OUTLOOK Economic Data and Commentary

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The Fed's Path Forward

Throughout 2015, investors, borrowers, economists and others around the world waited for the U.S. Federal Reserve to hike short-term interest rates. The Fed had held the benchmark federal funds rate at or near zero ever since the start of the 2008 financial crisis. At the beginning of the year, it was widely expected that the Fed would start raising rates in June – or in September at the latest. But the central bank balked, fearful that increasing rates would stymie a frustratingly weak economic recovery.

On Wednesday, December 16, at the Federal Open Market Committee's final meeting of the year, the Fed increased short-term interest rates by one-quarter of one percentage point. The move, which was widely anticipated by a substantial majority of market watchers, finally puts the U.S. economy back on the path to more normal monetary policy.

For perspective on the decision, *OUTLOOK* turned to noted economist Randall S. Kroszner, who served as a Governor of the Federal Reserve System between 2006 and 2009. Dr. Kroszner argues that what really matters isn't the Fed's initial rate hike – but how vigorously it raises rates after that.

OUTLOOK: Were you surprised by anything in the Fed's announcement?

Randall Kroszner: It was exactly as expected: a quarter-percent increase but a commitment to a slow, gradual path of future interest rate increases. I think they had wanted to make this move in September, but because of the international turmoil and volatility that was affecting the U.S. markets, they decided to hold off.

The Fed is a very cautious and conservative institution. Given the uncertainty over exactly what was causing the volatility, I think the Fed thought it was wise to wait. However, from the macroeconomic point of view, whether they raised rates in September versus December isn't very significant.

OUTLOOK: What criteria did the Fed use in making its decision?

RK: The Fed has two specific criteria. First, they want to see a sustained and sustainable labor market recovery. I think most people around the table believe that we had achieved that, with unemployment at 5 percent following November's jobs report. The real question came down to the

This Month's Expert

Randall S. Kroszner served as a Governor of the Federal Reserve System from 2006 until 2009. He chaired the committee on Supervision and Regulation of Banking Institutions and the committee on Consumer and Community Affairs. In these capacities, he took a leading role in developing responses to the 2008 financial crisis and in undertaking new initiatives to improve consumer protection and disclosure, including rules related to home mortgages and credit cards.

From 2001 to 2003, Dr. Kroszner was a member of the President's Council of Economic Advisers. He was involved in formulating policy on a wide range of issues, including responses to corporate governance scandals, government-sponsored enterprise reform, pension reform, terrorism risk insurance, tax reform, currency crisis management, sovereign debt restructuring, the role of the International Monetary Fund, and international trade and development.

Dr. Kroszner is currently Norman R. Bobins Professor of Economics at the University of Chicago Booth School of Business, where he has taught since 1990.

second criterion, which is their level of confidence in reaching a 2 percent inflation goal over the medium term. The Fed's main gauge of inflation is the personal consumption expenditure (PCE) price index, which has been stubbornly below the 2 percent target for a very long time, hovering between 1 and 1.5 percent.

The key issue in the debate was how likely are we to see pressures that are going to lead us towards increasing inflation. They've had to consider questions such as, "Do we need to move now to be ahead of the curve? Or, are we in a different place where, despite the unemployment rate having fallen to about 5 percent, we're not going to see wage pressure?"

The Fed's traditional line of thinking is that when unemployment falls to around 5 percent, we start to see wage pressure that will then put pressure on prices. The decision-makers at the Fed generally believe that monetary policy should be proactive and take action in anticipation of inflation pressure. The difference here is that while the unemployment rate has declined dramatically, there has been scant evidence of wage pressure and no evidence of overall price pressure.

OUTLOOK: How do you think the U.S. economy is going to respond to higher short-term rates?

RK: It's very important to put it in context – the first rate hike is just one quarter of one percentage point. This move by itself is highly unlikely to make or break any economy since short-term rates will still be incredibly accommodative by historical standards.

So the real question is, what does it mean going forward? It's not just when does liftoff occur, but what is the trajectory after liftoff? Are we going to go on a path like we did back when Alan Greenspan was raising rates? From 2004 to 2005, the Fed raised rates one quarter of a percentage point at every meeting – roughly two percentage points per year. Or, is it going to be a much gentler path?

I think the Fed has made it clear that it's going to be a much gentler path. The FOMC statement for quite some time has said that even if they begin to raise rates, they're going to keep rates lower than has traditionally been the case in a recovery. I think it will be a gentle liftoff, taking place gradually.

If by next June rates are at 2.5 percent, then that could cause a lot of tumult in the economy and in markets. If they take a much gentler course, I think it's unlikely to cause major dislocations in the economy or in the markets.

“No one sitting around that table in 2008 anticipated that it would be the end of 2015 until we made the first interest rate increase.

OUTLOOK: How do you think people will react to the Fed’s messaging?

RK: The Fed has conveyed that the economy is sufficiently healthy to deal with a quarter-percent rise but that future rate increases will depend upon the evolution of the economy and inflation. This message is likely to be interpreted positively for the economic outlook and will help to boost confidence.

OUTLOOK: Most members of the FOMC seem to think that short-term interest rates should eventually get to 3 to 4 percent. Do you think that’s a reasonable end point?

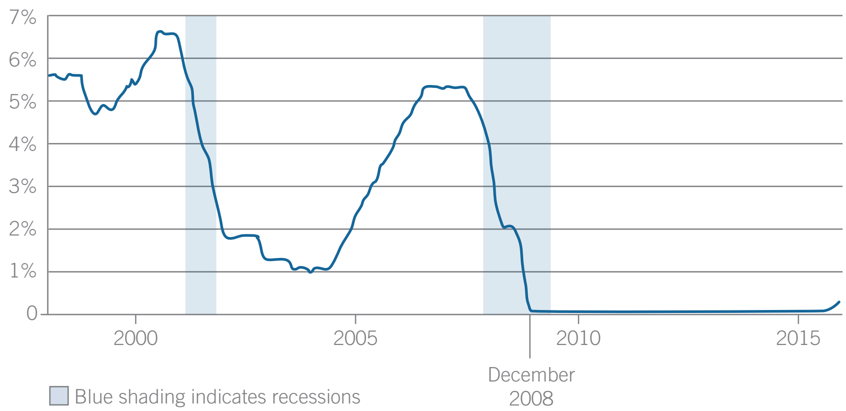
RK: The FOMC’s “long run” interest rate projection has come down from 4 percent to roughly 3½ percent over the last year or so. They are sticking to their long-run inflation projection of 2 percent, which implies that they believe that the long-run real rate is 1½ percent rather than 2 percent. I would agree that this rate is likely to be lower today than it has been in the past. Unless inflation comes back, it is likely to be quite a while before the Fed raises short-term rates above 3 percent.

OUTLOOK: You were a Fed governor back in 2008 when the Fed took rates to near-zero. Was it seen as an emergency, short-term move?

RK: At the time, most people thought it would be something more than a short-term move. However, no one sitting around that table in 2008 anticipated that it would be the end of 2015 until we made the first interest rate increase. A number of people were pessimistic that it would take a while, but I don’t think even the pessimists thought it would take seven years.

We had at least as much discussion around how to characterize the move as we did around the move itself, because we were concerned with the implications of giving forward guidance. We wrangled quite a bit over whether it would be a “short-term” move or something that would continue “for some time.” We adopted the words “for some time,” which then became “for an extended period.”

EFFECTIVE FEDERAL FUNDS RATE



Source: St. Louis Fed

OUTLOOK: Were there Fed members who argued against it?

RK: These were extraordinary circumstances, and most people around the table agreed that we needed to do something extraordinary to fight a recurrence of the Great Depression and the potential for wrenching deflation. We had already moved rates down significantly, so getting close to zero – at least on an emergency basis – was something that most people supported.

OUTLOOK: The Fed is deeply concerned about its credibility, both in the U.S. and abroad. How do you think that played into its decision-making?

RK: With regard to credibility, the argument could plausibly cut both ways, in either pushing for a rate rise or pushing for a delay. I think reasonable people disagree about whether credibility concerns lead you to move sooner or later.

The argument in pushing for the rise was that the Fed wanted to stay ahead of the curve. The Fed balance sheet is at an extraordinary level – about $4.5 trillion – and a much larger percentage of GDP than has been the case historically. Being ahead of the curve – or raising rates before inflation pressures start to build – maintains the Fed's credibility as an inflation fighter.

On the other hand, we haven't seen any price pressure. In fact, much of the rest of the world – whether it's Europe, Japan, or China – is seeing more downward than upward price pressure. If prices start to go down rather than up after this first increase, that could require the Fed to have to backtrack, which could harm their credibility.

OUTLOOK: How will higher U.S. interest rates affect international markets?

RK: We're seeing a fundamental divergence in the Fed's direction versus the direction of the European Central Bank (ECB) and Bank of Japan (BOJ). Europe and Japan are facing the threat of deflation in their economies, so they're engaging in the kinds of quantitative easing programs that the Fed had engaged in over the last few years to prevent a deflation here. They're at a very different stage than we are, both in terms of economic activity and inflation.

> It's very important for the Fed not to look simply at the traditional unemployment rate, but to look more broadly at a variety of indicators of labor market utilization or under-utilization.

We've seen a lot of volatility in the last year from concerns about the U.S. going in one direction and Europe going in another. This has affected the foreign exchange value of the dollar, which has strengthened over this period relative to other key currencies.

The world has seen central banks move in different directions before, but we've never seen the world at close to zero interest rates as we are now. It's hard to say what will happen with certainty, but I think because this has been discussed for so long, it's not going to take the markets by surprise.

The ECB has just announced it is pushing short rates deeper into negative territory and extending its quantitative easing. The BOJ may need to expand its quantitative and qualitative easing down the line. As long as these movements by the Fed and the other central banks are well anticipated, it shouldn't cause major dislocations.

It also suggests that the dollar is going to remain relatively strong while the yen and euro will remain weaker. But then, hopefully, those economies will recover. With that, they would change their central bank policies and then see some recovery of their currencies.

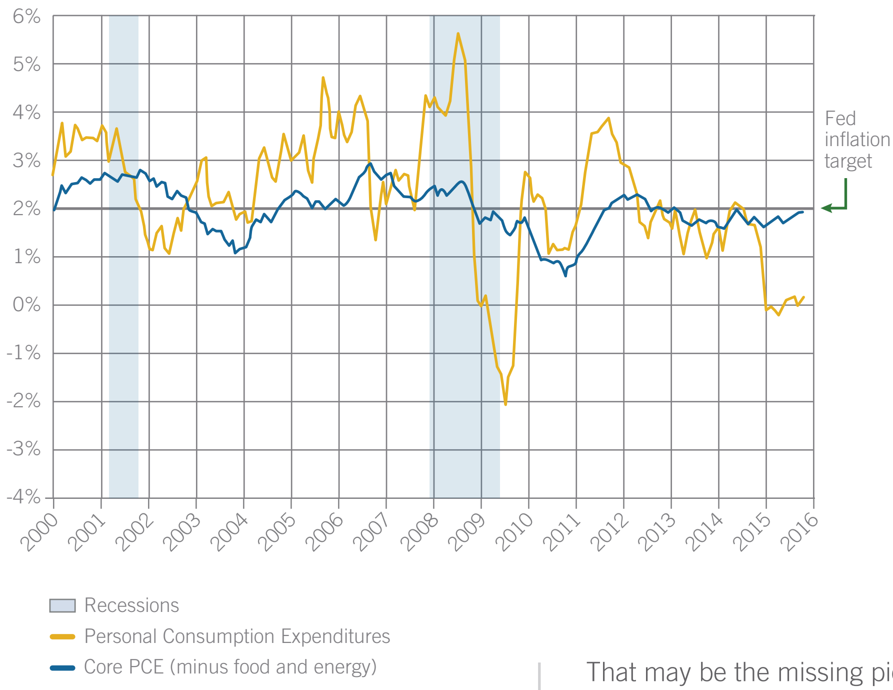
OUTLOOK: While the unemployment rate is down significantly, the labor force participation rate is close to a 40-year low. How does that fact come into play?

RK: Given these unusual circumstances in the labor market, it's very important for the Fed not to look simply at the traditional unemployment rate, but to look more broadly at a variety of indicators of labor market utilization or under-utilization. Janet Yellen and the Fed governors have generally focused on a number of broader indicators, including labor force participation.

The multi-decade low in labor participation would suggest that people are not finding this an opportune time to go into the labor force. Some of this is because the population is aging, and older people tend to have lower labor force participation than younger people.

But one of the unusual things about this recovery is that labor force participation by older people has actually been increasing, whereas we've seen a significant drop by younger people. That poses a puzzle for the Fed because it's different behavior than we have typically seen this far into a recovery.

CONSUMER PRICE INDEX SINCE 2000



Source: AdvisorPerspectives.com

Another indicator of labor market utilization the Fed has emphasized is the so called U-6 measure of unemployment. The traditional measure of unemployment looks at people who are either employed or have looked for a job sometime in the last month. U-6 is a broader measure that encompasses not only those people, but also people who have looked for work sometime in the last year. It also includes people who are considered employed, but working only part time and would prefer to have a full time job.

Of course, this broader measure is always higher than the traditional unemployment rate – typically by about 4 percentage points. But the spread has been at about 6 percentage points for most of the last few years.

That may be the missing piece that helps explain the puzzle of the dramatic decline in the unemployment rate but very little wage pressure. When you have this much spread between the traditional employment rate and the broader U-6 measure, it could mean that more people are coming back into the market and offsetting the increase in jobs. Then you don't see the same wage pressure.

OUTLOOK: How have the general unemployment rate and the broader U-6 measure compared recently?

RK: The spread has come down quite a bit recently. The most recent numbers indicate that the traditional unemployment rate is 5 percent and this broader measure is 9.9 percent, so the spread has come down to less than 5 percentage points. A year ago, the unemployment rate was 5.8 percent and the U-6 was 11.4 percent, a spread of 5.6 percentage points. Thus, this broader measure has been falling more rapidly than the traditional unemployment rate.

This narrowing of the spread suggests that we may be getting closer to normal circumstances with respect to the unemployment rate, so that an unemployment rate around 5 percent may be more likely to represent tighter labor market conditions that often are associated with more wage pressure.

OUTLOOK: Why has the Fed set a goal for inflation at 2 percent?

RK: The Fed began to explicitly communicate its goal for inflation in January 2012. Implicitly, the Fed has been guided by something in that "comfort zone" for quite some time before that.

The Fed thought it would be useful to be more transparent about what it was trying to achieve. They felt anchoring expectations better could help prevent potential build-up of concern about overly high inflation or deflation.

Two percent is actually quite common among the central banks of the largest economies in the world – the UK, the EU and Japan included. But it doesn't come from an optimizing model and it's not demonstrably the *right* number. It represents a reasonable balance considering key trade-offs. You want to have a goal that's far enough away from zero that you're not likely to get into deflation, but not so high that it's significantly distorting people's behavior or destroying the value of their money holdings.

OUTLOOK: Do you think that there is any reason to believe that the Fed waited too long to raise rates?

RK: Two concerns are raised by having interest rates low for so long. One is that it could be setting the seeds for inflation. We have not seen that. There were a lot of concerns that increasing the Fed's balance sheet from less than $1 trillion to nearly $5 trillion would inevitably lead to very high inflation, but that has not occurred.

The second issue has to do with asset price dislocation, or asset bubbles and market frothiness. The answer is less clear there because that's something that we can see only in hindsight.

Certainly, we've seen very strong recovery in the equity markets. We've seen bonds perform well, and interest rates have stayed relatively low. We've also seen a good housing recovery.

Some people argue that these prices have been driven by low interest rates, and once the Fed takes away the extraordinary stimulus, we'll see these asset prices decline. But I think that goes too far. I don't think the recovery is attributable simply to low rates set by the Fed or other central banks. However, until we actually see the consequences of higher rates, we won't know for sure. Certainly, this is not 1999-2000, where we had very clear frothiness in equity markets and tech markets, which then came down very rapidly in 2001.

"Despite low unemployment, the potential for a pickup in the U.S. economy, and commodity prices having already fallen, expectations are for low inflation over the next few years.

OUTLOOK: Where do you think inflation is headed over the next couple of years?

RK: Despite low unemployment, the potential for a pickup in the U.S. economy, and commodity prices having already fallen substantially, expectations – both from the markets and from surveys – are for low inflation over the next few years.

Certainly, things could be different because this is uncharted territory. But those market-based measures and survey-based measures give me some confidence that we're unlikely to see a very high inflation outcome, as long as the Fed follows appropriate policy.

And inflation going forward is exactly what the Fed needs to be monitoring very carefully. Any change in inflation expectations, or sudden upward movement of prices, is something that the Fed has to watch closely.

Interest Rates and Economic Indicators

The interest rate and economic data on this page were updated as of 11/30/15. They are intended to provide rate or cost indications only and are for notional amounts in excess of $5 million except for forward fixed rates.

KEY ECONOMIC INDICATORS

Gross Domestic Product (GDP) measures the change in total output of the U.S. economy. The Consumer Price Index (CPI) is a measure of consumer inflation. The federal funds rate is the rate charged by banks to one another on overnight funds. The target federal funds rate is set by the Federal Reserve as one of the tools of monetary policy. The interest rate on the 10-year U.S. Treasury Note is considered a reflection of the market's view of longer-term macroeconomic performance; the 2-year projection provides a view of more near-term economic performance.

ECONOMIC AND INTEREST RATE PROJECTIONS

Source: Insight Economics, LLC and Blue Chip Economic Indicators

				US Treasury Securities	
2015	**GDP**	**CPI**	**Funds**	**2-year**	**10-year**
Q4	2.70%	0.70%	0.22%	0.89%	2.24%
2016	**GDP**	**CPI**	**Funds**	**2-year**	**10-year**
Q1	2.60%	1.80%	0.40%	1.14%	2.40%
Q2	2.70%	2.30%	0.54%	1.34%	2.56%
Q3	2.60%	2.20%	0.67%	1.52%	2.68%
Q4	2.60%	2.30%	0.83%	1.65%	2.80%

PROJECTIONS OF FUTURE INTEREST RATES

The table below reflects current market expectations about interest rates at given points in the future. Implied forward rates are the most commonly used measure of the outlook for interest rates. The forward rates listed are derived from the current interest rate curve using a mathematical formula to project future interest rate levels.

IMPLIED FORWARD SWAP RATES

Years Forward	3-month LIBOR	1-year Swap	3-year Swap	5-year Swap	7-year Swap	10-year Swap
Today	0.44%	0.71%	1.25%	1.58%	1.83%	2.08%
0.25	0.67%	0.87%	1.38%	1.66%	1.88%	2.10%
0.50	0.80%	1.02%	1.48%	1.75%	1.96%	2.16%
0.75	0.96%	1.19%	1.59%	1.85%	2.05%	2.25%
1.00	1.11%	1.32%	1.66%	1.90%	2.09%	2.26%
1.50	1.40%	1.57%	1.84%	2.05%	2.22%	2.39%
2.00	1.61%	1.72%	1.95%	2.13%	2.29%	2.42%
2.50	1.73%	1.84%	2.06%	2.23%	2.37%	2.49%
3.00	1.86%	1.97%	2.18%	2.34%	2.45%	2.56%
4.00	2.09%	2.18%	2.36%	2.48%	2.55%	2.65%
5.00	2.28%	2.38%	2.49%	2.63%	2.68%	2.72%

HEDGING THE COST OF FUTURE LOANS

A forward fixed rate is a fixed loan rate on a specified balance that can be drawn on or before a predetermined future date. The table below lists the additional cost incurred today to fix a loan at a future date.

FORWARD FIXED RATES

Cost of Forward Funds

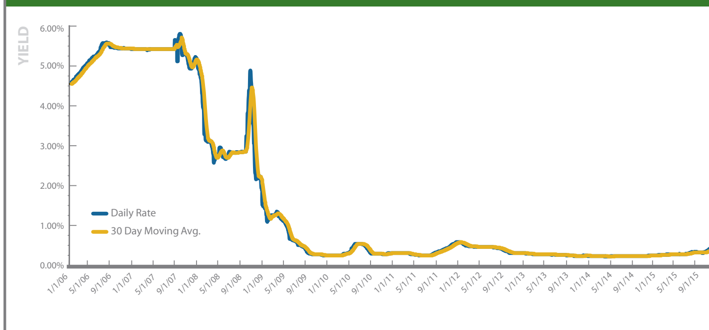
Forward Period (Days)	Average Life of Loan			
	2-yr	3-yr	5-yr	10-yr
30	11	11	9	8
90	21	22	17	15
180	34	36	27	24
365	66	68	50	42

Costs are stated in basis points per year.

SHORT-TERM INTEREST RATES

This graph depicts the recent history of the cost to fund floating rate loans. Three-month LIBOR is the most commonly used index for short-term financing.

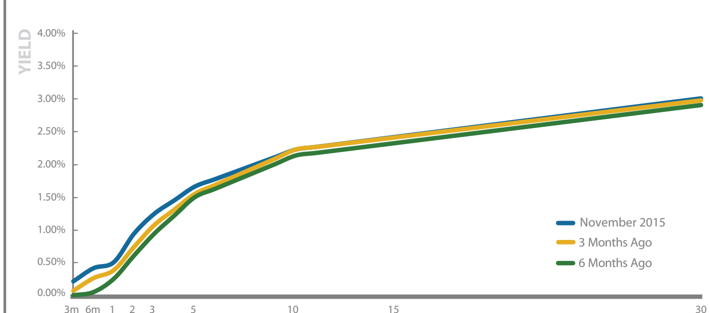
3-MONTH LIBOR



RELATION OF INTEREST RATE TO MATURITY

The yield curve is the relation between the cost of borrowing and the time to maturity of debt for a given borrower in a given currency. Typically, interest rates on long-term securities are higher than rates on short-term securities. Long-term securities generally require a risk premium for inflation uncertainty, for liquidity, and for potential default risk.

TREASURY YIELD CURVE



CoBank Announces 2015 Board of Directors Election Results

CoBank recently announced the results of its 2015 stockholder election. A total of six director positions were on the ballot, and stockholders elected three incumbents and three new board members.

The three incumbents who were returned to the board include:

- **Everett Dobrinski**, owner-operator of a grain and oilseed farm in Makoti, North Dakota. Dobrinski will occupy a one-stockholder-one-vote seat in the Central region.
- **Ronald Rahjes**, operator of a diversified family farming corporation that produces wheat, corn, soybeans, and grain sorghum in Kensington, Kansas. Rahjes will occupy a modified equity seat in the Mid Plains region.
- **Richard Sitman**, the retired operator of a retail business and the chairman of Dixie Electric Membership Corporation, an electric cooperative in Louisiana. Sitman will occupy a one-stockholder-one-vote seat in the South region.

The three new directors include:

- **Andrew Gilbert**, operator of a dairy farm in Potsdam, New York, and a director for Farm Credit East, one of Cobank's affiliated associations. Gilbert will occupy a modified equity seat in the East region.
- **Karen Schott**, operator of a farming operation in Broadview, Montana, and a director for Northwest Farm Credit Services, one of CoBank's affiliated associations. Schott will occupy a modified equity seat in the Northwest region.
- **Edgar Terry**, operator of a fruit and vegetable farm in Ventura, California, and a director for Farm Credit West, one of CoBank's affiliated associations. Terry will occupy a modified equity seat in the West region.

All six directors will serve four-year terms expiring in 2019.

The bank uses an independent Nominating Committee elected by its stockholders to develop a slate of qualified director candidates for each election. The Nominating Committee is composed of customer representatives and former board members representative of the bank's customer base. No current board member may serve as a member of the Nominating Committee. Stockholders elected all 22 candidates presented on the 2016-17 Nominating Committee slate for a two-year term.

About CoBank

CoBank is a $110 billion cooperative bank serving vital industries across rural America. The bank provides loans, leases, export financing and other financial services to agribusinesses and rural power, water and communications providers in all 50 states. The bank also provides wholesale loans and other financial services to affiliated Farm Credit associations serving farmers, ranchers and other rural borrowers in 23 states around the country.

CoBank is a member of the Farm Credit System, a nationwide network of banks and retail lending associations chartered to support the borrowing needs of U.S. agriculture and the nation's rural economy. Headquartered outside Denver, Colorado, CoBank serves customers from regional banking centers across the U.S. and also maintains an international representative office in Singapore.

For more information about CoBank, visit the bank's web site at www.cobank.com.