Predicting FOMC Rate Decisions: Takes Two to Tango

How many more rate hikes in 2017? Decision makers in the financial world have a vital interest in predicting the accurate answer to this question. The pace of rate hikes not only affects future borrowing costs but also signals the Federal Open Market Committee’s (FOMC) expectations about the near-term economy. The FOMC’s dual mandate regarding the labor market and inflation (maximum employment and price stability) guides policy actions. Thus, an optimistic FOMC that sees its mandates having been met is more likely to hike rates than a cautious one.

This report utilizes several different models/techniques to predict the near-term state of the economy, labor market and inflationary environment to provide a context to gauge the FOMC’s rate decisions for the rest of 2017. Our first model predicts a very low (near zero) probability of a recession during the next six-months. A higher probability of a recession in the near term may not be the ideal situation for a rate hike. The second model suggests a trend-like GDP growth rate (around 2-2.5 percent) for the next two quarters with a 70 percent probability. A 2-2.5 percent GDP growth rate in the near future may not be a bad sign as the current expansion is the third-longest one in the history of the United States. The third model measures the state of the labor market by constructing a labor market index that suggests a healthy (above trend growth) labor market, an encouraging sign for a rate hike in the near future. Our inflation index, the fourth model, suggests softer inflation, partially attributed to the core inflation index, which is below trend at present. The fifth model predicts the near-term (six months ahead) inflation outlook by generating probabilities of inflationary/dis-inflationary pressure and stable prices scenarios. The highest probability (51 percent) is attached to stable prices (between 1.5 and 2.5 percent as measured by the PCE deflator), but the probability of disinflationary pressure (below 1.5 percent) has risen for the past few months and currently stands at 38 percent. The overall inflation outlook is pointing toward softer inflation for the rest of 2017, which is not consistent with the FOMC’s mandate of price stability (2 percent inflation target). The final model predicts the probability of a rate hike during the next six months. Currently, the model suggests a 58 percent chance of another rate hike in 2017.

Our final model generates a probability of an FOMC rate decision using a few predictors, and those predictors represent economic fundamentals. Therefore, the fundamentals are suggesting the potential for another rate hike in 2017, which is our official forecast as well. A note of caution: the qualitative factor (the unknown to the models) is the FOMC’s intention to scale back the balance sheet starting in the later part of 2017. The timing of balance sheet reductions may affect the rate decisions of the FOMC in addition to the upcoming economic and financial data.

The Dual Mandate of the FOMC and the Dots Plot

The dual mandate of the FOMC, which is maximum employment and price stability, dictates that the FOMC consider employment (labor market) and the inflation outlook (along with other factors) when deciding the interest rate targets (and other monetary policy decisions). The
unemployment rate is close to the full employment rate — the most recent figure is 4.4 percent for June 2017, Figure 1.¹

Furthermore, the May 2017 unemployment rate was 4.3 percent, which was the lowest figure since May 2001. Thus, the labor market, using the unemployment rate as a proxy, is doing fine.

**Figure 1**

![PCE Deflator v Unemployment Rate](image1)

**Source:** U.S. Department of Labor, Federal Reserve Board and Wells Fargo Securities

The other goal of the FOMC, price stability, is under stress as average price growth, measured by the PCE deflator, for the last five years (May 2012-May 2017) is just 1.2 percent. The FOMC’s inflation target is 2 percent (the PCE deflator is the preferred measure of prices for the FOMC), and the PCE deflator (year-over-year percent change) has remained below 2 percent between May 2012 and May 2017 (with the exception of February 2017 when the PCE deflator was 2.1 percent), Figure 1. The PCE deflator was below 2 percent for almost five consecutive years, the longest stretch in 50 years.² The consequences of lower inflation (along with other factors) for prolonged periods of time can be seen in the downward shift of the expected path of the federal funds target rate (fed funds rate) between December 2015 and December 2016, Figure 2. The most recent forecast from the FOMC suggests a slightly higher near-term fed funds rate path, but that path is still well below the December 2015 path. Overall, this represents a very gradual path of monetary policy normalization compared to historical standards. In the following sections of this report, we map the near-term state of the economy, in addition to the labor market and inflation outlook, to help us predict the near-term path of the fed funds rate.

**Mapping the State of the Economy for the FOMC’s Rate Decisions**

The current state of the economy, gauged in part by examining the labor market and inflationary environment, along with the near-term outlook for the economy, are crucial elements in setting the tone for monetary policy. Typically, the FOMC turns to an accommodative monetary policy during recessions and starts to normalize the policy stance during expansions (or in the case of a stronger recovery). Our probit model estimates a very low (near zero) probability of a recession during the next six months, Figure 3.³ We built the probit model in 2007, and the model has served us well as it never produced a false signal in the past 10 years, a real-time accuracy check. Therefore, in our view, the chance of a recession with the starting date in 2017 is highly unlikely—no recession worries for the FOMC in 2017.

¹ NAIRU (Non-accelerating inflation rate of unemployment) is widely considered as the full employment or natural unemployment rate; the current NAIRU is 4.67 percent for Q2 2017.

² The last time the PCE deflator (YoY) was below 2 percent for five consecutive years was between January 1960 and January 1966, with an average of 1.33 percent for the time period.

³ For a detailed discussion about the probit model and its predictors, see our report, “Recession Talks in the Spotlight: Should We Worry?” Published on February 24, 2016. The report is available upon request.
Economies evolve over time as do the relationships between economic/financial variables. For example, the Great Recession ended in June 2009 and the first interest rate hike by the FOMC occurred in December 2015. One major reason for the accommodative monetary policy stance (even after the recession ended) was because of the painfully slow nature of the recovery when compared to historical standards. Therefore, it is important to predict the pace of a recovery (weaker versus stronger) in addition to the timing of a recession. A weaker recovery prediction (such as recovery from the Great Recession) suggests a continuation of the accommodative monetary policy as opposed to a stronger recovery forecast, which may support a change in the monetary policy stance. Therefore, we built an ordered probit framework that simultaneously predicts the probability of a recession and the strength of a recovery, and the model’s estimates are very impressive. The model successfully predicted all recessions and pace of recoveries since the 1980s in a simulated, out-of-sample experiment. The most recent estimate of the model (based on Q1 2017) suggests a highly likely (70 percent probability) trend-like growth (around 2-2.5 percent) for the second half of 2017, Figure 4.

In sum, the growth outlook for the rest of 2017 looks like a 2 percent growth economy, which may not be such a bad thing given the late-stage of the current business cycle. The current expansion is the third longest expansion on record and, typically, economies produce slower growth rates in the late phase of the business cycle, as resource utilization is either at the full/peak or close to peak level. Therefore, there is not much room for higher growth rates in the later stages of the business cycles, all else equal.

Figure 3
Recession Probability Based on Probit Model
Model with LEI

Figure 4
Two-Quarter Ahead Probability of Growth Scenarios

Source: Wells Fargo Securities

*For more detail about the Ordered Probit model see our report, “Predicting the Probability of Recession and Strength of Recovery: An Ordered Probit Approach.” Published on July 19, 2016. The report is available upon request.*
The State of the Labor Market and Inflation Outlook

As mentioned earlier, the unemployment rate is near its historical low as the labor market is close to full employment. However, a single indicator, such as the unemployment rate, may not be a sufficient representation of the labor market. We have addressed this issue in our past work and proposed a labor market index (LMI) that extracts information from six variables and thereby serves as a better measure of the state of the labor market. Looking at Figure 5, a positive value of the LMI suggests a healthy labor market as, on average, most segments of the labor market have positive growth compared to the previous month. Furthermore, the index has been in positive territory for the past several years, which is an indication of a healthy and growing labor market. Basically, our analysis suggests that the labor market is healthy and may support a rate hike decision from the FOMC in the near future.

In addition to the current inflation rates, the FOMC monitors the expected inflation path, or near-term inflation expectations, in its rate setting decisions. That is, if current inflation rates are below the target of 2 percent but there are reasons to believe that inflation will meet the 2 percent target in the near future, then those expectations may support a rate hike, all else equal. We built a model to predict the probability of inflationary pressure, disinflationary pressure and stable prices, simultaneously, during the next six months. Recently, the probability of stable prices (inflation rate between 1.5 and 2.5 percent) had a probability of 51 percent, Figure 8. Although the

---

5 For more detail about our labor market index see, “Measuring the State of the U.S. Labor Market: A New Index,” Published on October 28, 2013. The report is available upon request.
6 “Understanding the Risk of Deflation.” Published on August 2, 2010. The report is available upon request.
7 For more detail about the model see, “Predicting the Probability of Inflation/Deflation: An Ordered Probit Model.” Published on February 17, 2014. The report is available upon request.
The probability of disinflationary pressure has moved higher recently.

Attaining and sustaining a 2 percent inflation rate for the rest of 2017 will not be easy.

The probability of disinflationary pressure (inflation rate below 1.5 percent) is at 38 percent, the probability of disinflation was higher than the other two inflation scenarios for the majority of the time during the past six years. This suggests a longer-term, lower-inflation problem, which is consistent with the accommodative monetary policy for the past six years. Furthermore, in recent months, the probability of disinflationary pressure has moved higher.

In sum, our analysis suggests that the current state of inflation, along with the near-term outlook, is not consistent with meeting the FOMC’s goal (an inflation target of 2 percent). That is, our model estimates are suggesting that a sustainable 2 percent inflation rate for the rest of 2017 may be in the picture but will not be easy to attain, as the probability of disinflationary pressure has been on the rise the past few months.

Figure 6

Inflation Index
Trend Based on H-P Filter

Source: Wells Fargo Securities

Figure 7

Core Inflation Index
Trend Based on H-P Filter

Source: Wells Fargo Securities

Figure 8

The 6-Months Ahead Probability of Price Scenarios

Source: Wells Fargo Securities

Predicting the Probability of the FOMC Rate Decision

In our past work we have built an Ordered Probit model to predict the probability of the FOMC rate decision during the next six months. The model utilizes the unemployment rate, PCE deflator (YoY) and LEI (YoY) as predictors and generates the probability of a rate hike, unchanged rates and a rate reduction, simultaneously, see Figure 9. The probability of a rate hike over the

* For more detail about the model see our report which is also available upon request. “Predicting the Probability of FOMC Rate Decisions: An Ordered Probit Approach,” Published on June 4, 2014.
next six months at 58 percent is the most likely scenario, while the probability of unchanged rates is 40 percent during the next six months. Furthermore, the probability of a rate hike has outpaced the other two scenarios in recent years, which is consistent with the actual rate hike outcomes of the past couple of years. Quite apparent is that the probability of unchanged rates was persistently higher than the other two scenarios during the 2010-2014 time period, which is consistent with the weak economic fundamentals (a very slow labor market recovery and below 2 percent inflation for most of the time). The higher probability of a rate hike is consistent with our forecast of one more rate hike (December meeting) in 2017.

Our model utilizes economic fundamentals to predict the likelihood of an FOMC rate decision. However, there are some potential qualitative factors such as the recent talks of balance sheet reduction beginning relatively soon that may affect the rate decision. Therefore, we caution our readers to not overlook the qualitative factors that may affect a rate decision. Furthermore, the FOMC has stated that it is “data-dependent,” thus incoming data that are stronger/weaker than expected would also affect a rate decision.

**Final Thoughts: May Not Be a Good Time for a “High-Tempo Tango”**

Our measures of the labor market suggest an additional rate hike in 2017 is in the cards. The growth outlook (no recession and trend-like growth) for the rest of 2017 is also supportive of a rate hike. Our Ordered Probit model puts the probability of a rate hike at 58 percent during the next six months.

However, the current and near-term inflation outlook may not be enough for a “high tempo tango” (multiple rate hikes in the rest of 2017). Furthermore, qualitative factors, such as talks of a balance sheet reduction beginning relatively soon, can also affect a rate hike decision.
Wells Fargo Securities Economics Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diane Schumaker-Krieg</td>
<td>Global Head of Research,</td>
<td>(704) 410-1801</td>
<td><a href="mailto:diane.schumaker@wellsfargo.com">diane.schumaker@wellsfargo.com</a></td>
</tr>
<tr>
<td></td>
<td>Economics &amp; Strategy</td>
<td>(212) 214-5070</td>
<td></td>
</tr>
<tr>
<td>John E. Silvia, Ph.D.</td>
<td>Chief Economist</td>
<td>(704) 410-3275</td>
<td><a href="mailto:john.silvia@wellsfargo.com">john.silvia@wellsfargo.com</a></td>
</tr>
<tr>
<td>Mark Vitner</td>
<td>Senior Economist</td>
<td>(704) 410-3277</td>
<td><a href="mailto:mark.vitner@wellsfargo.com">mark.vitner@wellsfargo.com</a></td>
</tr>
<tr>
<td>Jay H. Bryson, Ph.D.</td>
<td>Global Economist</td>
<td>(704) 410-3274</td>
<td><a href="mailto:jay.bryson@wellsfargo.com">jay.bryson@wellsfargo.com</a></td>
</tr>
<tr>
<td>Sam Bullard</td>
<td>Senior Economist</td>
<td>(704) 410-3280</td>
<td><a href="mailto:sam.bullard@wellsfargo.com">sam.bullard@wellsfargo.com</a></td>
</tr>
<tr>
<td>Nick Bennenbroek</td>
<td>Currency Strategist</td>
<td>(212) 214-5636</td>
<td><a href="mailto:nicholas.bennenbroek@wellsfargo.com">nicholas.bennenbroek@wellsfargo.com</a></td>
</tr>
<tr>
<td>Anika R. Khan</td>
<td>Senior Economist</td>
<td>(212) 214-8543</td>
<td><a href="mailto:anika.khan@wellsfargo.com">anika.khan@wellsfargo.com</a></td>
</tr>
<tr>
<td>Eugenio J. Alemán, Ph.D.</td>
<td>Senior Economist</td>
<td>(704) 410-3273</td>
<td><a href="mailto:eugenio.j.aleman@wellsfargo.com">eugenio.j.aleman@wellsfargo.com</a></td>
</tr>
<tr>
<td>Azhar Iqbal</td>
<td>Econometrician</td>
<td>(704) 410-3270</td>
<td><a href="mailto:azhar.iqbal@wellsfargo.com">azhar.iqbal@wellsfargo.com</a></td>
</tr>
<tr>
<td>Tim Quinlan</td>
<td>Senior Economist</td>
<td>(704) 410-3283</td>
<td><a href="mailto:tim.quinlan@wellsfargo.com">tim.quinlan@wellsfargo.com</a></td>
</tr>
<tr>
<td>Eric Vatoria, CFA</td>
<td>Currency Strategist</td>
<td>(212) 214-5637</td>
<td><a href="mailto:eric.vitoria@wellsfargo.com">eric.vitoria@wellsfargo.com</a></td>
</tr>
<tr>
<td>Sarah House</td>
<td>Economist</td>
<td>(704) 410-3282</td>
<td><a href="mailto:sarah.house@wellsfargo.com">sarah.house@wellsfargo.com</a></td>
</tr>
<tr>
<td>Michael A. Brown</td>
<td>Economist</td>
<td>(704) 410-3278</td>
<td><a href="mailto:michael.a.brown@wellsfargo.com">michael.a.brown@wellsfargo.com</a></td>
</tr>
<tr>
<td>Jamie Feik</td>
<td>Economist</td>
<td>(704) 410-3291</td>
<td><a href="mailto:jamie.feik@wellsfargo.com">jamie.feik@wellsfargo.com</a></td>
</tr>
<tr>
<td>Erik Nelson</td>
<td>Currency Strategist</td>
<td>(212) 214-5652</td>
<td><a href="mailto:erik.f.nelson@wellsfargo.com">erik.f.nelson@wellsfargo.com</a></td>
</tr>
<tr>
<td>Michael Pugliese</td>
<td>Economic Analyst</td>
<td>(704) 410-3156</td>
<td><a href="mailto:michael.d.pugliese@wellsfargo.com">michael.d.pugliese@wellsfargo.com</a></td>
</tr>
<tr>
<td>E. Harry Pershing</td>
<td>Economic Analyst</td>
<td>(704) 410-3034</td>
<td><a href="mailto:edward.h.pershing@wellsfargo.com">edward.h.pershing@wellsfargo.com</a></td>
</tr>
<tr>
<td>Hank Carmichael</td>
<td>Economic Analyst</td>
<td>(704) 410-3059</td>
<td><a href="mailto:john.h.carmichael@wellsfargo.com">john.h.carmichael@wellsfargo.com</a></td>
</tr>
<tr>
<td>Ariana Vaisey</td>
<td>Economic Analyst</td>
<td>(704) 410-1309</td>
<td><a href="mailto:ariana.b.vaisey@wellsfargo.com">ariana.b.vaisey@wellsfargo.com</a></td>
</tr>
<tr>
<td>Abigail Kinnaman</td>
<td>Economic Analyst</td>
<td>(704) 410-1570</td>
<td><a href="mailto:abigail.kinnaman@wellsfargo.com">abigail.kinnaman@wellsfargo.com</a></td>
</tr>
<tr>
<td>Donna LaFleur</td>
<td>Executive Assistant</td>
<td>(704) 410-3279</td>
<td><a href="mailto:donna.lafleur@wellsfargo.com">donna.lafleur@wellsfargo.com</a></td>
</tr>
<tr>
<td>Dawne Howes</td>
<td>Administrative Assistant</td>
<td>(704) 410-3272</td>
<td><a href="mailto:dawne.howes@wellsfargo.com">dawne.howes@wellsfargo.com</a></td>
</tr>
</tbody>
</table>

Wells Fargo Securities Economics Group publications are produced by Wells Fargo Securities, LLC, a U.S. broker-dealer registered with the U.S. Securities and Exchange Commission, the Financial Industry Regulatory Authority, and the Securities Investor Protection Corp. Wells Fargo Securities, LLC, distributes these publications directly and through subsidiaries including, but not limited to, Wells Fargo & Company, Wells Fargo Bank N.A., Wells Fargo Advisors, LLC, Wells Fargo Securities International Limited, Wells Fargo Securities Asia Limited and Wells Fargo Securities (Japan) Co. Limited. Wells Fargo Securities, LLC is registered with the Commodities Futures Trading Commission as a futures commission merchant and is a member in good standing of the National Futures Association. Wells Fargo Bank, N.A. is registered with the Commodities Futures Trading Commission as a swap dealer and is a member in good standing of the National Futures Association. Wells Fargo Securities, LLC, and Wells Fargo Bank, N.A. are generally engaged in the trading of futures and derivative products, any of which may be discussed within this publication. Wells Fargo Securities, LLC does not compense its research analysts based on specific investment banking transactions. Wells Fargo Securities, LLC's research analysts receive compensation that is based upon and impacted by the overall profitability and revenue of the firm which includes, but is not limited to investment banking revenue. The information and opinions herein are for general information use only. Wells Fargo Securities, LLC does not guarantee their accuracy or completeness, nor does Wells Fargo Securities, LLC assume any liability for any loss that may result from the reliance by any person upon any such information or opinions. Such information and opinions are subject to change without notice, are for general informational only and are not intended as an offer or solicitation with respect to the purchase or sales of any security or as personalized investment advice. Wells Fargo Securities, LLC is a separate legal entity and distinct from affiliated banks and is a wholly owned subsidiary of Wells Fargo & Company. © 2017 Wells Fargo Securities, LLC.

Important Information for Non-U.S. Recipients

For recipients in the EEA, this report is distributed by Wells Fargo Securities International Limited ("WFSIL"). WFSIL is a U.K. incorporated investment firm authorized and regulated by the Financial Conduct Authority. The content of this report has been approved by WFSIL a regulated person under the Act. For purposes of the U.K. Financial Conduct Authority’s rules, this report constitutes impartial investment research. WFSIL does not deal with retail clients as defined in the Markets in Financial Instruments Directive 2007. The FCA rules made under the Financial Services and Markets Act 2000 for the protection of retail clients will therefore not apply, nor will the Financial Services Compensation Scheme be available. This report is not intended for, and should not be relied upon by, retail clients. This document and any other materials accompanying this document (collectively, the "Materials") are provided for general informational purposes only.

SECURITIES: NOT FDIC-INSURED/NOT BANK-GUARANTEED/MAY loose value