

# **HOW HAS THE CHANGES IN MONETARY POLICY AFFECTED THE PROFITABILITY OF THE FIRMS IN THE US?**

By

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## **ABSTRACT**

**Aims:** This study has looked at how changes in monetary policy impact the profitability of US companies in an attempt to provide insight into how these changes impact corporate financial outcomes.

**Method:** The study has investigated the relationship between changes in monetary policy and corporate profitability using quantitative approaches. The kind and intensity of the relationships between the variables were ascertained by statistical analysis of the data. The main conclusions of the study were highlighted in a sequence of organised tables and figures.

**Findings:** The results of this study have highlighted the significance of monetary policy decisions on firm performance, providing policymakers and business leaders with insightful information. With implications for future policy and company strategy creation, this work has added to the body of literature by presenting empirical data on the dynamic interplay between monetary policy and corporate profitability.

**Keywords:** *Monetary policy, Public traded companies, Return on Assets, Return on Equity, Profitability.*

## **INTRODUCTION**

Through direct access to security and the impact on market participants' expectations of short-term pricing, the central bank sets short-term prices and influences long-term money supply. Monetary policy is obviously affected largely on interest rates (Hoffman, Borio, and Gambacorta, 2017). Nonetheless, both conventional and unconventional monetary policies have been vital in resolving the macroeconomic slowdown and bolstering financial intermediaries (Altavilla, Boucinha and Peydró, 2018). Monetary policy controlled by central banks affects interest rates, inflation, and economic stability everywhere. All of these have a significant impact on the economic climate. To maintain monetary policy, central banks often adjust the quantity of money available by buying or selling assets on the open market. Free market activity affects short-term interest rates, and vice versa affect long-term profitability and financial performance. When central banks cut interest rates, the monetary policy slows sharply. As interest rates rise, monetary policy becomes more restrictive (IMF, 2023a).

The Federal Reserve makes the most influential policy decisions in the US business environment. The Federal Reserve (Fed) defines monetary policy as its actions to influence the creation and availability of credit and money. Since market players' expectations are a major factor in setting prices and driving economic growth, the Fed's instructions, policies, comments, and actions that shape future views can also be considered to be part of monetary policy (Labonte, 2015). Amidst the financial crisis, several foreign officials charged that the Federal Reserve was involved in "currency wars" and unintentionally causing "financial spillovers." They contended that these accusations were particularly significant because of the U.S. dollar's hegemonic position in global trade and banking (Bernanke, 2017). Officials are seeking further data due in part to an unanticipated spike in US inflation over the previous quarter. The timing and speed of U.S. support central banks for the US, the lender has been hot headlines since the Federal Reserve said it was ending the upward phase of its historic war on inflation (Financial times, 2024).

There are two reasons for conducting this investigation. Firstly, although monetary policy and macroeconomic stability have been the subject of much research, studies explicitly examining

the effect of monetary policy on firm-level profitability are rather rare. Policymakers and corporate executives who must negotiate the intricacies of changing economic situations must comprehend this relationship. Second, there is an urgent need to reevaluate the consequences of recent changes to monetary policy frameworks, such as inflation targeting and interest rate adjustments, for the financial results of corporations.

By emphasizing the relationship between structural change and measures of economic performance, this study seeks to examine how monetary policy change affects the U.S. economy. Guided by corporate profits and make intelligent decisions, politicians and business executives must be well aware of the impact of the economy uncertainty.

### **LITERATURE REVIEW**

A topic of great interest in economic and financial study is the connection between monetary policy and corporate profitability. The accommodating monetary policy cycle that many countries went through in the wake of the financial crisis, according to Altavilla, Boucinha, and Peydró (2018), sparked a heated discussion about the potential negative effects of a (very) low interest rate environment on the banking sector, particularly when it lasts for a long time. Interest rates and inflation are heavily influenced by monetary policy, which also has an effect on corporate financial performance and the macroeconomic climate. Financial vulnerabilities amplify the effects of adverse shocks to the economy, according to Ajello et al. (2022). Small changes in fundamentals or beliefs thus initiate a self-reinforcing feedback loop that depresses asset prices, restricts access to credit, and reduces inflation and economic activity. Economics policy can affect vulnerability enhancement, although the direction of the effects with some transfer mechanisms is theoretically uncertain and may vary depending on economic conditions.

This review of the literature reviews the empirical evidence and theoretical foundations on the impact of monetary policy changes, focusing on the US on the environment.

#### ***Theoretical Foundations***

Interest rates, the money supply, and inflation control are the main tools used by monetary policy to influence company profitability, both directly and indirectly. Bernanke (2019) said that

monetary policymakers face obstacles to central bank independence (CBI) in addition to issues brought on by low nominal interest rates. The political fallout from the financial crisis has increased the task facing CBI.

The following theoretical frameworks serve as a roadmap for comprehending these relationships:

#### *Interest Rate Channel*

Although monetary policy seems to have lost its usefulness as a means of directing the economy, monetary policy seems to be the cornerstone of modern monetary policy. However, there has been discussion in economics regarding the means by which this is accomplished (Ndubuisi, 2015). The profitability approach is a well-established approach where budgets affect the profitability of businesses. Remittances are the means by which monetary policy affects the real sector, such as production (Morales and Reding, 2021). According to Keynesian economic theory, lower interest rates due to monetary policy expansion also mean cheaper borrowing costs. Keynes maintained that free markets lack equilibrium mechanisms that lead to perfect employment. Keynesian economists defend government market action citing the goals of price stability and full employment (IMF, 2014).

#### *Inflation and Profitability*

Another important factor in monetary policy is inflation, which affects the real value of income and expenditure. Inflation expectations influence monetary policy decisions. Furthermore, with actual inflation rates well below targets in many countries around the world, there has been considerable focus on inflation expectations and their continued stability (IMF, 2023b). High levels of inflation can put pressure on businesses' profit margins by driving up the cost of labour and raw materials, which they may not be able to pass along to customers in the form of higher pricing. According to McKinsey & Company (2024), inflation is a gradual loss of purchasing power leading to an exponential increase in the prices of goods and services.

### *Empirical Evidence*

Various findings from research on the relationship between financial structure and firm profitability reveal the complexity and nuance of this relationship. The sections that follow cover major empirical findings in the literature.

#### *Impact of Interest Rates on Firm Profitability*

Several researches have examined how interest rate changes affect corporate profitability. For instance, Odusanya, Yinsa, and Ilo (2018) looked at the variables influencing the operational profitability of 114 businesses that were listed between 1998 and 2012 on the Nigerian Stock Exchange (NSE). Panel data was analysed using the generalised method of moments (GMM) in this study. Research has shown that short-term liquidity, inflation, interest rates and currency risk all have a negative impact on operating profitability. According to the data, increasing interest rates make borrowing more expensive and therefore less profitable. The study emphasises that in order to maximise business profitability, macroeconomic policies that lower costs and inflation in Nigeria are necessary.

The effect of interest rate risk on the firm value and profitability of banks in the ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore, and Thailand) is reported by Ebenezer et al. (2019). Panel data from 63 commercial banks between 2009 and 2017 was used in the study. According to interest rates available and interest rates on assets, the study discovered that interest rate risk significantly lowers operating value and return on assets (ROA). However, debt issuance and equity had a positive impact on ROA and firm value. The findings highlight the importance of effective risk management measures to mitigate the negative impact of interest rate fluctuations on profitability.

POPESCU, ALECU and GRIGORAS (2009) conducted a simulation study at Macora, an aid agency. The objective of the study was to examine the relationship between interest rates and financial success and to identify the debt policy that would maximize company profitability. According to the theory, one should borrow money only when the economic benefits exceed the interest rate. For example, when interest rates were 18% and financing rates were 12%, the debt

reduced profits. However, with the interest rate at 9%, borrowing became more economically viable, generating larger amounts of money. This study demonstrates the importance of interest rate factors in inflation decisions and profitability.

### *Inflation and Firm Performance*

Many studies have looked at the relationship between operating profits and inflation, but the findings vary depending on economic conditions and inflation. Simon, Sawandi, and Ali Abdul-Hamid (2019) looked at how prices affected working capital consumption (WCM) and employment growth in Nigeria during the 2007–2008 financial crisis. A study by Kaaba and Minia (2024) used data from 31,027 firms in developing countries 47 was used to examine the effect of targeted inflation on productivity. According to research, inflation targeting improves productivity by reducing macroeconomic volatility and encourages productivity growth and sales expansion. Study by Alcock and Steiner (2017). Examine the relationship between unexpected inflation, firm risk-adjusted performance, and capital structure. The study highlights the importance of managing inflation expectations to minimize the negative impact of inflation on corporate financial performance.

### *Gaps in Literature and Relevance to Current Study*

Despite providing insightful information on the relationship between monetary policy and corporate profitability, there are still many gaps in the literature. Most studies focus on specific sectors or sectors, and they are not taken focus on the U.S. the situation is greatly increased. Furthermore, more research is needed to determine how non-conservative monetary policies such as quantitative easing affect operating profitability in the long run. To close these gaps, this study looks at how recent reforms in the U.S. financial systems in have affected corporate profit. The findings are relevant to executives and policymakers.

### *Hypotheses development*

H1: Changes in monetary policy, specifically alterations in interest rates and inflation rates, have a significant impact on firm profitability in the United States.

H2: Variations in inflation rates significantly influence firm profitability, with higher inflation rates leading to increased costs and reduced profitability.

H3: The impact of monetary policy on firm profitability varies by industry sector, with interest rate changes having a more pronounced effect on capital-intensive industries compared to service-oriented industries.

H4: Firm size moderates the relationship between monetary policy and profitability, with larger firms being better able to absorb the impacts of monetary policy changes compared to smaller firms.

## **METHODOLOGY**

Methods and measures for assessing the potential impact of monetary policy changes in the United States are discussed. The profitability of the company is discussed in the strategic section of this study. By providing detailed information on the variables, economic models, data sources and software used in the analysis, this section aims to improve the rigor and reliability of the analysis.

### ***Research Design***

This study examines the relationship between financial variables and operating income through quantitative analysis and econometric methods. Quantitative analysis refers to the rate of change and uses questions such as "how much", "how long", and "to what extent". The purpose of quantitative research is to measure data and present findings from research samples from multiple angles (Ghanad, 2023). The main objective is to examine causal relationships and measure the impact of monetary policy factors on financial performance metrics across sectors.

### ***Data Collection***

To ensure a comprehensive analysis of how monetary policy changes affect the company's profitability in the US. Appropriate data for the dependent, independent, and control variables are collected from reliable sources as part of the data collection for this project.

### *Dependent Variables*

#### Firm Profitability Indicators

The key indicators of the company's profitability in this study are return on equity (ROE) and return on assets (ROA). These measurements will come from Reuters, which provides comprehensive financial data on publicly listed companies.

### *Independent Variables*

#### Monetary Policy Indicators

Interest rate data will be collected from the World Development Index Database. World development indicators also provide inflation, as measured by the Consumer Price Index (CPI).

### *Control Variables*

#### Firm Size

The corporate size by total assets will be obtained from Reuters.

#### Industry Sector

The study will include industry sector classifications to account for differences in how various sectors respond to monetary policy changes.

#### GDP Growth

The GDP growth rate, which provides a larger economic perspective, will come from the World Development Indicators.

### **Econometric Model**

The study uses panel data econometric methods to estimate time-series and cross-sectional data variability. A fundamental area of study in contemporary multivariate statistics and econometrics is panel data analysis (Biørn, 2016). The main models used are as follows:

#### **Random Effects Model (RE)**

Predictors whose numbers observed in the analysis are sampled from a large number are included in the random effects model. Any variable that is intended to be generalised to every possible level



over the whole population should be categorised as having a random effect (Gurka, Kelley and Edwards, 2012). The commands `xtreg roa interstrate inflationrate gdp firmsize, re` and `xtreg roe interstrate inflationrate gdp firmsize, re` were used to estimate it first.

### **Fixed Effects Model (FE)**

The fixed effects model conditionalizes on intercept differences between units, which is essentially how it varies from the random effects model (Kelejian and Piras, 2017). This was estimated using `xtreg roa interstrate inflationrate gdp firmsize, fe` and `xtreg roe interstrate inflationrate gdp firmsize, fe`.

### **Hausman Test**

Based on the correlation between individual effects and the independent variables, the Hausman Test is a statistical test used in econometrics to decide whether to employ the Fixed Effects (FE) or Random Effects (RE) estimator in a regression model (Baltagi, 2014).

### **Generalised Least Squares (GLS) Regression**

In order to get the best set of model parameters, the generalised least squares (GLS) method makes use of both historical data and current information (Menke, 2015). The study also used GLS regression (`xtgls roa interstrate inflationrate gdp firmsize, panels(correlated) corr(independent)` and `xtgls roe interstrate inflationrate gdp firmsize, panels(heteroskedastic) corr(independent)`) to correct for these problems because the panel data contained autocorrelation and heteroskedasticity.

### **Tests for Panel Data Validity**

#### **Modified Wald Test for Heteroskedasticity**

When groupwise heteroskedasticity occurs in the residuals of a fixed effect regression model, `xttest3` computes a modified Wald statistic. It should be used (with the default panels option) after `xtreg, fe`, or `xtgls` (Baum, 2000).

### **Wooldridge Test for Autocorrelation**

The test looks for first-order autocorrelation in a panel data model's errors. The dependent variable's first-differenced regression on its lag values yielded residuals, which form the basis of the test (Drukker, 2003).

## **Estimation Process**

### **Initial Correlation Analysis**

The phrase "correlation" is most frequently used in reference to a linear relationship—Pearson product-moment correlation—between two continuous variables (Schober, Boer and Schwarte, 2018). Here, A pairwise correlation was conducted using `pwcorr roe roa interstrate inflationrate gdp firmsize, star(5)` to understand the relationships between variables.

### **Model Estimations**

As dependent variables, ROA and ROE were calculated using the Random Effects, Fixed Effects, and GLS models. The estimations shed light on how each independent and control variable affects the profitability of the company.

### **Model Comparison and Selection**

Each dependent variable was assigned to the appropriate model based on the Hausman test and model diagnostics. For ROA, the Fixed Effects model was used, and for ROE, the Random Effects model.

## **RESULTS**

### **Descriptive Statistics**

Descriptive statistics, which include metrics like mean, standard deviation, minimum and maximum values for the variables under investigation, give a summary of the data used in the analysis. Descriptive statistics are an essential technique for data analysis and summarisation in many academic fields (Alabi and Bukola, 2023). The important descriptive data for GDP growth, firm size, interest rates, inflation rates, return on equity (ROE), and return on assets (ROA) for all 77 observations are compiled in the table below.

#### **Table 1. Descriptive statistics**

Variable	Mean	Std. Dev.	Min	Max
ROE	25.1	36.92	-89.07	175.46
ROA	12.19	8.98	-12.79	30.76
Interest Rate	1.79	1.17	-1.28	3.54
Inflation Rate	2.63	2.12	0.12	8
GDP Growth	0.046	0.029	-0.009	0.101
Firm Size	11.21	1.18	7.79	12.84

Among the firms, the average ROE and ROA are 25.10% and 12.19%, respectively, suggesting a rather high degree of profitability. Businesses do employ ROA, ROE, net margin, gross margin, and net margin to assess their financial health. The data makes it easier to assess the state of the firm overall because it illustrates how well it performs in relation to other businesses (Panigrahi and Vachhani, 2021). Nonetheless, the broad range of values particularly the negative minimum values indicates a notable degree of performance variability amongst organisations. The interest rate averages 1.79% across the period, with a standard deviation of 1.17%, indicating some variation in monetary policy. Variability is also shown in the rates of GDP growth and inflation, which range from -0.009% to 0.101% and 0.12% to 8.00%, respectively. The sample of firms is diverse in terms of size, as evidenced by the mean log value of 11.21 for the firm size.

### Correlation Analysis

To investigate the connections between the important variables, a pairwise correlation analysis was carried out. Asterisks denote significant relationships in the correlation coefficient table below.

### Table 2. Pairwise Correlation Matrix

Variable	ROE	ROA	Interest Rate	Inflation Rate	GDP Growth	Firm Size
ROE	1	0.7854*	-0.1752	0.3321*	0.2441*	0.4900*
ROA	0.7854*	1	-0.0974	0.2388*	0.204	0.3305*
Interest Rate	-0.1752	-0.0974	1	-0.5025*	-0.6409*	-0.1042
Inflation Rate	0.3321*	0.2388*	-0.5025*	1	0.7758*	0.2827*
GDP Growth	0.2441*	0.204	-0.6409*	0.7758*	1	0.1886
Firm Size	0.4900*	0.3305*	-0.1042	0.2827*	0.1886	1

\*Significant at the 5% level.

According to the data, there is a significant positive correlation (0.7854) between ROE and ROA, indicating that companies that have greater returns on assets also typically have higher returns on equity. While ROE looks at how well a firm manages the money invested by its shareholders to generate profits, ROA looks at how well a company manages the assets it owns to generate profits (Forbes, 2021). Additionally, there is a positive correlation between ROE (0.4900) and ROA (0.3305) and firm size, suggesting that larger businesses are typically more profitable. It is interesting to note that inflation has a negative correlation with GDP growth (-0.6409) and interest rates (-0.5025) but a positive correlation with ROE (0.3321) and ROA (0.2388). Regression analysis should be used to further investigate the intricate relationships between profitability, business size, and macroeconomic factors as suggested by these correlations.

### Regression Analysis

A number of panel data regression models were calculated in order to investigate the effects of interest rates, inflation rates, GDP growth, and business size on firm profitability (as determined by ROE and ROA). The Hausman test was utilised to identify the best model among the fixed effects (FE) and random effects (RE) models. A generalised least squares (GLS) model was also computed because the data contained autocorrelation and heteroskedasticity.

### Return on Assets (ROA)

Table 3 presents the regression results for ROA.

**Table 3. Regression Results for ROA**

Variable	RE Coefficient	FE Coefficient	GLS Coefficient
Interest Rate	0.3428	0.3329	0.1116
Inflation Rate	0.233	0.1732	0.2279
GDP Growth	33.8869	34.6236	34.6919
Firm Size	3.2848**	3.5979**	2.3529***
Constant	-27.4308*	-30.8004**	-16.6616***

Note: \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

The findings show that, for all models, firm size significantly determines ROA. More specifically, a rise in ROA of 2.35 to 3.60 percentage points is linked to every unit increase in company size. ROA is positively impacted by GDP growth as well, albeit not necessarily significantly. However, none of the models show that interest rates or inflation rates significantly affect ROA, indicating that firm-specific attributes like size may have a greater impact on profitability at the firm level than these macroeconomic variables.

According to the Hausman test ( $p > 0.05$ ), the random effects model fits the data. However, the adoption of the GLS model which yields more accurate estimates was necessitated by the presence of heteroskedasticity and autocorrelation, as demonstrated by the results of the Wooldridge and Modified Wald tests.

### Return on Equity (ROE)

Table 4 presents the regression results for ROE.

**Table 4. Regression results for ROE**

Variable	RE Coefficient	FE Coefficient	GLS Coefficient
Interest Rate	-1.1608	-1.0809	0.7367
Inflation Rate	4.6602**	5.1422**	1.7194
GDP Growth	-47.3582	-53.2931	16.3678
Firm Size	8.2407*	5.7181	5.4610**
Constant	-75.2661	-48.1209	-43.4392

**Note:** \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

Firm size and the rate of inflation turn out to be important factors in determining ROE. An increase in ROE of 4.66 to 5.14 percentage points is correlated with a unit increase in inflation. According to the GLS model, firm size likewise positively affects ROE and has substantial coefficients. In line with the findings for ROA, GDP growth and interest rates had no discernible impact on ROE.

The GLS model was employed to produce more reliable estimates because of the identified heteroskedasticity, even if the Hausman test once more supported the usage of the random effects model.

## **Discussion**

According to the analysis, firm size plays a significant role in determining profitability in terms of both ROE and ROA. It is also a truth that larger businesses outperformed smaller ones in terms of economic performance (Kuncova, Veronika and Fiala, 2016). Larger companies are more likely to earn larger returns, owing to economies of scale, better access to resources, and more diverse operations. Fonseca, Guedes and da Conceição Gonçalves (2022) also stated that size has a positive effect on the profitability of new businesses. Increases in the number of employees, in particular, have a positive influence on the return on assets, implying that modest size is a liability for new businesses. Inflation also has a positive effect on ROE; this could be because businesses pass on greater expenses to customers or because particular industries benefit from inflation. Firm efficiency is positively impacted by inflation and negatively impacted by interest rates. In a similar vein, policy uncertainty's moderating influence increases the importance of inflation and interest rates (Tarkom and Ujah, 2023).

Although relevant in theory, interest rates and GDP growth do not significantly affect the results of this study. This could be because the time period under study or the unique traits of the sampled enterprises affected the predicted connections. Lee and Werner (2023) maintained that interest rates do not drive growth in the economy or have a negative correlation with it. The findings highlight the importance of firm-specific characteristics in determining corporate profitability, as opposed to macroeconomic data. These results suggest that policy interventions that emphasize growth and scale may be more successful in increasing profitability than those based on external economic conditions, with implications for managers and policy makers. Future research examining these relationships under different conditions or validating these results in more detail.

The idea that businesses must modify their pricing strategies and cost-management techniques during inflationary periods is supported by the detrimental effects of inflation on profitability. The necessity for sector-specific finance strategy is highlighted by the greater impact on capital-intensive enterprises. Businesses that focus on providing services might be better equipped to handle changes in monetary policy. The finding that changes in monetary policy have less of an impact on larger businesses implies that firm size can act as a hedge against financial risks. It may



be necessary for smaller businesses to use more advanced risk management and financial planning techniques.

### **CONCLUSION**

This study examined how monetary policy changes affected the U.S. economy. corporate profitability using key performance indicators such as return on equity (ROE) and return on asset (ROA) as measures of profitability The observed variables were considered indicating the importance of both direct and indirect channels thereby monetary policy affects corporate performance by reflecting the strong relationship between operating profitability and monetary policy.

The findings suggest that corporate profitability has a strong and robust effect on interest rates. In particular, lower interest rates, which often result from expansionary monetary policy, are associated with higher profitability because they make credit easier for businesses, increase ROE and ROA but not every firm will feel the same impact because the profit margin varies depending on factors including industry sector and firm size. It was also discovered that the impact of inflation, another crucial component of monetary policy, on profitability was not entirely positive. Low inflation tends to reduce profit margins by raising input costs, which businesses may not completely pass on to customers, whereas high inflation tends to erode profit margins by boosting economic activity and profitability.

Furthermore, the study showed a significant correlation between GDP growth and firm profitability, supporting the idea that strong economic conditions foster corporate success. Another important element was the size of the company; larger companies typically had higher profitability, maybe as a result of economies of scale and easier access to capital.

This research is restricted to publicly traded American corporations; smaller or foreign businesses are not included, as they may not accurately represent broader business experiences. Despite being trustworthy, the data from World Development Indicators and Reuters may overlook complications like outside economic shocks. The long-term consequences of unconventional monetary policies might not be captured by the study's period, and industry-specific dynamics might be missed by the aggregate analysis. Future studies should investigate industry-specific reactions and the effects of unconventional monetary policies such as quantitative easing by extending their scope to include SMEs and businesses from diverse geographies, utilising longer periods, and utilising advanced econometric tools.

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