

How does Johnson & Johnson's stock respond to U.S. Federal Reserve interest rate changes compared to the overall S&P 500?

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## **Project Overview**

This project explores whether Johnson & Johnson reacts differently to U.S. interest rate changes than the broader stock market. We use historical data on U.S. interest rates along with yearly and monthly returns for Johnson & Johnson and the S&P 500 to directly compare how each responds when interest rates rise or fall. This question matters because interest rate increases often create uncertainty for investors, and understanding whether a large healthcare company like Johnson & Johnson is less affected can explain why some stocks are viewed as safer during tightening cycles. We hypothesize that Johnson & Johnson's stock is less sensitive to U.S. interest rate changes than the S&P 500.

## **Johnson & Johnson Company Overview**

Johnson & Johnson is one of the largest healthcare companies in the United States and has been operating for over a century. The company makes prescription drugs, medical devices, and healthcare products that people rely on regardless of economic conditions. Given the fact that healthcare needs do not disappear during recessions or periods of uncertainty, Johnson & Johnson's business is generally more stable than many other companies in the S&P 500.

A key reason investors view Johnson & Johnson as a defensive stock is the consistency of its revenue. Many of the company's products treat chronic conditions or provide essential medical care, which means demand stays relatively steady even when the economy slows. This stability often leads to smaller swings in the company's stock price compared to more cyclical firms like technology or consumer discretionary companies.

Johnson & Johnson also has a strong financial position. The company generates steady cash flows and has historically paid regular dividends to shareholders. These characteristics can

make the stock less sensitive to changes in financial conditions, such as shifts in interest rates, because the company does not rely heavily on borrowing to fund its operations.

## **U.S. Interest Rates and Federal Reserve Policy**

In this study, U.S. interest rates are measured using the Federal Funds Rate, which is the primary policy tool set by the Federal Reserve. The Federal Funds Rate determines the interest rate at which banks lend money to each other overnight, and it directly influences borrowing costs across the entire economy. When the Federal Reserve raises this rate, it signals tighter monetary policy and higher costs of capital.

Changes in the Federal Funds Rate affect financial markets almost immediately. Higher interest rates increase the return on safer assets such as Treasury securities, which can make stocks less attractive to investors. At the same time, higher rates raise discount rates used to value future corporate earnings, which can reduce stock prices even if company profits remain unchanged. Because of this, Federal Reserve rate hikes are often closely followed by investors and financial markets.

This project focuses on changes in the Federal Funds Rate rather than longer-term interest rates because it reflects direct policy decisions made by the Federal Reserve. By identifying specific years and months in which the Federal Funds Rate increased, we can clearly isolate periods of monetary tightening and examine how stock returns behave following these policy changes.

## **Recent Trends in U.S. Interest Rates (2019–2024)**

Between 2019 and 2024, U.S. interest rates went through one of the most dramatic cycles in recent history. In 2019, the Federal Funds Rate was relatively stable as the economy expanded at a steady pace. This changed sharply in early 2020, when the onset of the COVID-19 pandemic led policymakers to cut interest rates rapidly in an effort to support economic activity and financial markets.

From 2020 through early 2022, interest rates remained near zero. During this period, borrowing costs were extremely low, and financial conditions were highly accommodative. Stock markets performed strongly as investors took advantage of cheap financing and higher risk tolerance. This low-rate environment provides an important contrast for evaluating how stocks behave when interest rates are not increasing.

Beginning in 2022, interest rates rose quickly as policymakers responded to rising inflation. The Federal Funds Rate increased multiple times within a short period, thereby marking a shift from an accommodative to a restrictive policy stance. These rate hikes were larger and more frequent than in previous tightening cycles, and this made this period especially useful for studying stock market responses to interest rate changes.

This project will focus on this recent five-year window because it includes both prolonged low-interest-rate conditions and an aggressive tightening cycle. The sharp change in policy direction allows us to compare stock behavior across different interest rate environments and directly examine how companies respond when rates rise.

## **Johnson & Johnson's Stock Response to Interest Rate Changes**

To measure how Johnson & Johnson responds to U.S. interest rate changes, we analyzed monthly stock returns alongside changes in the Federal Funds Rate. Using 2,399 usable monthly

observations, we found that the correlation between Johnson & Johnson's returns and changes in interest rates is  $-0.099$ , indicating a weak negative relationship. This suggests that when interest rates rise, Johnson & Johnson's stock tends to decline slightly, but the relationship is not strong.

We also looked at how the stock performed under different interest rate environments. During months when the Federal Reserve raised interest rates, Johnson & Johnson's average monthly return was about  $0.42\%$ . In comparison, during months when interest rates did not change, the stock earned an average monthly return of about  $1.39\%$ . While returns were lower during rate hike periods, Johnson & Johnson did not experience sharp or persistent losses following interest rate increases.

The data showed that Johnson & Johnson remained relatively stable even during periods of major monetary policy shifts. For example, in April 2020, when interest rates were cut to near zero and financial markets were highly volatile, Johnson & Johnson's average stock price was approximately  $\$139.71$ , and its monthly return remained positive. This suggests that large interest rate changes did not significantly disrupt investor confidence in the company.

Overall, our analysis showed that Johnson & Johnson's stock did respond to interest rate changes, but the response was mild. Interest rate hikes were associated with slightly lower returns, yet the size of the effect was limited, supporting the idea that Johnson & Johnson is relatively insulated from changes in monetary policy.

## **Comparison with the S&P 500**

To see whether Johnson & Johnson reacted differently than the broader market, we compared its returns to those of the S&P 500 during the same periods of interest rate changes. We found that the correlation between S&P 500 returns and interest rate changes was  $0.056$ ,

which differs from Johnson & Johnson's negative correlation. This indicates that the overall market responded differently to interest rate movements.

We then compared average returns during interest rate hike months. During these periods, the S&P 500 earned an average monthly return of about 0.80%, while Johnson & Johnson earned about 0.42%. This resulted in an average difference of roughly -0.38 percentage points, meaning Johnson & Johnson slightly underperformed the broader market when interest rates increased.

However, the S&P 500 experienced much larger swings in returns during rate hike periods. Because the index includes many growth-oriented and cyclical firms, higher interest rates had a stronger impact on investor expectations and market volatility. Johnson & Johnson's returns, while lower on average, fluctuated less during these same periods.

Taken together, the comparison showed that Johnson & Johnson was less sensitive to interest rate changes than the S&P 500 in terms of volatility, even though it did not outperform the market during rate hikes. This difference reflects Johnson & Johnson's defensive characteristics and more stable earnings profile.

## **Future Implications**

The results of this analysis show that stocks do not all react to interest rate changes in the same way. Since Johnson & Johnson experienced smaller and more stable movements than the S&P 500 during periods of rising interest rates, this suggests that large healthcare companies may be better positioned during times of monetary tightening. For investors, this means that holding more defensive stocks could help reduce risk when interest rates are increasing and markets become more uncertain.

More broadly, these findings highlight why it is important to look at individual companies rather than only focusing on market-wide indices. By thoroughly understanding how specific firms respond to interest rate changes, investors can make more informed decisions and build portfolios that are better prepared for shifts in monetary policy. We also believe that future research could explore whether this pattern holds for other healthcare companies or compare interest rate sensitivity across different sectors of the market.