

DS 3001 Semester Project Final Write-Up

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Course: DS 3001

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1. Prediction Question

Our prediction question is: **How did major political events during Donald Trump's second presidential administration, particularly the 2024 election, inauguration, and early executive orders, impact financial market trends?**

We explore this by modeling the relationship between political events and daily financial market returns for major indices (S&P 500, Nasdaq 100, Dow Jones) and ETFs (SPY, VTI).

2. Key Results

Figure 1: Market Returns and Political Events

Interpretation: Figure 1 shows the daily returns of the S&P 500, Nasdaq 100, and Dow Jones indices, along with major ETFs (SPY, VTI) between October 2024 and February 2025. Political events are indicated with dashed lines (red for Trump events, blue for Biden events).

Following Trump's 2024 election victory (November 5), markets experienced a slight but sharp positive reaction, particularly in the Nasdaq 100 and S&P 500. The inauguration on January 20, 2025, was associated with modest volatility but no significant market shift. Biden's executive orders (January 23-25) correlated with slight negative or mixed market returns but no major disruptions.

Figure 2: Market Volatility and Political Events

Interpretation: Figure 2 tracks the VIX Index (market volatility) over the same period. Volatility peaked during the days immediately surrounding the 2024 election, reflecting heightened uncertainty. A smaller volatility spike occurred during late January 2025, around the time of

multiple executive orders. However, these post-inauguration volatility increases were less severe than the election-related spike.

Table 1: Linear Regression Results

Interpretation: Table 1 presents a simple linear regression of daily S&P 500 returns on indicators for political event occurrences.

- The general event occurrence dummy (Event_Occurred) shows a positive coefficient (1.7047) but is not statistically significant ($p = 0.218$), suggesting that on average, political events were associated with slightly higher returns, though the result is not robust.
- Trump-specific events (Trump_Event dummy) show a negative but statistically insignificant coefficient (-0.8169, $p = 0.506$), indicating no consistent directional effect.
- Biden-specific events (Biden_Event dummy) also show a negative but statistically insignificant coefficient (-1.2057, $p = 0.259$).

These regression findings align with the visual results: large political events like elections affected markets, but day-to-day executive orders had more muted effects.

3. Conclusion

Political events during Trump's second administration had observable but context-dependent effects on financial markets. Major political milestones like elections and inaugurations triggered visible movements in returns and volatility, while executive actions prompted more muted market responses.

Future work could explore lagged effects, sector-specific impacts, and text sentiment analysis to refine these findings further.

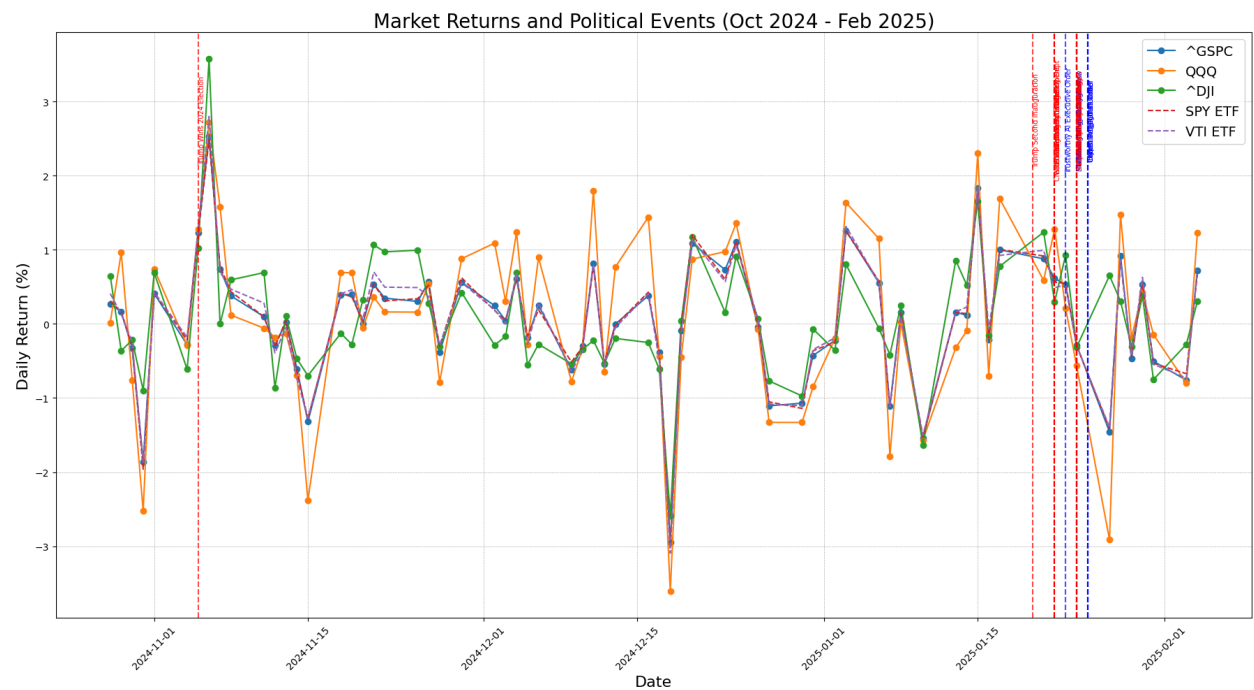
4. Figures and Tables

- **Figure 1:** Market Returns and Political Events (market_returns_events.png)

- **Figure 2:** Market Volatility and Political Events (vix_volatility_events.png)

- **Table 1:** Linear Regression Summary of S&P 500 Returns

- Coefficients:
 - Event_Occurred: 1.7047 (p = 0.218)
 - Trump_Event: -0.8169 (p = 0.506)
 - Biden_Event: -1.2057 (p = 0.259)



Index(['Date', 'QQQ', 'SPY', 'VTI', '^DJI', '^GSPC'], dtype='object', name='Ticker')

Ticker	Date	Event_Occurred	Trump_Event	Biden_Event
0	2024-10-28	0	0	0
1	2024-10-29	0	0	0
2	2024-10-30	0	0	0
3	2024-10-31	0	0	0
4	2024-11-01	0	0	0

(67, 3) (67,)

OLS Regression Results

Dep. Variable:

Model:

Method:

Date:

Time:

No. Observations:

Df Residuals:

Df Model:

Covariance Type:

^GSPC

OLS

Least Squares

Mon, 28 Apr 2025

23:11:51

67

63

3

nonrobust

R-squared:

Adj. R-squared:

F-statistic:

Prob (F-statistic):

Log-Likelihood:

AIC:

BIC:

0.038

-0.008

0.8358

0.479

-83.170

174.3

183.2

	coef	std err	t	P> t	[0.025	0.975]
const	0.0324	0.109	0.298	0.767	-0.185	0.250
Event_Occurred	1.7047	1.370	1.245	0.218	-1.032	4.442
Trump_Event	-0.8169	1.221	-0.669	0.506	-3.257	1.623
Biden_Event	-1.2057	1.058	-1.140	0.259	-3.319	0.908

Omnibus:

Prob(Omnibus):

Skew:

Kurtosis:

9.878

0.007

-0.474

5.169

Durbin-Watson:

Jarque-Bera (JB):

Prob(JB):

Cond. No.

1.826

15.649

0.000400

18.6

