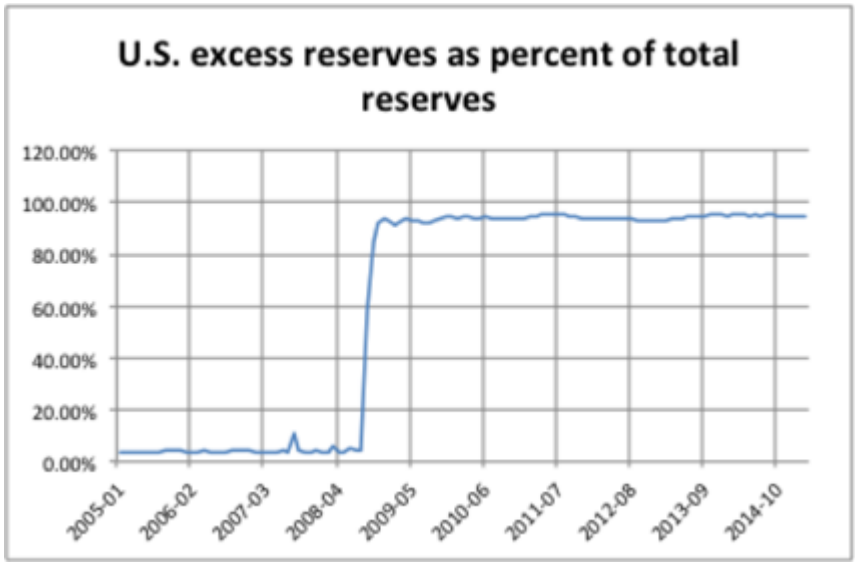
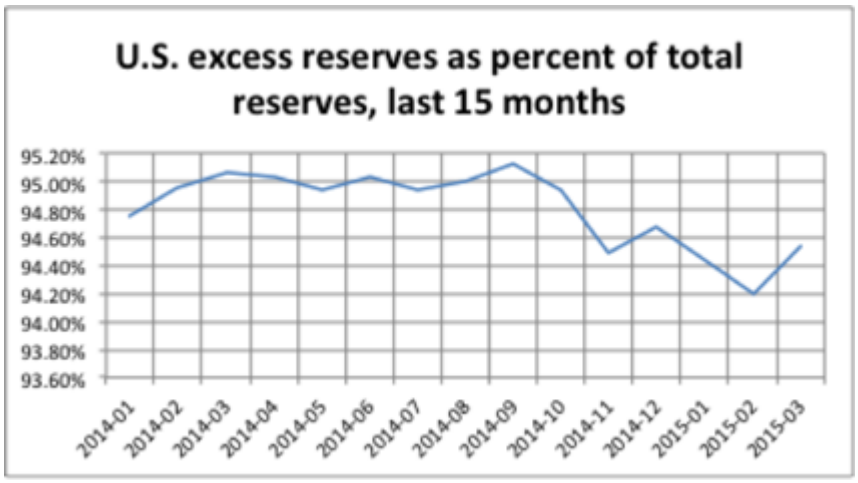
Watch for Interest Rates to Rise Soon

I missed **this story on the Wall Street Journal website yesterday**. Thanks to my lovely wife for pointing it out. **"Overheard: Banks Shift From Treasurys to Loans" says that banks are chasing yields by starting to make loans again. Watch for interest rates to rise soon.**

There's one comment on this article by Frank Anderson: "This is scary." I don't know who Mr. Anderson is, but he's absolutely correct. Banks have stashed about $2.5 *trillion* in excess reserves. When I last wrote about this, excess reserves were fairly stable at about 95% of total reserves.



But **over the last 15 months that percentage has begun to fall slightly**.



If we look at the year-over-year change in excess reserves, the pattern becomes clear. (I used year-over-year changes because the data is not seasonally adjusted.)

What's It Mean?

What can cause excess reserves to decrease? The standard textbook answer is **the Fed engaging in open market sales. But that would cause interest rates to rise** (at least in principle – we're in uncharted territory here). Although deciphering the Fed's Table H.4.1[1] bears a close resemblance to reading tea leaves, **it doesn't look like the Fed has materially reduced its holdings of U.S. government securities.**

That leaves us with the Wall Street Journal's idea. **Bank lending is picking up. There's just a hint right now. But if this trend continues you can expect one (or possibly both) of**

these events:

1. **inflation will rise rapidly,**
2. **interest rates will rise rapidly.**

I've been writing about this for at least five years. **The Fed's attempt to rescue the economy using monetary policy alone has been a fool's errand. Now they face a Sophie's choice:**

1. **The FOMC can do nothing,** allowing those banks to continue to increase lending. This will increase the growth rate of M1, M2, and (eventually) lead to inflation. **Right now M1 is about $3 trillion and M2 around $12 trillion**. Even a relatively small value for the money supply multiplier (say 2.0), $2.5 trillion in excess reserves translates to a **$5 trillion increase in M1**.
2. **The FOMC can engage in open-market sales** and take other actions to **eliminate the excess reserves**. T**he FOMC will have to act quickly. And this will cause interest rates to rise once the growth rate of M1 begins to slow. Among other effects will be a sharp increase in the Federal government budget deficit as interest payments on the $16 trillion debt begin to rise. (A 10 basis point increase in the average interest rate on the government debt will increase interest payments on the debt by a cool $16 billion. Even by government standards that's not just spare change.**

Note that **either way interest rates rise. If the Fed does nothing, inflation expectations will increase nominal interest rates. If the Fed tightens, the reduced growth rate of the money supply will increase nominal (and perhaps real) interest rates.**

Unsolicited Advice

My highly unprofessional advice: head for TIPS[2] funds. But remember: you get what you pay for. How much did you pay for this advice?

(Disclaimer: my wife and I own shares in TIPS funds. However, this is irrelevant because (a) we are not buying or selling, therefore we don't affect the market price; and (b) I'm pretty sure our holdings are a miniscule percentage of total TIPS securities held by the public.)

Transparency note: click here to download the usual Excel workbook.

[1] "Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks" current release available at http://www.federalreserve.gov/releases/h41/Current/

[2] Treasury Inflation Protected Securities.

Prof. Taylor Fails History

© Associated Press

Paul Volcker

[Updated June 28, 2014 to add graph of M1 growth and link to Excel workbook.]

> *"Our credibility will ultimately be judged by how we do on both of these mandates, not just the price mandate," Mr. (Charles) Evans said Tuesday night. "I think we will be judged very badly" if officials do not act forcefully to reduce unemployment and instead, he said, "worry obsessively"about inflation.*
>
> ***"There's little more that we can do," Mr. (Jeffrey) Lacker said of monetary policy. "There's little more that we can contribute to growth."**[1]*
>
> *— The New York Times, April 2, 2013*

> ***Congressman Goldsborough: You mean you cannot push a string.***
>
> ***Governor Eccles: That is a good way to put it, one cannot push on a string.** We are in the depths of a depression and … beyond creating an easy money situation through reduction of*

> *discount rates and through the creation of excess reserves, there is very little if anything that the reserve organization [Federal Reserve Board] can do toward bringing about recovery.* ***I believe that in a condition of great business activity that is developing to a point of credit inflation, monetary action can very effectively curb undue expansion.***
>
> *– Testimony before the House Committee on Banking and Currency, March 18, 1935.*

Monetary policy works better when you're pulling the string. – Tony Lima

In today's Wall Street Journal, Stanford Prof. John Taylor makes his case for a monetary rule, specifically one that targets interest rates. Those familiar with the **"Taylor rule"** will recognize this immediately as self-promotion. But we all do that. **The larger question is whether an interest rate rule is the best policy in all circumstances. In that regard, Prof. Taylor fails history.**

Thankfully, **a recent paper by Joshua D. Angrist, Òscar Jordà, and Guido Kuersteiner[2] has explored this issue.** The question they examine is **whether monetary policy has different impacts when it is contractionary versus expansionary.** They conclude,

> ***Application of this estimator to the effects of monetary restraint suggest contractionary policy slows real economic activity. By contrast, the Federal Reserve's ability to stimulate real economic activity through monetary expansion appears to be much more limited. Estimates for recent financial crisis years are similar to those for the earlier, pre-crisis period.***

In other words, monetary policy is more effective when an overheated economy needs cooling off. Expansionary policy, on

the other hand, is not quite so effective.

History: 1975 – 1985

In 1978, former president Jimmy Carter appointed G. William Miller chairman of the Federal Reserve Board of Governors. The Federal Reserve's official history pages describe Mr. Miller's policies:

> *As chairman at the Board of Governors, Miller became known for his expansionary monetary policies. Unlike some of his predecessors, Miller was less focused on combating inflation, but rather was intent on promoting economic growth even if it resulted in inflation. Miller argued that the Federal Reserve should take measures to encourage investment instead of fight rising prices. He believed that inflation was caused by many factors beyond the Board's control.[3]*

The Fed's historians are far too polite. Mr. Miller's graduated from the "U.S. Coast Guard Academy with a bachelor's degree in marine engineering. He later received a law degree from the University of California's School of Law at Berkeley."[4] **He apparently had little understanding of economics. His policy was to target nominal interest rates. That caused a major problem that can only be understood in the context of the 1970's.**

© Brooks Studio

G. William Miller

This is the period described by economic historians as "The Great Inflation." Inflation had been high and volatile for most of the decade. Macroeconomic models used then were woefully inadequate to handle the supply shocks of that time period. By 1978 financial markets had become sensitized to inflation.

A Digression on the Fisher Equation

Irving Fisher is usually credited with hypothesizing **the relationship between the nominal interest rate (i), the real interest rate (r), and the expected future inflation rate (π^e)**:[5]

$$i = r + \pi^e$$

Most of the time inflation expectations are *backward-looking*. That means markets expect future inflation will be about like the inflation of the recent past.

$$\pi_t^e = \sum_{j=1}^{n} \alpha_t \pi_{t-j}^e$$

and this condition is usually imposed on the weights α_t

$$\sum_{j=1}^{n} \alpha_t = 1.00$$

But, **when markets are sensitized to inflation, expectations can become *forward-looking*. Instead of basing expected future inflation on past inflation, markets look at the underlying causes of inflation. And when inflation is high and volatile, markets will use the growth rate of the money supply to predict future inflation.**

$$\pi_t^e = \sum_{j=1}^{n} \alpha_t m_{t-j}$$

and this condition is usually imposed on the weights α_t

$$\sum_{j=1}^{n} \alpha_t = 1.00$$

Note that **expected future inflation now depends on the past growth rate of the money supply (*m*).**

By 1978 markets were using forward-looking expectations. To make the model more realistic, I'll add an external shock variable, *s*. During the 1970's the main source of these shocks was oil price increases. I'll also assume a three-period lag in expectations formation with $\alpha_1 = 0.7$, $\alpha_2 = 0.2$, and $\alpha_3 = 0.1$. Thus, our model looks like this:

$$\pi_t^e = 0.7m_{t-1} + 0.2m_{t-2} + 0.1m_{t-3}$$

$$i_t = r_t + \pi_t^e + s_t$$

$$m_t = i_{t-1}$$

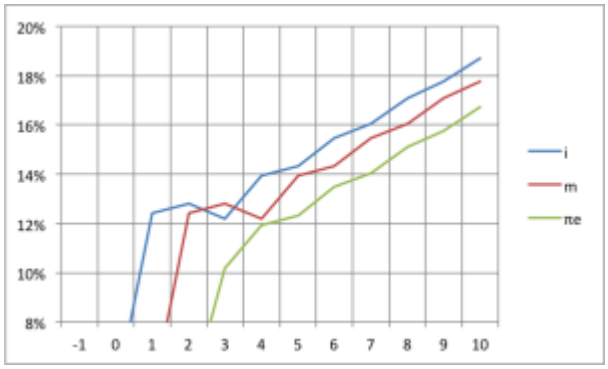
$$r = 2\%$$

$$m_0 = 3\%$$

$$\pi_0^e = 3\%$$

$$i_0 = 5\%$$

Now assume a 6% shock in periods 1 and 2. Here's the result:



Month	r	m	π^e	i	Shock
-4	2%	3%	3%	5%	0%
-3	2%	3%	3%	5%	0%
-2	2%	3%	3%	5%	0%
-1	2%	3%	3%	5%	0%
0	2%	5%	3%	5%	0%
1	2%	5%	4%	12%	6%
2	2%	12%	5%	13%	6%
3	2%	13%	10%	12%	0%
4	2%	12%	12%	14%	0%
5	2%	14%	12%	14%	0%
6	2%	14%	13%	15%	0%
7	2%	15%	14%	16%	0%
8	2%	16%	15%	17%	0%
9	2%	17%	16%	18%	0%
10	2%	18%	17%	19%	0%

What's happening is simple. The shock increases the nominal interest rate. To reduce the nominal interest rate, the Fed increases the growth rate of the money supply. Markets see

that increase (with a lag) and increase inflation expectations. That causes further increases in the nominal interest rate, leading to an explosive positive feedback loop. As always, **click here to download the Excel workbook** containing the above model and the macroeconomic data below.

A Personal Aside

Did this really happen in the late 1970's? I have some inside information. **I was working with Prof. George L. Bach at the time.**

The Fed doesn't think they can control interest rates.[6]

Dr. Bach was a member of the Fed's Academic Advisory Committee. He came back from one meeting shaking his head. I remember his words clearly →

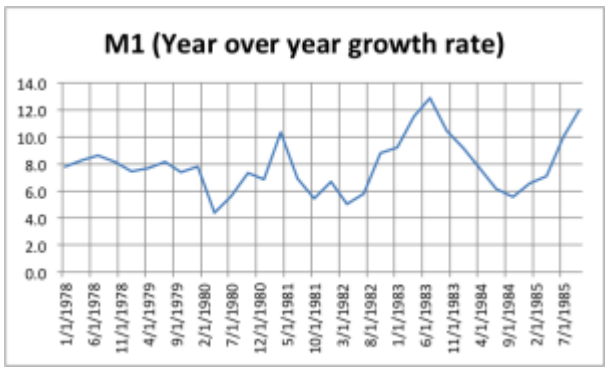
Our discussion expanded on that point as follows. **If the Fed used expansionary policy, the markets would translate that into higher inflation expectations and interest rates would rise. But if the Fed used contractionary policy, the markets would notice the decreased liquidity – and both the real and nominal interest rates would rise.**

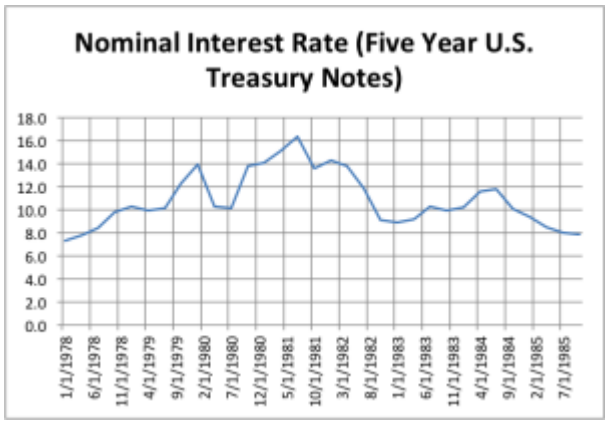
Lee Bach was afraid. So was I.

The Cavalry Arrives

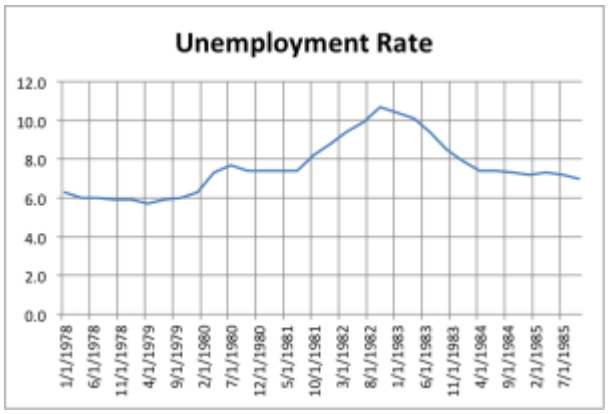
President Carter has a unique distinction among U.S. presidents. He made one of the worst appointments as Fed chair – and one of the best. Mr. Miller was appointed Secretary of the Treasury in 1979, serving in that post for two years. **Mr. Carter then appointed Paul Volcker as Fed chairman.**[7] Again, the Fed's history website doesn't do justice to Mr. Volcker's actions. **He quickly implemented a policy of targeting non-borrowed reserves. And he lowered the target aggressively. In**

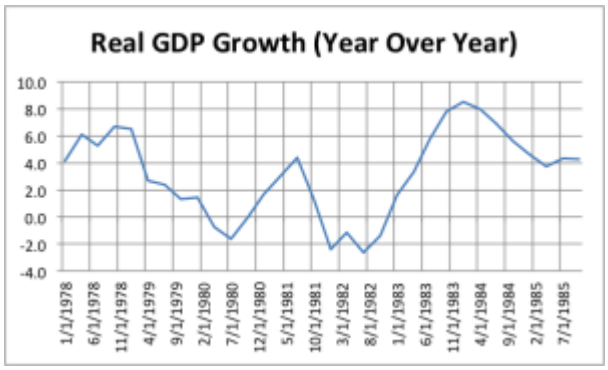
language people can understand, that means Mr. Volcker shifted the policy instrument from nominal interest rates to the quantity of money in circulation.



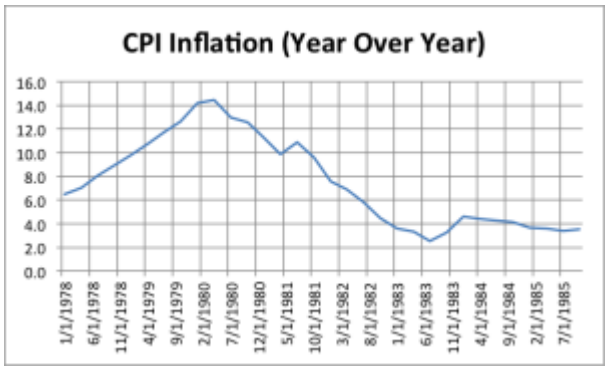


Interest rates spiked as liquidity vanished. The unemployment rate briefly exceeded ten percent.





The economy was put through a sharp, severe recession. But in four years the inflation rate was reduced to four percent. After that, Mr. Volcker began to expand the money supply, shortening the duration of the recession.



Conclusion

The point is straightforward. Those who advocate any kind of monetary policy rule must allow for exceptions. The Fed cannot be replaced with a computer. Arguing that the Fed should target interest rates when those rates are near zero is, frankly, silly.

[1] Appelbaum, Binyamin, "A Debate in the Open on the Fed." New York Times, April 2, 2013. Available at http://www.nytimes.com/2013/04/03/business/a-debate-in-the-open-on-the-fed.html accessed June 27, 2014.

[2] Angrist, J. D., Jorda, O., & Kuersteiner, G. (2013). "Semiparametric Estimates of Monetary Policy Effects: String

Theory Revisited." NBER Working Paper 19355, September, 2013.

[3] From http://www.federalreservehistory.org/People/DetailView/42 accessed June 27, 2014.

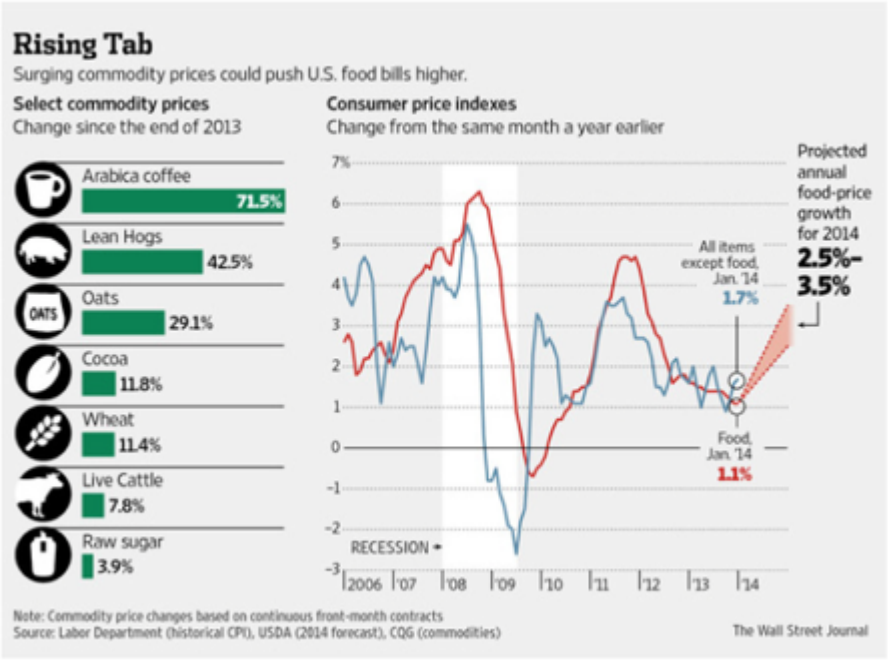
[4] *Ibid.*

[5] This is an approximation. It's good enough for what I'm doing here.

[6] Personal communication with the author, about 1979.

[7] http://www.federalreservehistory.org/People/DetailView/82 accessed June 27, 2014.

Inflation is Right Around the Corner



Source: Wall Street Journal

[Edited March 19, 2014 to clarify the Fed's role in all this.]

Inflation is right around the corner. And that will pose a major challenge to the Federal Reserve.

Federal forecasters estimate retail food prices will rise as much as 3.5% this year, the biggest annual increase in three years, as drought in parts of the U.S. and other producing regions drives up prices for many agricultural goods. The Bureau of Labor Statistics on Tuesday reported that food prices gained 0.4% in February from the previous month, the biggest increase since September 2011, as prices rose for meat, poultry, fish, dairy and eggs.

The source of this inflation is rising food prices. California's central valley and Salinas valley produce much of the country's fruits and vegetables. The drought this year brings back memories of previous droughts in the 1970s and 1980s. But this time more water is being diverted into the Sacramento delta to help save the delta smelt, an endangered species. **Central valley farmers will receive a water allocation of zero. Many have already written off this crop**

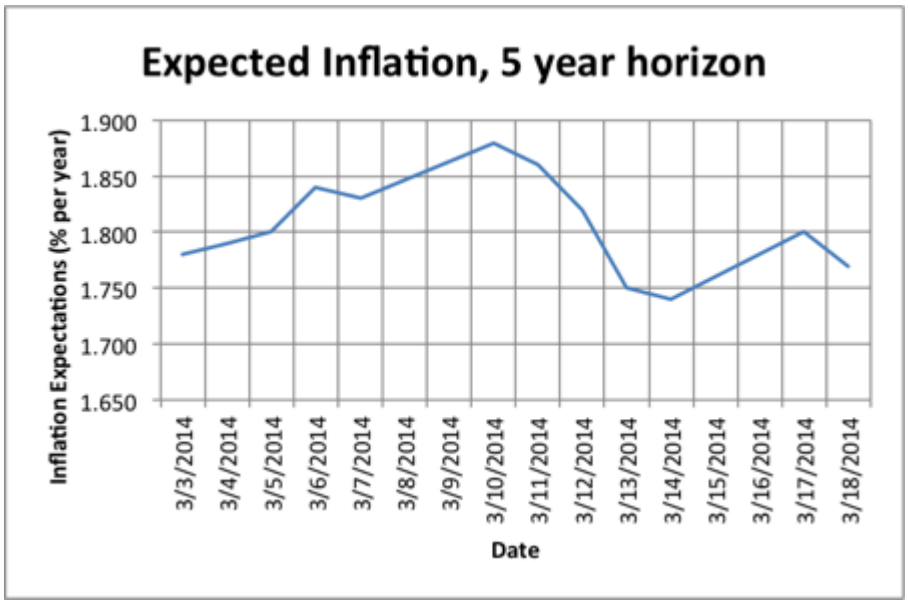
year.

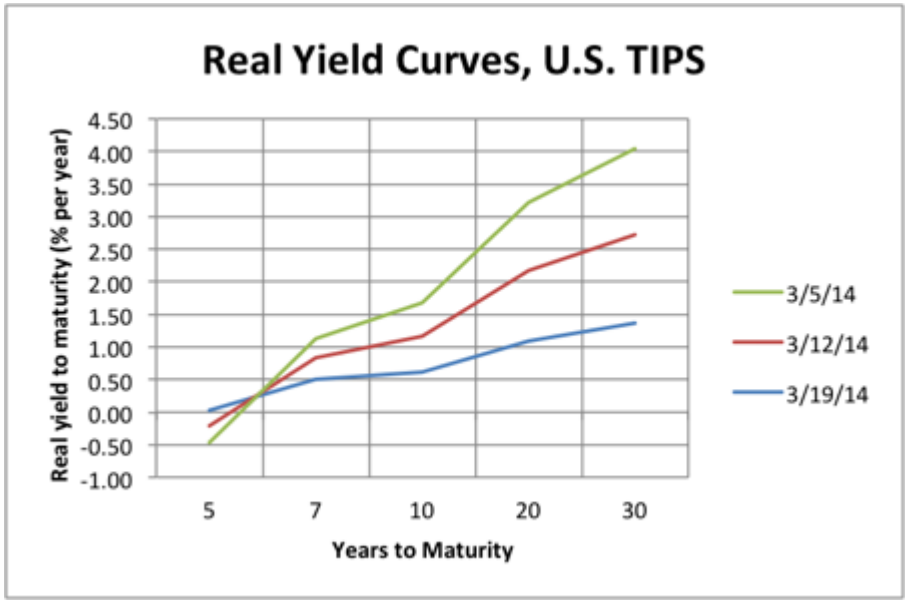
A Primer on Negative Supply Shocks

The Federal Reserve does not have the necessary tools to fight this kind of inflation. Even today, fiscal and monetary policy can only affect aggregate demand. **Increasing food prices are a negative shock to aggregate supply. The short-run impact is a higher price level, higher unemployment, and slower economic growth.** The most extreme example of this was the oil price shocks of the 1970s. At that time we didn't understand supply shocks. We learned and improved our models. But understanding does not mean policy tools have been developed to handle supply shocks. **In brief, the Fed has three choices when faces with a negative supply shock:**

1. **They can raise interest rates to fight the inflation. This will increase unemployment and slow economic growth.**
2. **They can lower interest rates to fight unemployment. This will lead to higher inflation.**
3. **They can follow an intermediate path (including possibly not changing policy at all).**

The Fed largely focuses on "core inflation" which ignores food and energy prices. Therefore, they are most likely to not change policy. But inflation is still inflation. A higher inflation rate will be factored into nominal interest rates (at least short-term rates). One way to hedge against unanticipated inflation is to shift your portfolio into Treasury Inflation Protected Securities. Let's take a quick look at how the yield curve and inflation expectations have shifted over the last few weeks.





Taken together, these graphs tell an interesting story. First, **expected inflation over the next five years has actually fallen a bit in March.** (The calculation is the nominal interest rate minus the real interest rate for five year government securities.) However, look at the way **the TIPS yield curves have rotated around about a six year horizon. Longer than that, the real interest rate has fallen fairly sharply, indicating rising prices. Why would the demand for TIPS rise? Fear of inflation – or, possibly, just**

fear in general. But look at the five year yield. That part of the curve rotated up, meaning demand fell for the five year TIPS.

Does this mean anything? Are people really more worried about long-term inflation? And did the markets get that much more worried in March? In any case, this isn't really relevant to short-term inflation. But it is interesting. (As always, my methodology is transparent. Click here to download an Excel workbook that contains the underlying data. Data on the first sheet is drawn from the St. Louis Fed's FRED plugin for Excel.)

Corn, Wheat, Soybeans, Oh My

A report in the March 18 Wall Street Journal predicts food prices will rise between 2.5% and 3.5% in 2014. In January, 2014, non-food inflation (using the CPI) was 1.7%. Assuming non-food inflation remains constant, the implied overall inflation rate is between 4.2% and 5.2% per year. Better start planting that vegetable garden right now.

Wheat and soybeans are not much better according to a report out today (March 19).

> *Wheat futures for May delivery gained 16 cents, or 2.3%, to $7.08 1/2 bushel on the CBOT. The grain earlier reached $7.09 1/2 a bushel, the highest intraday price for a front-month contract since Oct. 23.*
>
> *Soybeans rose to the highest intraday price in more than a week after a Brazilian industry group lowered its forecast for production in the South American country.*
>
> *Chicago Board of Trade soybean futures for May delivery gained 14 1/4 cents, or 1%, to $14.32 1/2 a bushel. Futures earlier rose as high as $14.42 a bushel, the highest intraday price since March 10.*

Can Imports Save the U.S.?

All of the anti-NAFTA propagandists better breathe a sigh of relief. Higher U.S. prices will mean greater imports from Mexico. Central and South America will also contribute. But that will only dampen the inflation, not eliminate it. And Brazil, supplier of staples like coffee and sugar, is experiencing a drought of its own.

> *Futures prices for the arabica coffee variety are up 67% since the start of the year. Raw-sugar prices have risen 8%. Soybeans, which have been affected by drought in some areas and too much rain in others, also are up 8%.*

Speaking as a coffee addict, I am disheartened to learn that the price of Arabica beans (the good stuff) rose 44% … in February!

> *The most actively traded contract, for May delivery of arabica coffee, soared 7.3% on Monday to $1.9345 a pound, a nearly two-year high, on ICE Futures U.S. March coffee jumped 7.1% to $1.9260 a pound, bringing year-to-date gains to 74%.*
>
> *In February alone, worries about this year's Brazilian supplies pushed the price of arabica futures up 44%, the biggest monthly percentage increase in almost two decades.*

Can the Fed Do Anything?

I have to emphasize two things. First, **this is short-run inflation, meaning it is not being caused by an increase in the growth rate of the money supply**. Second, this is a **negative supply shock, meaning there is very little the Fed can do about it without causing damage to the real economy**. Given that **Dr. Yellen eliminated any mention of the unemployment rate from today's Fed press conference, it's a safe bet she doesn't want to cause it to increase. But if the**

Fed tightens monetary policy to fight supply inflation, higher unemployment and slower economic growth will be the inevitable result.

Conclusion

I have often wondered what Ben Bernanke thought as financial markets collapsed almost the minute he was sworn in as Fed chair. Today, Janet Yellen is about to find herself in a similar position. My advice: buy canned food now. And plant that vegetable garden. Who knew Michelle Obama could forecast that well? (Remember, her first year as First Lady she planted a vegetable garden at the White House.)

Marketplace MegaFail Inflation Edition

On May 1, 2013, "Marketplace" aired a segment about inflation. The show extolled the many benefits of "a little more inflation." This is a Marketplace MegaFail inflation edition. Titled "Should we bring inflation back from the dead?," reporter David Gura listed these benefits from just a touch more inflation:

1. **Housing prices would rise** and fewer homeowners would find their houses underwater.[1]
2. **Those who have borrowed** to, say, buy a car **would get to pay back their loans with cheaper dollars**.[2]
3. **"Companies could raise prices, that could lead to higher salaries**, 'and assuming they can control their costs, that could be beneficial to their profit margins; that could be beneficial to them expanding their business,

creating jobs; that could be beneficial to their shareholders.' "[3]

Frankly, these statements are incredibly stupid. Inflation means prices and incomes are rising at about the same rate. Any increase in salaries will just keep pace with inflation, leaving the consumer with unchanged purchasing power. The only way people who borrow can pay back with cheaper dollars is if the inflation is a complete surprise. If the inflation is expected, it will be part of the interest rate on the loan. Finally, higher housing prices? Give me a break. Even if housing prices rose, the real net wealth in your house wouldn't change much because the higher price level would eat up the price increase.

This morning, Kai Ryssdal was a guest on KQED's Forum program. He proudly declared that Marketplace did not employ any MBA's or economics Ph.D.'s. After this embarrassment, perhaps Mr. Ryssdal should reconsider his hiring policy. Or at least talk to economists who know what they're talking about. We're not that hard to find.

(I suspect Marketplace will be removing this story from their website soon. As a public service, you can click here to get a pdf version of the transcript.)

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[1] From the transcript, quoted from David Blanchflower, the Bruce V. Rauner Professor of Economics at Dartmouth College.

[2] From the transcript, quoted from Kevin Jacques, the Boynton D. Murch Chair in Finance at Baldwin Wallace University.

[3] Another priceless gem from Prof. Jacques, see footnote 2 above.

Brazilian Interest Rates: Will They Ever Learn?

In early June, Brazil's monetary policy committee (COPOM) raised their target for the Selic interest rate to 12.25%.[1] Media pundits are predicting a huge flow of hot capital into Brazil in pursuit of the high interest rates – currently the country has the highest interest rates among "major economies."[2]

We've heard this story before. It happened twice during the last 25 years of the 20th century in Mexico. "Earn 21% interest in government-guaranteed savings accounts." The problem, of course, is that those savings accounts were denominated in pesos. Mexico's inflation quickly led to a devaluation of the peso, leaving those who sent their savings south of the border with a serious learning experience, but considerably poorer.

So, once again, it's time to remind the world that the interest rate that counts is the real interest rate (corrected for inflation) in your local currency. People who don't live in Brazil are automatically exposed to exchange rate risk when they send part of their wealth off to Rio.

Let's look at some data. As of July 1, 2011, the yield on ten-year Brazil government bonds was 12.39%.[3] For the U.S. the corresponding yield was 3.18%. With Brazilian inflation around 6%, the apparent long-term real interest rate in Brazil was 6.39%. For the U.S. the ten-year real interest rate was 0.69%, implying U.S. expected inflation of 2.49%.[4]

The yield on U.S. five-year notes on the same date was 1.78%.

For Brazil, the yield was 12.56%. U.S. expected inflation over the next five years is 2.15%.[5]

The principle of *uncovered interest parity* says the interest rate in one country – say the U.S. – should equal the interest rate in any other country (Brazil) plus the expected depreciation of the U.S. dollar vis-à-vis the Brazilian real. Using the ten-year bond data above, the implied depreciation of the dollar vis-à-vis the real is
3.18% – 12.39% = -9.21%. In other words, the dollar is expected to appreciate 9.21% per year vis-à-vis the real over the next ten years. Over the next five years the rate of appreciation is even higher,
12.56% – 1.78% = 10.78% per year.

Uncovered interest parity has another interesting implication. In the long run the real rate of return on bonds should be about equal in all countries. This leads to the international version of the Fisher equation which says that the difference between nominal interests between two countries should equal the difference between their inflation rates. Thus, over the next ten years the market is forecasting Brazil's inflation will be about 9.21 percentage points higher than U.S. inflation. With expected U.S. inflation of 2.49%, the implied ten-year inflation rate for Brazil is 11.70% per year. Over five years the inflation differential is 10.78% per year, implying 12.93% inflation in Brazil.

The implications are straightforward. The high yields on Brazilian bonds and deposit accounts reflect fear of future inflation. Those who send their hard-earned dollars to Brazilian banks are betting that COPOM will keep inflation below what the market expects. Those folks might be right or they might be wrong. But they should know the gamble.

Brazil Annual Inflation

(Source: OECD)

Brazil Monthly Inflation

(Source: OECD data)

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[1] http://www.bcb.gov.br/?ENGLISH Accessed June 27, 2011/

[2] http://www.reuters.com/article/2011/06/27/brazil-economy-surve

y-idUSN1E75Q03620110627 Accessed June 27, 2011.

[3] http://www.bloomberg.com/markets/rates-bonds/government-bonds/brazil/ Accessed July 1, 2011.

[4] The nominal ten-year rate was 3.18% and the yield on inflation-indexed bonds was 1.44%. Source: http://www.bloomberg.com/markets/rates-bonds/government-bonds/us/ Accessed July 1, 2011.

[5] Ibid. There was no quotation for five-year Brazilian notes. The yield quoted here is the average of the four and six year yields.

U.S. Retail Sales: Moving Markets by Ignoring Error Margins

"Retail sales up 0.3% in February" is what you read in the headlines. In response, U.S. stock markets moved higher. Apparently the markets hope that consumers are finally starting to spend again. Consumer spending is about 2/3 of total domestic spending, so this is a big deal – if it's true. Let's spend a few minutes deconstructing that number.

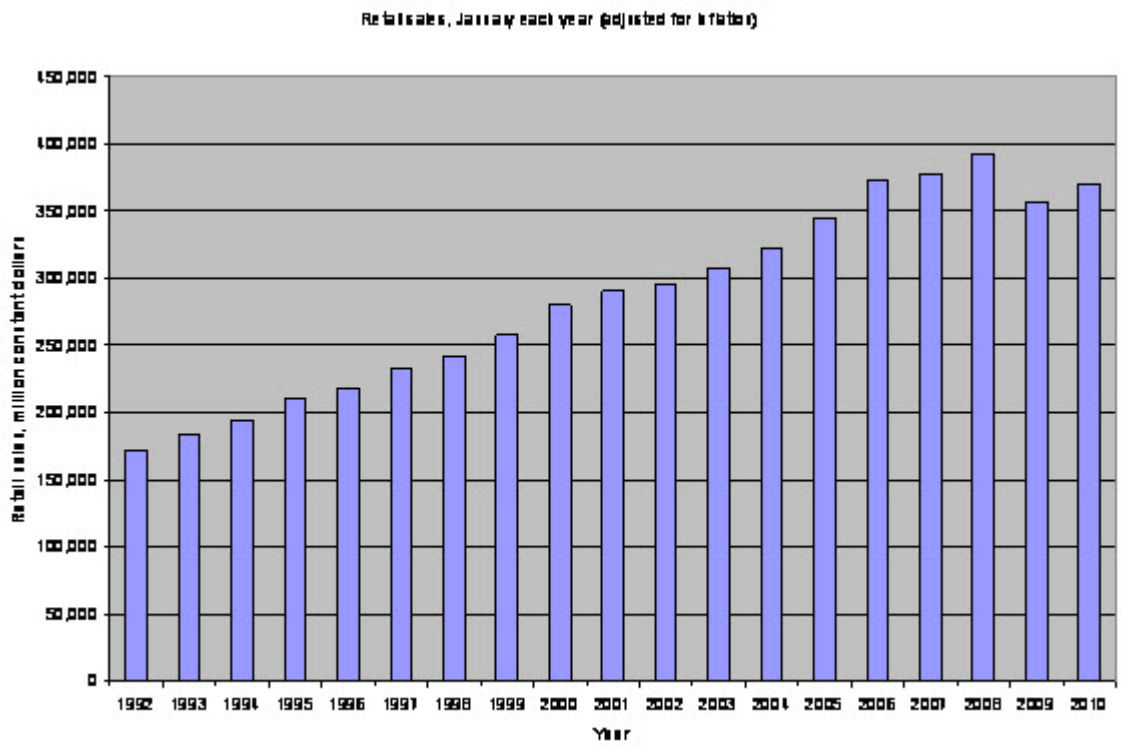
First, this increase is the "ADVANCE MONTHLY SALES FOR RETAIL TRADE AND FOOD SERVICES" from the Census Bureau.[1] The press release clearly states the margin of error is ±0.5%. In other words, the 0.3% estimate is meaningless. All we know with any confidence is that the actual growth rate is likely between –0.2% and +0.8%. Don't bet the ranch on this estimate.

Second, and more intriguing, a good part of the February growth was caused by a downward revision in January's estimate. The advance estimate for January was +0.5% with an error of ±0.5%. The revised estimate was +0.1% with an error of ±0.3%. Make January lower and February looks better. Are the numbers being fudged? Nah, folks in Washington D.C. would never do that.

Third, these figures are nominal numbers. While they are adjusted for seasonal variation, they are not corrected for inflation. Assuming inflation is about 0.2% per month (2.4% per year), the advance estimate for real growth is +0.1%. Anemic.

According to the Census Bureau press release, the advance estimates are based on a stratified sample of 5,000 retail and food service firms. The total number of these firms is over 3 million. While the sample covers 65% of the dollar volume, there's a reason the margin of error is so high: 65% is quite a distance from 100%.

The chart below gives some perspective. This is based on inflation adjusted data from the Department of Commerce Bureau of Economic Analysis for January of each year.[2]



U.S. retail sales 1992 - 2010

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[1] http://www.census.gov/retail/marts/www/retail.html . Accessed March 13, 2010.
[2] http://bea.gov/national/nipaweb/nipa_underlying/DownSS2.asp?3Place=N#XLS. Accessed March 13, 2010.