

Extracting insights from FOMC Statements



FOMC STATEMENT

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Intro to Fed Speak 101: FOMC Statements

FEDERAL RESERVE press release



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Information received since the Federal Open Market Committee met in March indicates that the labor market remains strong and that economic activity rose at a solid rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Growth of household spending and business fixed investment slowed in the first quarter. On a 12-month basis, overall inflation and inflation for items other than food and energy have declined and are running below 2 percent. On balance, market-based measures of inflation compensation have remained low in recent months, and survey-based measures of longer-term inflation expectations are little changed.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2-1/4 to 2-1/2 percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

Key Attributes

Economic Growth

Employment

Inflation

Future Rate Outlook

Policy Rate Target

Analyzed
102 Statements
2007-2019

How are the Attributes Related?

CramerV Matrix

Classification Attributes Comparison

Policy.Rate	0.36	0.31	0.13	0.44	1
Medium.Term.Rate	0.28	0.2	0.09	1	0.44
Inflation	0.2	0.29	1	0.09	0.13
Employment.Growth	0.39	1	0.29	0.2	0.31
Economic.Growth	1	0.39	0.2	0.28	0.36

Correlation only works for numerical variables.

For categorical variables:

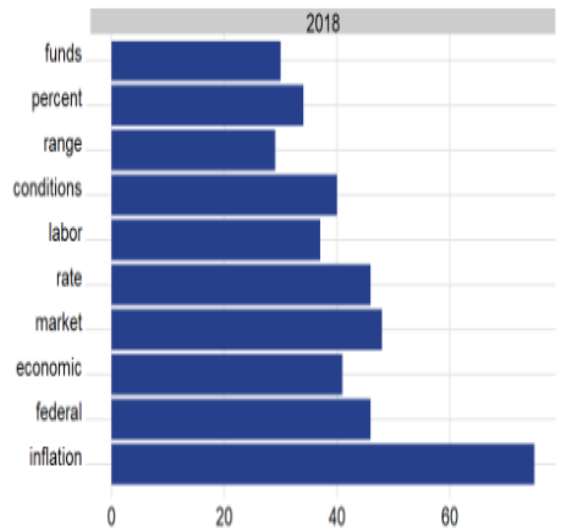
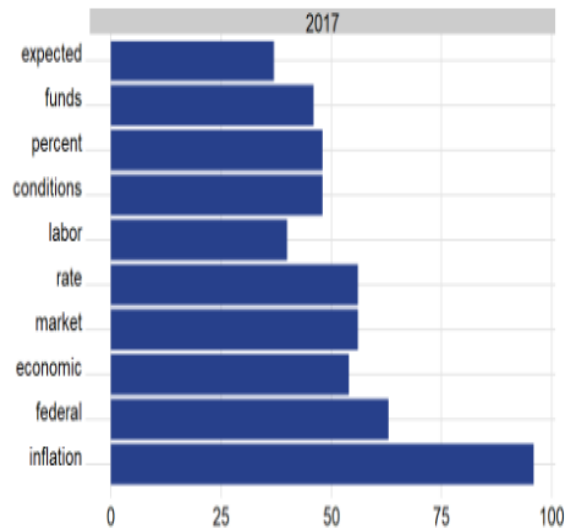
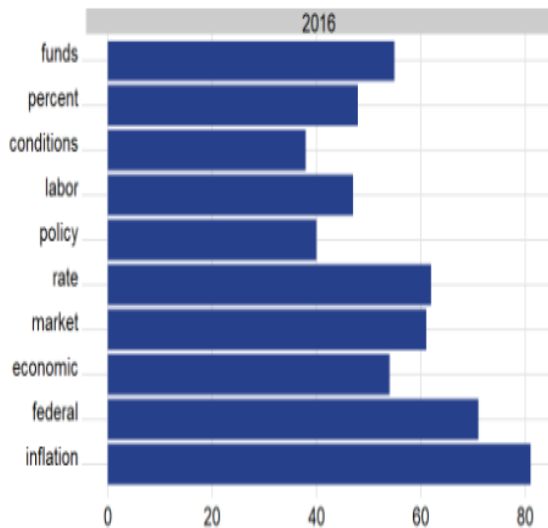
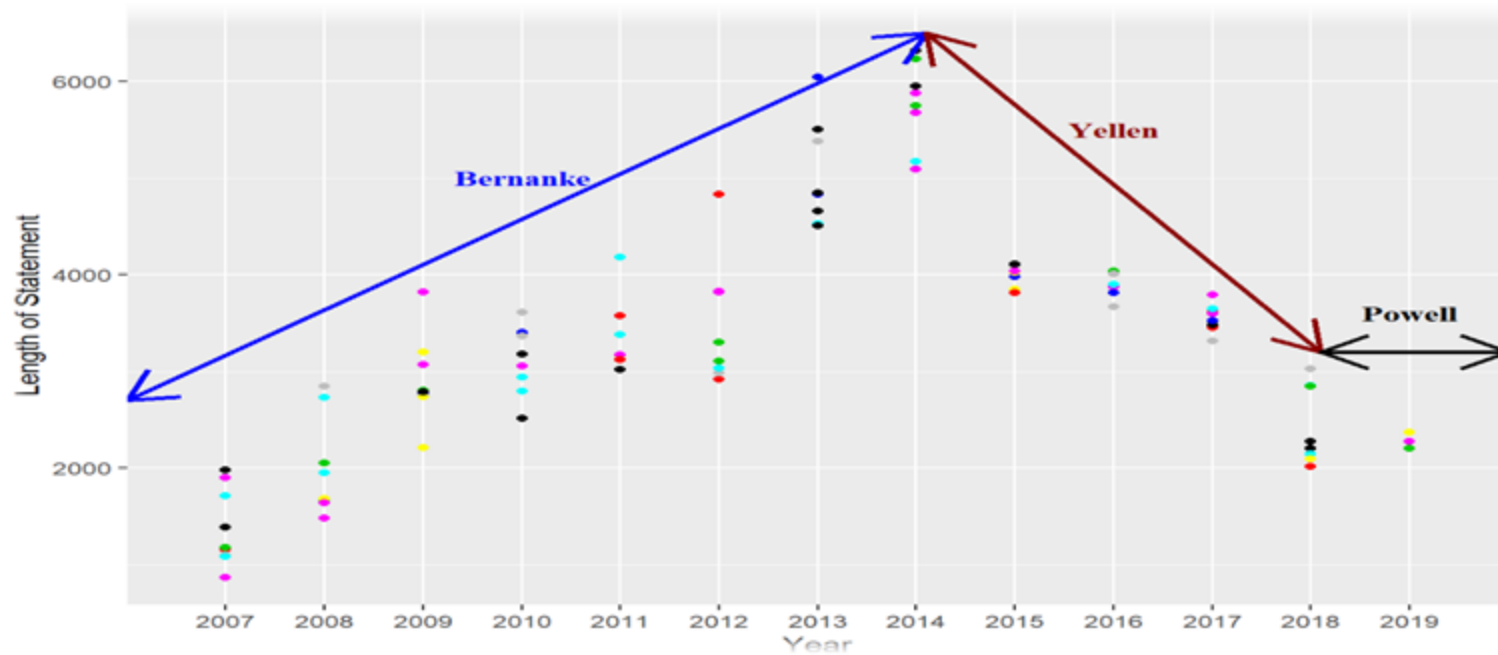
Cramer's V

Range: 0-1

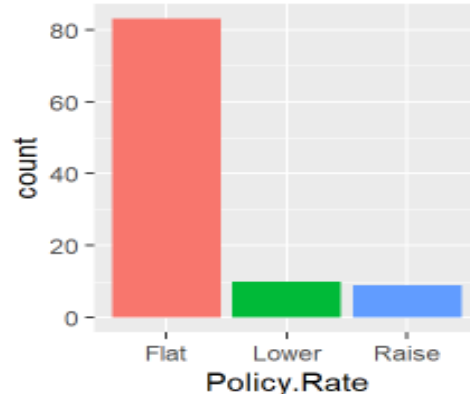
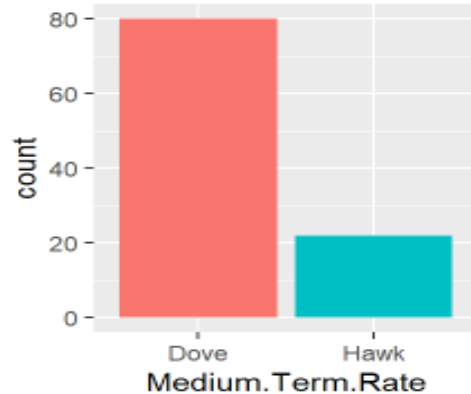
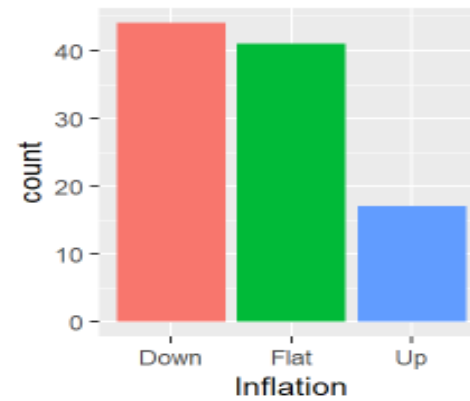
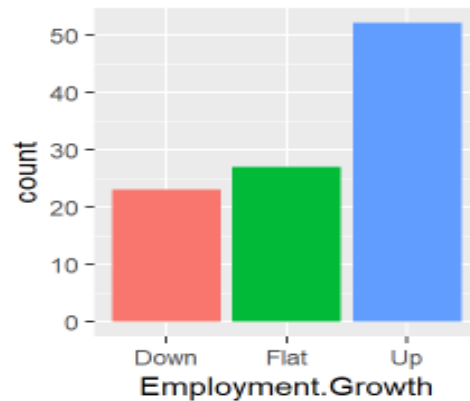
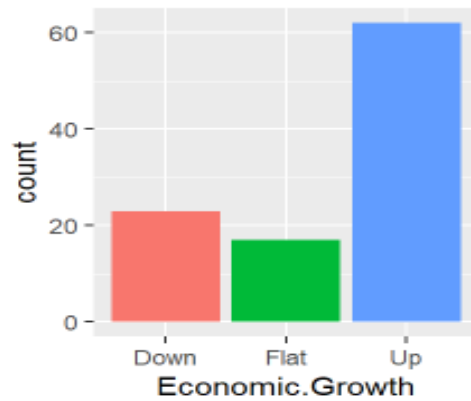
0 means no association

1 mean perfect association

FOMC Statement Length and Most Frequent Words



Textual Classifications

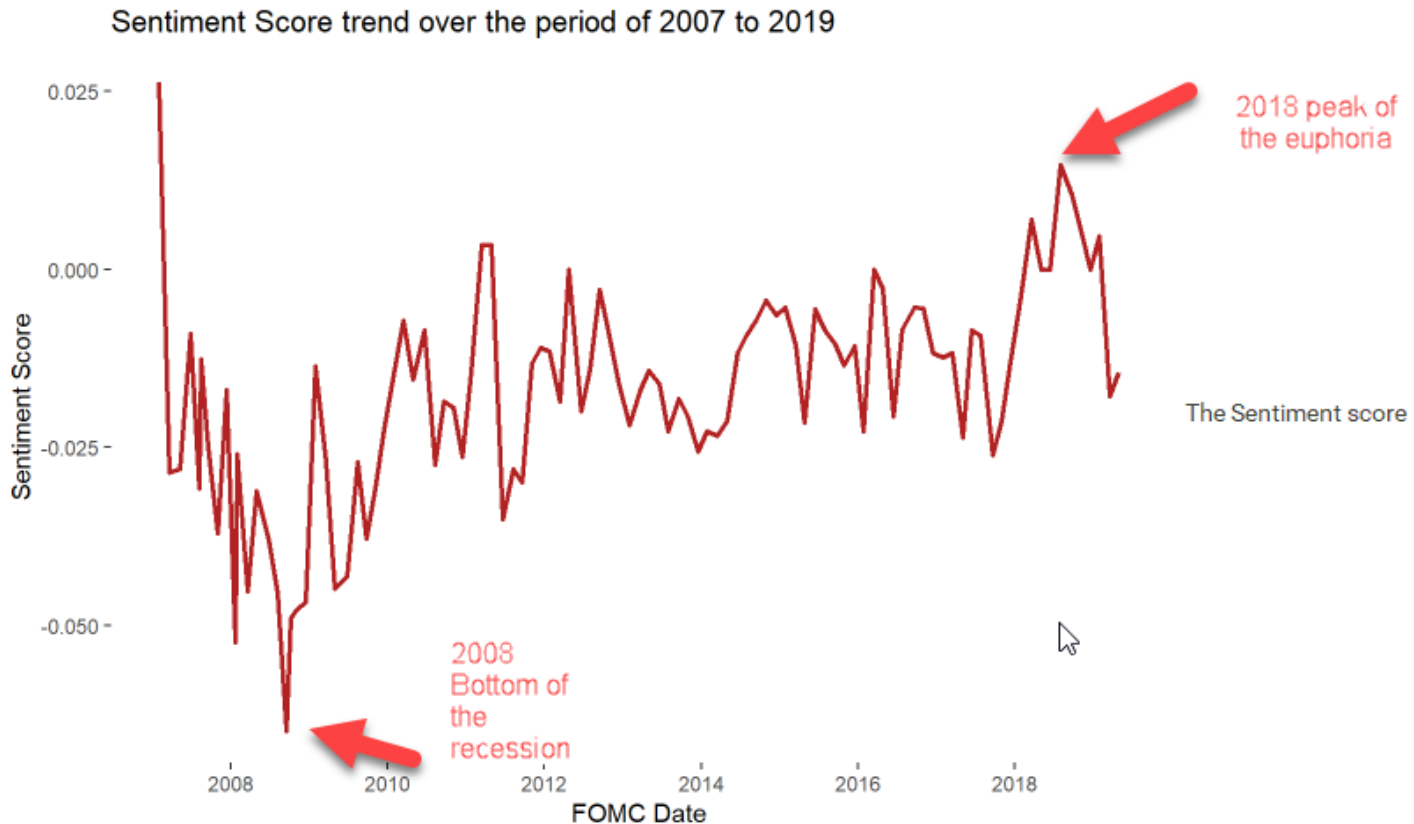


Variable	Modelling (Train : Test)	Accuracy (%)
Medium.Term.Rate	68 : 32	93.75
Employment.Growth	70 : 30	80.00
Economic.Growth	70 : 30	66.67
Inflation	68 : 32	68.75
Policy.Rate	68 : 32	83.33

Sentiment Score

$$\text{sentiment}(\text{Document}) = \frac{\text{PositiveWords} - \text{NegativeWords}}{\text{PositiveWords} + \text{NegativeWords}}$$

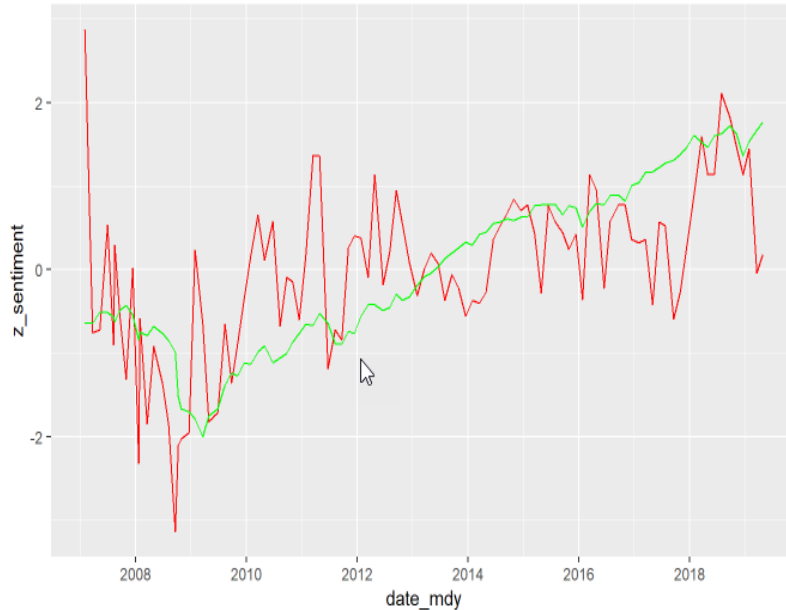
Loughran-McDonald
Dictionary



Sentiment and Equity Markets

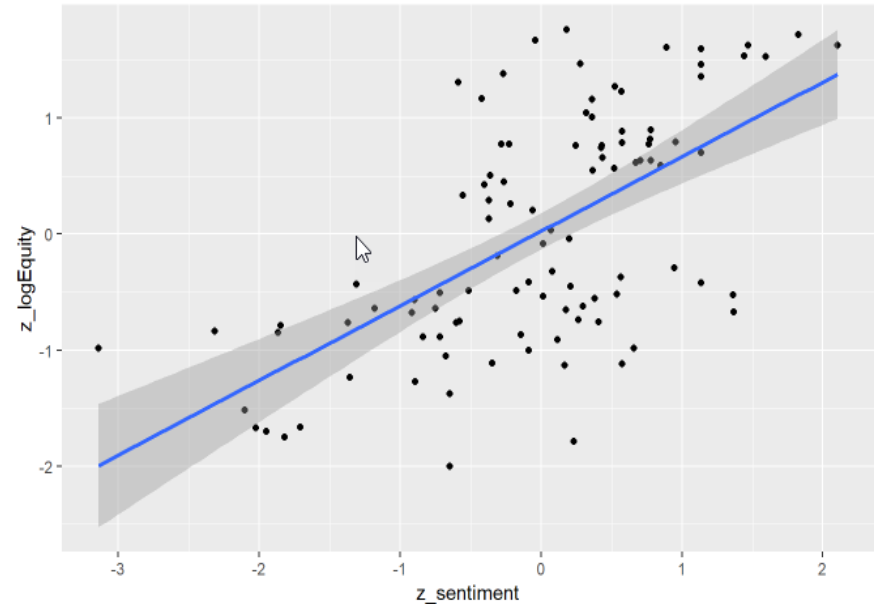
Scaled-Sentiment vs. Scaled Log Equity Price

What we will use



ScatterPlot of Fitted Regression Model

X=Z-Sentiment, Y=Z-LogRussell 1000 (2007-2019)



- Level of sentiment is positively related to level of equities during the observation period. Results are very statistical significant.
- But sentiment is more volatile than equity market – possibly due to robustness issues.
- Regression on returns or lagged variables is next logical step.

```
## Coefficients:
```

```
##           Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.02507    0.07893   0.318   0.751
## z_sentiment  0.64857    0.08239   7.872 4.76e-12 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1
##
## Residual standard error: 0.789 on 98 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.3874, Adjusted R-squared:  0.3811
## F-statistic: 61.96 on 1 and 98 DF, p-value: 4.761e-12
```


THANKS



Our Paper, Data and Code

<http://rpubs.com/jackv13/extracting-insights-from-fomc-statements>

<https://github.com/completegraph/DATA607FINAL/tree/master/DATA>

<https://github.com/completegraph/DATA607FINAL/blob/master/Code/Project-Final.Rmd>