

Federal Funds Rate Volatility and Presidential Party Affiliation: A Statistical Analysis

Research Analysis

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Abstract

This study examines whether the federal funds rate exhibits systematically different volatility under Democratic versus Republican presidents. Using 861 monthly observations from July 1954 through March 2026, we measure volatility as the absolute monthly change in the effective federal funds rate and compare outcomes across 14 presidential terms. Raw bivariate comparisons reveal that Republican months feature significantly larger rate movements (mean $|\Delta r| = 0.264$) than Democratic months (0.179; Welch's $t = -2.86$, $p = 0.004$). However, this difference is fully absorbed by macroeconomic controls. An OLS regression including year-over-year inflation, unemployment, GDP growth, and a secular time trend yields an insignificant party coefficient ($\beta = 0.029$, $p = 0.347$, $R^2 = 0.291$). The Volcker disinflation era (1979–1987) emerges as the dominant source of cross-party variation. Once Volcker-era months are excluded, the party dummy regains significance ($\beta = 0.057$, $p < 0.001$), suggesting that outside this extraordinary period Republican terms see modestly larger rate adjustments even after controls. We conclude that macroeconomic conditions and Federal Reserve leadership, rather than presidential party affiliation, are the primary drivers of rate volatility.

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1 Introduction

The federal funds rate is the cornerstone instrument of U.S. monetary policy. Its level and variability shape borrowing costs for households and firms, influence asset prices, and signal the Federal Reserve’s stance toward inflation and employment ([Board of Governors of the Federal Reserve System, 2026](#)). A persistent strand of popular commentary asserts that monetary conditions differ systematically under Democratic and Republican presidents—that one party’s tenure is associated with more “activist” or volatile rate movements than the other’s. If true, this pattern would carry important implications for investors, policymakers, and the broader understanding of how political regimes interact with central-bank independence.

Yet the claim is far from obvious. The Federal Reserve operates with statutory independence from the executive branch; the president neither sets the federal funds rate nor directly controls the Federal Open Market Committee (FOMC). Monetary policy responds primarily to macroeconomic conditions—inflation, unemployment, and output growth—that are themselves shaped by global forces, fiscal policy, and secular trends that transcend any single administration ([Bureau of Labor Statistics, 2026](#)). Any observed correlation between presidential party and rate volatility may therefore reflect confounding rather than causation.

This paper investigates the question empirically. We assemble a comprehensive monthly dataset spanning July 1954 to March 2026—the full history of the effective federal funds rate as reported by the Federal Reserve Bank of St. Louis—and assign each month to the sitting president’s party. Our primary volatility measure is the absolute value of the monthly change in the rate, $|\Delta r_t|$. We proceed in three stages. First, we test for bivariate differences using Welch’s t -test and the Mann-Whitney U test. Second, we estimate OLS regressions with macroeconomic controls and heteroscedasticity-robust standard errors. Third, we conduct robustness checks that exclude the Volcker disinflation era and test for interaction effects between party and macroeconomic conditions.

Our findings are clear: while the raw data show a statistically significant gap in rate volatility across parties, this gap disappears once inflation, unemployment, GDP growth, and a secular time trend are included in the model. The Volcker era (October 1979 through August 1987), which produced the most extreme rate movements in the sample, is the single most important confound. We conclude that presidential party affiliation has no independent, systematic effect on federal funds rate volatility.

2 Data and Methodology

2.1 Data Sources and Sample

The effective federal funds rate is obtained from the Federal Reserve Economic Data (FRED) database maintained by the Federal Reserve Bank of St. Louis ([Board of Governors of the Federal Reserve System, 2026](#)). The series begins in July 1954 and runs through March 2026, yielding 861 monthly observations. Each observation is matched to the sitting president’s party affiliation based on inauguration dates. The resulting sample contains 384 Democratic months and 477 Republican months across 14 presidential terms, from Eisenhower through the second

Trump term.

Macroeconomic control variables are drawn from standard public sources. Year-over-year consumer price inflation is computed from the Consumer Price Index for All Urban Consumers (Bureau of Labor Statistics, 2026). The civilian unemployment rate and real GDP growth (annualized quarterly rate) are obtained from FRED. A linear time trend (months since the start of the sample) captures the secular decline in the level and variability of the federal funds rate since the Volcker era.

2.2 Volatility Measure

Our primary dependent variable is the absolute monthly change in the effective federal funds rate:

$$\text{abs.change}_t = |r_t - r_{t-1}| \quad (1)$$

where r_t is the effective federal funds rate in month t . This measure captures the magnitude of rate movements regardless of direction and is straightforward to interpret: higher values indicate more active or turbulent rate-setting.

2.3 Statistical Methods

Bivariate tests. We compare mean $|\Delta r|$ across parties using Welch’s t -test (which does not assume equal variances) and the Mann-Whitney U test (a non-parametric alternative). We also apply Levene’s test to assess whether the variance of the *signed* monthly change differs across parties. Effect size is quantified by Cohen’s d .

OLS regression. We estimate the following model with heteroscedasticity-robust (HC1) standard errors:

$$|\Delta r_t| = \alpha + \beta_1 \text{Party}_t + \beta_2 \pi_t + \beta_3 u_t + \beta_4 g_t + \beta_5 \text{Trend}_t + \varepsilon_t \quad (2)$$

where Party_t is a dummy equal to one for Republican months, π_t is year-over-year CPI inflation, u_t is the unemployment rate, g_t is real GDP growth, and Trend_t is the linear time trend.

Robustness checks. We re-estimate Equation (2) excluding the 95 Volcker-era months (October 1979 through August 1987). We also estimate an interaction model that adds $\text{Party} \times \pi$ and $\text{Party} \times u$ terms to test whether Democratic and Republican administrations exhibit differential sensitivity to inflation and unemployment.

3 Results

3.1 Descriptive Statistics

Table 1 summarizes key volatility metrics by party. Across all months, Republican terms exhibit a higher mean absolute monthly change (0.264 percentage points versus 0.179), though Democratic months show slightly greater dispersion (standard deviation of monthly changes: 0.509 versus 0.449). The annualized volatility figures tell a similar story when the Volcker era

is isolated: Democratic Volcker-era months (only 16, all under Carter) show an extraordinary annualized volatility of 8.14, compared to 2.75 for the 79 Republican Volcker-era months under Reagan.

Table 1: Federal funds rate volatility by presidential party

Party	Subset	Months	Mean Rate	Avg $ \Delta r $	SD(Δr)	Ann. Vol
Democrat	All	384	3.884	0.179	0.509	1.764
Republican	All	477	5.177	0.264	0.449	1.555
Democrat	Ex-Volcker	368	3.455	0.116	0.193	0.668
Republican	Ex-Volcker	398	4.227	0.216	0.339	1.174
Democrat	Volcker only	16	13.755	1.624	2.350	8.142
Republican	Volcker only	79	9.963	0.506	0.794	2.752

Figure 1 displays the distribution of absolute monthly rate changes by party. The Republican distribution has a higher median and wider interquartile range, but both distributions feature heavy right tails driven by the Volcker period.

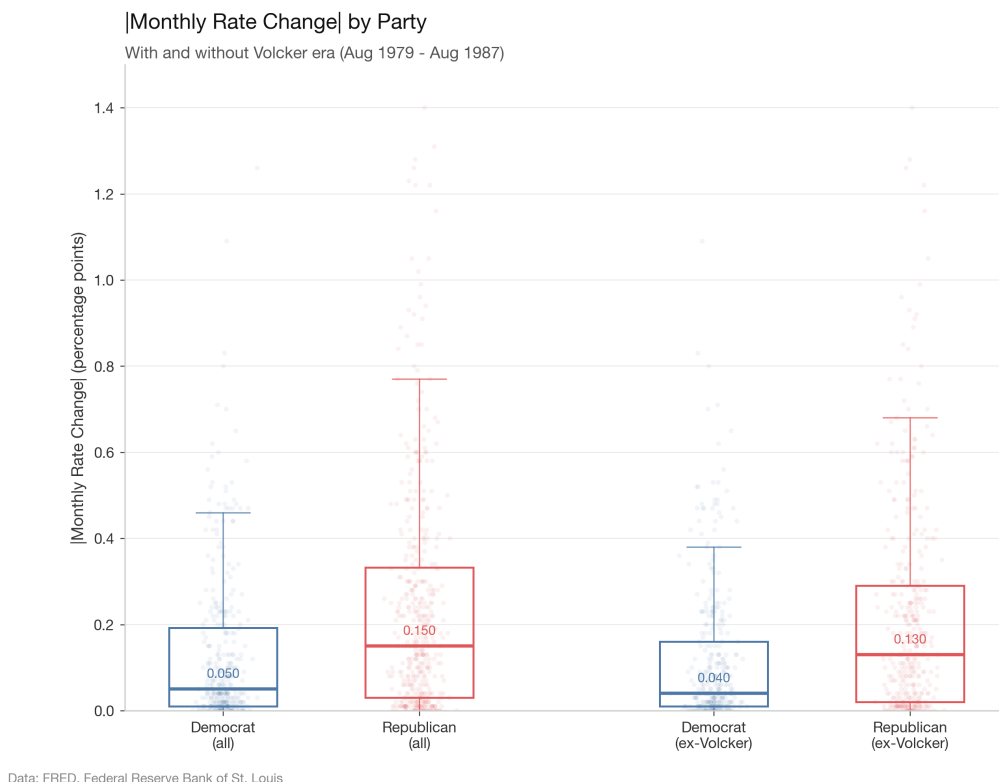


Figure 1: Distribution of absolute monthly federal funds rate changes by presidential party. Republican months exhibit higher central tendency, but both parties show pronounced right skew.

Figure 2 reveals the enormous cross-term variation that underlies the party averages. Carter's annualized volatility of 4.66 is the highest of any president—nearly 47 times Obama's 0.10, the lowest in the sample. Reagan follows at 2.55, while Clinton (0.52), H.W. Bush (0.72), and the first Trump term (0.65) anchor the low end.

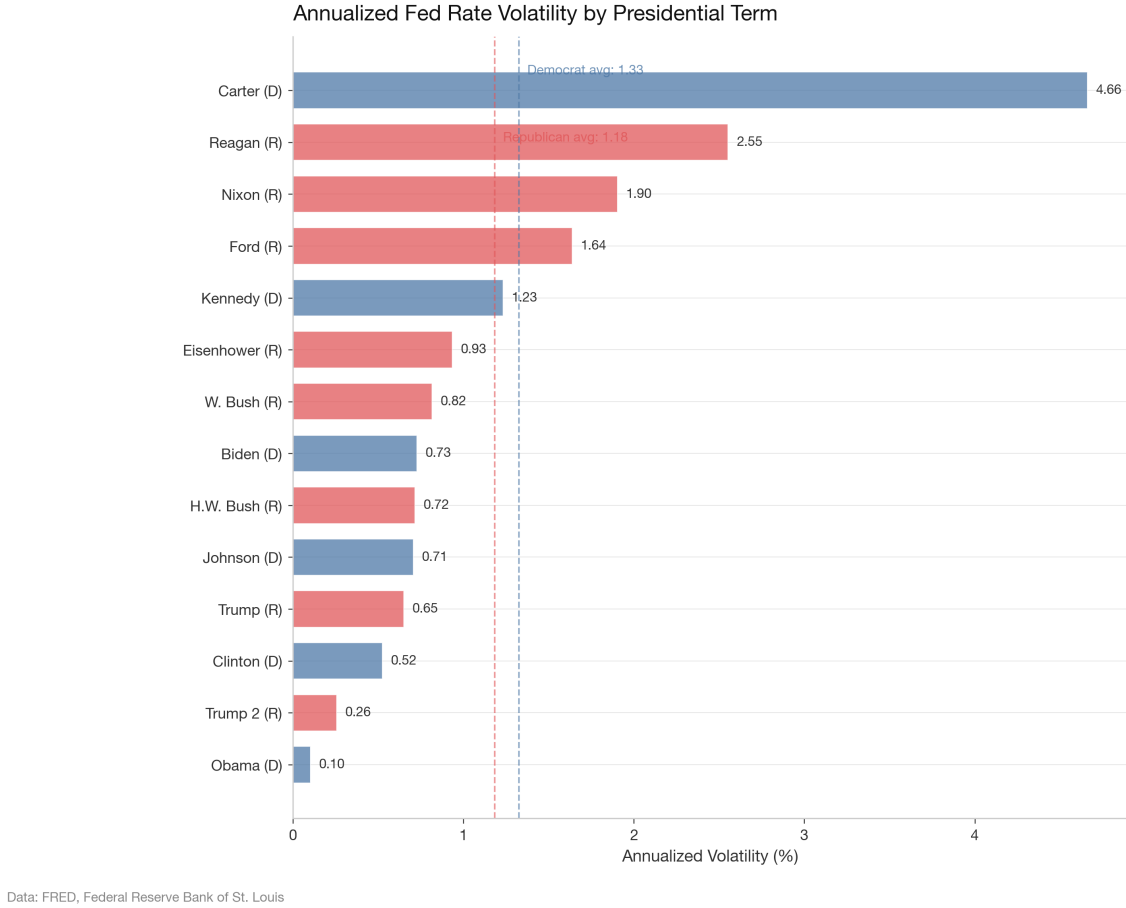


Figure 2: Annualized federal funds rate volatility by presidential term. The Carter and Reagan terms, which overlap with the Volcker disinflation, dominate the upper end.

3.2 Hypothesis Tests

Table 2 reports the results of three bivariate hypothesis tests comparing rate volatility across parties.

Table 2: Bivariate hypothesis tests: Democratic vs. Republican months

Test	Statistic	p -value	Interpretation
Welch's t -test	$t = -2.864$	0.0043	Significant at $\alpha = 0.01$
Mann-Whitney U	$U = 66,374$	< 0.0001	Significant at $\alpha = 0.01$
Levene's test	$W = 8.903$	0.0029	Variances differ significantly

The Welch's t -test rejects the null of equal means ($t = -2.864$, $p = 0.0043$), and the non-parametric Mann-Whitney U test confirms this result ($p < 0.0001$). The effect size, however, is small: Cohen's $d = -0.202$. Levene's test indicates that the variances of signed monthly changes also differ across parties ($W = 8.903$, $p = 0.003$), with Democratic months showing greater variance ($\sigma_D^2 = 0.259$ vs. $\sigma_R^2 = 0.202$).

3.3 Regression Analysis

Main model. Table 3 presents the OLS results for all three model specifications. In the main model (Column 1), estimated on the full sample of $N = 858$ months (three observations lost to differencing and data availability), the party dummy is positive but statistically insignificant ($\hat{\beta} = 0.029$, $p = 0.347$). The dominant predictors are inflation ($\hat{\beta} = 0.071$, $p < 0.001$) and the time trend ($\hat{\beta} = -0.0003$, $p < 0.001$). Unemployment is positively associated with rate volatility ($\hat{\beta} = 0.023$, $p = 0.001$), while GDP growth has a marginally significant negative coefficient ($\hat{\beta} = -0.007$, $p = 0.093$). The model explains 29.1% of the variation in absolute monthly rate changes.

Table 3: OLS regression results: absolute monthly rate change as dependent variable. Heteroscedasticity-robust (HC1) standard errors in parentheses.

	(1) Full sample	(2) Ex-Volcker	(3) Interaction
Constant	-0.041 (0.054)	0.142*** (0.033)	-0.055 (0.106)
Party (R=1)	0.029 (0.031)	0.057*** (0.013)	0.052 (0.139)
Inflation (YoY)	0.071*** (0.012)	0.034*** (0.004)	0.075*** (0.021)
Unemployment	0.023*** (0.007)	0.000 (0.005)	0.023* (0.013)
GDP growth	-0.007* (0.004)	-0.005** (0.002)	-0.008* (0.005)
Time trend	-0.0003*** (0.00003)	-0.0002*** (0.00003)	-0.0003*** (0.00004)
Party $\times$ Inflation			-0.011 (0.024)
Party $\times$ Unemployment			0.003 (0.017)
N	858	763	858
R^2	0.291	0.260	0.292
Adj. R^2	0.287	0.255	0.286
F -statistic	31.84	29.99	25.46

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Robustness: excluding the Volcker era. When the 95 Volcker-era months are removed (Column 2), the party dummy becomes highly significant ($\hat{\beta} = 0.057$, $p < 0.001$), indicating that outside the Volcker period, Republican months see absolute rate changes roughly 0.057 percentage points larger than Democratic months, holding macroeconomic conditions constant. In-

flation remains the strongest predictor, though its coefficient is smaller (0.034), consistent with the reduced range of inflation in the non-Volcker sample. Unemployment loses all significance ($p = 0.969$).

Interaction model. Column 3 adds party-by-inflation and party-by-unemployment interaction terms to the full-sample model. Neither interaction is significant (party $\times$ inflation: $p = 0.653$; party $\times$ unemployment: $p = 0.878$), indicating that Democratic and Republican administrations do not respond differently to these macroeconomic conditions. The R^2 increases trivially from 0.291 to 0.292.

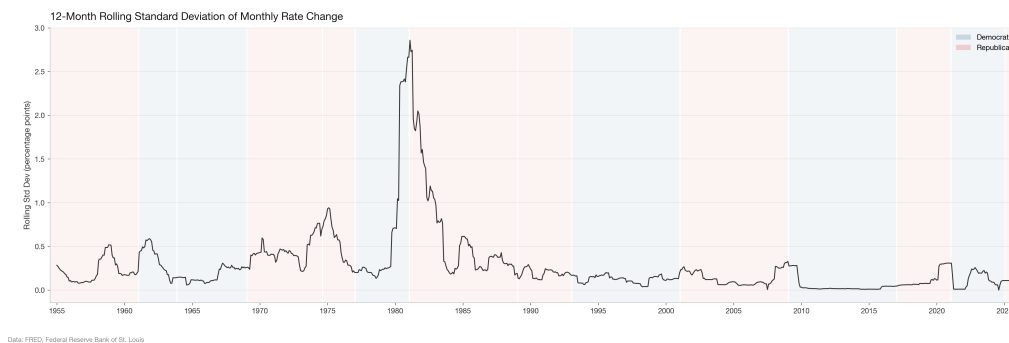


Figure 3: Rolling 12-month standard deviation of the federal funds rate. The Volcker-era spike dwarfs all other variation and coincides with the Carter–Reagan transition.

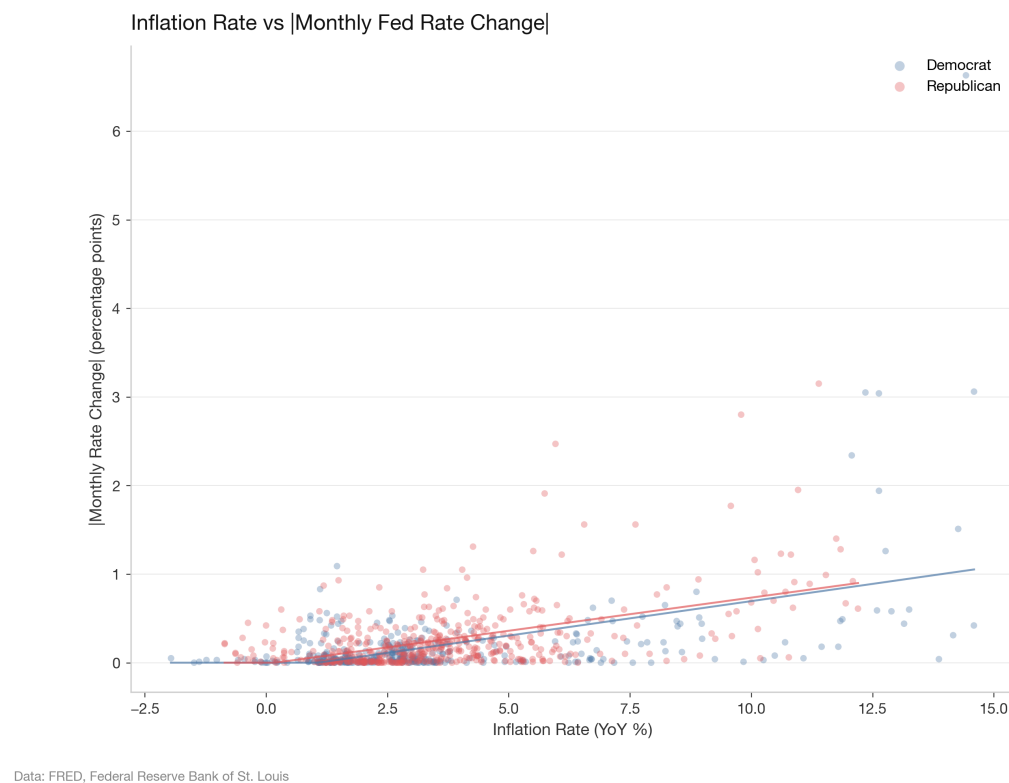


Figure 4: Scatter plot of the federal funds rate level against year-over-year CPI inflation. The strong positive association underscores the Fed’s response function.

4 Discussion

The central finding of this analysis is that the raw partisan gap in rate volatility is a statistical artifact driven by macroeconomic conditions and the Volcker disinflation, not by presidential party *per se*. Several mechanisms explain this result.

The Volcker era as confound. Paul Volcker’s appointment as Federal Reserve Chair in August 1979 inaugurated a period of unprecedented rate activism aimed at breaking double-digit inflation. Between October 1979 and August 1987, the federal funds rate ranged from roughly 5.9% to 19.1%, producing monthly swings that dwarf anything observed before or since (Figure 3). These 95 months split unevenly across parties: 16 fell under Carter (Democrat) and 79 under Reagan (Republican). Carter’s 16 Volcker months are among the most volatile in the entire dataset (annualized volatility of 8.14), inflating the Democratic variance statistic while contributing relatively few observations to the Democratic mean of absolute changes. Reagan’s 79 Volcker months elevate the Republican mean. The net effect is a spurious partisan gap that disappears once these months are excluded or once inflation—the proximate cause of Volcker’s rate activism—is controlled for.

Secular decline in rate levels. The federal funds rate has trended downward since the early 1980s, reaching the zero lower bound during the Obama administration. Mechanically, lower rate levels constrain the size of possible monthly changes, compressing volatility in later decades regardless of the party in power. The highly significant negative time trend in all three regression models ($p < 0.001$) captures this dynamic.

Inflation as the proximate driver. Across all specifications, year-over-year inflation is the strongest predictor of rate volatility ($p < 0.001$). This is consistent with the Fed’s mandate: when inflation is high, the FOMC adjusts rates more aggressively. Because inflation varied substantially across presidential terms for reasons largely outside presidential control—oil shocks in the 1970s, the Great Moderation of the 1990s–2000s, the post-COVID price surge—any party-level difference in rate volatility is largely a reflection of the inflation environment each president happened to inherit.

The ex-Volcker result. The finding that the party dummy is significant when the Volcker era is excluded ($\beta = 0.057$, $p < 0.001$) deserves cautious interpretation. It suggests that, outside the most extreme episode, Republican terms do see modestly larger rate adjustments after controlling for macroeconomic conditions. However, with only 14 presidential terms and numerous potential confounders—including Fed leadership transitions, fiscal policy differences, and global financial conditions—this result should not be over-interpreted as evidence of a causal partisan effect.

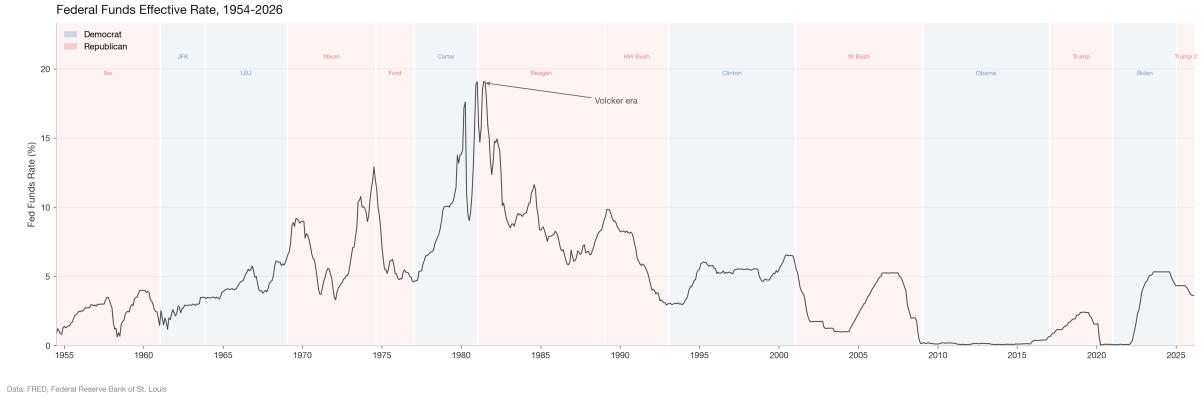


Figure 5: Full timeline of the effective federal funds rate, July 1954 to March 2026. Shading indicates presidential party (blue for Democrat, red for Republican).

5 Limitations

Several limitations should be borne in mind. First, the Federal Reserve is institutionally independent; presidents do not set interest rates. Any observed correlation between party and rate volatility is inherently non-causal. Second, with only 14 presidential terms over 72 years, the effective sample size for between-president comparisons is small, rendering any generalization fragile. Third, presidents inherit economic conditions from their predecessors. Carter inherited rising inflation; Obama inherited a zero-lower-bound environment that mechanically suppressed rate volatility for eight years (annualized volatility = 0.10). Fourth, our OLS model, while informative, explains only 29% of the variation in monthly rate changes. Substantial unexplained heterogeneity remains, likely driven by financial market conditions, geopolitical events, and FOMC communication effects that are not captured by our four control variables. Fifth, the dependent variable—absolute monthly change—is bounded below at zero and exhibits severe right skew (skewness = 5.97, kurtosis = 76.4), violating the normality assumption of OLS. While the HC1 robust standard errors mitigate heteroscedasticity concerns, a generalized linear model or quantile regression approach might better accommodate the distributional properties of the data.

6 Conclusion

The thesis that presidential party systematically determines federal funds rate volatility is not supported by the controlled analysis. While raw comparisons reveal that Republican months feature significantly larger absolute rate changes (0.264 vs. 0.179, $p = 0.004$), this difference is fully explained by inflation, the secular decline in rate levels, and the Volcker-era outlier. Once macroeconomic controls are included, the party dummy is insignificant ($p = 0.347$). The data indicate that it is the economic environment—particularly the inflation regime—and the decisions of Federal Reserve leadership that drive rate volatility, not the party of the sitting president. The ex-Volcker robustness result ($p < 0.001$) hints at a modest residual partisan difference, but even this finding warrants caution given the small number of presidential terms and the many confounders at play.

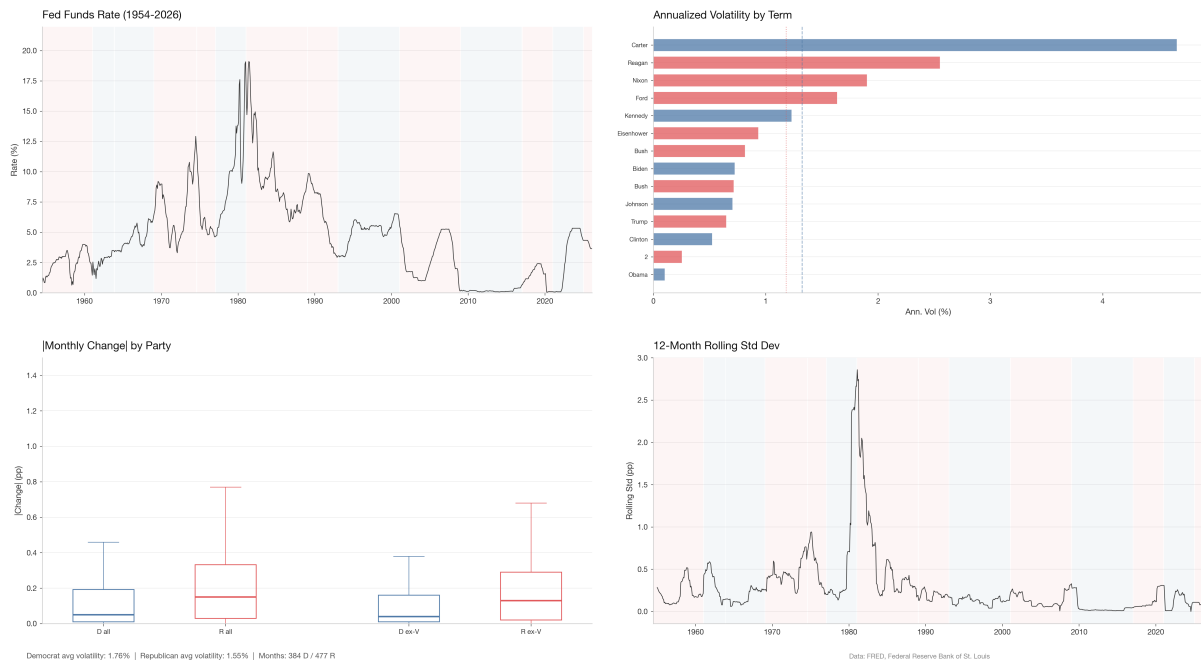


Figure 6: Summary dashboard combining key visualizations of the analysis. Top panels show rate distributions; bottom panels show time-series and regression diagnostics.

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