation from 1991-2000. The inflation in the country varies year to year. In 1991 in Indian Inflation = 10.24% whereas in 2000 it was 4.41% which states that the rate was between 10.24% to 4.41%. In 2000-2010 inflation rate was between 4.22%-8.47%, In this period the fluctuation between the Pound -INR was the least in the past 3 decades. In the current decade, the range of exchange rate was between 10.34% to 4.85% which makes the current decade the most volatile decade in terms of inflation rate in the country

X Data Analysis and Interpretation

Interest Rate

Interest rate and Nifty (Anova)

Table: 1 ANOVA Table between Interest Rate and Nifty					
Sources of Variation	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Between Samples	1	17349254.53	17349254.53	1.2888151	0.266244194
Within Samples	27	363457777.9	13461399.18		
Total	28	380807032.4			

The Table value is equal to 4.2100 whereas the calculated value is equal to 1.288

Interpretation of the table

H0: There is no significant relationship between the interest rate and Nifty

H1: There is a significant relationship between the interest rate and nifty

The table value is more than the calculated value so the null hypothesis is accepted.



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Interest rate and Sensex (ANOVA)

Table: 2 ANOVA Table between Interest Rate and Sensex					
	D f	SS	MS	F	Significance F
Regression	1	142899453.2	142899453.2	1.110829848	0.301242488
Residual	27	3473335940	128642071.9		
Total	28	36162355393			

The table value is equal to 4.2100 whereas the calculated value is equal to 1.11
Interpretation of the table

H₀: There is no significant relationship between the interest rate and Sensex

H₁: There is a significant relationship between the interest rate and Sensex

The table value is more than the calculated value so the null hypothesis is accepted.

Correlation Between interest rate and Nifty, Sensex

Table: 3 Correlation Between Interest rate and Nifty, Sensex	
Correlation between the interest rate and Nifty	-0.213445955
Correlation between the interest rate and Sensex	-0.198786523

Interpretation of Karl Pearson Correlation

The Correlation between the interest rate and the Indian stock market is negatively Moderate.

- Negatively moderate means that the interest rate does not affect Nifty and Sensex.
- The direction of the movement of both the variable is inverse



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Exchange Rate

Dollar and Sensex

Table: 4 ANOVA Table between Dollar and Sensex					
Sources of Variation	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1.00	366380404.02	380807032.43	685.70	0.00
Residual	27.00	14426628.41	534319.57		
Total	28.00	380807032.43			

The table value is equal to 4.2100 whereas the calculated value is equal to 685.70

Interpretation of the table

H0: There is no significant relationship between the dollar and Sensex

H1: There is a significant relationship between the dollar and Sensex

The table value is less than the calculated value so the null hypothesis is rejected. 3.2.2

Dollar and Nifty

Table: 5 ANOVA Table between Dollar and Nifty					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1.00	327488902.03	327488902.03	165.84	0.00
Residual	27.00	53318130.40	1974745.57		
Total	28.00	380807032.43			

The table value is equal to 4.2100 whereas the calculated value is equal to 165.84

Interpretation of the table

H0: There is no significant relationship between the dollar and Nifty

H1: There is a significant relationship between the dollar and Nifty

The table value is less than the calculated value so the null hypothesis is rejected.



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Correlation Between Dollar and Nifty, Sensex

Table: 6 Correlation Between Dollar and Nifty, Sensex	
Correlation between the Dollar and Nifty	0.877604
Correlation between the Dollar and Sensex	0.876914

Interpretation of Karl Pearson Correlation:

- The Correlation between the Dollar and the Indian stock market is Positive and strong.
- The direction of the movement of both variables is the same. 0.877 and .876 3

Pound and Sensex

Table: 7 ANOVA Table between Pound and Sensex					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1.00	2127372976	2127372976	38.57916599	1.21497E-06
Residual	27.00	1488862418	55143052.5		
Total	28.00	361623593			

The table value is equal to 4.2100 whereas the calculated value is equal to 38.57

Interpretation of the table

H0: There is no significant relationship between the Pound and Sensex

H1: There is a significant relationship between the Pound and Sensex

The table value is less than the calculated value so the null hypothesis is rejected.



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Pound and Nifty

Table: 8 ANOVA Table between Pound and Nifty					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1.00	232431970.00	232431970.00	42.30	0.00
Residual	27.00	148375062.43	5495372.68		
Total	28.00	380807032.43			

The table value is equal to 4.2100 whereas the calculated value is equal to 42.30

Interpretation of the table

H0: There is no significant relationship between the Pound and Sensex

H1: There is a significant relationship between the Pound and Sensex

The table value is less than the calculated value so the null hypothesis is rejected

Correlation Between Pound and Nifty, Sensex

Table: 9 Correlation Between Pound and Nifty, Sensex	
Correlation between the Pound and Nifty	0.78126
Correlation between the Pound and Sensex	0.766997

Interpretation of Karl Pearson Correlation:

- The Correlation between the Pound and the Indian stock market is Positive and strong.
- The direction of the movement of both variables is the same.



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Euro and Sensex

Table: 10 ANOVA Table between Euro and Sensex					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1	3054443997	3054443997	146.7982395	1.9906E-12
Residual	27	561791396.1	20807088.74		
Total	28	3616235393			

The table value is equal to 4.2100 whereas the calculated value is equal to 146.79

Interpretation of the table

H0: There is no significant relationship between the Euro and Sensex

H1: There is a significant relationship between the Euro and Sensex

The table value is less than the calculated value so the null hypothesis is rejected

Euro and Nifty

Table: 11 ANOVA Table between Euro and Nifty					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1.00	327488902.03	327488902.03	165.84	0.00
Residual	27.00	53318130.40	1974745.57		
Total	28.00	380807032.43			

The table value is equal to 4.2100 whereas the calculated value is equal to 165.84

Interpretation of the table

H0: There is no significant relationship between the Euro and Sensex

H1: There is a significant relationship between the Euro and Sensex

The table value is less than the calculated value so the null hypothesis is rejected.



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Correlation Between Euro and Nifty, Sensex

Table: 12 Correlation Between Euro and Nifty, Sensex	
Correlation between the Euro and Nifty	0.927354564
Correlation between the Euro and Sensex	0.919047033

Interpretation of Karl Pearson Correlation:

- The Correlation between the Euro and Indian stock market is Positive and strong.
- The direction of the movement of both variables is the same

Inflation

Table: 13 ANOVA Table between Inflation and Nifty					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1	18588942.16	18588942.16	1.385633274	0.249416944
Residual	7	362218090.3	13415484.83		
Total	8	380807032.4			

The table value is equal to 4.2100 whereas the calculated value is equal to 1.385.

Interpretation of the table

H0: There is no significant relationship between Inflation and Nifty

H1: There is a significant relationship between Inflation and Nifty

The table value is less than the calculated value so the null hypothesis is accepted.



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Table: 14 ANOVA Table between Inflation and Sensex					
	Degree of Freedom	Sum of square	Mean Square	F	Significance F
Regression	1	205390216.8	3054443997	1.625853877	0.213140797
Residual	27	3410845177	126327599.1		
Total	28	3616235393			

The table value is equal to 4.2100 whereas the calculated value is equal to 1.625

Interpretation of the table

H0: There is no significant relationship between Inflation and Sensex

H1: There is a significant relationship between Inflation and Sensex

The table value is less than the calculated value so the null hypothesis is accepted.

Correlation Between Inflation and Nifty, Sensex

Table: 15 Correlation Between Inflation and Nifty, Sensex	
Correlation between the Inflation and Nifty	-0.22094026
Correlation between the Inflation and Sensex	-0.23832057

Interpretation of Karl Pearson Correlation

The Correlation between Inflation and the Indian stock market is negative and weak.

The direction of the movement of both the variables is inverse in relation.



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XI Findings

- The relationship between inflation and the stock market is weak and inverse in a relationship whereas its effects are nifty more than Sensex.
- Relationship between the Interest rate and stock market (Nifty, Sensex) and inverse in a relationship whereas its effects Sensex more than nifty.

XII Limitations

Despite the comprehensive nature of this study, several limitations must be acknowledged.

Historical Data Constraints:

The study relies on historical data, which may not fully capture future economic conditions or market dynamics. Historical relationships might change due to evolving economic policies, technological advancements, or structural shifts in the global economy.

Data Granularity:

While the study uses aggregate data for major stock indices, it might overlook sector-specific nuances. Different industries can react differently to interest rate changes based on their capital structure, reliance on external financing, and economic sensitivity.

Time Period and Economic Cycles:

The selected time period may influence the results. The impact of interest rate changes might vary significantly across different economic cycles (e.g., recessions vs. expansions).

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