policy statements that the Federal Reserve’s Federal Open Market Committee (FOMC) issues after each of its meetings receive wide attention, especially from the financial press. The statements are almost instantaneously parsed by reporters who try to understand why—or why not—a word or two out of more than 500 was changed from a similar statement issued a few weeks earlier and what that change may—or may not—suggest about the future path of interest rates and the economic outlook.

The statements are the end product of two days of policy deliberations among the Federal Reserve’s Washington, D.C.-based governors and the presidents of the 12 regional Federal Reserve Banks. These discussions involve a wide range of contributions, including presentations from economic staff and insight Fed officials have received from business and community leaders across the United States.

Depending on what is happening with the economy, these meetings can produce book-length transcripts filled with extended, often complex, discussions focused on the nuances of monetary policy. In addition to providing background on past policy actions, the transcripts may also be able to help provide a clearer understanding on broader issues, including how the FOMC’s various components function and how these deliberations have changed over time.

Using the relatively new process of text mining, Federal Reserve Bank of Kansas City Assistant Vice President and Economist San Cannon analyzed more than 30 years of FOMC transcripts. By studying tone and word choice, she hoped to gain additional insight into how policy discussions are formed, how they relate to the performance of the economy and how they may have changed over time.

**Working in a text mine**

Text mining offers researchers the ability to take what is unstructured, qualitative data and give it a structure that can allow for quantitative analysis, helping to identify relationships and patterns. Cannon’s research focused on determining the sentiment of all remarks made during FOMC meetings. From
The Federal Open Market Committee meets eight times a year. At these meetings, the committee reviews economic and financial conditions, determines monetary policy, and assesses risks to its long-run goals of price stability and economic growth.

The FOMC members.

To determine sentiment, the process had to account for a number of potential hurdles presented by the way we use language. For example, words can be changed by the words around them: “admirable” is usually used as a positive, but “not admirable” is negative. Words can also carry different meanings in different settings: “liability” would likely be negative in most settings, but in a business discussion it may simply relate to an item on a balance sheet and carry no sentiment. Through the analysis, Cannon was able to give each comment a score on a scale where zero represents a neutral tone for a comment while numbers above or below zero are positive or negative, respectively. Given the large amount of data involved, it is probably not surprising that Cannon discovered a number of things about policy deliberations, particularly related to the apparent contributions by FOMC members.

Economic insight

FOMC meeting participants can be categorized into one of three groups:
- Federal Reserve Governors: the Washington-based government officials with broad oversight responsibilities for the Federal Reserve system;
- Presidents of the 12 regional Federal Reserve Banks, who represent their respective Federal Reserve Districts; and
- Federal Reserve staff who present reports and answer questions.

Cannon’s analysis uncovered a number of unique characteristics about each group. The Federal Reserve’s governors consistently made the most comments during policy deliberations; however, the average number of words per comment is shorter than either of the other two groups—about one-half the number of the regional Bank presidents. The differences in comment length, Cannon said, likely reflects the proportion of relatively short questions from the governors, while the regional Bank presidents and staff are providing longer statements describing economic conditions.

In measuring for tone, Cannon also found differences among the groups. Staff tone has remained relatively close to neutral, while the tone from the governors and presidents was varied, with the presidents generally being more positive than the governors over the period. Overall, the tone measures largely aligned with economic activity, turning generally more positive during expansions and falling during contractions.

From a forward-looking perspective, Cannon measured tone against the Chicago Fed National Activity Index (CFNAI), a weighted average of 85 economic activity indicators to see if the tone changed ahead of turns in the economy. Overall, she found that FOMC policy deliberations lead the CFNAI by as much as nine months. That means, for example, that a positive tone in policy deliberations from January through September is correlated with an above-trend in economic activity during October. Similarly, the FOMC deliberations with a negative tone would precede below-trend economic activity by the same margin.

When breaking up the broad FOMC data into the three groups of speakers, Cannon found comments by Federal Reserve Bank presidents led the activity measure by as much as a year. Comparatively, the governors’ tone positively correlated with economic activity with just a one month lead while staff comments correlated with only a slightly longer period.

“The relationship between the presidents’ tone measure and the activity index is the strongest of all of the speaker types and clearly leads the activity measure,” Cannon said. “Presidents’ regional information and strong ties to local business and community leaders could give them earlier information than other members of the FOMC.”

The findings lend support to one of the key components of the Federal Reserve’s regional structure and the connections between the 12 Federal Reserve Banks and the Districts they serve.

On the record

Today, FOMC transcripts are available online after a five-year lag. That, however, has not always been the case. One of the key changes in FOMC policies began in 1993 when then-Fed Chairman Alan Greenspan indicated that recordings of policy meetings had been made and stored since the 1970s. Prior to that time, not even clear how many FOMC members were aware that the meetings were being recorded. Soon after Greenspan’s remarks, a process was created for making the transcripts publicly available.

Today, more than 20 years later, it is perhaps difficult to understand the significance of this revelation. The modern FOMC not only releases a lengthy and detailed policy state-
Cannon’s research also made a number of other findings that may be of interest related to word choices. For example, the word “inflation” started to see more frequent use in 2004 and accounted for 1 out of every 100 words spoken during FOMC policy sessions in 2006. Not surprisingly, given the FOMC’s mission of seeking price stability, “inflation” is one of the most frequently used words in policy deliberations throughout the period, finishing slightly ahead of “growth.”

Overall, Cannon’s findings suggest that Committee dynamics and even the roles of the individual participants may change over time. She also notes that the transcripts provide a wealth of information, although they have generally received far less attention than FOMC press releases and meeting minutes.

“Even with a five-year lag, the transcripts are a rich source of detailed information about monetary policy deliberations,” Cannon said.

“Several measures appear to have changed after 1993,” Cannon said. “The number of comments per meeting decreased, but the number of words used per comment increased—so the total number of words was higher.”

Another of Cannon’s findings seems to lend at least partial support to Hoenig’s view that the discussion was becoming less candid—the average number of unique words used per meeting dropped by almost 30 percent after 1993.

“It may be that, after 1993, there were more carefully-worded responses or more scripted presentations than would be found in a less-constrained environment,” Cannon said.

Some of this change related to the types of words being used may also relate to the economic environment for much of the post-1993 era. During periods of above-trend economic growth, discussions were shorter with fewer unique words. The opposite was true during slow-growth periods with wordier discussions and an increase in unique words.

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