To and through Quantitative Easing

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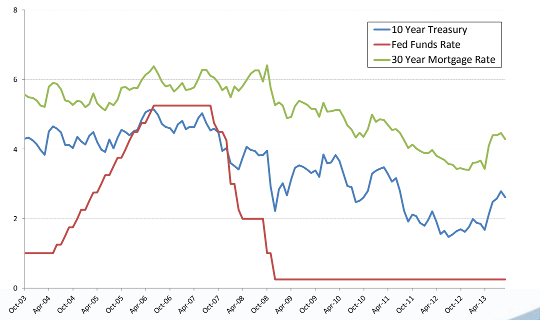
Goals for the Session

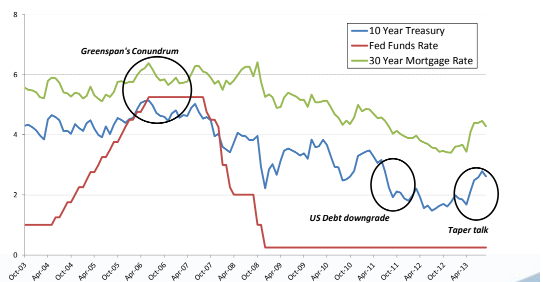
- Review interest rate environment of last 10 years
- What the has Fed done, and what it can do
- How are borrowers and investors reacting
- A forecast of where interest rates are headed from here

30 Year Bond Bull Run – Coming to an End?

Last decade of rate movement

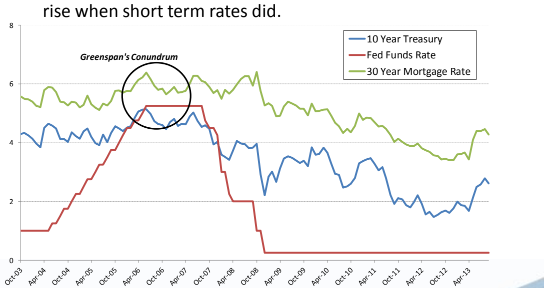


Conundrums and Irrational Behavior



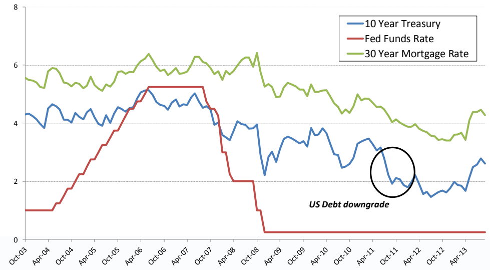
Conundrums - 2005

- Greenspan's conundrum – long term rates did not rise when short term rates did.



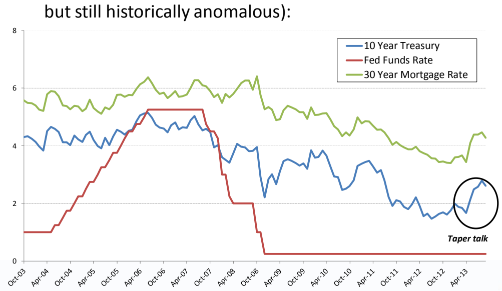
Conundrums - 2011

- Debt downgrade leads to DECREASE in rates
- Flight to quality, as Europe was having worse troubles

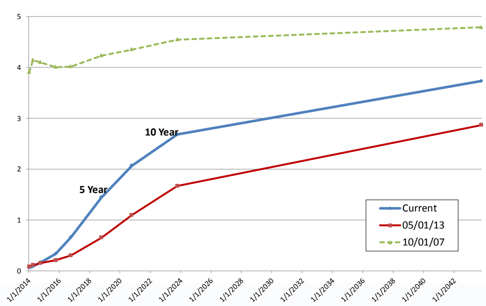


Conundrums – Summer 2013

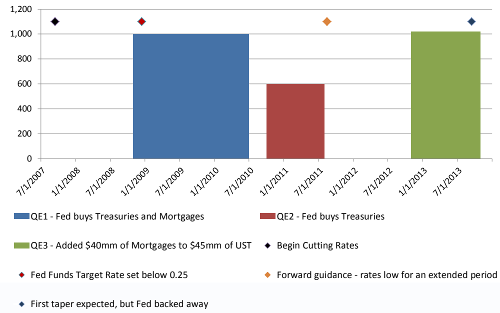
- More conundrums recently (again, there is an explanation, but still historically anomalous):



Yield Curves, Current and Historical



Fed's Actions since 2007

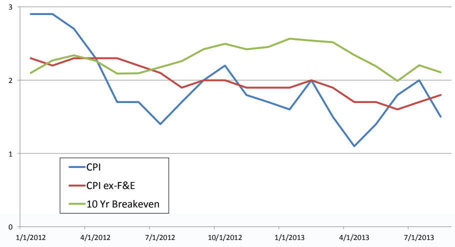


The Fed's Tools

- Traditional tools – Target **Fed Funds Rate** by buying and selling securities and by **setting reserve requirements**, **discount window rate**. Only works until rates hit 0
- Newer tools – **Quantitative easing**: buying longer term bonds. Costs and benefits
- Verbal commitments ("**Forward Guidance**") to keep rates low and to set expectations of rate paths, which helps lower rates. No cost to Fed, but mismanaged recently
- To use when economy improves - Repo out securities, pay interest on reserves, both of which have been tested and/or are in use

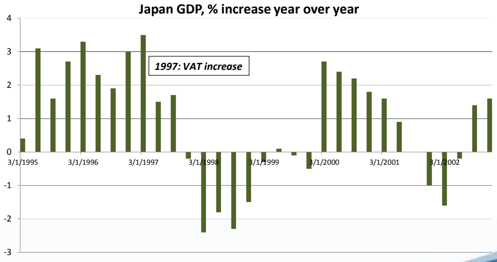
Leading to rampant inflation?

- Inflation is always and everywhere a monetary phenomenon – Friedman
- So far there are no signs, in current CPI or expectations



Why is monetary policy still so loose?

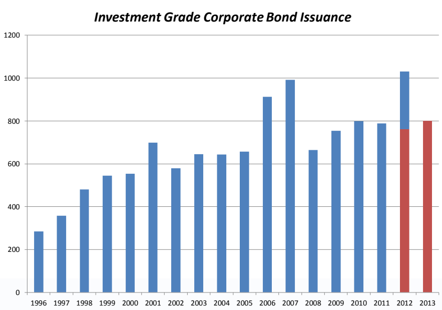
Helicopter Ben is an expert on Japan and wanted to avoid its mistakes.



Companies rushing to take advantage

[WSJ.com - 'The money is essentially free,' says one banker, talking about short-term rates.]

Companies rushing to take advantage



Companies rushing to take advantage

WSJ headline – "**Companies Use Short-Term Debt to Advantage"**

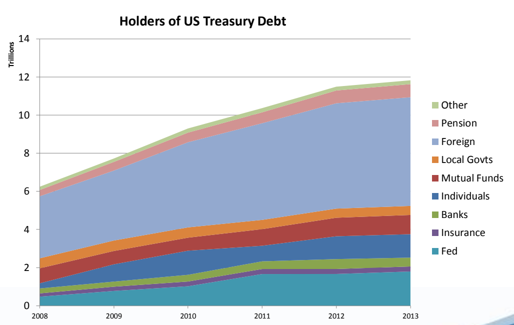
Concerns that the Federal Reserve will soon begin to dial back the flow of easy money has pushed up the cost of borrowing longer-term funds in recent months. But since the Fed hasn't actually moved to raise interest rates and isn't expected to for a while, short-term funds remain incredibly cheap.

That gap has created opportunities for some companies to borrow more short-term cash to buy back stock, help fund acquisitions, or pay off longer-term debt. Other companies are entering into derivatives deals with banks to get more exposure to floating interest rates, or to profit from a widening gap between short and long-term rates.

Inputs to our forecast

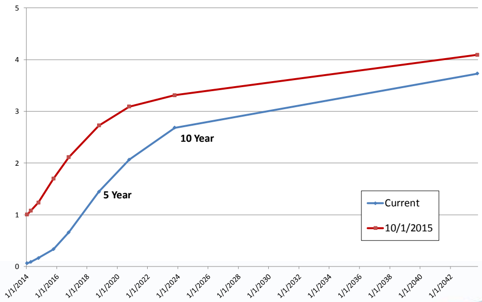
- Every rate rise has investors jumping in
- Big investors (pension funds, foreign governments) need bonds for LDI, risk parity, manage currencies
- Equities are expensive too, so no good alternatives for other investors
- Investors still need yield
- Aging population
- Financial repression, regulation, capital requirements
- ALL LEAD TO SLOW BUT CLIMBING YIELDS.

Inputs to our forecast



Market expectations

- Forward curve shows flattening over time



Forecast – Our Expectations

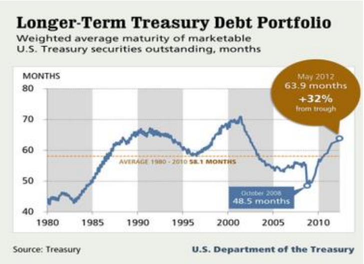
- Continued volatility further out the curve, but range bound
- Mortgage rates slowly rise to 5%-5.5%
- Any increase in yield on corporate investment grade or high yield will be met by buying – i.e. spreads will not increase much if at all
- No Fed Funds increase for a couple years, then curve will flatten some
- Good opportunities in the short term to make spread, fund short
- Swaps will be priced attractively.

Effect on Economy of Forecast

- Rates returning to more normal levels, driven by markets no the Fed, will cause fewer distortions on rates, corporate and personal borrowing, the Economy and housing activity
- Savers finally rewarded with higher yields
- Higher rates could dampen economic activity, especially housing related

Effect on Economy of Forecast

- Possible bigger government deficits as interest costs rise, though Treasury has been extending maturities



Effect on pensions

[WSJ.com - Rising interest rates are helping companies close pension-plan gaps.]

- Two reasons:
  - Asset values rising
  - Corporate bond yields up – increases discount rate applied to future liabilities
- A slow but moderate rate rise to historical norms will continue this trend, unless equities have a major sell-off

Effect on Banks/Insurance

- Premium bonds held on balance sheet will lose value

Bond Type	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*
US Government	**105.2%**	**102.8%**	101.8%	100.0%	99.1%	**102.0%**	**107.3%**	102.7%	**104.2%**	**108.2%**	**108.5%**
Foreign Government	101.3%	**106.9%**	**108.4%**	**106.4%**	**106.6%**	**106.6%**	**100.8%**	**104.5%**	**106.9%**	**109.4%**	**112.3%**
Municipal	**102.4%**	**103.4%**	**104.7%**	**103.3%**	**103.1%**	**103.2%**	**100.6%**	**103.9%**	103.1%	**108.6%**	**110.2%**
Corporate	**101.8%**	**105.2%**	**106.2%**	**102.9%**	**101.8%**	100.6%	89.4%	**103.0%**	**106.4%**	**108.4%**	**111.2%**
Hybrid	n/a	n/a	n/a	n/a	n/a	n/a	n/a	83.1%	92.4%	83.0%	100.1%
RMBS*	99.6%	99.5%	100.2%	98.5%	98.2%	96.5%	84.1%	85.8%	91.4%	103.1%	104.9%
CMBS*	99.6%	99.6%	100.5%	98.2%	99.4%	96.9%	76.8%	86.7%	95.5%	98.8%	102.9%
Other Loan-Backed and Structured Securities	**101.8%**	101.8%	**105.0%**	**102.7%**	**101.7%**	**102.3%**	**101.5%**	**106.1%**	**108.0%**	99.6%	102.5%
Average Total	**102%**	**103%**	**105%**	**102%**	**101%**	**101%**	**94%**	**101%**	**104%**	**107%**	**109%**

* RMBS and CMBS numbers include agency-related debt

Source: NAIC

Effect on Banks/Insurance

- Offset by higher yields on new purchases/loans originated
- Reduced refi mortgage activity will lead to reduced bank fee revenue
- NIM will increase for banks, eventually

Q&A

Thank you for attending