Evaluating the dovish and hawkishness of FOMC Meeting

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Project Framework

For this project, I mainly downloaded text data from the FOMC (Federal Open Market Committee) website, which includes data from two parts: the FOMC press release, and the transcripts of the FOMC press conference. The time range is from 2018 to 2022, the FED usually have 8 meetings per year, so we are expected to download around 40 files for each category. (But I was only able to download 36 files of the transcripts of FOMC press conferences). Then I perform text cleaning and preprocessing, as shown in the coding file 'download_data.ipynb'

Afterwards, I looped over the documents of each single release date, and performed the following operations, shown in file 'finbert_analysis.ipynb':

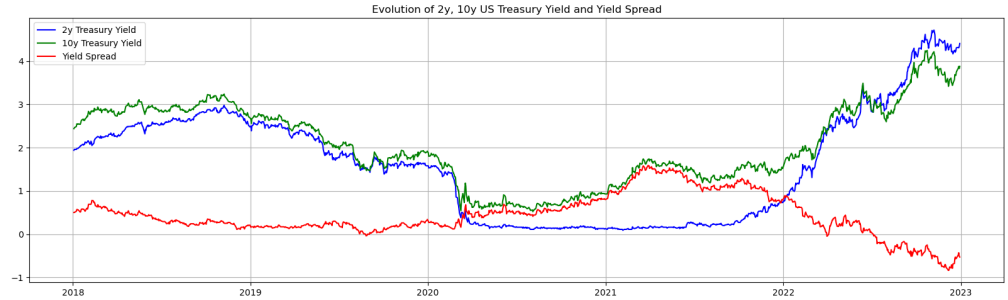
- I first read each document in as a list of sentences.
- Then, I called upon RoBERTa (github link: https://github.com/gtfintechlab/fomc-hawkish-dovish/tree/main) to generate a classification dictionary for each document. For each sentence in the document, it will assign a label, (LABEL_2: Neutral, LABEL_1: Hawkish, LABEL_0: Dovish). Then I will count the number of occurrences of hawkish and dovish sentences and assign a hawkish/dovish score, which is essentially the percentages that they occupy among the total number of dovish and hawkish sentences. I then store them into a dataframe, each date will have a score of the hawkish or dovish degree.

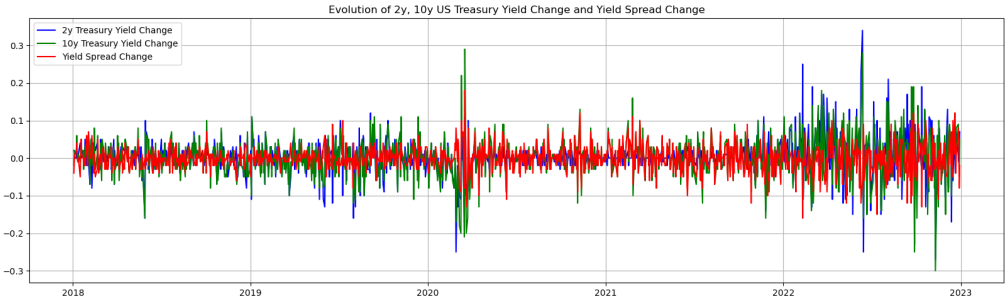
  For example,

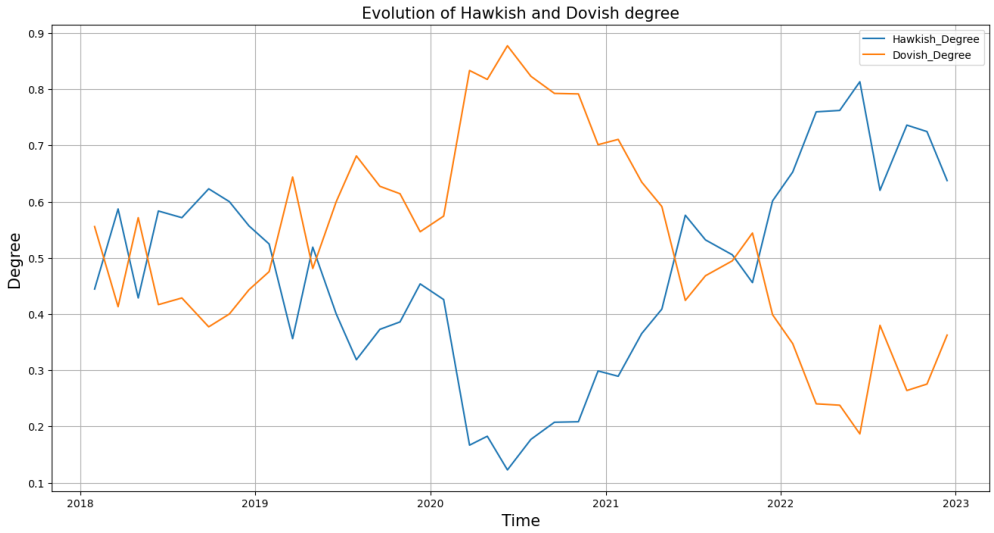
$$\text{The hawkish score of a specific date} = \frac{num\ of\ hawkish\ sentences\ in\ press\ releases\ and\ transcripts}{num\ of\ total\ sentences\ of\ both\ dovish\ and\ hawkish\ in\ both\ press\ release\ and\ transcripts}$$

At the same time, I also obtained financial indicators of the US 2y and 10y daily Treasury yield, the difference between the two is the yield spread.

Analysis & Insights







Correlation table

	Hawkishness	Dovishness	2y yield	10y yield	Yield spread
Hawkishness	1.000	-1.000	0.6956	0.7863	-0.3319
Dovishness	-1.000	1.000	-0.6956	-0.7863	0.3319

Covid Period (2020~2021)

From the above visualization and correlation table, we can clearly see that, during the covid period (from 2020 to 2021), the 2y and 10y US Treasury yield have declined at the same time, meanwhile the level of dovishness has greatly increased. This makes sense in that during the covid-period, economy activities remained low and productivity has decreased, so the FED at that time adopted the dovish policy that focuses more about economic growth and employment than controlling inflation. The dovish policies can be seen as supportive of financial markets, lowering interest rates at historically low levels to stimulate borrowing and spending in the economy.

Also, another point worth noticing is that, the 10y yield and 2y yield have both declined during the covid period, but the 2y short-term yield has declined more than the 10y one, therefore the yield spread (10y-2y) has actually increased during the covid period under the dovish policy, which can also be seen in the correlation table that the dovishness has a positive correlation of 0.3319 with the yield spread. In other words, the Treasury spread curve has steepened under the increase of dovish sentiment during the covid period. This can be explained by the following points:

- Unprecedented Monetary Stimulus: The COVID-19 pandemic led to a severe economic contraction, and central banks, including the Federal Reserve, responded with aggressive monetary stimulus to support the economy. This stimulus included large-scale asset purchases (quantitative easing) and the lowering of short-term interest rates to near-zero levels. These actions were aimed at maintaining financial market stability and providing liquidity to the economy.
- Expectations of Strong Economic Recovery: As vaccination efforts progressed and fiscal stimulus was injected into the economy, there was a growing sense that a strong economic recovery was on the horizon. Investors and market participants anticipated a surge in economic activity, driven by pent-up demand and increased consumer spending.
- Expectations of Inflation: Dovish policies, which involve keeping short-term rates low, can lead to concerns about future inflation. The unprecedented scale of monetary and fiscal stimulus,

combined with the potential for supply chain disruptions, led to heightened expectations of inflation. As investors sought protection against potential future inflation, they demanded higher yields on longer-term Treasuries, leading to rising long-term yields.

Pos-covid Inflation period (2022~now)

On the other hand, starting from 2022 up till now, we can see that the economy has revived with the rise of interest rates, leading to inflation, while the FED hawkishness degree increased tremendously, indicating a more restrictive or aggressive approach to monetary policy. This can also be seen in the positive correlation of the hawkishness with the 2y and 10y Treasury yield, with the correlation numbers 0.6956 and 0.7863 respectively. This elevation of hawkishness mainly involves raising interest rates in order to cool down an overheating economy and to combat inflationary pressure.

We can also see a negative correlation number of -0.3319 between the hawkishness and the yield spread, meaning that the short-term 2y yield curve increases more than the long-term 10y curve, making it flattened and even "inverted", as shown in the plot above. This can be explained by:

- Hawkish policy (Quantitative Tightening): pos-covid policies are mainly hawkish, which involves measures to raise short-term interest rates to combat inflationary pressures. This is intended to slow down borrowing and spending. As a result, short-term yields (2y yield) may rise significantly, while long-term yields (10y yields) may not rise as much, which lead to a flattening of the yield spread.
- Reduced Inflation expectations: hawkish policies often signal a central bank's intent to control inflation. As a result, inflation expectations may decrease or become more anchored. Investors may expect a lower long-term yield if they anticipate a period of tighter monetary policy (rates cut perhaps) and reduced inflation.
- Expectation of economic slowdown: hawkish policies can lead to an economic slowdown or even a recession. This is can lead to reduced demand for long-term debt, which can put downward pressure on long-term yields.