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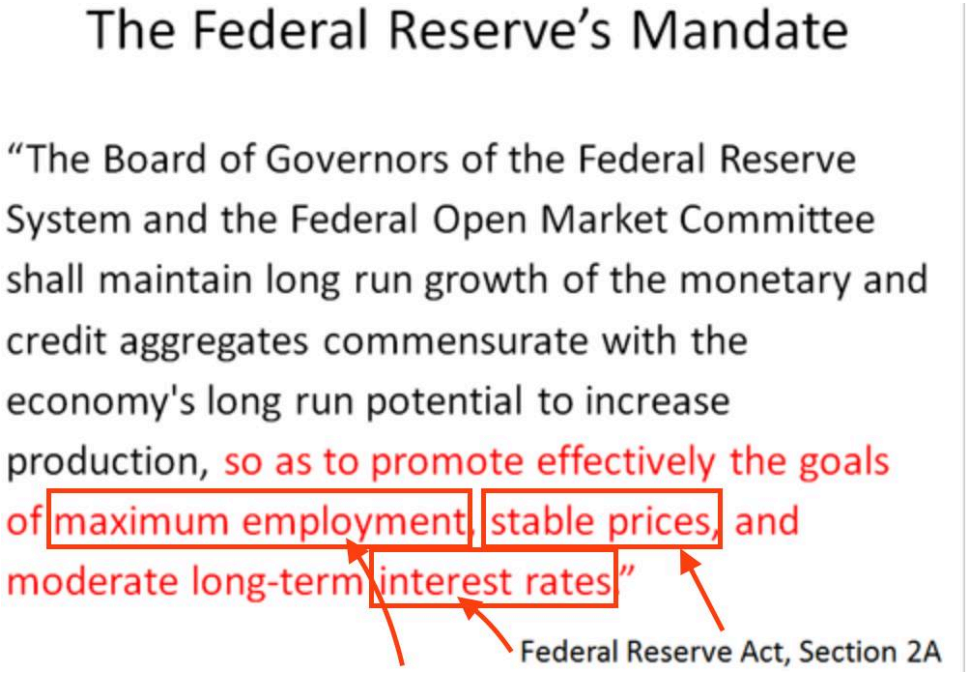
Hacking Fedspeak-a quick and dirty guide to understanding central banking talk : by Dang Du

DANG DU · TUESDAY, SEPTEMBER 13, 2016

The Art of Talk and Swagger

On the Eastern Seaboard of the U.S., folks will say wicked to mean something cool while on the West Coast locals may substitute that with ‘way’ or ‘hella’. Stylistically, this is talking with swagger to signal one’s sentiment. Central bankers have their own way of doing that--through Fedspeak, though it’s blanketed with esoteric jargons and much more impactful to the economy than just bantering about the hottest bars in town.

Alan Blinder, former vicechair of the Federal Reserve Board under Alan Greenspan, described Fedspeak as "a turgid dialect of English". Reflecting on the new language he learned as a central banker, he noted that “You soon learn to mumble with great incoherence.” Yet, since the Fed is the world’s most influential central bank, it cannot mince words, especially in an age of rapid communication flow and constant information sharing. In the millennial fashion, I like offer a dirty guide on how to understand Fedspeak with a simple algorithm that zips through public speeches and identifies the focal points.



Remember that the modern Fed has three key responsibilities: (1) Formulate monetary policy (i.e. influence interest rates); (2) Serve as lender of last resort (i.e. provide credit to insured financial firms under tight credit conditions); and (3) Regulate and supervise bank holding companies.

One way to glean the important things that Fed officials look out for as they try to fulfill the Fed's three responsibilities: dive through their remarks and see how many times they repeat certain words or phrases. Subject to intense scrutiny and word limit, the Fed is known to craft precise commentary to explain its actions, yet shrouded in jargons to limit speculative market behavior.

Dissecting the Fed's first role:

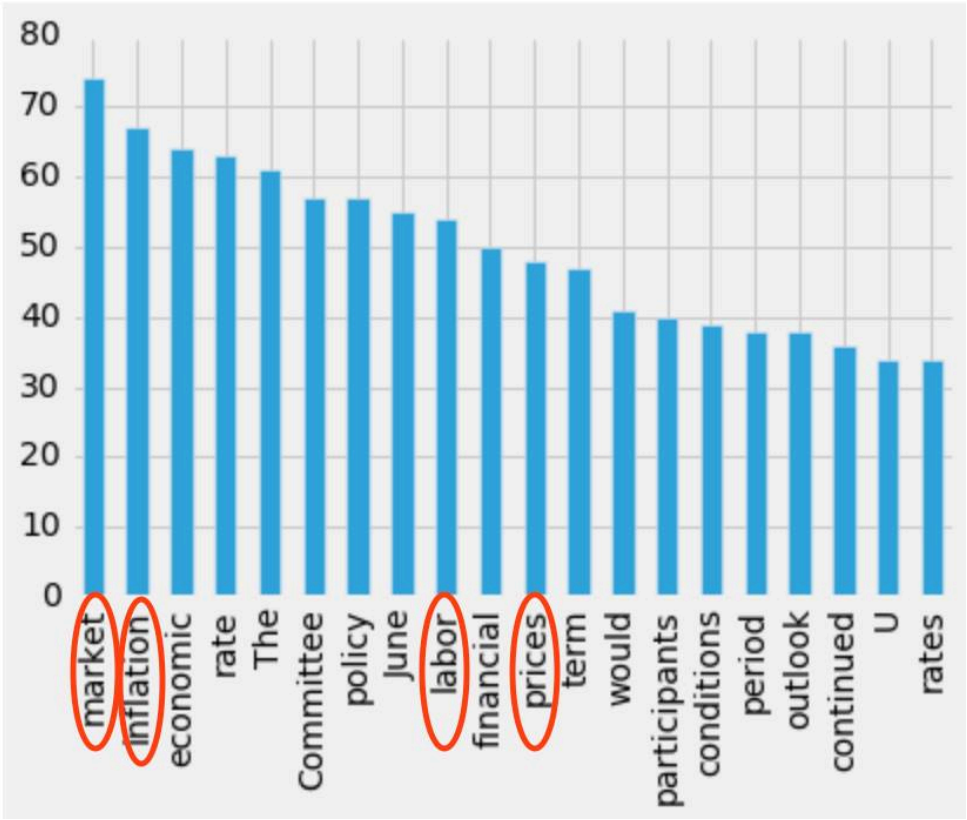
(1) Formulating monetary policy Recent meeting minutes by the Federal Open

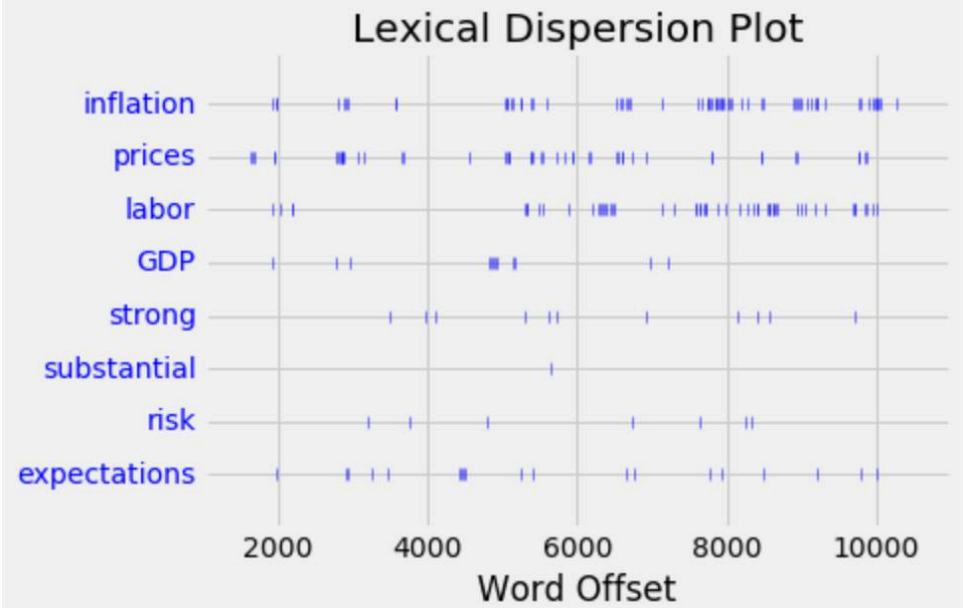
Market Committee (FOMC) reveal that the most commonly cited words include: **market, inflation, prices, labor *market***, and **expectations**. Fed officials discussed these topics considerably as the meeting rolled on, as indicated by the dispersion plot. This makes sense given that the Fed bases its decision whether to change interest rates on its ability to reach two related goals: (a) strong, consistent job creation and (b) a two percent inflation rate.

Chair Janet Yellen is a prominent labor economist and has placed the labor market recovery high on her agenda so we would see this reflected in high level meetings. Also, more than they like to admit publicly, Fed officials really care about what markets think. You get a good sense of that by how many times 'markets' are mentioned. Markets aren't fond of surprises or uncertainty, so policymakers tend to haggle over the cleanest way to communicate the Fed's decisions without causing market disruptions.

Recent text analytics emphasize a discussion around the labor market--in

reaction to mixed job creation data. ‘**Strong**’ is mentioned a few times but not ‘**substantial**,’ referring to economic performance. In addition to ‘**inflation**’ and ‘**prices**’, officials also throw around the jargon ‘**expectations**’ a great deal, which in recent context suggests policymaking committee is reasonably confident that businesses and consumers don’t expect inflation to pickup considerably anytime soon--In Fed lingo, inflation expectations are anchored. There is a chance that the Fed could raise interest rates in the next FOMC meeting or perhaps by the year end, but tempered economic performance and low inflation may give the Fed room to keep rates low for some time, as needed.

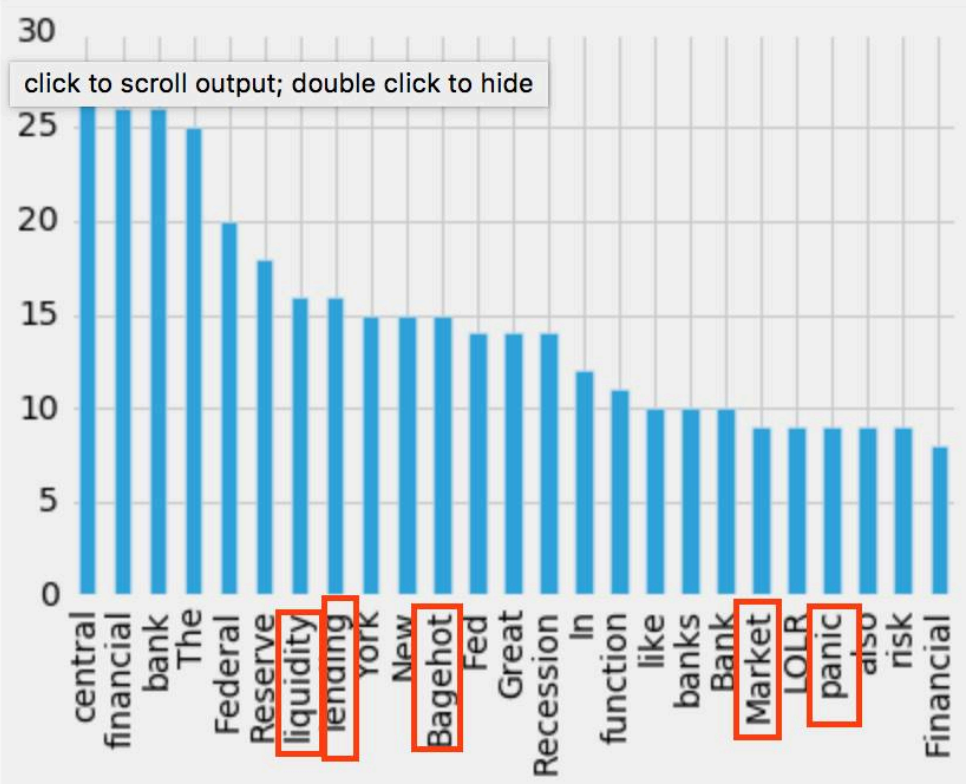


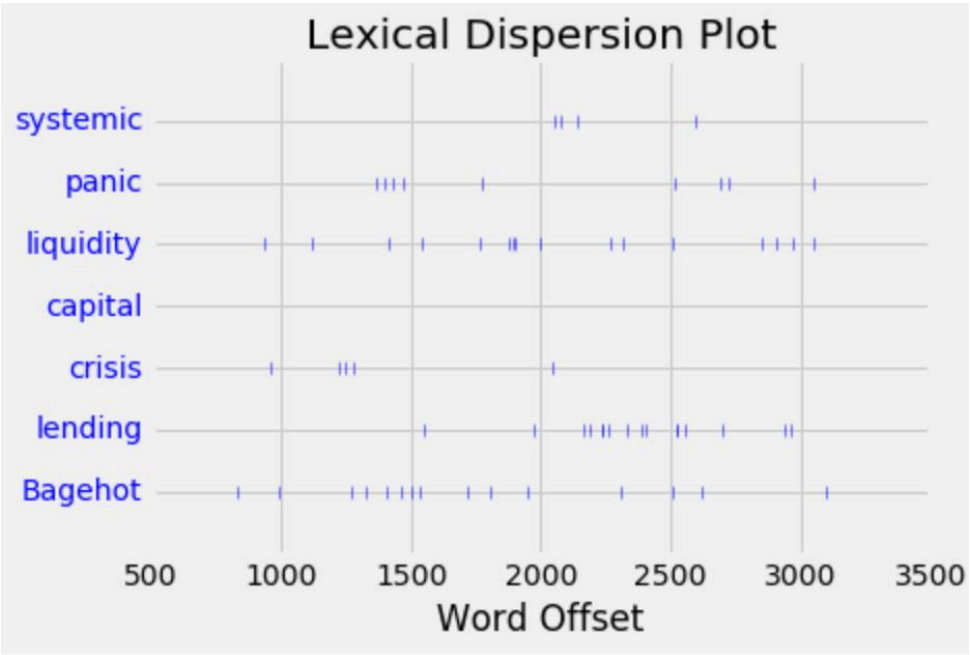


Dissecting the 2nd Role

(2) Lender of last resort Lender of last resort refers to the Fed's firefighting role of extending credit to institutions when they cannot obtain credit elsewhere. In a recent speech by Stanley Fischer, current vicechairman of the Fed, the most frequently occurring words point to the overriding theme of liquidity; this is the funding and credit to firms and market participants.

Why is liquidity discussed in the context of **lending, Bagehot, market, and panic**? In practice, the Fed has historically followed the dictum by Walter Bagehot, a British economic journalist, in which the central bank should lend freely at a penalty interest rate to solvent institutions during a financial panic. The Fed fulfilled this role during the Stock Market Crash of 1987, the 9/11 Terrorist Attack, and most recently the global financial crisis when firms couldn't find channels that were willing to extend credit at reasonable market rates.

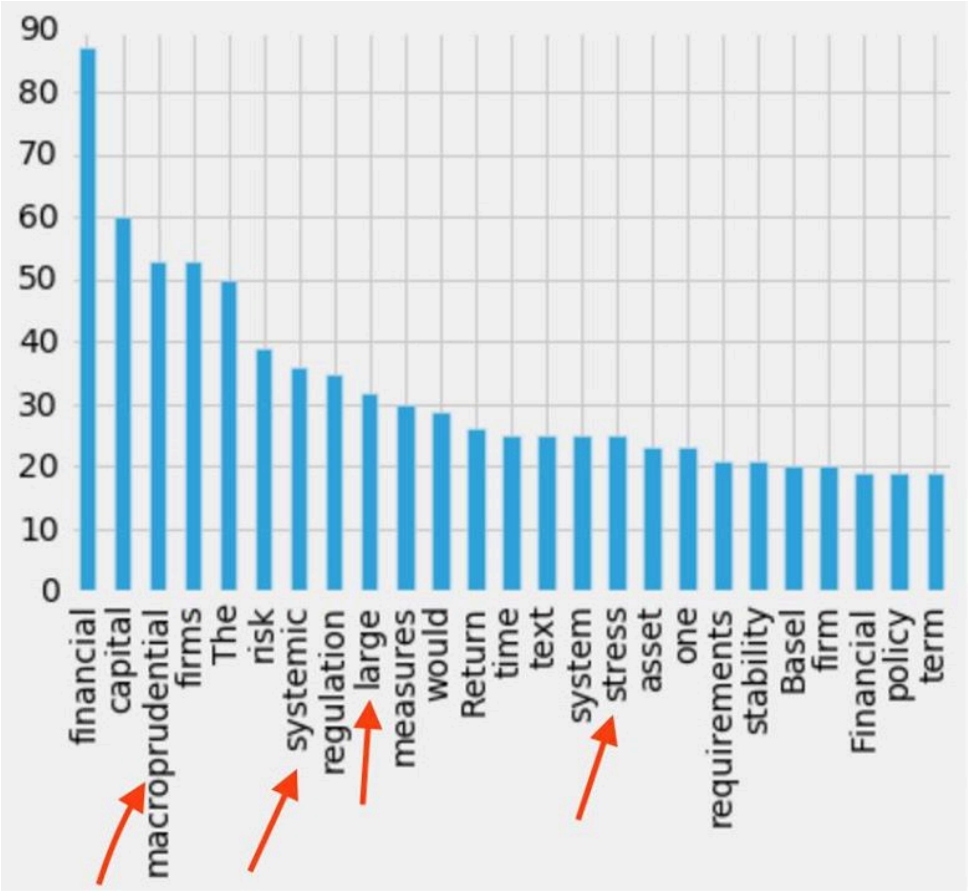




The Fed's Third Role

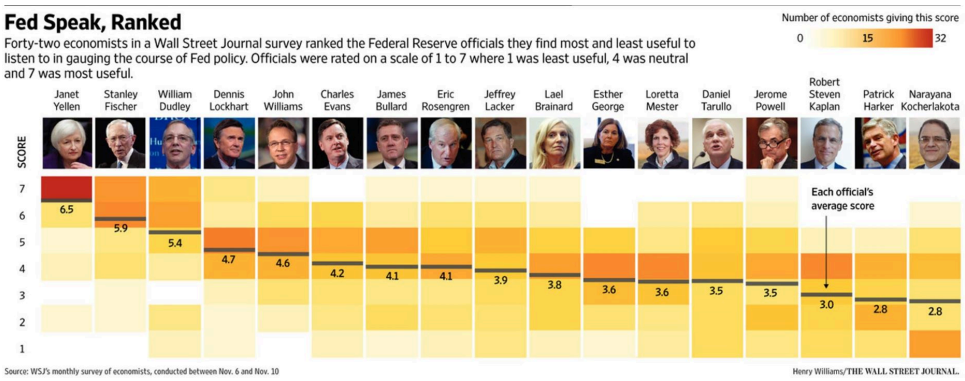
(3) Regulating and supervision banks and non-bank financial institutions.

As a regulator and supervisor to the largest banking institutions, the Fed clearly cares a great deal about risk—specifically systemic risk that could destabilize the global economy—as a result of a failure by a '**large**', complex, and interconnected financial institution. During the 2008-2009 financial crisis, the regulatory approach of focusing on the safety of soundness of individual '**firms**' limited the government's ability to appreciate system-wide buildup of risks in the housing market (i.e. a housing bubble). Since then there's been significant momentum to place higher premium on a new regulatory approach called '**macroprudential regulation**,' which is concerned with how '**systemic risk**' to the financial system could have domino effects on the health of individual institutions.



Ending Note The algorithm used here is the natural language processing toolkit in Python—the same module used to analyze sentiments in social domains such as U.S. presidential debates, Twitter feeds, and stock markets. Though nothing trumps the value of critically reading the actual text, this approach can help us identify focal points in what would otherwise be very perplexing commentary.

Bonus: Wall Street Journal scores Fed officials on their Fedspeak swagger. Takeaway: certain officials speak in excess jargons that offer little valuable insights for Fed observers.

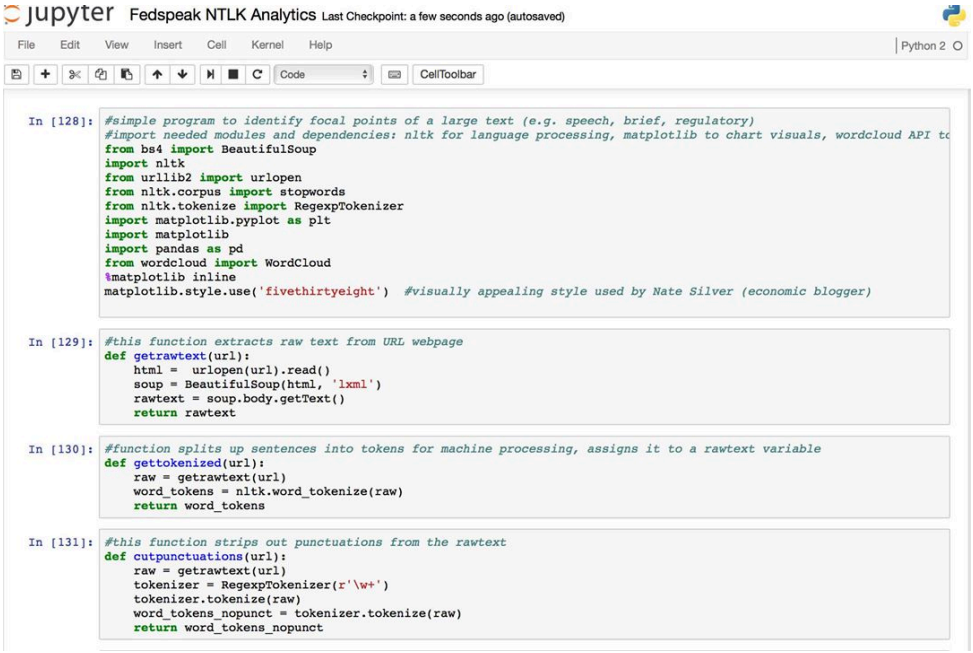


References

Blinder, Alan S. (2001); Studies, International Center for Monetary and Banking.

Bagehot, Walter (1873). How do central banks talk?. Centre for Economic Policy Research. p. 66. ISBN 978-1-898128-60-1. Lombard Street: A Description of the Money Market.

Dang's Python Code


jupyter Fedspeak NTLK Analytics Last Checkpoint: a few seconds ago (autosaved)

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Code CellToolbar

In [128]:
```
#simple program to identify focal points of a large text (e.g. speech, brief, regulatory)
#import needed modules and dependencies: nltk for language processing, matplotlib to chart visuals, wordcloud API to
from bs4 import BeautifulSoup
import nltk
from urllib2 import urlopen
from nltk.corpus import stopwords
from nltk.tokenize import RegexpTokenizer
import matplotlib.pyplot as plt
import matplotlib
import pandas as pd
from wordcloud import WordCloud
%matplotlib inline
matplotlib.style.use('fivethirtyeight')  #visually appealing style used by Nate Silver (economic blogger)
```

In [129]:
```
#this function extracts raw text from URL webpage
def getrawtext(url):
    html =  urlopen(url).read()
    soup = BeautifulSoup(html, 'lxml')
    rawtext = soup.body.getText()
    return rawtext
```

In [130]:
```
#function splits up sentences into tokens for machine processing, assigns it to a rawtext variable
def gettokenized(url):
    raw = getrawtext(url)
    word_tokens = nltk.word_tokenize(raw)
    return word_tokens
```

In [131]:
```
#this function strips out punctuations from the rawtext
def cutpunctuations(url):
    raw = getrawtext(url)
    tokenizer = RegexpTokenizer(r'\w+')
    tokenizer.tokenize(raw)
    word_tokens_nopunct = tokenizer.tokenize(raw)
    return word_tokens_nopunct
```

In [132]:
```
#this function strips out a predetermined list of stopwords or words that don't add much value or substance
def cutstopwords(word_tokens_nopunct):
    filtered_text = []
    #get predetermined list of English stopwords, or words that add little valuable substance
    stop_words = set(stopwords.words('english'))
    for w in word_tokens_nopunct:
        if w not in stop_words:
            filtered_text.append(w)
    return filtered_text
```

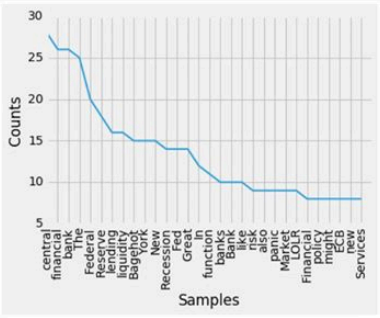
In [133]:
```
#this function creates a text object for the filtered text, necessary step for context analysis
def get_textobject(filtered_text):
    freq_list = nltk.FreqDist(filtered_text)
    text_object = nltk.Text(filtered_text)
    return text_object
```

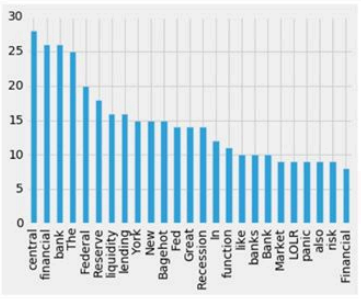
In [134]:
```
#this function takes a list of words and analyzes the context where they occur
def textobject_context(text_object,word_list,*args):
    for w in word_list:
        text_object.concordance(word_list)

    #get pair of words that have a tendency to show up by each other in the text
    text_object.collocations(num=30)
```

In [135]:
```
#this creates visuals for most common words, including line graph, bar chart, and word cloud
def freqlist_visual(filtered_text,rawtext):
    freq_list = nltk.FreqDist(filtered_text)
    #get a list of most recently cited words in the commentary
    freq_list.most_common(35)

    #plot most frequently cited words
    freq_list.plot(30,cumulative=False)

    #Plot bar with values from dict and label with keys
    series = pd.Series([item for item in freq_list.elements()])
    series.value_counts()[:25].plot.bar()

    # Generate a word cloud image of the regulatory text
    wordcloud = WordCloud(max_font_size=40, relative_scaling=.3).generate(rawtext)
    plt.figure()
    plt.imshow(wordcloud)
    plt.axis("off")
```

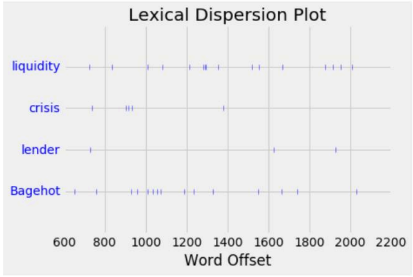
```
In [136]: #prompt user to enter page to original text
          url = []
          url = raw_input("please enter URL/link of a public speech, commentary or written briefing: ")

          please enter URL/link of a public speech, commentary or written briefing: https://www.newyorkfed.org/newsevents/speeches/2013/bax130919.html

In [137]: #Next steps: call the functions

In [138]: rawtext = getrawtext(url)

In [139]: word_tokens = gettokenized(url)

In [140]: word_tokens_nopunct = cutpunctuations(url)

In [141]: filtered_text = cutstopwords(word_tokens_nopunct)

In [142]: text_object = get_textobject(filtered_text)

In [143]: textobject_context(text_object,'liquidity','stability','systemic')
          Bagehot Bernanke Draghi Emergency Liquidity Macroprudential Supervision Redisc
```

```
In [144]: freqlist_visual(filtered_text,rawtext)
```





In [145]:
```
word_list = ['liquidity','crisis','lender','Bagehot']
#create dispersion plot to show frequency words show up as we scroll through the speech
text_object.dispersion_plot(word_list)
```



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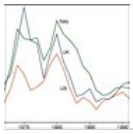
Phuong Doan, Hai Nguyen and David Bugni

Hai Nguyen my adviser, Jon Faust, would take the other side on this issue. he's been spending a lot of effort lately trying to convince people that there is no hidden meaning in Fed's messages (through his Center for Financial Economics at Hopkins ... See More



Center for Financial Economics

This is the sixth post in a series on the well-disguised, steady predictability of Fed policy over the last several years. Here we provide a brief update about how Jackson Hole fits in the story.

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