

### ECONOMY DOWNING AN OCEAN OF LIQUIDITY, GOING FOR THE INFLATION HIGH

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#### Summary

- Robust money growth is likely to cause double-digit inflation for a period during 2011 to 2015.
- Timing depends on the rate at which the banking system can extend credit, i.e. the health of the banking system.
- Inflation expectations could become unanchored well before the banking system heals, igniting the inflation fire.
- The bond market currently doesn't expect high inflation and could be in for a nauseating surprise.
- Treasury Inflation-Protected Securities (TIPS) will not provide adequate protection against inflation. The *Laffer Inflation Protection Index* (LIPI) will.

At your next cocktail-party when your buddy across the table tells you that money growth doesn't matter for inflation, ask the waitress for a round of "rookie on the rocks" for your friend. It's true that money growth and inflation are generally unrelated in the very short-term, but it's equally factual that money growth and inflation are strongly related in the medium- and long-term (Figure 1). Money growth and inflation are related in the medium- to long-term via the equation of exchange from the quantity theory of money (shown here on growth rate form),

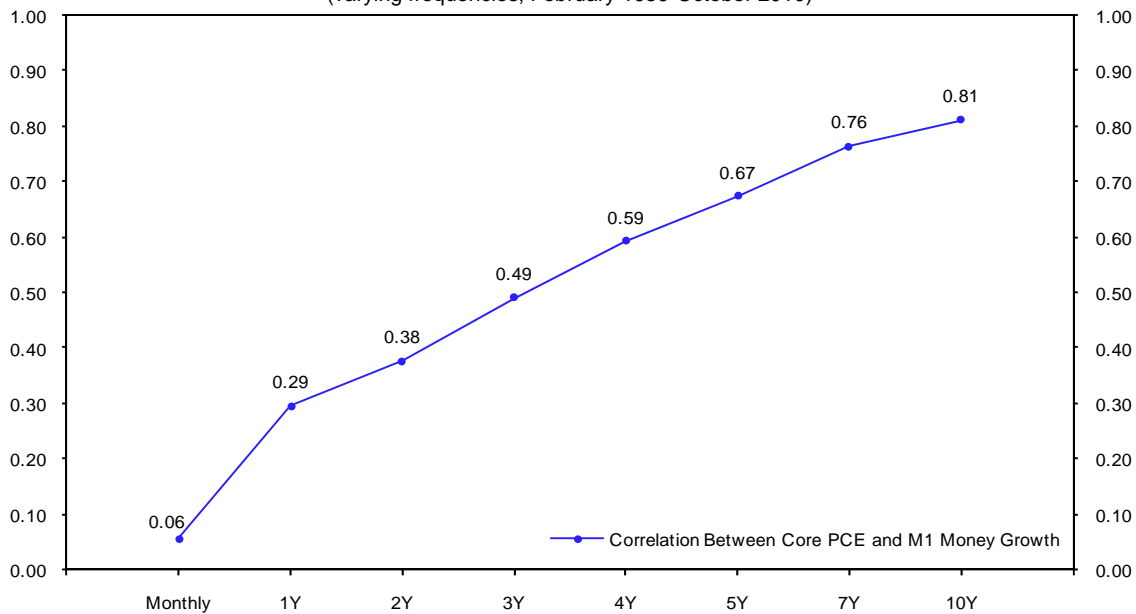
$$\text{money-supply growth} + \text{velocity growth} = \text{inflation} + \text{real GDP growth}$$

⇨

$$\text{money-supply growth} + \text{velocity growth} - \text{real GDP growth} = \text{inflation.}$$

Figure 1

**Correlation Between Core Personal Consumption Expenditure Inflation and M1 Money Growth<sup>1</sup>**  
 (varying frequencies, February 1959-October 2010)



Source: Federal Reserve Bank of St. Louis

<sup>1</sup> To construct figure 1 we calculate the monthly, yearly, ..., ten year growth rates of money supply (M1) and the core personal consumption expenditure (PCE) price index, respectively, and then calculate the correlation between each pair of growth rate series.

In the short-run all four terms in the equation of exchange influence each other through complex general equilibrium relationships, but in the medium- to long-term real economic growth and velocity growth fluctuate independently of money-supply growth.<sup>2</sup>

- Real GDP growth is driven by structural factors, such as the level of supply-side tax rates, in the medium- to long-term.
- Velocity moves smoothly with the level of financial innovation (advances in payment technologies, new bank account types such as sweep accounts, etc.) and illegal economic activity in the medium- to long-term.
- Money-supply growth is strongly influenced by the pace at which the Fed grows its monetary base (i.e. reserves + currency). The relationship is not exact, but depends critically on the health of the banking system. A healthy banking system is able to turn excess reserves into loans and demand deposits at a brisk clip.

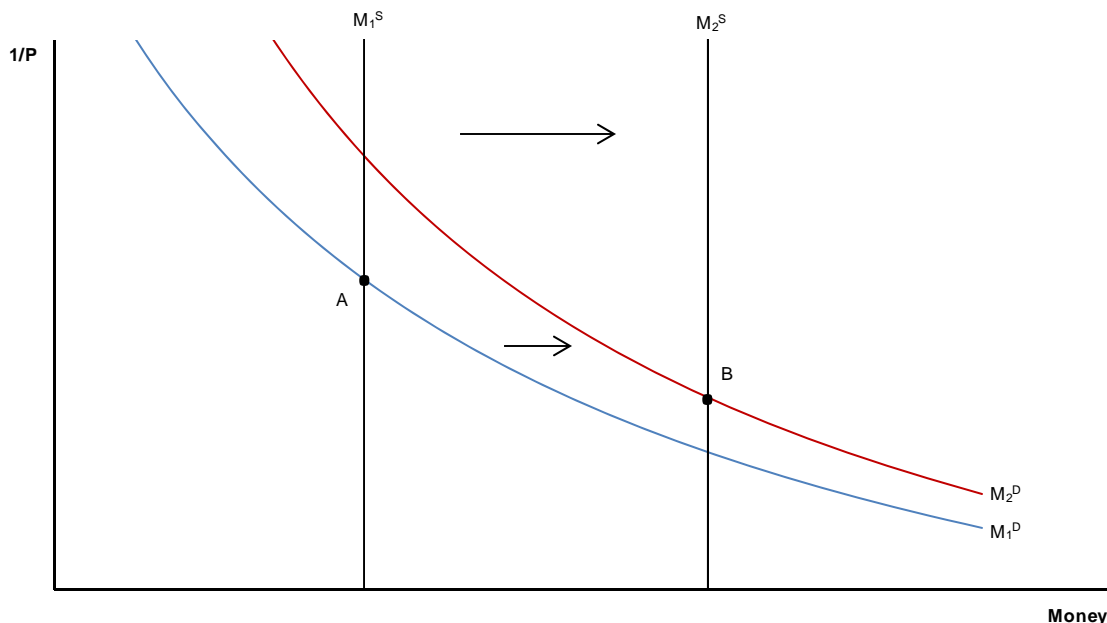
In technical economic jargon, velocity- and real economic growth are *exogenous* to money-supply growth in the medium- to long-term. Money-supply growth, therefore, can only inflate the price level in the medium- to long-term. Consequently, in the medium- to long-term the equation of exchange takes the form,

$$\text{inflation} = \text{money-supply growth} + c_1 - c_2.$$

Here,  $c_1$  and  $c_2$  are exogenously determined constants that represent velocity growth and real economic growth, respectively. For example, assume that velocity growth equals 1% and real economic growth is 3%, both independent of the growth rate of money-supply, and that the average annual rate of money-supply growth is 10% during the period of interest, then we should expect the average annual inflation rate to equal about 8% (10% + 1% - 3%).

Graphically the inflation buzz originating from strong money-supply growth can be represented as money-supply growth outstripping money-demand growth (Figure 2). To paraphrase Nobel Laureate economist Milton Friedman, too much money is chasing too few goods, resulting in inflation.

Figure 2  
The Money Market



Money supply ( $M^S$ ) is growing at a pace well beyond the pace of money demand ( $M^D$ ), and the price level increases to clear the money market (i.e. equilibrium moves from point A to point B).<sup>3</sup>

<sup>2</sup> Here we are ruling out episodes of hyperinflation.

<sup>3</sup> We have been writing about this outcome for the last few years. See, for example, Arthur B. Laffer "Money Matters," Laffer Associates, May 4, 2007. Arthur B. Laffer "1970s Redux: Inflation Back From the Dead," Laffer Associates, June 4, 2009. Arthur B. Laffer "Money and Inflation, Part II," Laffer Associates, July 6, 2009. Arthur B. Laffer "Market Expectations and Causative Reasons for Inflation," Laffer Associates, November 12, 2009.

## Going for the Inflation Buzz

The Fed has increased the monetary base by a record-setting 35% average annual compounded growth rate since the beginning of 2008 (Figure 3).<sup>4</sup> The health of the banking system to a large degree will determine how much and how fast this monetary base money becomes M1 money supply. Despite the fact that banks are sitting on roughly \$1 trillion in excess reserves<sup>5</sup> – banks are concerned about money-markets freezing up and don't have enough net worth to really put the funds to full use<sup>6</sup> – money supply has increased at an average annual compounded rate over 9% during this period (Figure 4), which is high by historical standards but small when compared to monetary base growth. Long before the Fed gets around to draining reserves from the system, the banking system will have pumped far too much money into the economy. Brace yourself for the inflation wave.

To gauge how inflation might behave during the period January 2011 to January 2016 we use the equation of exchange to run counterfactual simulations under plausible average annual growth rates for money supply (M1) and velocity during the medium-term period January 2008 to January 2016, and an average annual 1.8% real GDP growth rate (Table 1).<sup>7</sup>

Table 1  
Average Annual Inflation Rates 2011 to 2015 Under Alternative Money-Supply and Velocity Growth Rates  
(percent)

Average annual money supply growth rate	Average annual velocity growth rate 1%	Average annual velocity growth rate 0%	Average annual velocity growth rate -1%	Average annual velocity growth rate -2%	Average annual velocity growth rate -3%
6.1%	7.7%	6.0%	4.3%	2.6%	1.0%
6.9%	9.0%	7.3%	5.6%	3.9%	2.2%
7.6%	10.3%	8.5%	6.8%	5.1%	3.4%
8.4%	11.5%	9.7%	8.0%	6.2%	4.5%
9.1%	12.6%	10.9%	9.1%	7.3%	5.6%
12.1%	17.8%	15.9%	14.1%	12.2%	10.4%
14.7%	22.2%	20.2%	18.3%	16.4%	14.5%

Taking a conservative stance and assuming that the average annual money-supply growth rate will come in at about 7.6% and velocity at about -2%, the *average* annual inflation rate for the period 2011 to 2015 should come in around 5.1%.<sup>8</sup> This would be the highest five year average annual inflation rate observed since the period 1980 to 1985, a period during which the *annual* inflation rate surpassed 10% for most of 1980 and 1981. Clearly, double-digit annual inflation rates could become reality for a period during 2011 to 2015.

Banks with healthy balance sheets would take advantage of the higher expected return from lending as compared to the interest rate on excess reserves the Fed pays, and expand credit at a brisk pace. A healthy banking system would allow the economy to grow faster and therefore cause an increase in money demand. Yet, money supply would respond markedly quicker and stronger than money demand and inflation would be the end result (Figure 2). The U.S. banking system could turn healthy again by 2013 or 2014 and should banks still have oceans of excess reserves slushing around in their Fed accounts, expect money supply to grow substantially faster than 7.6%.

High inflation could become a problem well in advance of banks' balance sheets returning to healthy levels. Inflation expectations could become unanchored and see a jump that would ignite the inflation fire. When this occurs, people reduce their money demand and exert upward pressure on the price level to clear the money market (Figure 5). This is exactly what transpired during the late 1960s and the 1970s when the Fed's overly expansionary monetary policy caused it to lose credibility: the Fed lost control of inflation expectations and the economy experienced what today is called the Great Inflation.

<sup>4</sup> In comparison, the Bank of Japan expanded its monetary base at an average annual rate of roughly 20% during the three years from February 2001 to February 2004, which is the highest three year average annual growth rate ever observed in Japan.

<sup>5</sup> Prior to the financial crisis banks usually kept about one to two billion dollars in excess reserves during a given month.

<sup>6</sup> For more on the health of the banking system, see Kenneth B. Petersen, "A Bank Stress Test, Zombie Banks,...And a Low Growth Decade?," Laffer Associates, June 9, 2009, and Kenneth B. Petersen and Jacob Walters "Slow Economic Growth Ahead? You Can Bank on It!," Laffer Associates, September 30, 2010.

<sup>7</sup> Assuming a 1.8% average annual real economic growth rate for the period January 2008 to January 2016 is equivalent to assuming an average annual real GDP growth rate of 2.8% during the next five years.

<sup>8</sup> Velocity reached about 10.5 in early 2008, but had stabilized around 8.5 by the end of the third quarter of 2010. An average annual decline of 2% in velocity is equivalent to assuming a velocity of about 8.8 in early 2016. Money supply has already increased by 30% cumulative since the beginning of 2008, and assuming a 7.6% average annual growth rate of money supply during 2008 to 2015 is equivalent to assuming a cumulative increase in money supply of 80% during 2008 to 2015.

Fed Chairman Ben Bernanke said it best in a 2003 speech,<sup>9</sup>

*“The primary cause of the Great Inflation, most economists would agree, was over-expansionary monetary and fiscal policies...”*<sup>10</sup>

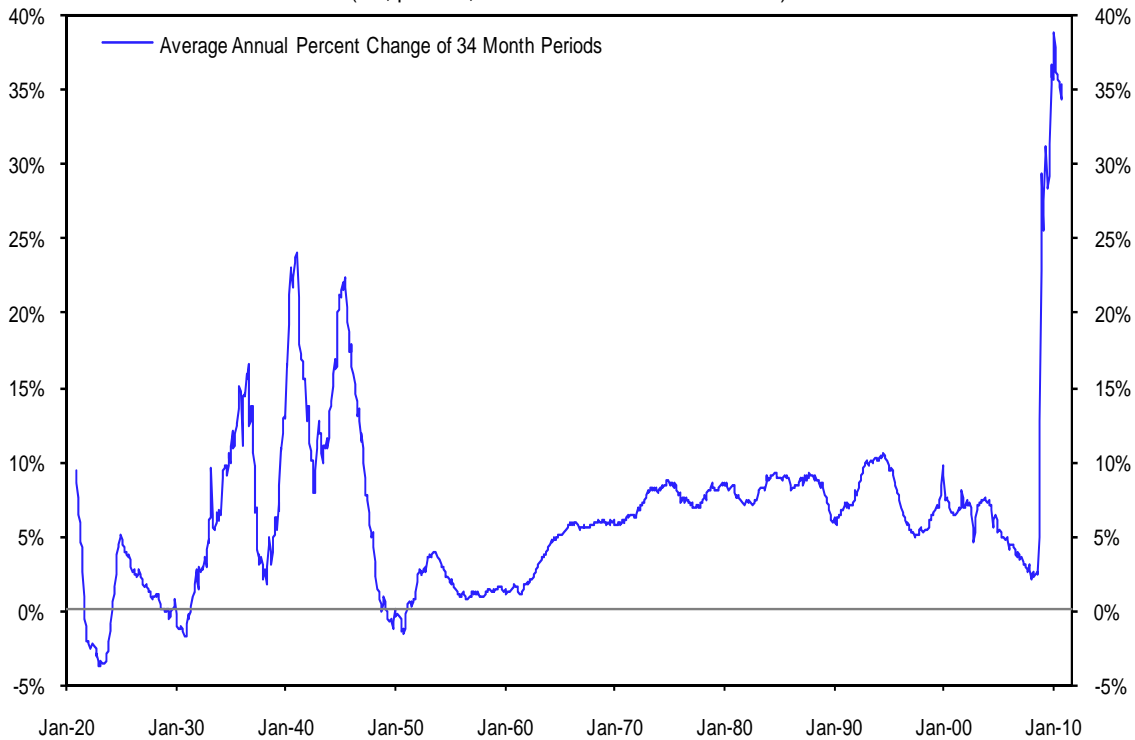
*“Monetary policy first accommodated the fiscal expansion, and then [...] began to power the inflationary surge on its own.”*<sup>11</sup>

*“As the public woke up to the new reality of high and rising inflation, however, inflation expectations began to rise as well. Within a few years, the Federal Reserve found itself in a situation in which inflation and inflation expectations had risen considerably...”*<sup>12</sup>

Inflation expectations matter a great deal. In the worst case, inflation expectations spiral out of control and very high inflation, even hyperinflation, becomes reality. Upward-drifting inflation expectations drive up nominal bond yields and increase velocity, causing prices to be bid up. This process can become self-sustaining and lead to hyperinflation.<sup>13</sup>

Bond investors currently don't fear the high inflation outcome and will get thumped when inflation “unexpectedly” increases (Figure 6). Now is not the time to purchase fixed rate long-maturity debt, but instead to invest in firms with pricing power, hard assets, and properly structured inflation protected securities and indices.

Figure 3  
**St. Louis Adjusted Monetary Base, Average Annual Percent Change of 34 Month Periods**  
 (SA, percent, November 1920 - October 2010)



Source: Federal Reserve Bank of St. Louis

<sup>9</sup> Ben Bernanke, “‘Constrained Discretion’ and Monetary Policy,” before the Money Marketmakers of New York, New York, February 3, 2003.

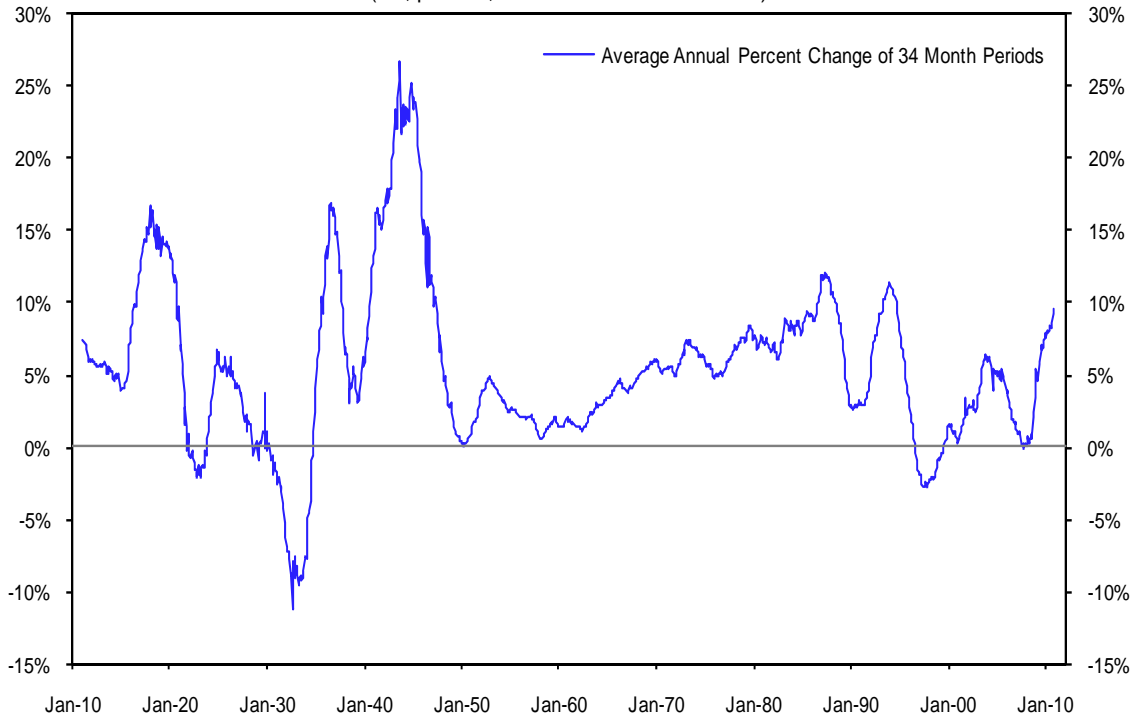
<sup>10</sup> Ibid. Page 6.

<sup>11</sup> Ibid. Page 6.

<sup>12</sup> Ibid. Page 7.

<sup>13</sup> See Arthur B. Laffer, “Substitution of Monies in Demand: The Case of Mexico,” H.C. Wainwright & Co., Economic Study, May 27, 1977.

Figure 4  
**M1 Money Supply, Average Annual Percent Change of 34 Month Periods**  
(SA, percent, March 1910 - October 2010)



Source: *A Monetary History of the United States, 1867-1960* and the Federal Reserve Bank of St. Louis

Figure 5  
**The Money Market**

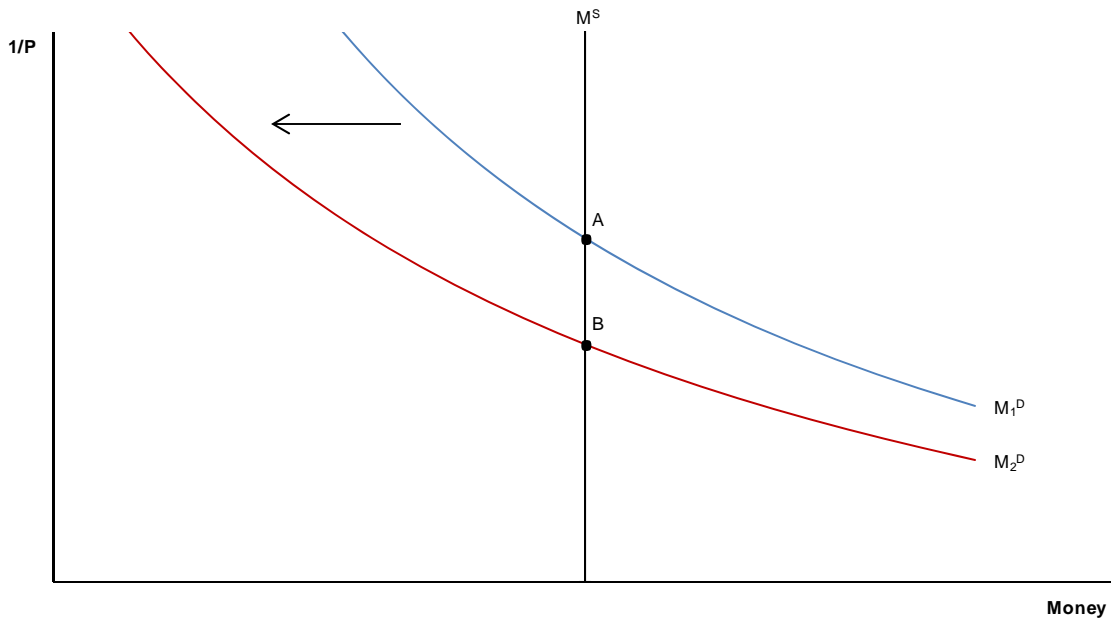
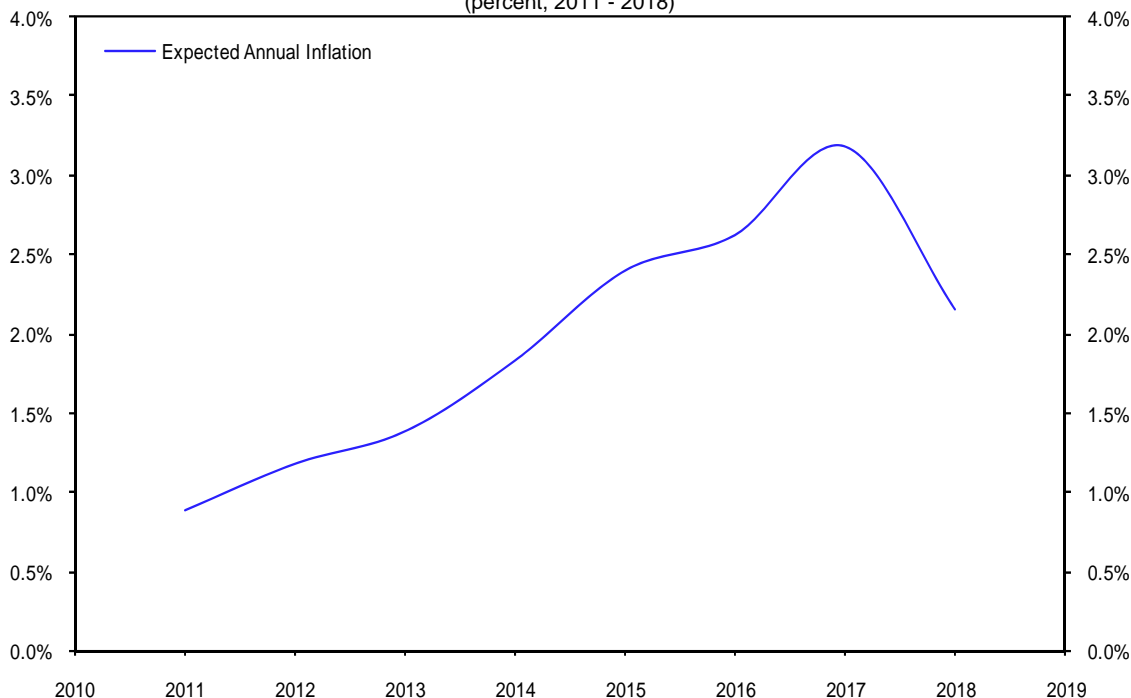


Figure 5 shows that when inflation expectations become unanchored and surge, the demand for money ( $M^D$ ) declines and the price level increases to clear the money market (i.e. equilibrium moves from point A to point B).

Figure 6  
**Bond Market's Annual Inflation Expectations**  
 (percent, 2011 - 2018)



Source: Laffer Associates and Bloomberg

### **Bartender Ben Ready to Extend Happy-Hour**

Several tools remain in the Fed's policy toolkit and the Fed stands ready to extend happy-hour with new liquidity. The Federal Open Market Committee (FOMC), the unit inside the Fed that makes most policy decisions, has concluded that it can make one of two possible mistakes: 1.) do too little and cause two lost decades as in Japan, or 2.) do too much and create massive inflation that can choke by creating a Volcker-type recession. The FOMC chose option 2. Should the FOMC continue to project disinflation or outright deflation, expect the FOMC to continue to pull new policy beverages from its policy-cooler. Here are a few possible concoctions the Fed could serve in its attempt to reduce liquidity and risk premiums as well as to generate wealth and currency effects (listed in order of potency and inflation risk).

*Tuborg Pilsner:* Reduce the interest rate the Fed pays on excess reserves banks keep with the Fed.

*Guinness Stout:* Commit to keeping the target Fed funds rate at 0 – 25bp throughout 2011 or 2012.

*Dom Pérignon Champagne:* Accept lower quality collateral originating from distressed or illiquid markets against credit. This would roughly be equivalent to reopening the Term Auction Facility (TAF).

*Dow Port Wine:* Conditional quantitative easing (QE). Conditionally expand the Fed's balance sheet by, say, \$100 billion of Treasury securities for each 0.1% decline in core CPI inflation. This would make monetary policy systematic and consistent, and more inline with how the Fed adjusts its target Fed funds rate in a positive interest rate environment.

*Strawberry Daiquiri:* Target the yield curve. The Fed announces that it's targeting, say, a 1% yield on the 10-year T-note. The Fed likely would attempt to implement such a policy by purchasing two to ten year T-notes and requesting that the Treasury limit its new supply of these maturities.

*Gentleman Jack Whiskey:* Targeted asset purchases. Extend asset purchases beyond Treasury securities to other asset classes such as stocks, commercial paper, corporate bonds, and additional mortgage-backed securities (MBSs). The exact amount could be conditionally determined by the level of the core CPI inflation rate.

*Bacardi 151 Rum:* Create a lending facility that makes loans available directly to consumers and firms to guarantee that creditworthy households and small firms gain access to credit, since zombie banks are unable to.

*Everclear 190 Alcohol:* Lights out, the helicopter drop. The Treasury and the Fed form an accord where the Fed purchases massive amounts of newly issued T-bills directly from the Treasury. In short, the Fed finances/monetizes new spending by the government and thereby ensures that money hits the economy. Remember the Weimar Republic, early 1920s?

Expect the Fed to continue to expand its balance sheet as long as its inflation projections point to disinflation or ultimately deflation. The remaining beverages available in the Fed's policy-cellar for the most part come with major headaches and the Fed is very likely to lose control over inflation while they are having extended happy-hour.

One of the most effective tools to thwart deflation is currently not available to the Fed. Congress ought to change the Fed's maximum employment and price stability dual mandate to a pure price stability mandate. For example, a price stability mandate could read as follows: The Fed must keep inflation close to but less than 2% (or, in the range 1% to 3%, if you prefer) during the medium term beyond the business cycle.<sup>14</sup> By credibly committing to such a monetary policy strategy, the Fed gains substantial clout over inflation expectations and deflation becomes an almost impossibility.

### **Hasta La Vista Fed Exit Strategy**

Although the Fed is brimming with confidence that it can reduce its balance sheet in a timely manner and prevent high inflation from becoming a problem, you should not believe them.<sup>15</sup> Yes, by increasing the interest rate on excess reserves, conducting open market operations, or increasing reserve requirements the Fed can reduce the size of its balance sheet, create a recession, and tame inflation. Because of a trilogy of reasons, the Fed will not implement these policy tools in a timely manner and high inflation will be the end result.

*Damage to Banks' balance sheets:* Banks hold 17% of their assets in domestic long-maturity debt and higher interest rates would batter these securities badly. Duration is at a two decade high and a three percentage point increase in the yield on the 10-year Treasury-note, for example, would cause its value to decline by more than 22%, which is equivalent to a 4% loss on total assets. Higher interest rates will do real damage to banks' capital positions.

*Losses on the Fed's balance sheet:* The Fed's holdings of longer-maturity debt securities (Treasury notes and bonds, Federal Agency debt, and mortgage-backed securities)<sup>16</sup> now account for 87% of its balance sheet and these assets will suffer great losses when the Fed begins to increase interest rates. Hefty increases in interest rates would lead to substantial losses that could cause the Fed to report negative earnings, and the Fed would have to ask the Treasury for a taxpayer funded "bailout."

*Political will:* To quell inflation the Fed would have to increase the interest it pays on excess reserves substantially and this would choke the economic recovery, something Congress would be strongly opposed to.

Eventually the Fed will pull all stops and increase interest rates, and potentially also reserve requirements should the Fed feel the situation were out of control, but it will be long after the inflation genie has been let out of the bottle.

### **Inflation Protection: LIPI vs. TIPS**

The U.S. Department of the Treasury sells Treasury Inflation-Protected Securities (TIPS) as protection against inflation. These securities have their principal and coupon payments adjusted every six months according to the change in the consumer price index (CPI). But, what if the CPI completely misrepresents inflation? The CPI includes "shelter" with a 32% weight (owners' equivalent rent of residences = 25%, rent of primary residence = 6%, and lodging = 1%) and as long as housing prices remain depressed or outright decline, the shelter component of the CPI will cause the CPI to under-estimate the true inflation rate.

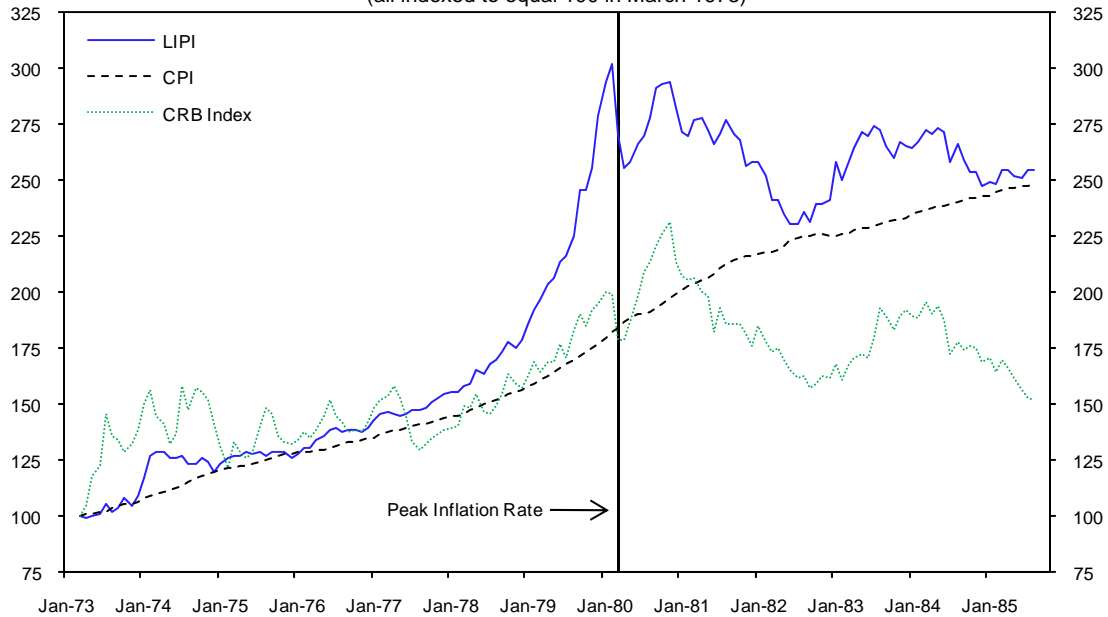
Proper inflation protection is provided by the Laffer Inflation-Protection Index (LIPI). To guard against inflation the LIPI combines equity, fixed income, and commodity asset-classes, which act to reduce risk and enhance returns during inflationary periods. During the 1970s and early 1980s CPI inflation reached its highest level since the end of World War II and this period offers a natural laboratory for benchmarking the LIPI against CPI inflation and an alternative inflation hedge, the Commodity Research Bureau (CRB) Index (Figure 7).

<sup>14</sup> This is roughly how the European Central Bank conducts monetary policy. See, Arthur B. Laffer and Kenneth B. Petersen "The European Central Bank Celebrates Its 10<sup>th</sup> Birthday: Performance Lessons for the Federal Reserve," Laffer Associates, June 25, 2008.

<sup>15</sup> Possible Fed exit strategies and their shortcomings are presented in Kenneth B. Petersen "The Fed's Exit Strategy: Possibilities and Limitations," Laffer Associates, November 19, 2009.

<sup>16</sup> Currently 47.5%, 22.2%, and 100% of Treasury securities, Federal Agency debt, and mortgage-backed securities, respectively, on the Fed's balance sheet have maturities beyond five years.

Figure 7  
**Laffer Inflation-Protected Index<sup>17</sup> vs. the Consumer Price Index and the Commodity Research Bureau Index**  
 (all indexed to equal 100 in March 1973)



Source: Laffer Associates and Bloomberg

A period with double digit inflation could very well be in the cards during the next five years and TIPS will not protect you adequately, but the LIPI will.

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<sup>17</sup> This version of the LIPI is a costless continuously rebalanced price return index with a 25% cash position hedging short-positions.