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Thank you for that most kind introduction, Nancy. It is indeed an honour to be addressing this august group for the fifth time, especially sharing time with friends going back over 25 years. It's great to see you!

While I've given hundreds, if not thousands, of speeches over the years, the only ones I ever write are to the Money Marketeers Club. Not that I deliver them as I write them, which is probably congenitally impossible for me to do. But I write them both out of respect for this audience, as well as to force me to think intensely as to what I'm saying in the context of what I've said before.

Yes, here at the Money Marketeers, I explicitly own my priors, even if that can be extremely painful at times. I always have an axe to grind and in the fullness of time, my axe may be revealed to be dull or perhaps, not even an axe at all, but rather a hammer against my head.

What is "Neutral?"

In my first address[1] to you, on 26 April 2004, the Federal Reserve was on the cusp of ending its "considerable period" of a 1% Fed funds rate, set to embark on a journey back toward "neutral" monetary policy. I had no quarrel with the direction of where the Fed was about to go.

The "considerable period" pre-commitment to 1% Fed funds had worked its magic, inducing animal-spirited risk-taking on both Wall Street and Main Street, and it was time, as I put it, for the Fed to end "happy hour prices" for liquidity: Wall Street patrons had more than a comfortable buzz.

My axe to grind wasn't with the Fed's looming tightening trajectory, but rather what would be the destination, commonly known as "neutral." Consensus market opinion was centred on 4%, while I was centred on 2½%. How so?

The workhorse model for contemplating the destination was (and is to this day!) the Taylor Rule, primarily because Professor Taylor made one huge, simplifying assumption, that the neutral **real** Fed funds rate is a **constant** 2%.

With that assumption, plus assumptions for the Fed's implicit inflation target and the Fed's estimate of the full-employment GDP potential (alternatively, the NAIRU), it is easy to calculate where the Fed putatively should, according to Taylor, peg the nominal Fed funds rate. Indeed, Bloomberg now has a plug-and-play version of the Taylor Rule, where anybody can pretend to be a FOMC member.

And most conveniently, if you assume that inflation is at target and unemployment is at the NAIRU, all the "active" terms in the Taylor Rule drop out, and the neutral nominal Fed funds rate is simply the 2% neutral real Fed funds rate assumption plus the at-target inflation rate, which Taylor assumed – and the Fed preached both then and now – to also be 2%.

Thus, in an equilibrium Taylor world, the neutral nominal Fed funds rate is 4%, which is why, in my view, the consensus view in April 2004 held that the looming tightening cycle would take the Fed funds rate at least that high (and presumably, higher if and when inflation rose above target and/or the unemployment rate overshot the NAIRU to the downside, implying the need for "restrictive" monetary policy). John Taylor's insights were and are very powerful.

And, indeed, his Rule is elegant. But it is also hostage to his assumption that the neutral real Fed funds rate is a constant 2%. I didn't buy it in 2004 and don't buy it today. In fact, I had voiced this view prior to that April 2004 first evening with you, notably in my August 2003 monthly[2] (ironically just as the Fed evoked the "considerable period" regime). My thesis was simple: The neutral real, after-tax Fed funds rate should be zero!

Money and Private Capital are Different

My rationale? Overnight money is fundamentally different than private capital. Money carries zero default risk and zero price risk: A buck is a buck is a buck. To be sure, holding money does involve paying two taxes: (1) the tax on nominal interest income and (2) the purchasing power loss of at-target inflation.

Accordingly, I proposed that the neutral **real** Fed funds rate should be the economy-wide marginal tax rate, which I assumed to be 20%–25%, times the Fed's 2% inflation target – about 50 basis points, in contrast to Taylor's assumption of two percentage points. Thus, my estimate of the neutral nominal Fed funds rate was 2½%, in contrast to the 4% estimate falling out of the Taylor Rule.

Bottom line: The Fed funds rate, the return on money, should be sufficiently high to maintain money's real purchasing power, but no more: No risk, no real return!

In contrast, private capital, specifically long-dated bonds, carries both default risk and price risk. Thus, I argued that private real long-term rates should be much more positive, approximating the economy's long-term potential real growth rate, which I estimated back then to be about 3%–3½%. Subtracting a long-term swap rate of about 50 basis points, as it was in spring 2004, I conjectured that the "equilibrium" real 10-year Treasury yield should be 2½%–3%. Adding back the Fed's 2% inflation target, that implied a fair-value nominal 10-year Treasury yield of 4½%–5%.

There was, of course, one problem with my market-segmentation view of the difference between money and private capital, which I **fully** recognised: it **structurally** implied a very steep yield curve – 2%–2½% from Fed funds to 4½%–5% for 10-year Treasury yields. Such a steep curve would, I recognised, offer a structural **real** reward for levering into the duration-mismatch carry trade.

Thus, on that April 2004 evening with you, I said:

> *"If the Fed were to enforce my view of the 'neutral' real short rate, the Fed and other financial regulators would need to enforce quantitative rules on growth in levered players' balance sheets, so as to prevent unbridled growth in credit creation via the carry trade."*

And, to my shame, I actually thought that would happen, with proposed regulatory limits on growth in the GSEs at the time as my putative harbinger.

How wrong could I be! The Fed did not stop tightening near 2½% but just over twice that number, at 5¼%. And a key reason is that the Fed, and even more important, **<u>other</u>** financial regulators – and here I include the Rating Agencies, who are literally hardwired into the regulatory architecture – did absolutely nothing to quantitatively restrain growth in leverage. In fact, they did exactly the opposite, acquiescing to, if not cheerleading, explosive growth in the shadow banking system, founded on the carry trade of funding long-dated assets with short-dated liabilities, fat-tailed liquidity risk be damned.

Thus, financial conditions, defined not just as the price of credit but its availability and terms, were getting progressively easier as the Fed was "normalising" the Fed funds rate up. Financial intermediaries, both conventional banks and shadow banks, were doing exactly what I feared they would do, in the absence of regulatory constraint on growth in leverage.

The carry trade of maturity transformation – funding long-dated assets with short-dated money – is the mother's milk of banking from time immemorial. And the unfettered invisible hand of the financial capitalism market could not resist reaching for the sky, on the proposition that the sky was no limit for asset price appreciation, notably for property, both residential and commercial. Systemic degradation of underwriting standards was the gin in the bath tub.

All of this had, of course, become abundantly clear before I spoke before this group the second time, on 27 February 2006. And chastened, I had already publicly confessed my forecasting sins, starting with my January 2005 essay[3], "Shades of Irrational Exuberance," ironically the month before Chairman Greenspan famously declared that it was a conundrum that long rates were falling as the Fed was hiking the Fed funds rate.

The motivation for the essay was, in fact, minutes[4] of the 14 December 2004 FOMC meeting, when the Fed funds rate was hiked to 2 ¼%. Those minutes explicitly declared Fed concerns about:

> *"...signs of potentially excessive risk-taking in financial markets evidenced by quite narrow credit spreads, a pickup in initial public offerings, an upturn in mergers and acquisition activity, and anecdotal reports that speculative demands were becoming apparent in the market for single-family homes and condominiums."*

To wit, the FOMC was concerned that financial conditions were becoming more accommodative, even as the Fed funds rate was becoming less accommodative. And since the FOMC was manifestly unwilling to use regulatory tools (now known as macro-prudential tools) to deal with the putative excessive risk-taking, it was blatantly obvious that the Fed funds rate was going to go up very meaningfully further.

And then in my September 2005 essay,[5] "*Pyrrhic Victory*," I confessed my forecasting sins yet again, after Chairman Greenspan's August 2005 speech in Jackson Hole, when he spoke elegantly about the dangers inherent in excessively-thin risk premiums (excessively-high risk asset prices).

Mr. Greenspan left little doubt that unless asset prices corrected of their own accord, he was, as I put it, going to *"take off his belt of nasty tightening, which is likely to invert the yield curve."* And so he did.

In Comes Chairman Bernanke

When I spoke before this Club on 27 February 2006, my April 2004 forecasting sins fully confessed and just after Chairman Bernanke had taken his seat, I had a new axe to grind: the merits of inflation-targeting, long a favourite chestnut of Mr. Bernanke.

I applauded the new chairman, having become an inflation target advocate myself in April 2003, when I (along with Bill Dudley, then Chief U.S. Economist of Goldman Sachs and current NY Fed President) wrote an essay[6] for the *Financial Times* arguing that the FOMC should state that the very accommodative policy of the time, designed to cut off the fat tail of deflation risk, would remain in place until the Fed achieved a 2% or higher inflation **target.**

The FOMC didn't follow that advice directly, but as a practical matter, it essentially did when initiating the exit in June 2004. So I was actually in a pretty warm and fuzzy mood when I spoke to you in February 2006.

I reviewed Mr. Bernanke's 17 October 2003 speech,[7] when he advocated that the FOMC calculate and announce what he dubbed the OLIR – the Optimal Long-term Inflation Rate. I thought that was a colossally smart idea.

But I did have one quarrel, as is my nature: I thought the prevailing implicit definition of the OLIR, known as the "comfort zone" of 1½%–2% for the core PCE deflator, was both too low and too narrow, declaring that *"gun to head, I'd suggest 1½%–3%."*

My reason: I thought market participants' hubristic belief that the Fed should, could and would always achieve the 1½%–2% comfort zone was actually one of the "culprits" in excessively-low risk premiums. A wider comfort zone for inflation, with the Fed allowing more cyclical variation within it would, I believed, increase market participants' uncertainty and thus, foster somewhat wider risk premiums.

To wit, a higher and wider comfort zone for inflation would make the financial markets less bubble prone. And that, I thought, would be a good thing, because it would reduce the odds of an eventual debt-deflationary Minsky Moment.

But I was clearly running my analytical digger both belatedly and where there was no FOMC dirt. Seventeen months later, in August 2007, the Minsky Moment arrived.

All About Minsky

This was the backdrop for my 15 November 2007 visit[8] with you, when I preached, literally preached, the importance of understanding Minsky's Financial Instability Hypothesis in contemplating where we were and where we would likely go.

The Forward Minsky Journey of the preceding twenty years had come to an ignominious end, I argued, and a Reverse Minsky Journey was underway, in which *"Ponzi Debt Units are destroyed, Speculative Debt Units are severely disciplined, and Hedge Debt Units make a serious comeback."* And indeed, that Reverse Minsky Journey unfolded in 2008, in ways more nasty than I ever envisioned, culminating in a global financial and economic cardiac arrest following Lehman's fall in September.

The Fed funds rate stood at 4½% on that 15 November 2007 evening, with the FOMC having cut it 75 basis points in September and October. Might Fed funds fall, I mused, all the way to 2½%, the level that I had mistakenly forecast in May 2004 would be the peak of the looming tightening cycle?

My response:

> *"I honestly don't know. What I do know, or at least think I know, is that the slower the Fed is in lowering the Fed funds rate, the greater will be the cumulative decline in the Fed funds rate. Debt deflation is a nasty beast and will not be tamed with a gentle monetary policy response."*

Which brings me to my last visit with you on 19 March 2009.[9] The Fed funds rate resided in a 0–25 basis point range, where it stands to this day. I simply hadn't been bold enough in forecasting how nasty the debt deflation beast would be!

And with the zero lower bound hit for the Fed funds rate, credit easing and quantitative easing (QE) were underway.

I applauded the Fed, loudly, for what it was doing. The economy was suffering from both the Paradox of Deleveraging[10] and the Paradox of Thrift, and the only way to break those paradoxes was, I argued, to substitute the sovereign's balance sheet for the deflating private sector balance sheet.

America was doing it, with three balance sheets in operation: the Fed's, the Treasury's with TARP and the FDIC's with increased deposit guarantees and the introduction of unsecured debt guarantees. It was an "all in" strategy and that was precisely what was required, I intoned. I advocated that most major countries should join the Fed in aggressive QE, effectively generating a Competitive QE game, in which all fiat currencies were devalued against things, with gold being a proxy for things.

I was generally upbeat, going so far as to suggest that I was contemplating buying a second home, on the notion that Depression 2.0 would be avoided.

Now and Looking Forward

A year later, the evidence is in: Depression 2.0 has indeed been avoided. No, I haven't yet bought that second home. In fact, I actually sold my only one, at a good level, as I was no longer using it, preferring to live in a little rental house on the water where I have my 32-foot fishing boat, named the Moral Hazard, and my 18-foot electric Duffy boat, named the Minsky Moment. Yes, I am sorta non-normal.

And so is the current configuration of Fed policy, with the policy rate pinned against zero in the context of a very bloated balance sheet and huge excess reserves in the system. It's non-normal because we are living in non-normal times and that is likely to be the case for an extended period, to steal a phrase.

But in the fullness of time, there will come a time when the Fed will want to normalise policy to the new world we face, a continuing Reverse Minsky Journey of private sector deleveraging and de-risking, but at a glacial pace, rather than the panic pace of the last couple years.

Thus, I cringe when I hear men like Kansas City Fed President Tom Hoenig muse that the Fed will ultimately need to get the Fed funds rate back up to a 3½%–4½% zone. I deeply respect Mr. Hoenig, both as an economist and a man, but I just don't see why the Taylor Rule of the Forward Minsky Journey should apply to the Reverse Minsky Journey.

Simply put, the 2% real Fed funds rate constant in the Taylor Rule should, in my view, be considered toast. In a world of deleveraging and hoarding of cash, it makes absolutely no sense to reward holders of cash with an after-tax real rate of return.

To be sure, I stand by my long-ago proposition that the holders of always-trades-at-par cash should be compensated for both the explicit tax on interest income and the implicit tax of inflation. I also stand by my proposition that the FOMC's comfort zone should be 1½%–3%, up from 1½%–2%. But I doubt seriously that the Fed will ever explicitly increase its implicit inflation target. Thus, I envision an <u>eventual</u> neutral Fed funds rate of 2½%, just as I did way back in 2004 – a real rate of 0.5% plus a 2% inflation rate.

But I think it will be a long time before the Fed takes us there, as the "active terms" in the Taylor Rule are still very active, working in the same downward direction: Inflation is below target and headed lower still, primarily because unemployment is several percentage points above the Fed's unchanged 5% estimate for NAIRU.[11]

And for 10-year Treasuries? Six years ago, I assumed potential real GDP growth to be 3%–3½%. In a world facing a prolonged, even if a less nefarious Reverse Minsky Journey, I think 2%–2½% is a more plausible estimate, which should be the anchor for private real 10-year yields, defined as the real swap rate. In turn, assuming swap spreads hold near flat, as at present, this implies a 4%–4½% fair value range for both nominal 10-year swaps and Treasuries. But this will only be the case when the market can credibly discount that the Fed will have the economic justification of an at-target (2%) inflation rate and an at-NAIRU (5%) unemployment to lift the nominal Fed funds rate to its 2½% "neutral" nominal level.

Would such a yield curve, flatter than at present, but still reasonably steep, beget speculative excess via leverage, as was the case in the mid-2000s? I don't think so, because policymakers have learned that regulation of leverage is not an evil, but a missing virtue that now becomes an imperative. The shadow banking system will, I believe strongly, be a small shadow of itself for a long, long time. Thus, while I'm sure I will be wrong about many things in the years ahead, I have few fears that unbridled, unregulated leverage will again be the dog that bites me.

Providing support for that proposition is the newly devised Financial Conditions Index created by a quintet of eminent academic and financial market economists for last month's U.S. Monetary Policy Forum, sponsored by the University of Chicago Booth School of Business.[12] It's a devilishly wonkish paper, but its contribution is profoundly robust: Financial Conditions cannot be properly analysed by simply creating a weighted average of various asset prices and risk premiums, but must include variables that capture the evolution of leverage and the terms and availability of credit, not simply its price.

The quintet's conclusion was:

> *"…several components of our FCI that have not been previously included – particularly quantity indicators related to the performance of the 'shadow banking system' such as ABS issuance and repo loans, as well as total financial market cap – have failed to improve much if at all."*

A Financial Conditions Index with a Minsky Innovation: what a beautiful thing! And it has profound implications for how we think about the concept of a neutral Fed funds rate, even if you don't buy my thesis that the after-tax real return on cash should, in an "equilibrium" world, be approximately zero.

My 2003 *Financial Times* co-author Bill Dudley was a formal discussant for the paper when it was presented, and spoke directly to this point:

> *"I would note that financial conditions indicators have implications for 'Taylor Rule' formulations for monetary policy. As you all know, Taylor-type rules provide a short-hand metric for the appropriate stance of monetary policy. In such rules, the fed funds rate is set at a level equal to the equilibrium real fed funds rate, plus the inflation objective, plus the weighted deviation of output from its potential and of the inflation objective from actual or, if forward looking, expected inflation. Often, analysts and economists assume that the equilibrium real fed funds rate is equal to 2%, its long-term historical value. Although, in principle, such rules allow the equilibrium rate to be time varying, it typically is assumed to be constant.*
>
> *I have always been uncomfortable with this usage of a 2% equilibrium real rate assumption because it ignores the possibility that the equilibrium rate changes in response to technology shocks or in response to changes in how monetary policy is transmitted via the financial system to the real economy."*

Amen and amen, President Dudley. The Fed pegs the Fed funds rate, but where that peg should be is not just a matter of its influence on asset prices and risk premiums, but the architecture of the financial system. And if the shadow banking system is going to be a regulated shadow of its former un-regulated self, the neutral real Fed funds rate is going to be a down-sized shadow of its former self.

I've talked too long. Thank you, my friends, for inviting me here tonight. What a long strange trip it's been since my first time at this podium in May 2004, when Wall Street was increasingly driving Main Street, eventually to the cusp of Depression 2.0. May the journey ahead be much less strange, even boring, with Wall Street returning to its proper role of facilitator of Main Street's rightful ambitions of rising standards of living, more equitably distributed.

May Wall Street re-learn the doctrine of profit-motivated stewardship, and dis-learn the false god of speculation-driven avarice.

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[1] *Fed Focus: "Comments Before the Money Marketeers Club: A Brave New World" (May 2004).*

[2] *Fed Focus: "Needed: Central Bankers with Far Away Eyes" (August 2003).*

[3] *Fed Focus: "Shades of Irrational Exuberance" (January 2005), http://europe.pimco.com/LeftNav/Featured+Market+Commentary/FF/2005/FF+January+2005.htm*

[4] *http://www.federalreserve.gov/fomc/minutes/20041214.htm*

[5] *Fed Focus: "Pyrrhic Victory" (September 2005), http://europe.pimco.com/LeftNav/Featured+Market+Commentary/FF/2005/FF+Sept+2005.htm*

[6] *"Greenspan must got for higher inflation," Financial Times, April 24, 2003.*

[7] *http://www.federalreserve.gov/boarddocs/speeches/2003/20031017/default.htm*

[8] *Global Central Bank Focus: "Comments Before the Money Marketeers Club: Minsky and Neutral: Forward and in Reverse" (December 2007), http://europe.pimco.com/LeftNav/Featured+Market+Commentary/FF/2007/GCBF+12-07.htm*

[9] *Global Central Bank Focus: "Comments Before the Money Marketeers Club: Playing Solitaire with a Deck of 51, with Number 52 on Offer" (April 2009), http://europe.pimco.com/LeftNav/Featured+Market+Commentary/FF/2009/Global+Central+Bank+Focus+April+2009+McCulley+Playing+Solitaire.htm*

[10] *Global Central Bank Focus: "The Paradox of Deleveraging Will Be Broken" (November 2008), http://europe.pimco.com/LeftNav/Featured+Market+Commentary/FF/2008/Global+Central+Bank+Focus+11-08+McCulley+Paradox+of+Deleveraging+Will+Be+Broken.htm*

[11] *Some believe NAIRU will be somewhat higher going forward than prior to the crisis of recent years, and I have some sympathy with that proposition, perhaps a percentage point. But as experience has painfully taught me, substituting my view for the Fed's revealed view is not a good starting point for forecasting the Fed!*

[12] *J. Hatzius, P. Hooper, F. Mishkin, K. Schoenholtz and M. Watson, "Financial Conditions Indexes: A Fresh Look after the Financial Crisis" (February 2010), http://research.chicagobooth.edu/igm/events/docs/2010usmpfreport.pdf*

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