

# Economic Trends

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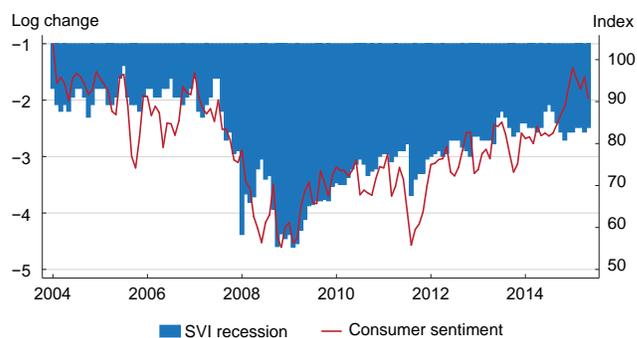
## Assessing Consumer Confidence with Google Search Terms

Rawley Z. Heimer, Timothy Stehulak, and Daniel Kolliner

Many traditional indicators of economic conditions don't tell us what is happening at the moment; they come with a lag between the current time and the most recent data point. For example, preliminary estimates of first quarter GDP may not be released to the public until the end of May, with the final estimate coming at the end of June.

An alternative approach—studying the words and phrases people use in Google searches—has the potential to fill that gap. Internet search volume can be informative in ways similar to and different from traditional economic indicators. There are two primary benefits to considering internet search volume as an alternative to these indicators. First, data are available on a greater frequency and in real time, and second, targeted search terms could provide deeper information about the current situation because many words and combinations of words can be investigated. In this article, we consider whether search volumes for various words provide information about changes in consumer confidence.

Google SVI Recession and Consumer Sentiment



Last data point: 5/2015.  
Source: Google/University of Michigan.

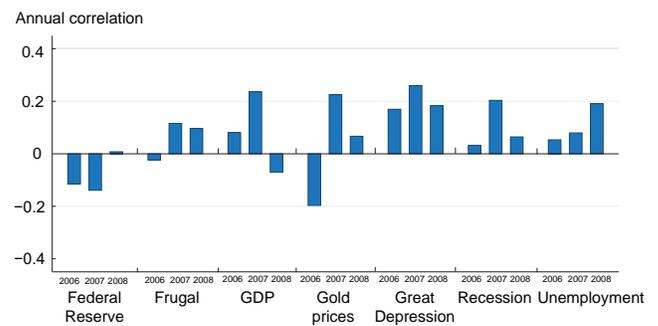
Perhaps the most well-known measure of consumer sentiment is produced by the University of Michigan Survey Research Center (UM). The measure is produced from the information gathered in surveys of consumers. Our alternative measure is a Google search volume index (SVI) for the word “recession.”<sup>1</sup>

We expect people to be searching for “recession” when confidence is low, and they should be less concerned about recessions when confidence is high. The Google SVI for “recession” tracks the UM measure of consumer sentiment closely, as both indicators rise and fall together from 2004 until today. The close relationship suggests the Google SVI for “recession” is fairly successful as a possible alternative measure of consumer confidence.

Though promising, the approach poses a unique challenge. Using Google search volumes to construct economic indicators relies on the fact that people are searching for things they care about, but those can change over time. To illustrate, we look at another set of terms which we would expect to be related to confidence in recent times: “Federal Reserve,” “frugal,” “GDP,” “gold prices,” “Great Depression,” “recession,” and “unemployment.” To judge the usefulness of SVI for these terms as indicators of confidence, we compare the SVI results to equity returns. We expect SVI to be related to changes in equity returns because equity returns can be thought of as a market-based reflection of confidence and expectations for future economic growth.

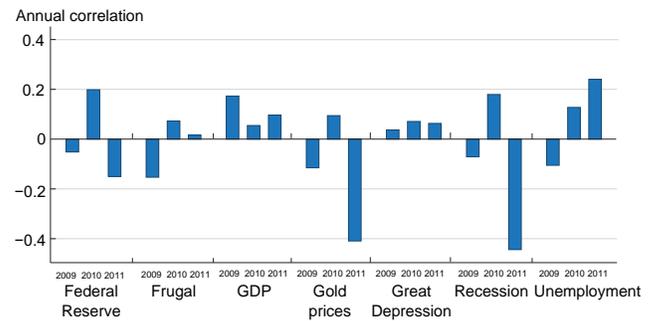
The following charts show the annual correlations between the various terms’ respective search volumes and S&P 500 equity returns over the last decade. To understand our measure, values above zero indicate that the Google search term is positively related to changes in equity prices, while values below zero indicate the term is negatively related. The strength of the positive or negative relationship is indicated by the absolute value (distance from zero).

Google Search Terms Relation to S&P 500 Return, 2006–2008



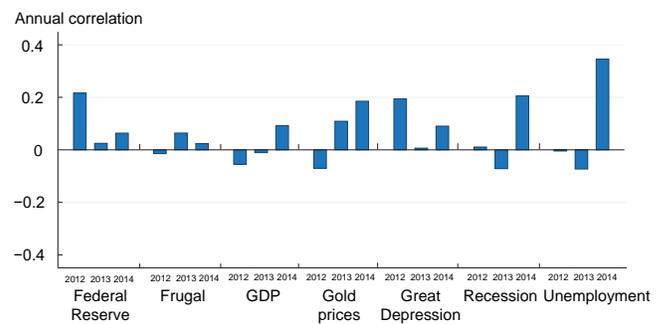
Last data point: 12/2014.  
Source: Google/Standard and Poors.

Google Search Terms Relation to S&P 500 Return, 2009–2011



Last data point: 12/2014.  
Source: Google/Standard and Poors.

Google Search Terms Relation to S&P 500 Return, 2012–2014



Last data point: 12/2014.  
Source: Google/Standard and Poors.

Some clear patterns emerge. For example, Google search interest in “gold prices” is negatively related to stock prices. Gold prices tend to be countercyclical, so when consumers stop searching for gold prices, it is a good sign that they may invest more heavily in stocks. As expected, terms like “Great Depression” and “recession” were most highly correlated with stock prices during and immediately following the period surrounding the recent financial crisis.

More recently, up to 2014, the most powerful of our search terms was “unemployment.” Although the economic recovery following the Great Recession has been modest by historical standards, many have expressed concern about slow employment growth and higher-than-average rates of unemployment. Unemployment may be the key to changes in expectations of future consumption. Both changes in unemployment and these expectations could have an effect on future economic growth, which would in turn affect stock returns.

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#### Footnote

1. The measure is motivated by a paper, “The Sum of All FEARS: Investor Sentiment and Asset Prices,” Da, Zhi, Joseph Engelberg, and Pengjie Gao, 2015.



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