



T-Leaf Reading
to Understand Beta and Create Systematic Alpha

Introducing a modern toolkit for
Recession and Inflation Anticipation, Identification of Black Swans, Avoiding
Drawdowns, Modernizing Macro Economics, and more

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Warren Buffet's Rule No. 1: Never lose money. Rule No. 2: Never forget rule No. 1.

Summary

- **We present a new toolkit that adds Macro Economics, Money Supply, Foreign Central Bank activity, Currencies, Equity markets, Swaps, and Inter-Market concepts to the traditional Yield curve and TIPS-based measures** for anticipating inflation, recessions and understanding asset pricing and Beta
- **We share the MBS Mantra Market-Macro Framework** and explain why current asset pricing theory is incomplete, and needs to incorporate the actions of Central Banks
- **We demonstrate usage of this toolkit and framework** by explaining recent “Black Swan” events, and show where we anticipated them using our framework
- **We show our model for market Beta based on Macro elements in the toolkit – what we call Injected Capital – and describe how Modern Macro Economics works**
- **We provide links for more detailed understanding**

This toolkit and framework can help CIOs and portfolio managers:

- **Avoid drawdown events, allowing returns to continue compounding**
- **Create Alternative Alpha**
- **Make Alpha Capture Systematic**
- **Understand and anticipate almost all asset price movements in the modern era** (since ~1990), from yield curve flattenings and swap spread movements, to significant events such as LTCM and the Global Financial Crisis
- **Identify false positives (selloffs in asset prices that are temporary), allowing one to buy dips, or avoid selling**
- **Make markets rational**

Modern Toolkit required to interpret a US Treasury bond or bill yield movement

- **Traditional**
 - US Treasury Yields
 - TIPS or TII (Treasury Inflation Protected/Treasury Inflation Indexed bonds) Yields
 - 0yr-2yr, 2yr-5yr, 2yr-10yr, 2yr-30yr and 10yr-30yr yield curve spreads/slopes
- **Modern, in addition to the above**
 - T-Bill and Note/Bond supply
 - Central bank holdings and purchases of USTs
 - US Interest Rate Swap spreads
 - Yen currency rate Y/\$
 - S&P 500 Index

Readers of our Crisis Notes and other Macro analysis will be aware of the remaining tools required to complete the analysis of Asset Prices. These have been extensively analyzed previously in [The Failure of Macroeconomics](#), so detailed explanations will not be repeated here. They are:

- **Policy Interest Rate Differentials between US Fed Funds and Japan, ECB and China**
- **Issuance of foreign currency denominated US bonds, primarily Samurai bonds**

The MBS Mantra Market-Macro Framework

Our framework is based on the following understanding:

- Prices are set by microeconomic actions – the intersection of marginal demand and supply
- Demand and supply actions by Rational economic Actors – those who act for their own benefit for the profit motive – will result in prices that aggregate the collective view of all such actors

So far, so good – Rational Actors determining prices is why markets are assumed to have predictive power. This is the basis for Fama’s Efficient Market Hypothesis.

We add two more crucial insights:

- **Governments and central banks are Non-Economic Actors, and conduct actions that are not motivated by profit.** Some of their actions (QE) overwhelm the actions of Rational Actors, while others (Policy Rate setting) **set in motion a feedback loop**, where Rational Actors respond rationally to incentives and undo the intended action of the central banks, leading to systematic export of capital and unintended money supply consequences
- Countries are no longer closed to capital flows, and **the Keynes/Hicks IS/LM framework works in reverse**

It is the failure to understand or anticipate the last points that leads to surprises in the market. Once these are taken into account, almost all market price movements and risks can be understood, and even predicted.

All the so-called Black Swan events of the recent past have been predictable. Yes Virginia, there are no Black Swan events – just failures of anticipation and interpretation.

T-Leaf Reading

We will first focus on modernizing the interpretation of movements in US Treasury (“T”) Yields and Yield Curves by introducing Macro Economics, Money Supply, and Inter-Market concepts to your toolbox. The goal is to update and bring into the 21st century the very naïve, simplistic, and pre-1990s T-leaf reading performed by most Fixed Income analysts, economists, and journalists.

The tools described in detail here are a subset of the toolbox required for comprehensive asset valuation and Beta understanding – we initially only focus on the US Treasury markets.

We will start with recent areas of market concern – recession predictions from the shape of the yield curve, and inflation expectations from the spread between TIPS and Treasuries. These will demonstrate how to use a broader and more comprehensive toolbox.

We will then study two periods of the last 30 years to understand what caused specific movements in US Treasury markets. This will allow readers to expand their understanding of risk, and how to anticipate and interpret events that the popular press and economists designate as Black Swan events, and potentially portend such events.

Much of what I share below is drawn from my previous writings, with analysis consolidated in this paper. Links to the original documents and analysis are scattered through the document.

Traditional Thinking – Yield Curve Flattening portends Recessions

The flattening of the yield curve in November and December 2018 has brought out every Fixed Income research analyst and quotable portfolio manager, who continue to write in newspapers and white papers, and give warnings on TV about the impending recession that the yield curve is signaling, based on their analyses of history.

An example:

<https://www.nytimes.com/2018/06/25/business/what-is-yield-curve-recession-prediction.html>

From this NY Times article: “Every recession of the past 60 years has been preceded by an inverted yield curve, according to research from the San Francisco Fed. Curve inversions have “correctly signaled all nine recessions since 1955 and had only one false positive, in the mid-1960s, when an inversion was followed by an economic slowdown but not an official recession,” the bank’s researchers wrote in March.”

Traditional Thinking – TIPS Breakevens portends Inflation

The standard and tradition process to gauge Inflation expectations is from ‘TIPS Breakeven Rates’ – Nominal UST yield – TIPS yield of the same maturity. Quoting the Fed via Bloomberg’s analyst, Ira Jersey, in a 2/12/19 article

‘The lack of trading volume in TIPS is one of the reasons the Federal Reserve tends to cite in explaining why TIPS breakevens are one -- but not necessarily the only or best -- indicator of how the market views inflation.’

Both these measures are rather simplistic, and do not account for the global nature of money, capital flows, and investors. The structure of the markets has changed relatively recently, since the mid-1990s, and Fixed Income, Finance, Economics and Macro education has not kept up. International flows were miniscule, until Japan’s “[Big Bang](#)” in 1996 exposed international markets to gigantic flows of capital, reversed the workings of macro-economic policy, and distorted money supplies.

Some definitions – TED spreads and Swap spreads

- **TED:** Treasury (bill futures prices) over Eurodollar (futures prices). However, it is usually quoted in the difference in discount rate implied by the futures prices, and called the TED spread. Eurodollar rates are the short end of the LIBOR curve. The TED spread is thus interest rate spread of LIBOR over US Treasury yields/rates typically under 1 year maturity.
- **Swaps:** Interest rate swaps are contracts to exchange a fixed rate for a floating rate. The fixed side is usually quoted as a spread over US Treasury yields of the same maturity, has a fixed payment, and mimics a bond. The floating side is usually 1-mo or 3-mo LIBOR. The fixed side is thus term-LIBOR of longer and different maturities, and is (or was) a benchmark for bond valuations of different maturities, reflecting yields for credit risk. Because swaps form the 1+ year part of the LIBOR curve, movements in TED spreads flow through into swap spreads. By buying a swap, one is long a synthetic fully levered bond, funded with LIBOR (spoiler alert: LTCM’s downfall); by shorting a swap, one can hedge a long position in a bond.

The table below is copied from my 1988 Merrill Lynch booklet [An Analytical Guide to Interest Rate Futures Spreads](#), and summarizes the factors that impact the TED spread (and thus Swap spreads) that I identified at the time.

Factors Affecting The TED Spread

Fundamental Factors	Expected Reaction of TED
“Flights to Quality”	Widen
Reduction in Confidence in the Banking System	Widen
Euro Financing Increases	Widen
Yield Curve Flattens	Widen
Yield Curve Steepens	Narrow
<u>T-Bill Supply Increases</u>	<u>Narrow</u>
<u>T-Bill Supply Decreases</u>	<u>Widen</u>
Fed raises Reserve Requirements	Widen
“Significant” Open Market Security Purchases	Narrow
“Significant” Open Market Security Sales	Widen

This led me to analyze the relationship between swaps and bond prices in my 1990 Morgan Stanley MBS Research article [Hedging Costs Can Drive MBS Relative Value](#), creating the concept that is known as LIBOR OAS, that the market did not discover or embrace till well after LTCM, in the 2000s.

December 2018: A recent usage of the toolkit – understanding the Yield Curve flattening



In [MBS Mantra’s November 2018 newsletter](#), (Dec 11, 2018) I wrote the following:

There has also been much prognostication from various sources that the flattening, and indeed slight inversion (to 5 years), of the yield curve portends a recession.

We disagree. ...

I fully expect that, in two months’ time when the data is released, we will discover that the Bank of Japan purchased a significant amount of US Treasuries in Nov/Dec, to offset the Yen strengthening that should have resulted from the equity market selloffs in November and December 2018. ...

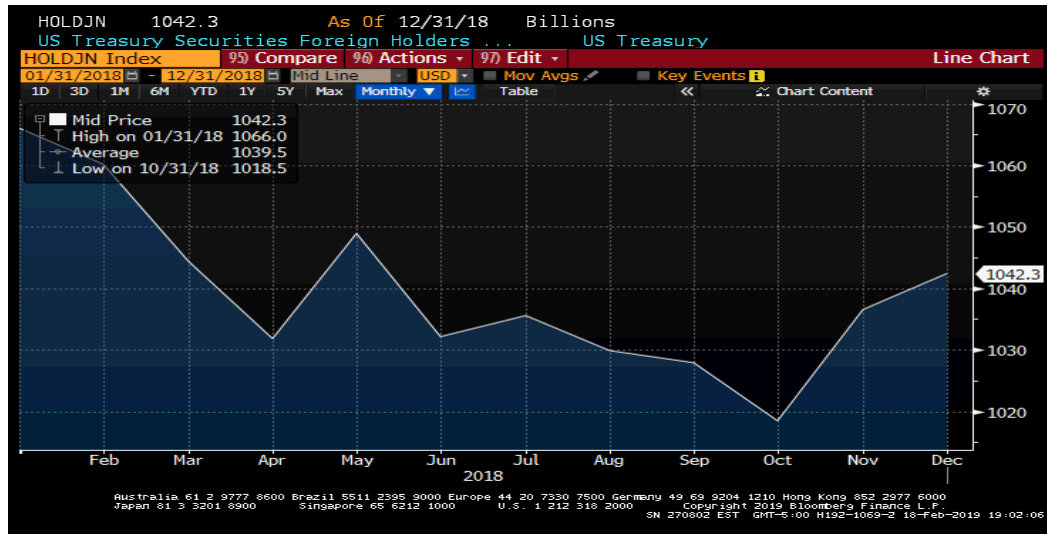
To me, this smells of a Japanese intervention to keep the Yen weak. We last saw this in 2014.

In [MBS Mantra’s January 2019 newsletter](#), (Feb 10, 2019) I wrote the following

The data for November was released on Jan 31, 2018. (Treasury International Capital or TIC data, released by the US Dept. of the Treasury. HOLDJN Index on the Bloomberg.)

As I expected, the BOJ was indeed a net purchaser of US Treasuries in November, by \$18.1 Billion, increasing their holdings to \$1.036T. This demand for USTs is what flattened the curve, and triggered a lot of business-TV gobbledygook about historical data showing that flattenings usually predicted recessions, etc.

The graph below, from end of month TIC data, shows that Japan added to their UST holdings in November and December 2018, bringing their recent purchases to \$23.8b. The Treasury classifies most of Japan’s holdings as ‘Long-Term’ in bond maturity.



In addition, total UST holdings by Major Foreign Holders increased by \$65.2b between Oct and Dec 2018. <https://www.treasury.gov/resource-center/data-chart-center/tic/Pages/ticsec2.aspx>

As an unintended consequence, Japan’s (and other Foreign) purchases of USTs amount to QE to the US, and increase our money supply (primarily M3, no longer published), directly manifesting in asset inflation. In today’s world, such changes can offset the Fed’s QT, or can exacerbate it if foreign holdings are reduced.

This QE injection from foreign UST purchases explains the rally in the S&P in 2019 that is attributed to Chairman Powell ‘blinking’ on interest rates.

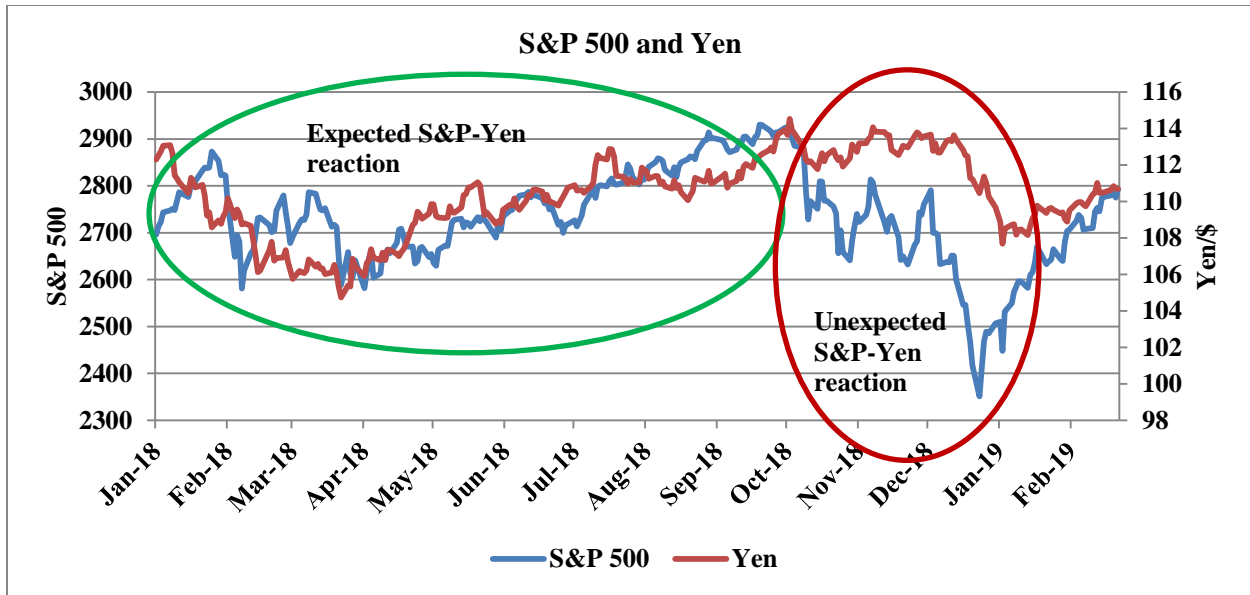
As will be discussed in more detail later, Japan has supplied us with QE before, when they dramatically increased their US Treasury holdings between 2002 and 2004, and implemented US QT as well, when they unwound their holdings. A study of this period gives us a roadmap of what to expect.

We prefer to follow Japan’s UST holdings to draw conclusions about movements in Treasury yields, as they tend to be the largest marginal foreign actor in the UST markets. In addition, their motivations can be understood, as I will describe below.

Yen strengthened to 75 Y/\$ during the Crisis, and would have gone to 50 Y/\$ had Prime Minister Abe not been re-elected. Since 2012, there appears to be a strong policy to keep the Yen weak. **In essence, what Japan is doing now is providing the US with ‘Plunge Protection’, by injecting US money supply when it is needed.**

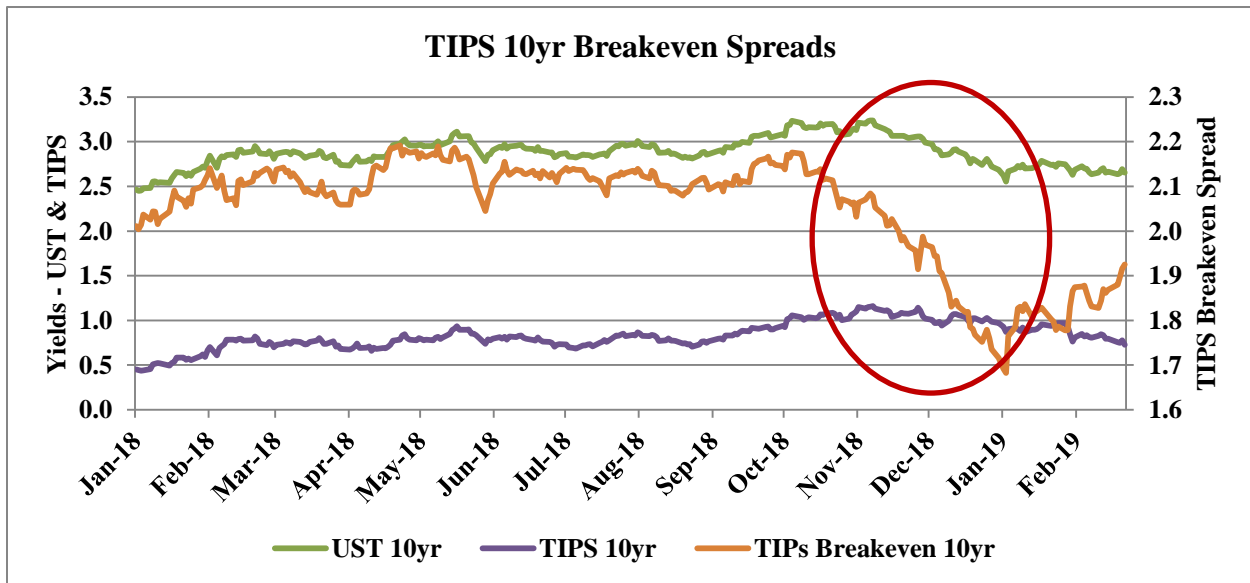
How did we anticipate this:

In December 2018, the S&P declined from 2790 to 2351, a 15% move! However, the Yen only strengthened from 113.8 to 112.7, barely responding. **This lack of Yen response, to me, smelled of an intervention by the BOJ, who probably bought USTs to keep the Yen weak (selling Yen).**



We verified the purchase of USTs by looking at TIPS breakeven spreads.

External demand for USTs should tighten TIPS spreads (since USTs always yield more than TIPS). 10yr USTs went from 2.65% yield to 2.55% yield, while 5yr USTs declined by 75 bps from Nov to the end of Dec. 10yr TIPS breakevens started declining from over 2% to 1.68% at the end of December as UST yields declined.



The outsized tightening in “inflation expectations” in November/December 2018 corroborated the information from the S&P/Yen moves, leading to my conclusion.

Central Bank UST buying – Impact on Swaps and Inflation Expectations

Inflation expectations, or TIPS breakeven spreads, are defined as a subtraction of 2 yields: UST yields – TIPS yields. In a closed economy, where primarily domestic investors that are concerned about inflation in their economy drive purchases and sales of US Treasury securities and TIPS, the TIPS breakeven spread is a plausible explanation for market expectations (this also applies to the curve flattenings).

The traditional understanding of fixed income yields tends to focus on inflation. As an example, here is the [CFA Society’s understanding of the ‘components of interest rates’](#).

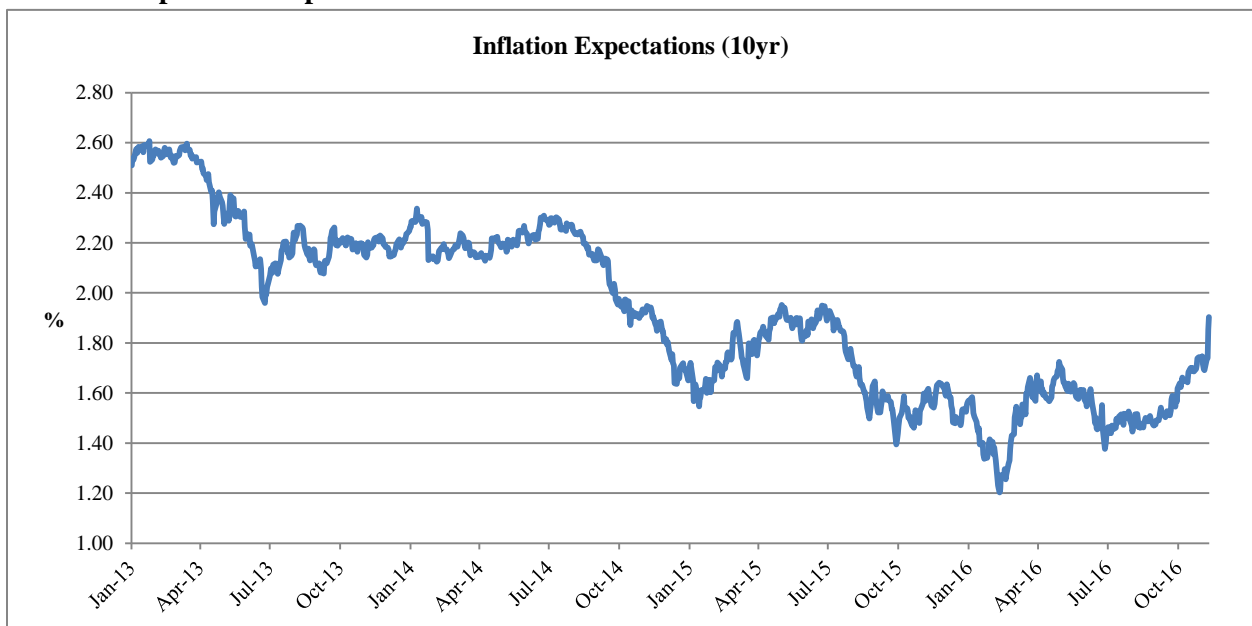
1. Real Risk Free Rate
2. Expected Inflation
3. Default-Risk Premium
4. Liquidity Premium
5. Maturity Premium

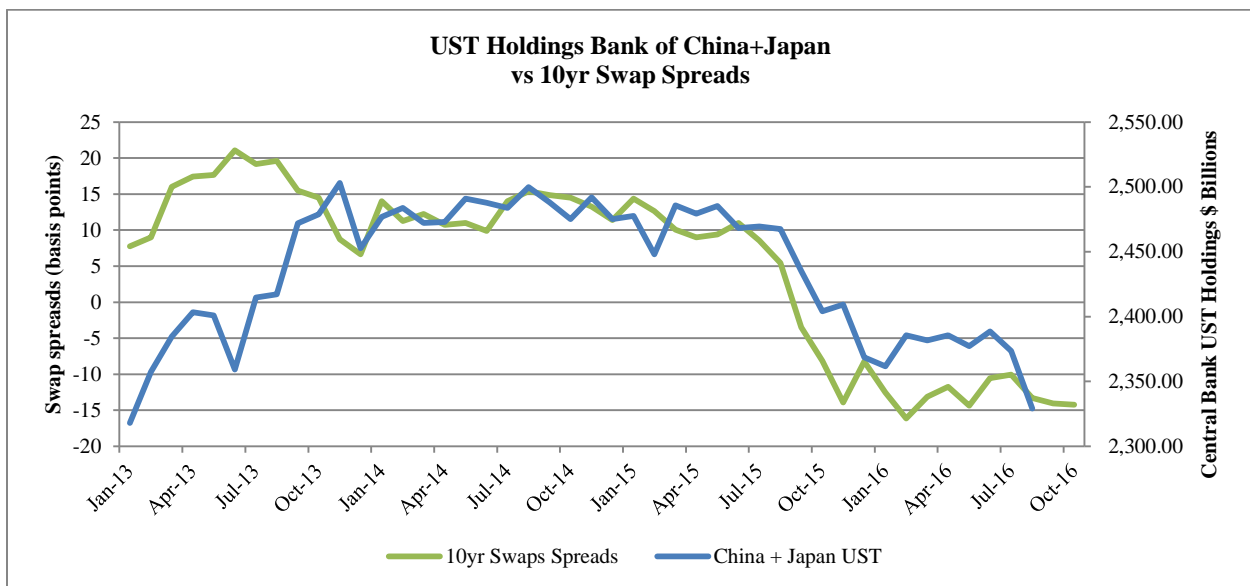
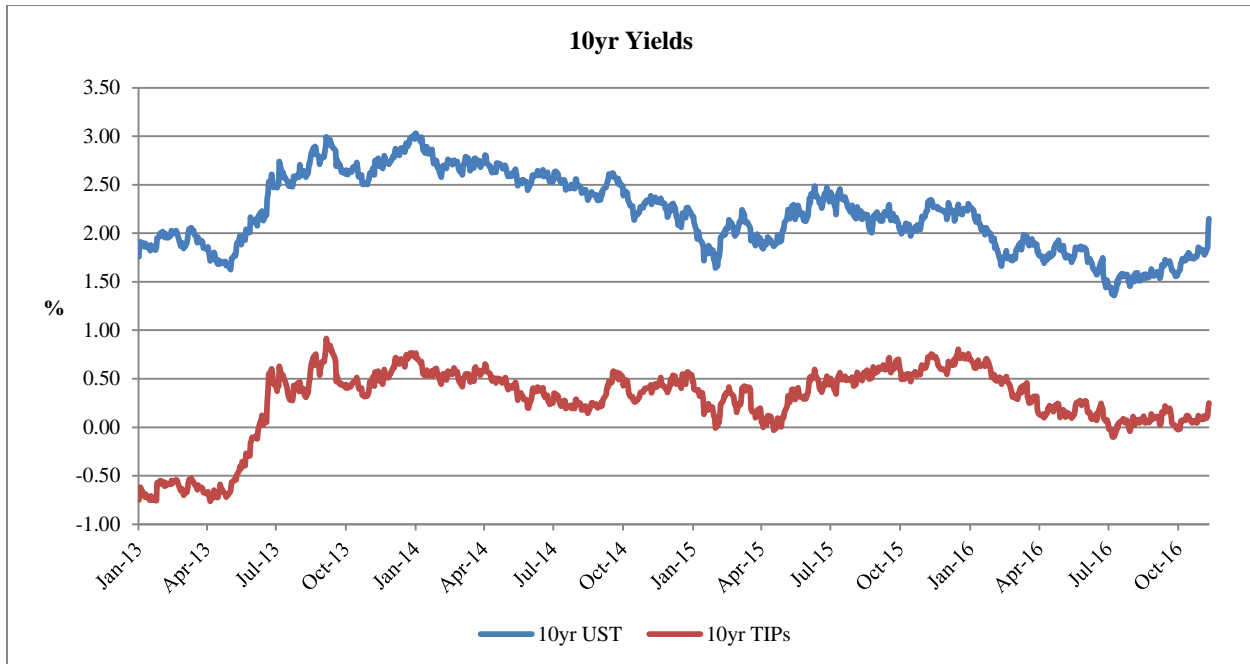
Since short-term US rates are the benchmark for Risk Free Rates, in the conventional thinking, #2, Expected Inflation, becomes the default factor for explaining benchmark interest rate movements.

However, during periods when foreign central banks are active, movements in Breakeven spreads are likely to generate false readings regarding expected movements in inflation. This also has an impact on Swap spreads, which result in incorrect assessments of credit risk. (UST yields decline when Central Banks are buying, and rise when they are selling)

I have discussed this previously in my 2016 papers [Interpreting Benchmark Yields – Separating Inflation Expectations from Central Bank Activity](#) and [Interest Rate Swaps as a Benchmark](#). I will not go into a detailed discussion here, but here are some graphs.

Inflation expectations spiked in Oct 2016.





In the 2016 event above, the spike in “Inflation Expectations” (which brought out analysts and CIOs to express their concern) was a result of net US Treasury selling by the combination the BOJ and Bank of China, raising UST yields, and identified by a tightening in swap spreads, which went negative.

All markets are connected. Looking at a single factor, such as the slope of the yield curve, or TIPS “inflation expectations” is not sufficient to draw conclusions.

Black Swan events

I paraphrase heavily from various Wikipedia articles in this section. Nassim Nicholas Taleb, who popularized the term, is the undisputed expert on Black Swan events, and the definitions below are attributed to him via Wikis. His books are insightful and worth reading.

https://en.wikipedia.org/wiki/Black_swan_theory

<https://www.investopedia.com/terms/b/blackswan.asp>

- *First, it (the Black Swan event) is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility.*
- *Second, it carries an extreme 'impact'.*
- *Third, in spite of its outlier status, human nature makes us concoct explanations for its occurrence after the fact, making it explainable and predictable.*

Taleb also makes the point that the black swan event depends on the observer, and that the few people that are likely to predict them are also outliers.

Recent Black Swan events that are often cited are the collapse of the LTCM hedge fund in 1998, “as a ripple effect caused by the Russian debt default” (incorrectly attributed in hindsight, we will explain why shortly), the collapse of the dot-com bubble in 2001, and the Great Financial Crisis in “2008” (incorrectly attributed in my opinion, it is really 2007, and it was not caused by subprime MBS or Lehman – both were symptoms).

While most Black Swan events are viewed as negative events, there is also another event that fits the definition of “Black Swan” – the economic boom of 2002 to 2004. This period of US economic history period fits the definition’s first two points, but has not been analyzed or understood, but can be explained by our framework. It is incorrectly attributed to tax cuts, or magic from Alan Greenspan.

Below, to demonstrate using our framework, we will analyze the LTCM Black Swan event, and the 2002-2004 period.

It turns out that I had correctly identified the determinants of the LTCM failure ahead of LTCM’s failure, and warned my clients about them. It is likely that the Asian crisis of 1997, Tiger Management’s blowup, the Russian default of 1998, the 2000 recession, and the Dot-Com failures in 2001, and even the Global Financial Crisis of 2007 (GFC) were carry-on effects of the same event. t

The LTCM Failure

LTCM’s failure has its roots in the mid-1980s through 1990s US S&L (Thrift) Crisis. The S&L Crisis was a result of the inversion of the yield curve – in order to curb inflation in the late 1970s, Chairman Volker had raised short term rates, leaving thrifts with long term assets in the form of loans with rates lower than where they could borrow in deposits or other forms of debt.

https://en.wikipedia.org/wiki/Savings_and_loan_crisis

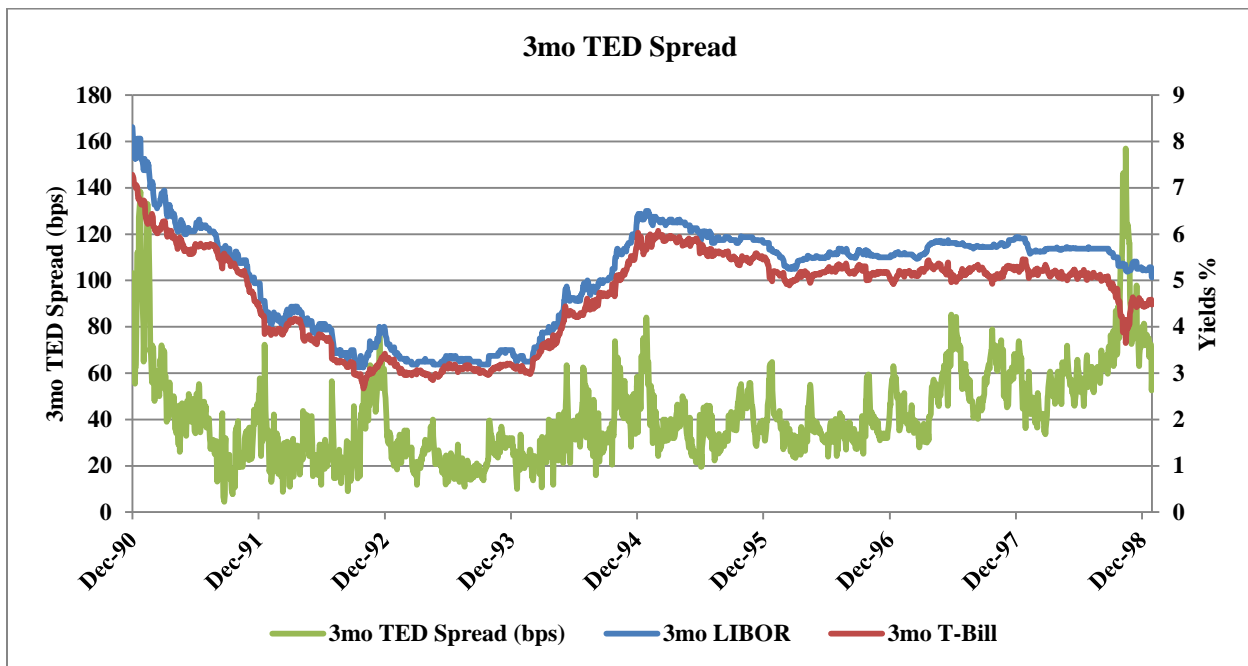
This resulted in one third of all thrifts failing, and the Resolution Trust Corp (RTC) was created to resolve their balance sheets, totaling \$394 billion. Congress balked at the cost of the bailout, and only a limited amount of bonds (\$30b) were authorized under the REFCORP bond program. Congress then authorized an additional \$50b of deficit spending for the RTC, issuing T-Bills to fund the RTC balance sheet.

I wrote a [research piece about this in 1991, Understanding the TED Spread: Implications for Floating Rate Assets](#), as an MBS research analyst at Morgan Stanley.

In 1991, the TED spread (Eurodollar rates – US Treasuries) started narrowing, and in this article I identified the RTC related T-Bill supply that caused it to tighten. *“This extra Treasury Bill supply supported Treasury Bill yields while other money market rates were declining, resulting in a narrowing of the TED spread”*. I predicted: *“we believe that the current narrowing of the TED Spread is temporary and that it will revert back to wider levels”*.

Bloomberg no longer has T-Bill Auction data from the 1990s, but there is a graph in my paper from 1991. The TED spread tightening correlates with this graph.

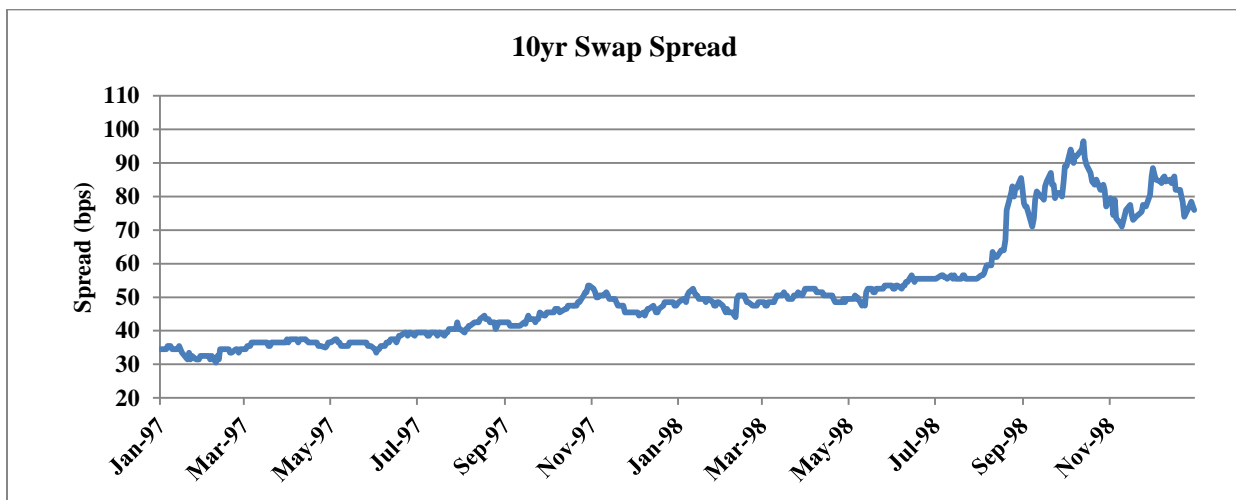
On May 2, 1997, with a budget surplus in hand, President Clinton, [with great fanfare](#), started reducing the T-Bill supply, as part of this plan to balance the budget. Once I left MBS Research in 1995, to become an MBS Salesman and Sales-Trader, I had been pounding the table to get my clients to use swap spreads to analyze and hedge bonds (ie LIBOR OAS), and had been following the T-bill and swaps markets as a result. **I started warning clients about the impact of this T-bill reduction in 1997.**



When I was populating MBS Mantra’s website with some of my research, I found and uploaded [one of the many messages I sent to clients in November 1997](#).

“Some market analysis: over the past 6 months, Eurodollar spreads have been widening as the US Treasury’s reduction of the T-Bill supply has caused the bill market to tighten, and the various term TED spreads to widen. ...

- The US increased T-Bill issuance from \$13B to \$24B in the 89-94 period, to fund the working capital of the RTC and FDIC thrift and bank bailout. This money was not paid off by the government after the resolution of the crisis.
- In March 1997, T-Bill issuance was cut from \$23B to \$14B/week.
- Starting in April, all TED spreads (including Swap Spreads) started widening. Fixed rate spreads have only reluctantly followed.
- **Swap spreads are on a widening trend.**
- With the 4th quarter overhang, I’d expect this trend to continue i.e. Fixed Rate spreads to widen.



Swap spreads did widen more.

It is this steady widening in Swap Spreads from March 1997 that caused LTCM’s spectacular collapse in September 1998, not the Russian default, as is commonly believed. (If anything, it is quite likely that the Russian default was also caused by this widening in swaps.)

This is verified in Michael Lewis’s 1999 NY Times magazine story [How the Eggheads Cracked](#). The following quotes from this article shed some insight.

“Virtually no one has called and asked us for the facts. They just believe what they read in the papers.’ Then I was shown the bets that had cost the strategists their fortunes and their reputations as the smartest traders on or off Wall Street. “

“The big losses that destroyed Long-Term Capital occurred in the areas the young professors had for years been masters of. The killer blows -- a good \$3 billion of the \$4.4 billion -- came from two bets that Meriwether and his team had been making for at least a decade: interest-rate swaps and long-term options in the stock market. Now there is no reason anyone should feel obliged to understand interest-rate-swap arbitrage.”

“In exchange for lending Long-Term Capital the money to make its trades, the big firms -- Morgan Stanley, Merrill Lynch, Goldman, Sachs -- demanded to know what it was up to. This in turn led to higher-fidelity imitation.” “..on July 17, when Salomon Brothers announced that it was liquidating all of its red dollar-blue dollar trades, which turned out to be the same trades Long-Term Capital had made. For the rest of that month, the fund dropped about 10 percent because Salomon Brothers was selling all the things that Long-Term owned.”..” Fairly rapidly the other big financial firms unwound their own trades, which, having been made in the spirit of Long-Term Capital, were virtually identical to the trades of Long-Term Capital. “..”It ceased to feel like people were liquidating positions similar to ours. All of a sudden they were liquidating our positions.”

“..made the statistical probability of that happening 1 in 50 million.”

It is quite likely that LTCM had already started losing money on Interest Rate Swaps in 1997, as swaps spreads had already started widening – their returns dropped to 17% in 1997 from 43% in 1995 and 41% in 1996. Their confidence in their models also likely meant that they doubled up on their bets (swaps positions) – my speculation.

This article: <https://www.thebalance.com/long-term-capital-crisis-3306240>, sheds more light.

In August 1998, LTCM’s clearing firm, Bear Stearns, that managed all of LTCM’s bond and derivatives settlements, called in a \$500mm payment... “LTCM had been out of compliance with its banking agreement for three months”

Three months of non-compliance is before the Russian default on 17th August 1998. However, LTCM’s bailout was finalized in Sep. 1998, explaining the incorrect attribution to the Russian default.

I am going to assume that LTCM had positions in 10 year swaps, made in 1996 when 10yr swap spreads were ~35bps, with the fixed side at 6.5%. I will also give them the benefit of the doubt and assume that they hedged the fixed rate side with US Treasuries, which also meant that they did not benefit from UST rates and bond yields declining over the period, and in fact lost money on their hedges.

A swaps contract will provide the same economics as a bond position that is 100% leveraged, with funding at the 1mo- or 3mo-LIBOR rate. As bond yields go up (or spreads widen), the bond side of the swap will lose value. If the bond side is hedged with US Treasuries, then the mark-to-market losses or gains will come entirely from spread widening or tightening, i.e. from movements in swap spreads. (The floating LIBOR side, the financing, is always worth par.)

Recall that swap spreads had been widening due to Bill Clinton’s T-bill supply reduction. On Jan 31, 1997, 10yr swap spreads were 31.5bps. By July 1997, they had widened to 40.5 bps. On Jan 1, 1998, they were 50.5 bps. In July 1998, when Salomon brothers started closing their money losing positions, they were 56 bps, and on 8/31/1998, they were 85.5bps, a total spread widening of 54 bps.

Every 10 bps widening in 10yr swap spreads would have caused 0.75% of loss if you had hedged with USTs. A 54bps widening would cause the price to drop from \$100.00 to \$96.33, a loss of 3.67%. For every \$1b in swaps notional, this would have cost LTCM \$36.7mm.

For LTCM to have lost \$3+B on swaps, their 10yr swaps notional position would have been around \$85B to \$100B.

John Meriwether had been the head of the fixed income arbitrage group at Salomon Brothers, and was a legend in the bond markets. LTCM had a team with the cream of the bond math quants from Salomon Brothers and two 1997 Nobel prize winners for derivatives pricing.

Imagine the irony! Meriwether and his merry band, the Gods of Bonds and derivatives' Risk, requiring a \$3.5b bailout due to their failure to understand T-Bills, the quintessential risk-free rate, and one of two critical determinants of swap spreads!

Put another way: Bill Clinton's actions led to the failure of LTCM.

Was LTCM a Black Swan event?

From the perspective of most market participants, including the Fed and US Treasury, the LTCM failure is a Black Swan event – they did not see it coming.

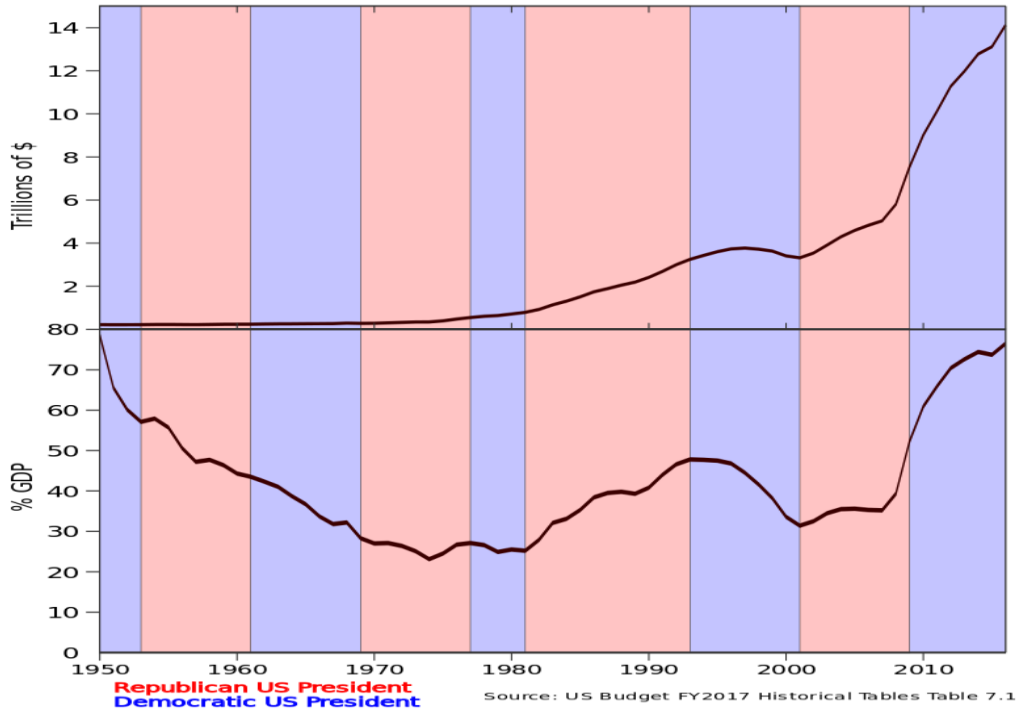
Most market participants were not aware of Swap Spreads as a determinant of bond prices, or wanted to capture the extra carry of hedging with USTs (carry is a component of a dealer trading desk's profit, and is an important component of their bonuses), and would regularly mis-hedge (my opinion) bonds using USTs. As a result, the widening of swaps spreads took everyone by surprise, with almost every dealer and bank posting losses in 1998. LTCM's large position size and leverage, in addition to the copycat positions at banks, resulted in an extreme impact. Had swap spreads been understood, and if risk managers understood risk fundamentally, and not statistically, there would have been better hedging and margin-calling, that would have stemmed LTCM's and dealer losses in 1997.

The concocted post-event explanation, attributing failure to Russian default, fits Taleb's third point.

However, consider this: the true outlier event was the shrinkage of the US T-bill supply in response to a surplus.

This is the only reduction of US debt in the recent past. Quants cannot compute this probability, and the quants at LTCM probably did not even assess this risk. This reliance on statistics at the expense of basic micro-economics is a fundamental flaw in risk management practice, leading to the concept of the Black Swan to rationalize missing information that could and should have been captured.

https://en.wikipedia.org/wiki/History_of_the_United_States_public_debt#/media/File:US_Debt_Trend.svg



I consider this to be the most important event in recent US financial history. As far as I am aware, I am the only market observer who realized this at the time, or has commented on its implications since.

Black Swan events create “waves” through their unintended consequences, and also those of unexpected responses, that ripple through time and build up momentum and force. Subsequent events that are called Black Swans are most often results of not understanding the unintended consequences of previous events, and are not really Black Swan events – they can be predicted.

The shrinkage in T-Bill supply is one of two crucial elemental events that resulted in 2007’s Global Financial Crisis through propagation of its waves.

The GFC was predictable – please read my [first Crisis Note](#) from 8/10/2007, or the [10th Anniversary Viewpoint](#) from 8/10/2017 for an example.

The other crucial event, in 1994, was the murder of Mr. Kazufumi Hatanaka in Japan. More on this later.

Without one or the other, the GFC would probably not have happened.

Conclusion: LTCM’s failure was merely the expected response to this outlier event, and should not be classified as a Black Swan event.

A Double-Black Swan event: the market recovery from 2002 to 2004

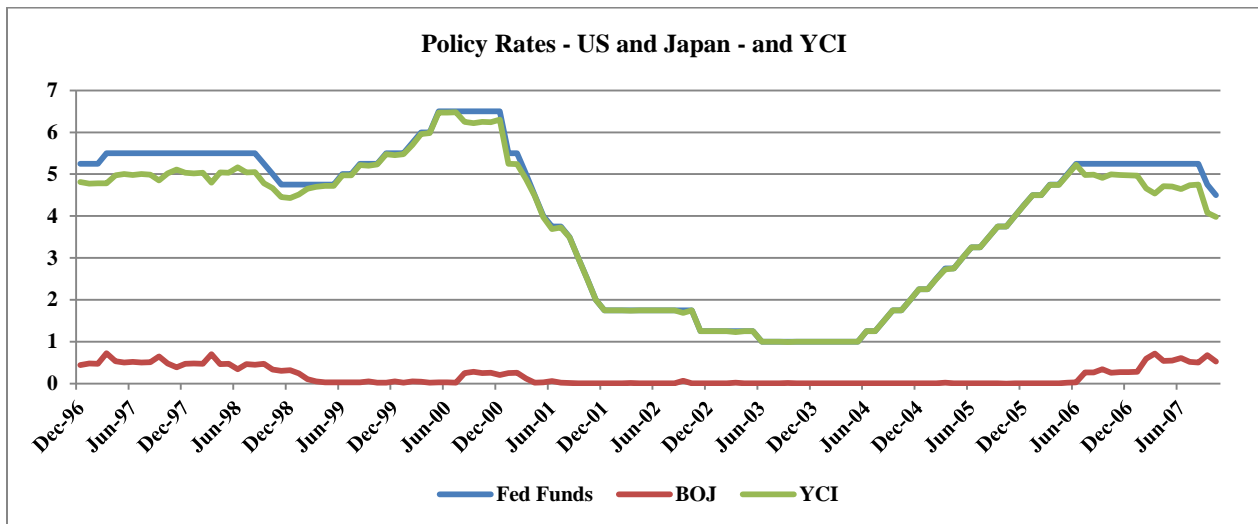
I call this a Double Black Swan event, as most people are not even aware that this was a Black Swan event, given the positive effects on markets and the economy. It however, fits the 3 criteria to be a Black Swan event: an outlier event, with an extreme impact, and a concocted explanation (tax cuts). It also has resulted in a series of waves that continue today and have created risk.

The event is the recovery after the 9/11 terrorist attacks in 2001. This primarily was a result of Quantitative Easing (QE) supplied to the US by Japan, and subsequently China, through unexpected purchases of a significant quantity of US Treasuries. In addition, deregulation in Japan in 1996 also facilitated borrowing from Japan by US financials that contributed to the unexpected positive performance of the US economy.

Background, and a summary of economic events between 1998 and 2001

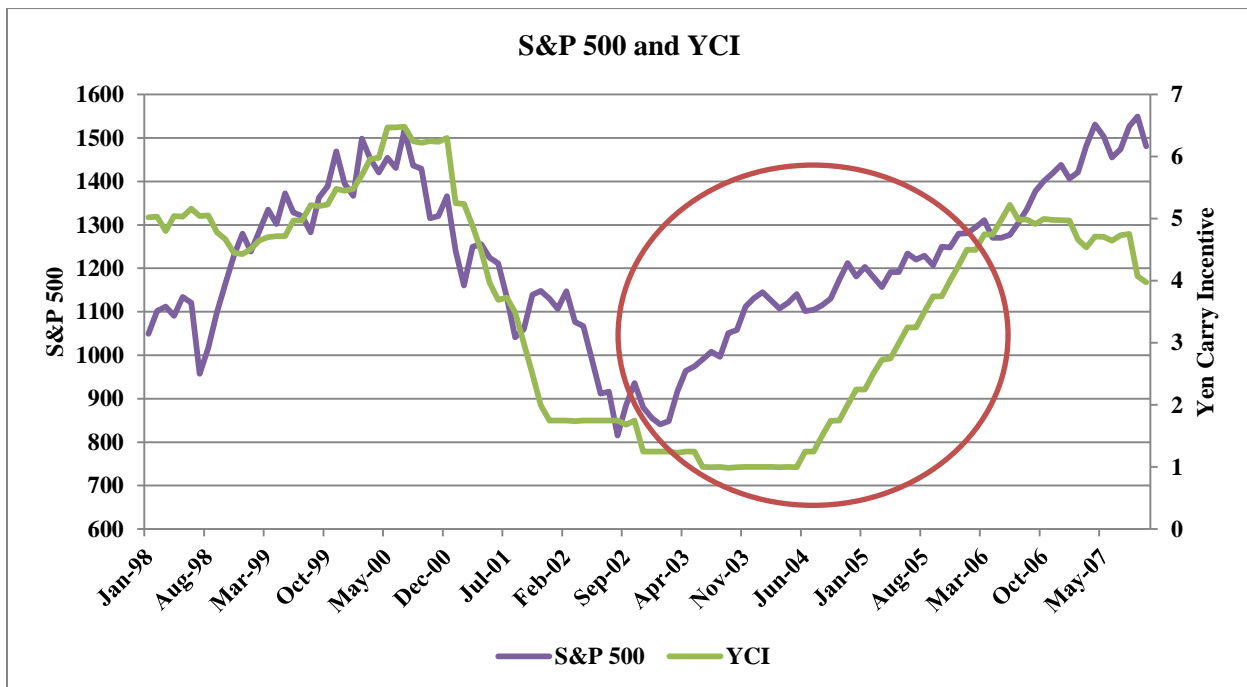
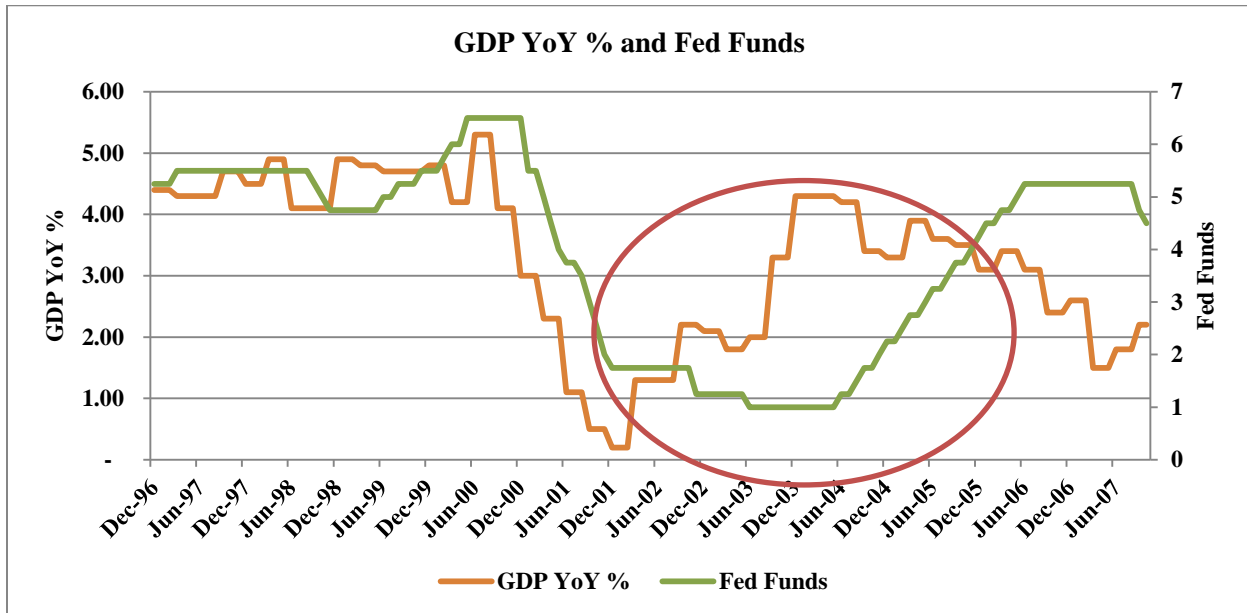
The recent (1994 onwards) history of US economics and asset prices is closely tied with Japan – it is really a Tale of Two Countries. Understanding the triggers for Japanese (including BOJ) economic decisions and actions is at least as important as understanding what the Fed is doing. More often than not, Japanese economy-wide actions are in response to Fed actions, and they have led to unexpected results for both Japan and the US. I have tried to limited the discussion to Japan’s influence on the UST markets, as this article is about Reading UST Yields.

I will only discuss currencies and money flows between the US and Japan when they are needed for continuity or completeness. For details, please read [The Failure of Macroeconomics](#) – the story of the inter-country flows between Japan and the US. In it I show that that **Macro, as practiced by central bankers, has worked in reverse since around 1998: raising US Fed Funds rates increases our money supply; cutting Fed Fund rates shrinks money supply.** In our framework, this is the result of rational actors maximizing by seeking the highest returns. The policy interest rate differential between the two countries – Fed Funds minus BOJ call rate (I call this the YCI – Yen Carry Incentive) induces Japanese savers to export capital to the US or reverse its flow – thus, for example, inadvertently increasing US M3 Money Supply when a tightening is intended by the Fed.



Greenspan had been cutting rates since 2000 in response to GDP growth declines, and again after 9/11, but traditional Macro Economics had not been working, and while the 2001 recession was short, GDP growth was below target, and there had been no reaction in asset prices. Until Jan 2003.

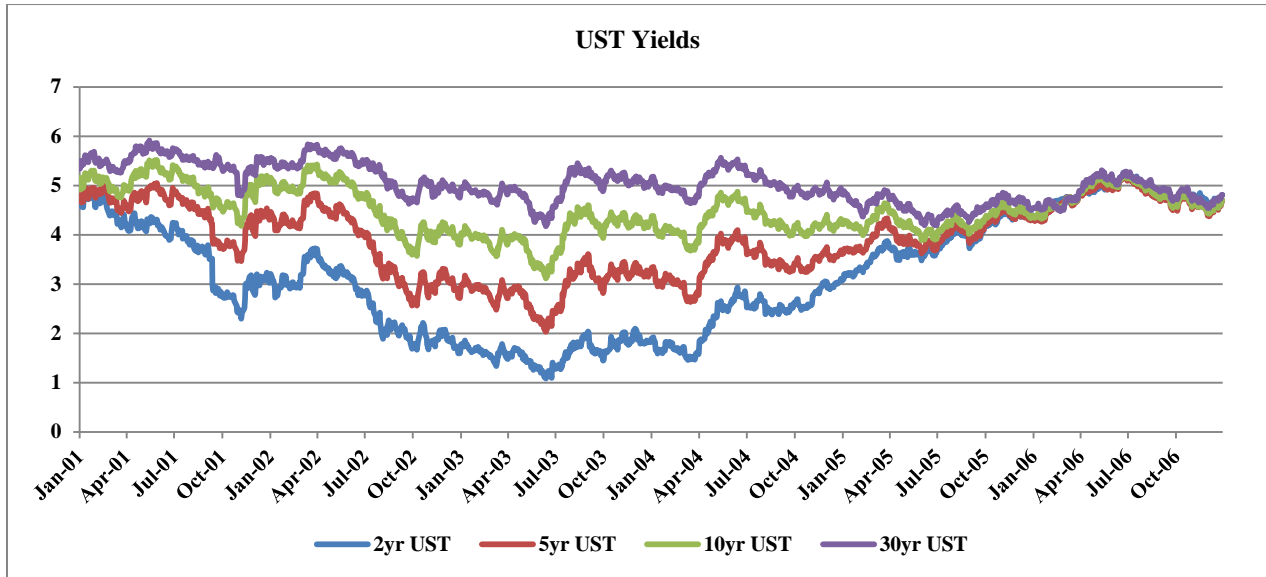
We seek to understand the sources of the unexpected rally in risk assets between 2003 to 2004, that continued in spite of Greenspan raising rates in 2004.



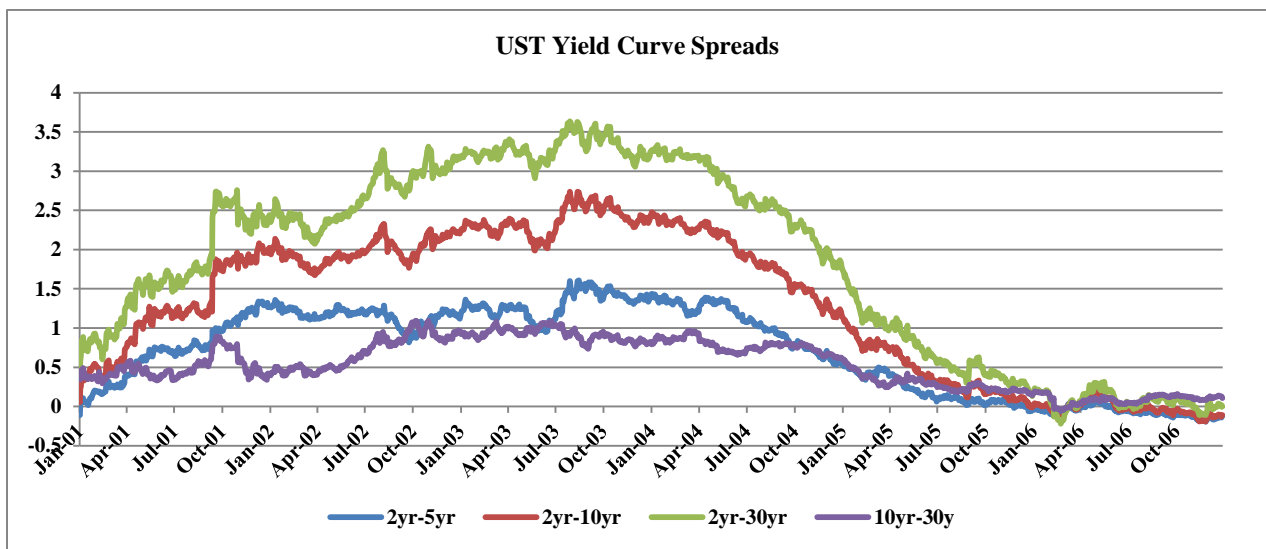
Signals from Rates and Yield Curves

One would have noticed the following between 2001 and 2006, which should have aroused some curiosity:

- It is very unusual to have 4 different handles on yields. 2s through 10s rallied from 2002 to 2004, but the 30yr was relatively stable

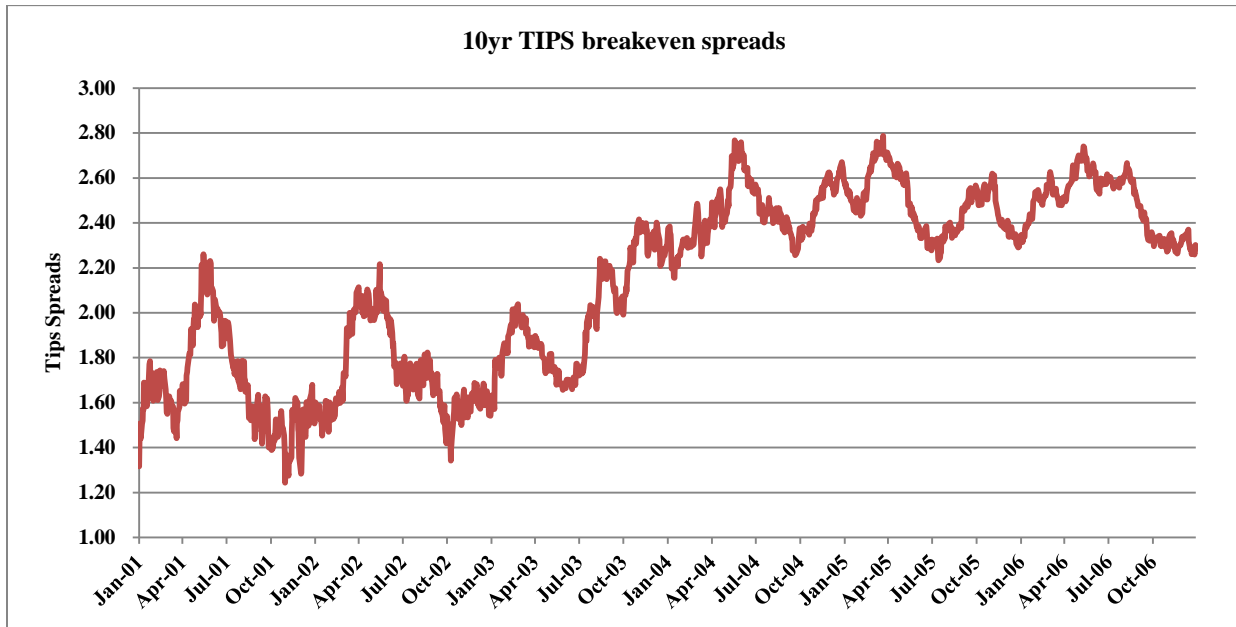


- 2-30 spread started steepening in 2002 to over 3%, while even the 10-30 spread widened to over 1%. The last time 2-30 was over 3%, or 10-30 was over 1% was 1992, when rate levels were much higher. As a percentage of the short rate, these slopes were much steeper than in 1992.

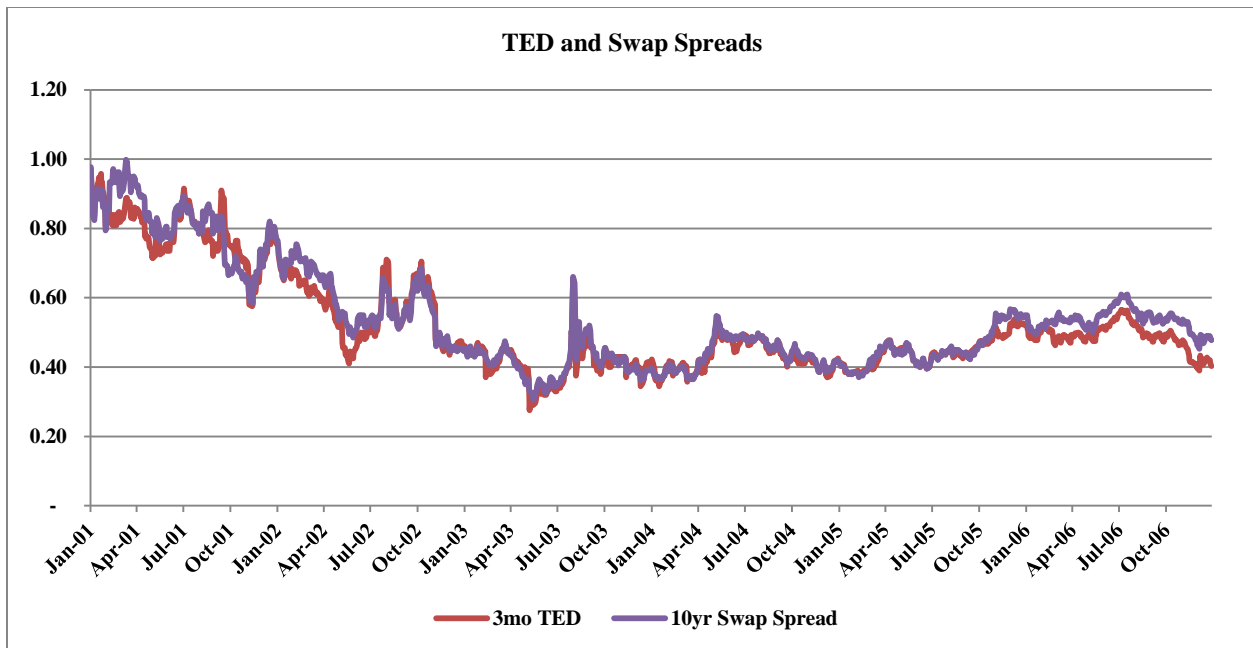


- A steepening curve is supposedly a signal of rising inflation expectations...

- ...but 10yr TIPS Breakeven spreads did not break out over 2.2% till August 2003. (With hindsight, however, the new upward trend line did start in Jan 2003, coinciding with the stock market rally.)



- Swaps spreads were tightening from 2001 to mid-2003, in line with 3mo TED spread, and widened after 2005.



The rally in rates also led to a mortgage refinancing and real estate boom:

Current Coupon FNMA MBS Index



MBA Refi Index



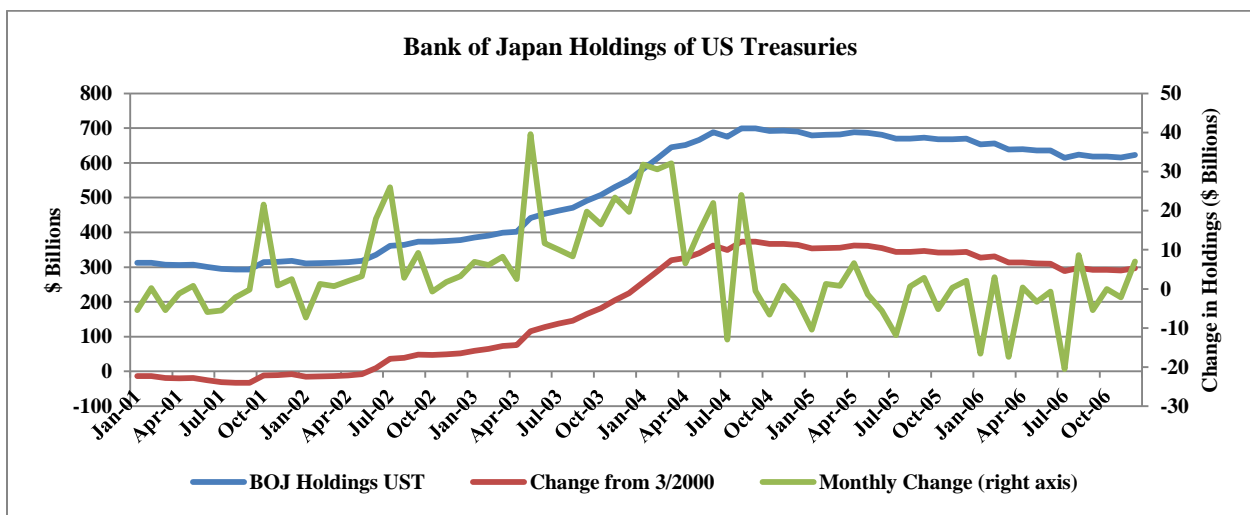
Summarizing the signals from Dec 2001 to mid-2003

- Rallying rates
- Short end rallying more than long end
- Swaps/credit spreads tightening at the same time

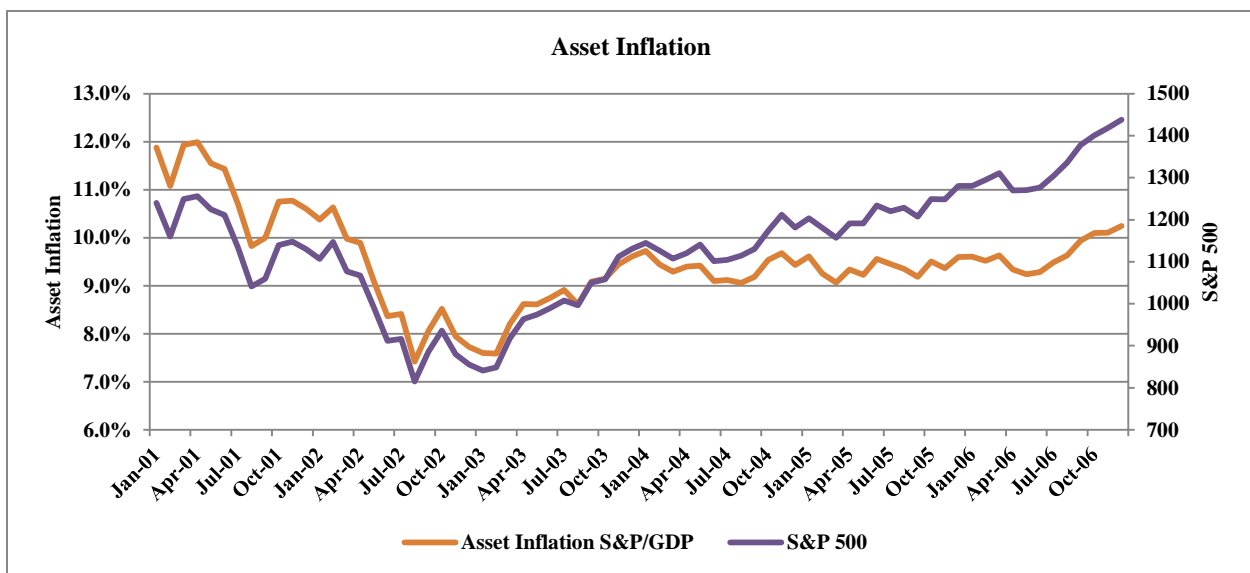
This reminded me of a thrift from the 1980s running a carry trade – borrow short, lend long. Tightening swaps spreads suggested significant demand for bonds and other ‘spread product’.

Continuing with the analysis – looking at Japan:

Japan is buying USTs, since September/October 2002 – this explains the US Yield rally AND the S&P rally – and stopped in 2004. The total is significant: \$376 Billion more by September 2004.



Japan buying USTs is Injected Quantitative Easing to the US, and leads to US asset inflation.



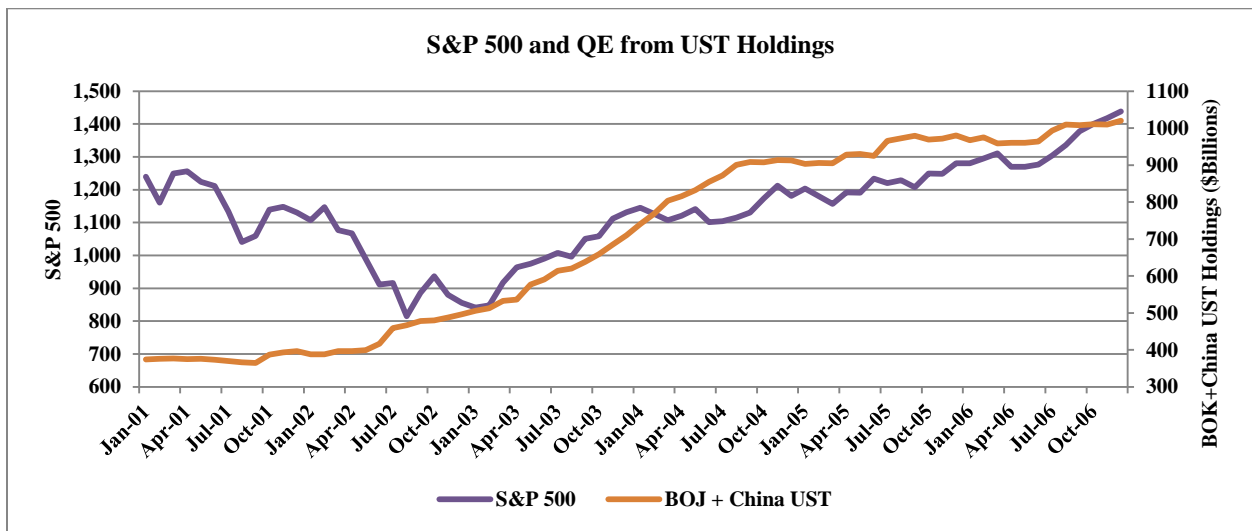
Bank of China Holdings of USTs increased significantly after 2004, as they converted their US Dollar holdings to bonds, continuing the supply of QE to the US, replacing the QT after Japan reduced its UST holdings and raised rates in 2005. This continued the S&P rally that was started by Japan's UST buying.

US banks also increased borrowings in Samurai bonds (see below) from 2006 to 2007 (in hindsight, to buy subprime MBS backed CDOs for their balance sheets), further fueling the rally in US asset prices.



Was China's growth in wealth and US dollars merely a symptom of the growth in US consumption that resulted from the 2002-2004 QE injection from Japan?

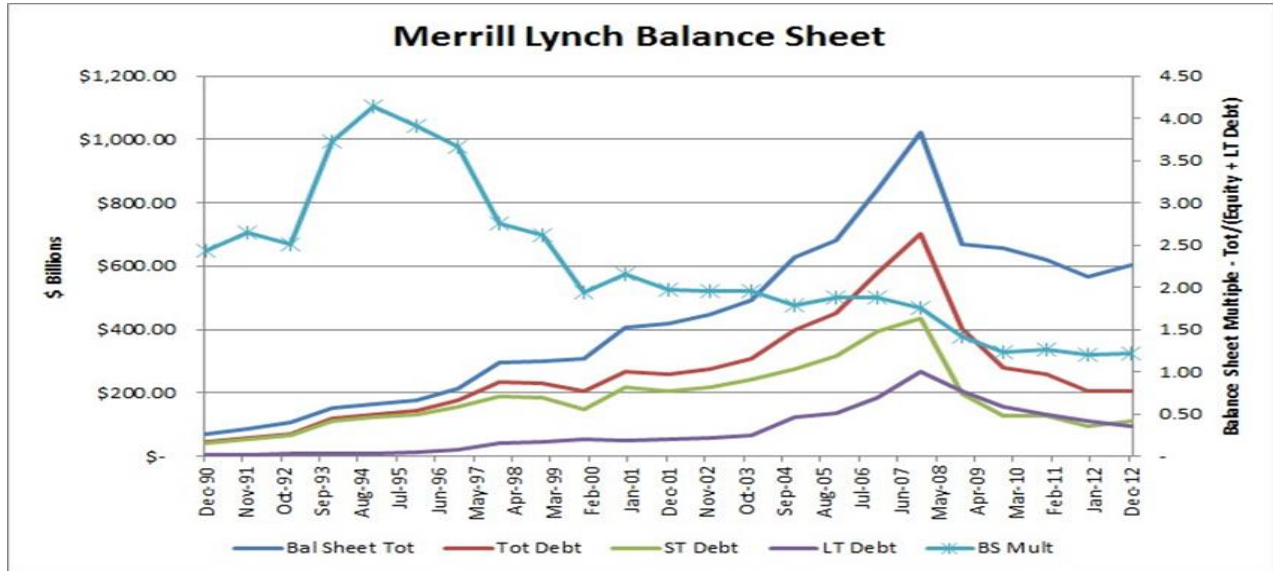
Combining Japan's and China's UST holdings allows us to see the QE impact on US asset prices via the S&P 500.



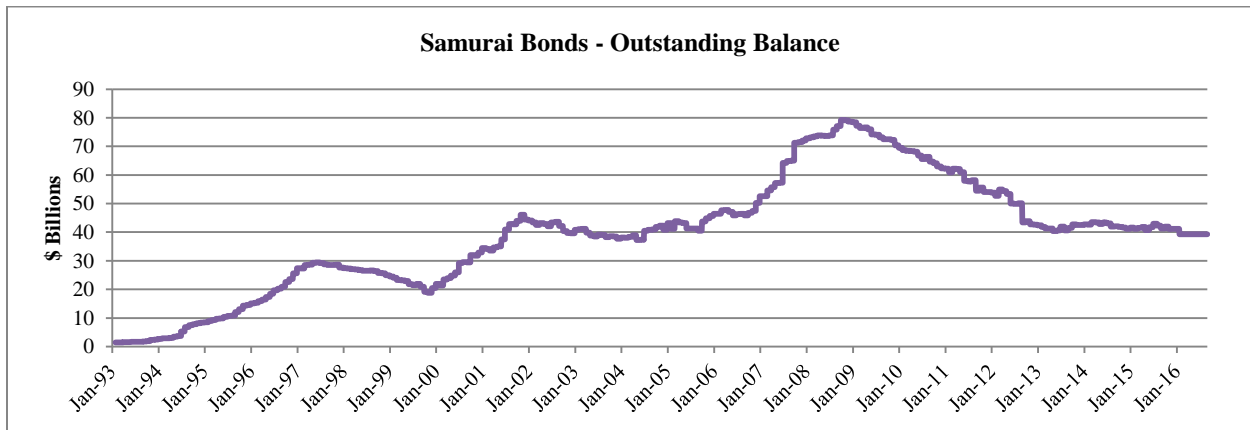
So far, we have explained the UST Yield rally and the S&P/Asset rally. However, the narrowing of swap spreads is still not explained.

We look at the US banking sector for answers, as they are the natural players to run a carry trade in bonds. The following graphs show the increase in size of balance sheets of financials, and the role of Japan in providing some of their liabilities.

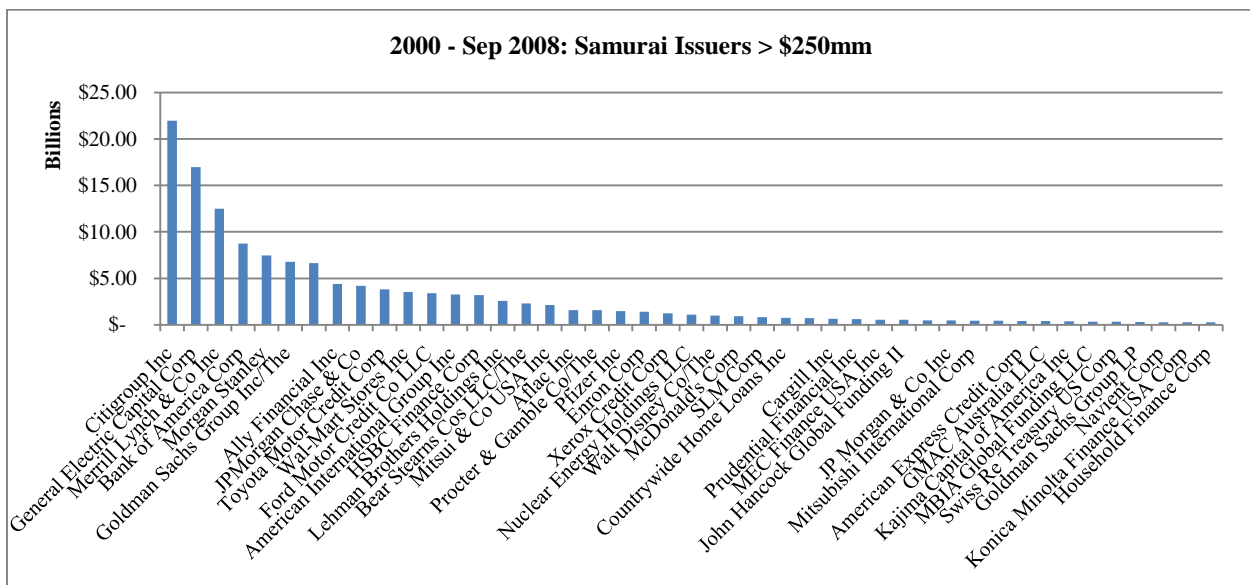
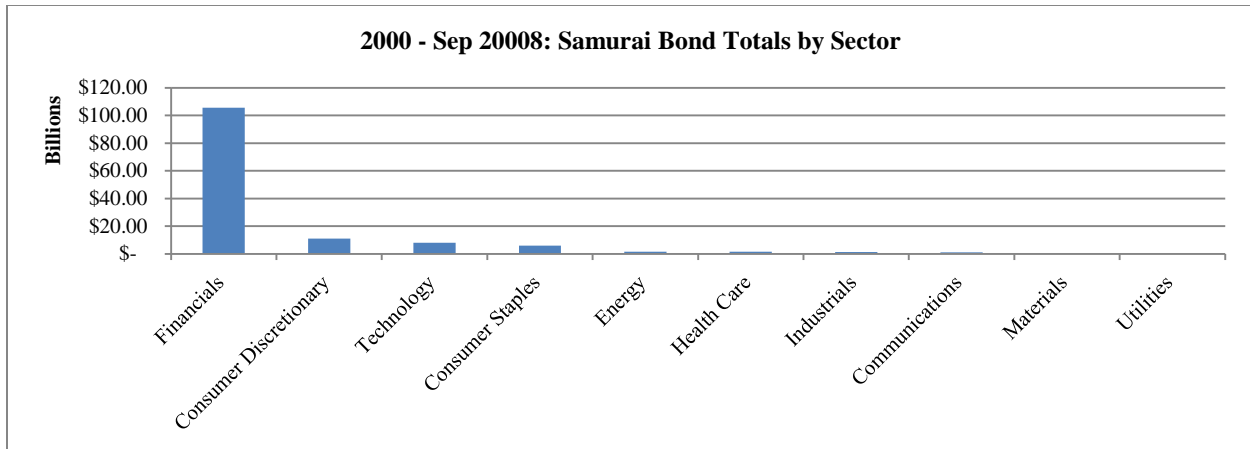
Using Merrill Lynch as a proxy for all banks, we see a 2+X ballooning in its balance sheet, with the majority of the liabilities being Short Term debt. As we learned in the aftermath of the GFC, most of the assets of large banks were indeed in bonds, usually MBS, or other debt.



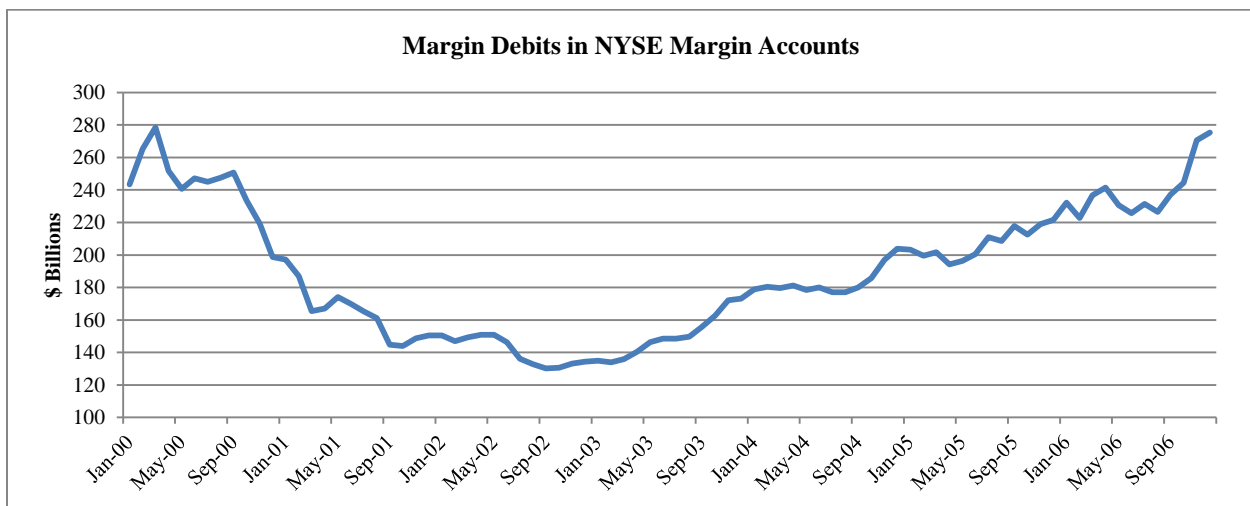
Samurai bonds were also a source of long dated capital for the banks. Since 1999, almost all US financials issued Samurai bonds. Financial Samurai bonds are usually converted to US Dollar, weakening Yen, and injecting US money supply. (Non-financials might fund operations in Japan). This allowed them to increase the size of their balance sheet with positive carry, especially if they did not hedge. The next graphs are from [the overview of the Samurai Bond market](#) that I published in 2016.



For example, [Lehman's balance sheet was predominately Samurai bonds, leading to a collapse in that bond market.](#) (The link is an old Businessweek article that I referenced in my Crisis Notes).

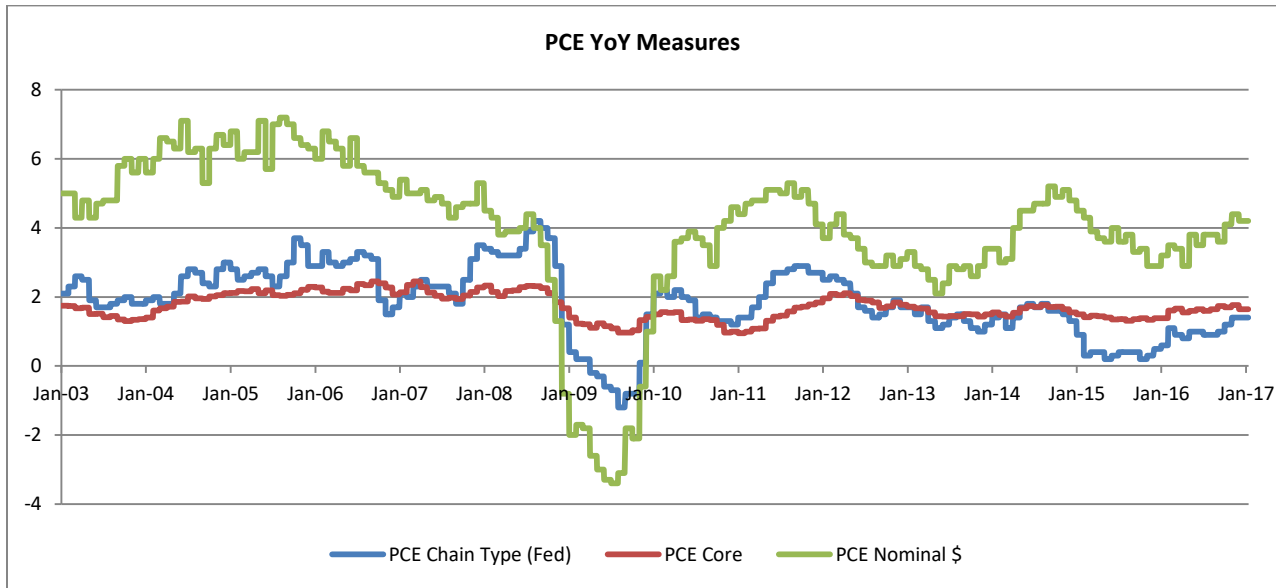


The ballooning balance sheet of the financial sector also helped the stock market rally through margin availability.



The extreme impact on the economy of Injected QE:

- **The aforementioned housing and mortgage refi boom**
- **Highest housing starts since 1990**
- **Significant commercial construction**
- **Recovery in Payrolls between 12/2001 and 3/2006**
- **Growth in Credit to the private sector**
- **Ballooning of the financial sector balance sheets**
- **Inflation - in 2005 and 2006, PCE reached the highest levels since 1994**



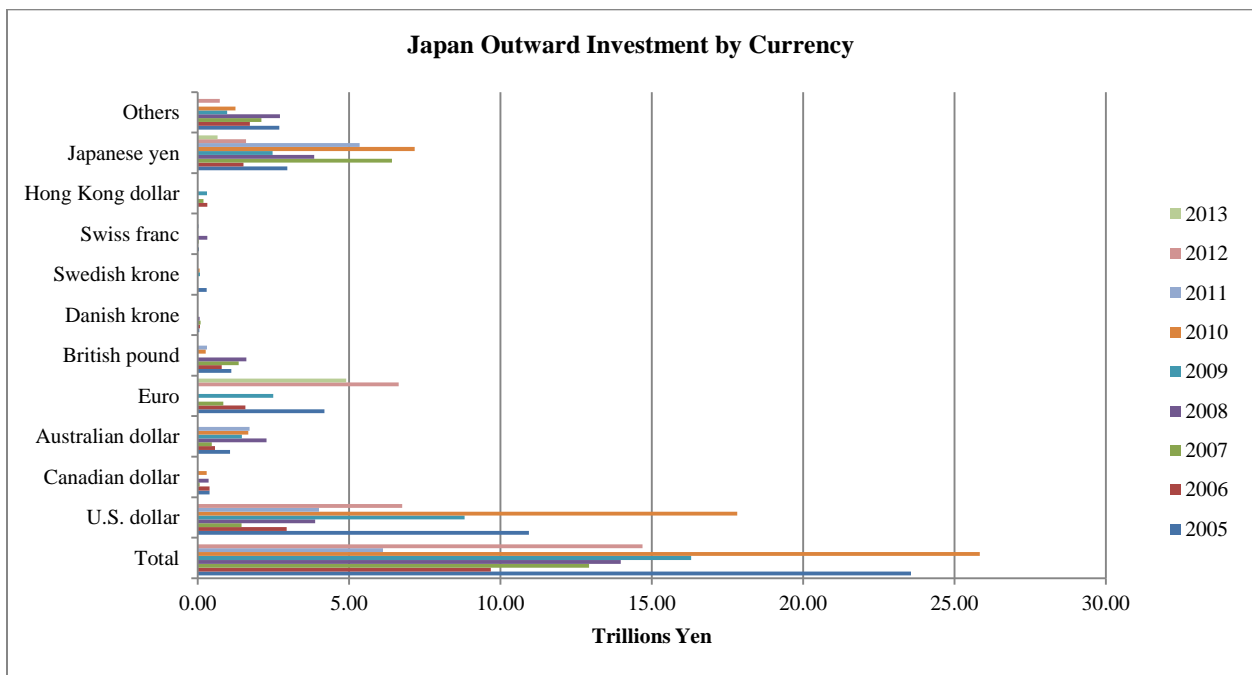
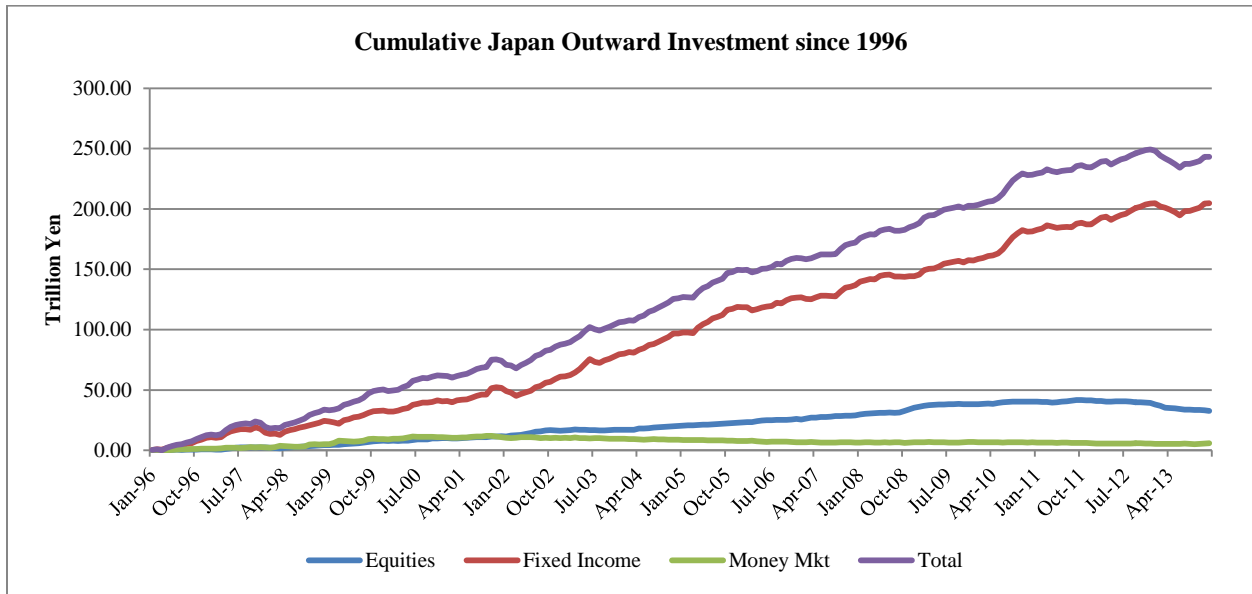
The Role of Japan and China in the UST Markets

Starting in 2002, Japan, and then China, and various European countries became holders of US Treasuries, providing the US with QE and money supply every time they increased their holdings, and shrinking our money supply when they sold. These countries do not purchase US Treasuries to express bets on inflation or for income – they are either intervening in FX markets to change the value of their currency (Japan), or investing their surplus of US dollars (currency is not credit) to become a US Creditor (an interesting read: <http://www.henryckliu.com/page215.html>).

Every time they have done so, since 2002, the US Yield curve has reacted, flattening or steepening, and distorting what can be read from its movements.

What needs to be kept in mind is that **Japan is an island nation, surrounded by two enemies**, China and Russia, both of whom are encroaching on islands and fishing grounds that Japan considers their national property. Since 1951, the US has provided security for Japan under the bilateral Treaty of Mutual Cooperation. Japan is a manufacturing and exporting nation, but one with significant savings (mostly exported overseas), and only 127mm citizens.

However, due to its geographical circumstance, **Japan will never give up its manufacturing**, as it needs to keep the machinery going and factories open in case it ever needs to convert its plants from automotive and electronics manufacturing to weapons manufacturing. **It will therefore do everything it can to keep its currency weak, in order to continue to export. This has meant that the BOJ buys US dollars and US Treasuries for non-investment reasons, periodically giving us QE.**



Most of Japan’s savings export ends up in the US. (Samurai bonds are examples of outward investments denominated in Yen.)

The other Crucial event that resulted in the GFC – at least in my opinion

Previously, I had mentioned the 1994 murder of Kazufumi Hatanaka in Japan – he was the manager of the Sumitomo branch in Nagoya. His unsolved murder was the most notorious of a series of banker killings by the Yakuza. Mr. Hatanaka’s murder [gained global attention \(and political attention\)](#) for he was a Sumitomo Bank board member.

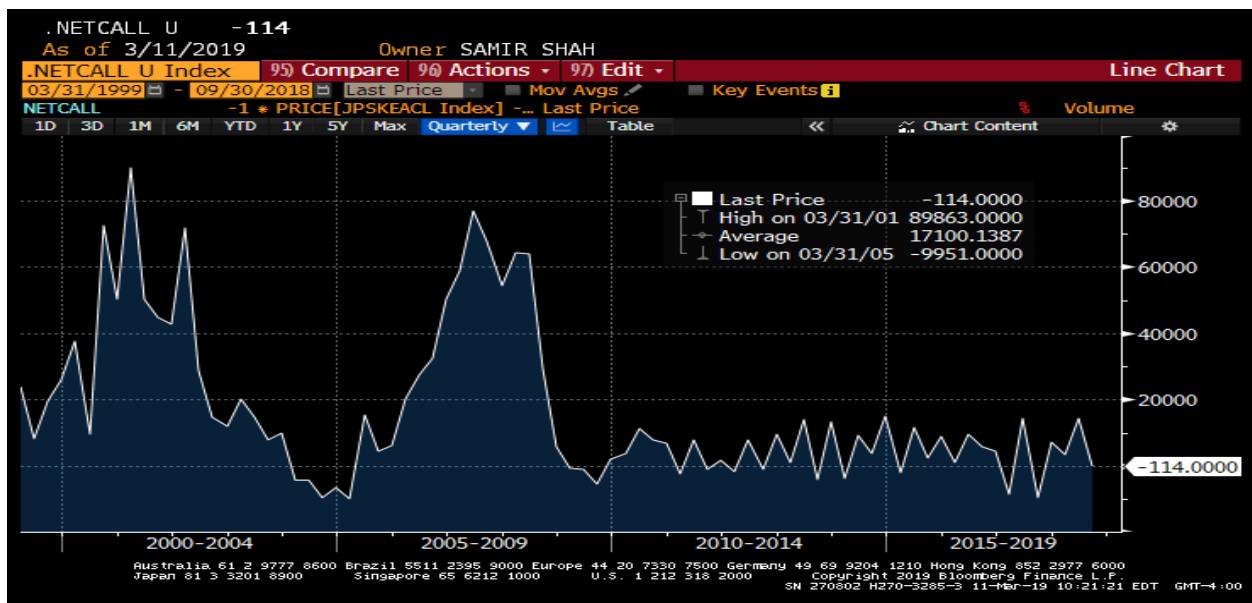
There had been many bank employee killings by the mafia in Japan. However this murder was very high profile, and was reported in most global newspapers, unlike earlier bank manager murders. For example, the NY Times’ headline on Oct 18, 1994, was ‘[Ties to Gangsters Hinder Overhaul of Japan Banking](#)’. It is my speculation that this murder resulted in the opening of the Japanese banking sector to foreign banks, with unexpected outcomes and waves that had significant global repercussions.

In 1996, Japan deregulated its banking sector, in an massive reform called the [Japanese Big Bang](#), ‘to rebuild the Japanese financial market into an international market comparable to New York and London.’ I suspect Mr. Hatanaka’s murder was the proximate cause of, or accelerated, the process of opening Japan’s markets to global banking. Since local banks could not create velocity of money to help the economy recover, the hope must have been to allow foreign banks to assume this role.

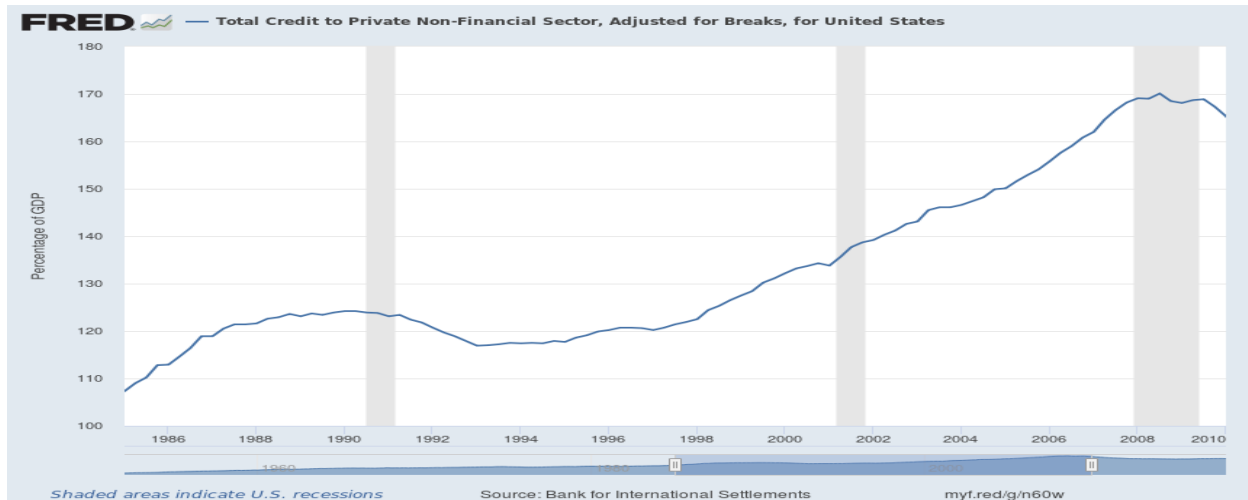
The Big Bang set off another wave by connecting the money supplies of the world’s two largest economies.

Besides the Samurai bond funding described above, the Big Bang allowed US banks to create Japanese branches that could now borrow at the BOJ window at close to 0%, that they moved to NY via interbank lending between the Japanese and US branches.

I showed these interbank borrowings - Net “Call” Liabilities of Foreign Banks at the BOJ – in [The Failure of Macro Economics](#) (graph 28). It is evident where the money for the Dot-Com bubble and Subprime MBS came from, as well as the deleveraging that occurred in 2007.



The access to the greatest pool of capital in the world, and the mechanism for its export, allowed the US financial system to balloon, and led to a significant increase in the pool of credit available in the US, as well as globally.



These two economic events, that both had their roots in the 1980s recessions of two countries, ultimately connected in 1998, when Japan entered its liquidity trap, and Japan institutionalized capital export. The waves, now reinforcing each by creating global leverage to support global inflated assets, ultimately culminated in the deleveraging that is the GFC.

Connecting Injected QE to the Waves from the Clinton-Swaps-LTCM event

After LTCM’s failure, and the subsequent Russian bankruptcy, Tiger Management also blew up, and exposed the Yen Carry trade to the world, through sensational stories in the popular press. The Yen Carry trade became more efficient after Tiger Management’s losses revealed it to Wall Street, who copied it through funding in Japan and through the issuance of Samurai bonds, for various strategies including quant strategies in S&P/Yen.

Tiger’s losses resulted in a 6.7% strengthening of the Yen and a 1.1% loss in the S&P in September 1998. In response, Greenspan cut the Fed Funds rate in September 1998.

This cut resulted in further withdrawal of Japanese investment from the US and further strengthening in the Yen. People do not appreciate that, during the 1990s, Japan's excess savings were as sizable as US M2, and triggering intercountry flows moved US markets and changed US M2 and M3 velocity.

The rate cuts by Greenspan in 1998 are thus consequences of the Clinton/LTCM event described earlier. The reversal of US Asset Inflation in 1999 and 2000 that led to the Dot-Com bubble bursting in 2000 can also be attributed to the Clinton-Swaps Black Swan event.

In 1999, the BOJ cut its call rate and entered a [liquidity trap](#). With no domestic response in its economy from rate cuts, Japan tried Quantitative Easing in the early 2000s.

https://en.wikipedia.org/wiki/Quantitative_easing

With Yen strengthening from Yen Carry reversals in 2001 and early 2002, in order **to weaken the Yen, the BOJ extended QE to owning US Treasuries, and it did so by buying \$370b in US Treasuries between 2002 and 2004.** This event can thus be linked to the 1996 event.

Buying another countries bonds as part of a QE program was an unprecedented monetary policy event, and is the reason why maybe it should be considered a Black Swan event.

This purchasing of USTs began in 2002, and is responsible for much of the ‘magic’ that is attributed to Alan Greenspan between 2002 and 2004. **Chairman Greenspan presided over the 2000-2001 recession, but Japan bailed us out from it, not Mr. Greenspan.**

The other important fact to keep in mind is that since 1994, it appears that much quant program-trading in US stocks is programmed to fund in Yen – the Yen is a funding source, not a ‘haven’ for capital flight when the US stock market is weak, as believed by journalists. This is a unhedged carry trade that has driven our asset inflation since 1994. To read about this, see some of my macro articles, such as [‘The Failure of Macro Economics’](#), [‘Understanding Beta’](#), or my Crisis Notes.

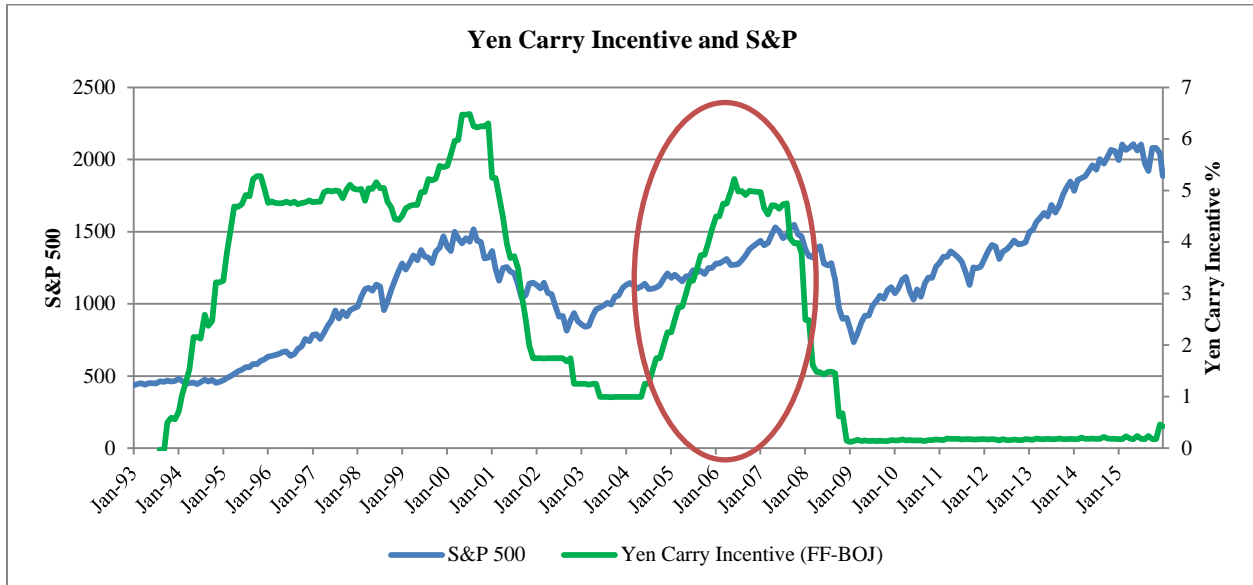
When the US stock market swoons, leveraged trades are unwound, resulting in Yen rallies. This unwinding of leverage in stocks was the reason for the Yen rally in Jan/Feb 2018 that was described above.

Injected Capital (“IC”) – Modern Macro Economics

I defined “Injected Capital” in [Understanding Beta – Determinants of the Stock Market](#). This is the combination of Carry Incentive (“Rational”) and QE (“Non-Economic”) determinants of markets.

- Carry Incentives have driven most “rational” asset pricing and economic activity since 1994. “Rational” actors, chasing profit, utilize carry. However, this leads to excessive leverage, and inflated asset valuation “bubbles” that periodically burst.
- Central bankers who are unaware of the implications of the Carry incentives that they create often inadvertently burst bubbles though changing the component of Carry Incentives that they control – their policy rate. This makes traditional Macro Economics work in reverse.
- Carry Incentives create “Hot Money” and Systematic risk. Carry flows reverse for Rational reasons.
- QE is not motivated by profit – it is “Non-Economic”.
- QE adds to existing leverage or replaces lost leverage, thereby inflating asset prices
- QE creates “Cold Money” and Unsystematic risk. Central banks do not need profit, and have no time tables.

Carry Incentives explain a lot, since 1994.



My understanding of the GFC in 2006, expressed in my [first Crisis Note](#), came about from inadvertently identifying the primary source of leverage in the 2004 to 2007 period of the graph above. By understanding the Yen and Carry, and using only an incomplete toolkit, the GFC became predictable.

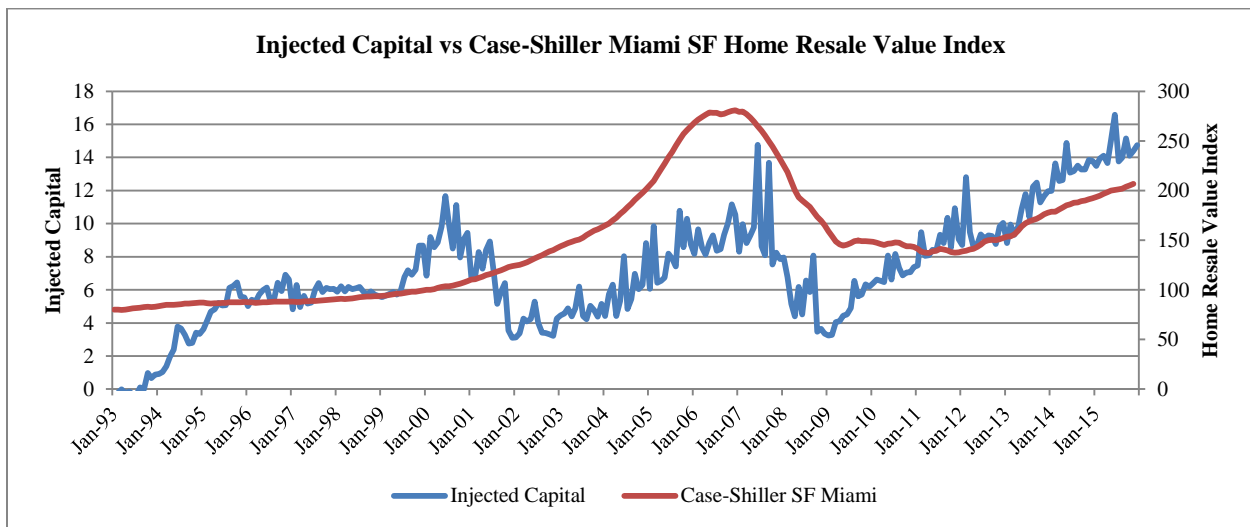
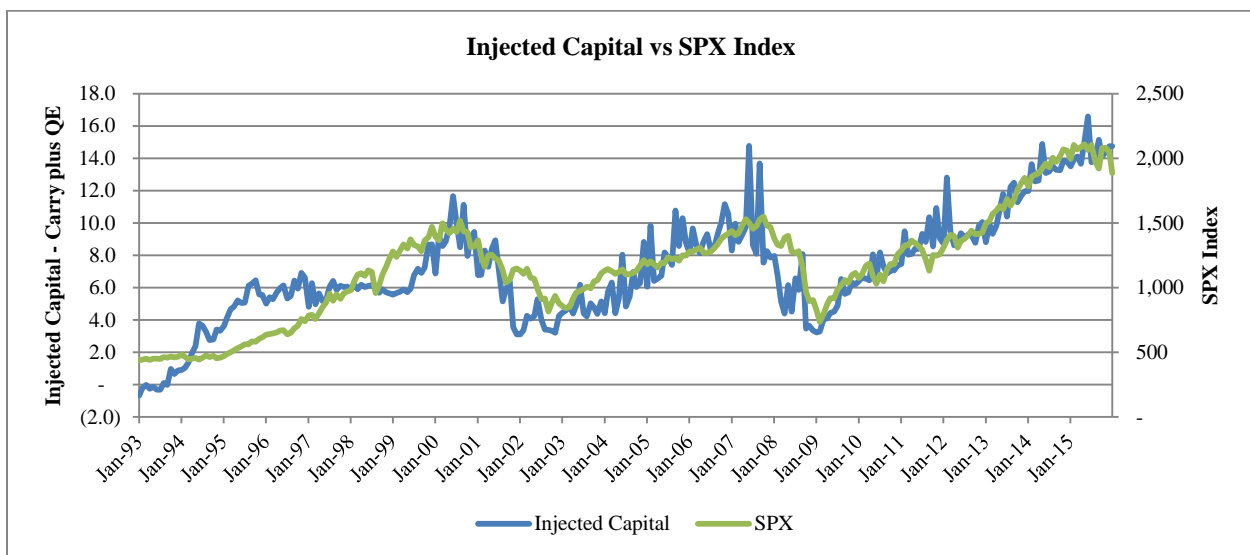
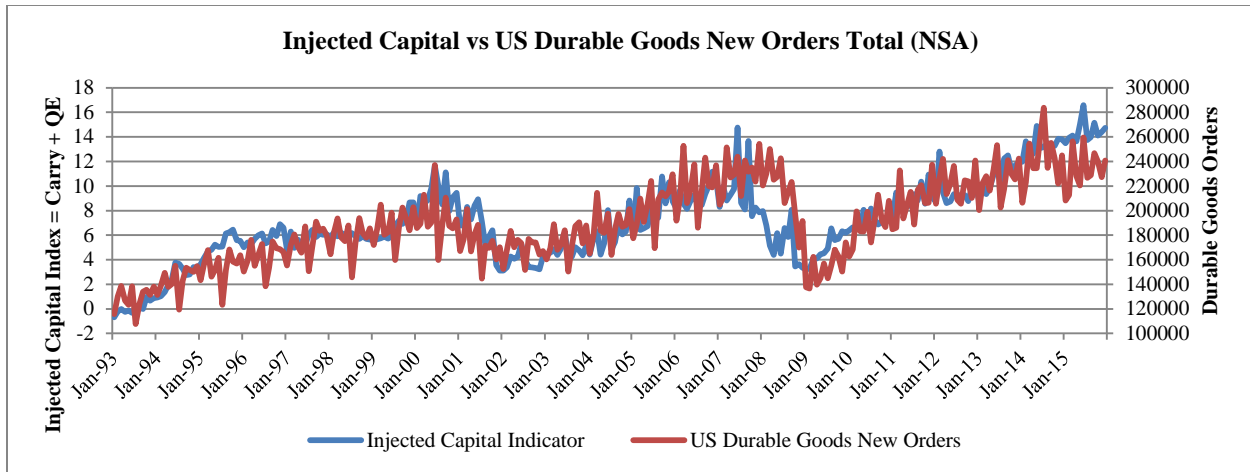
I correctly identified the GFC as a Carry deleveraging event in my [first Crisis Note 'This is NOT a Subprime Problem'](#) on 8/10/2007.

It is my opinion that the "market" & the talking heads are WRONG. This is NOT a Subprime or MBS/ABS problem. The creation of Subprime was just a SYMPTOM of what was wrong with the system, and the subprime failure was the first of the Jenga pieces to come out. The fundamental problem is that the bull market in both debt and equity has been driven by global leverage, and I strongly believe this is going to mostly unwind. I've been talking about this since early this summer with some of my (skeptical) clients, but much of it is starting to happen, and I believe it will continue. And, unlike many clients, I don't think the Fed and other central banks will be able to contain it. What we're seeing is just the preview of the Global unwind. The following are the sources of leverages that created the bull market of the past 5 years:

1. Repo & ABS CP (hedge funds, SIVs, SPVs)
2. Levered Loans and bridge loans (private equity - stock markets @ premium)
3. Yen Carry Trade (invested in stocks and bonds, euro, USD, NZ, Aus, Iceland)
4. CDOs & CLOS helped re-leverage a lot of this leverage. Blame Basel.

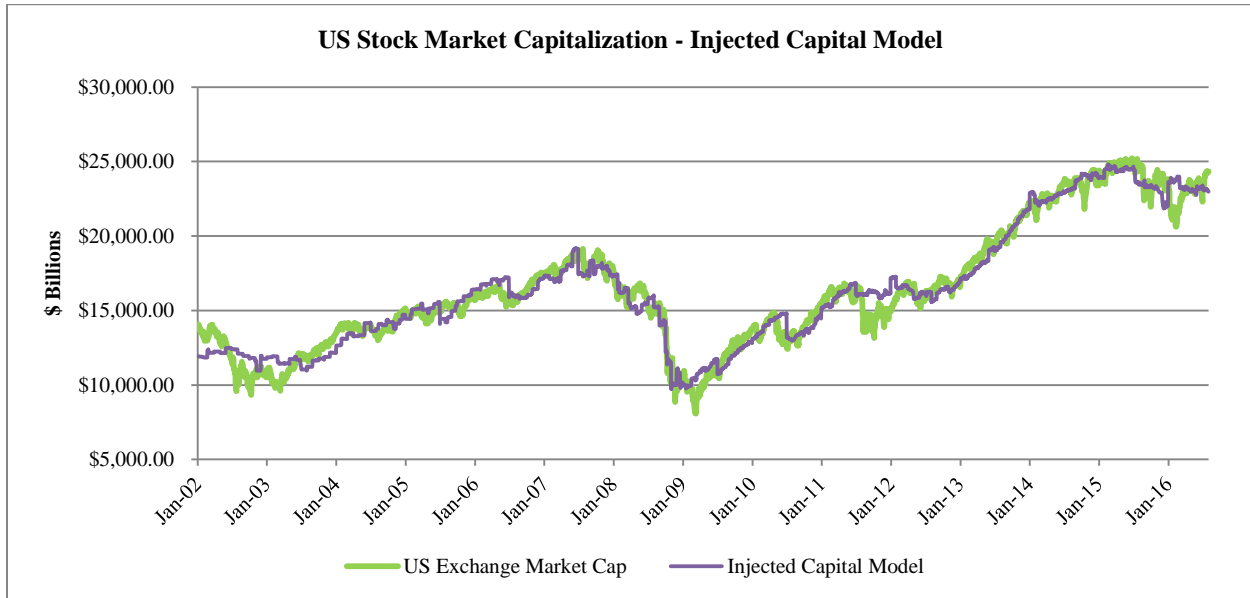
Many financial products and real assets were created to feed this frenzy of cheap money

By adding QE to Carry, Injected Capital completely explains economic activity and asset pricing.



The version of Injected Capital above was ‘hand-fit’, and does not include China or Europe central bank actions, both of which are significant in both the Carry and QE components of the final model.

In *Understanding Beta: Determinants of the US Stock Market*, I quantified the model and extended it to include QE and Carry Incentives from the Bank of China and ECB. The result:



The dependent series, US stock market capitalization, created by Bloomberg, begins in 2002.

As you can see, the entire period from 2001 has been explained, with a 96% R-squared. There are no Black Swan events identifiable here. The table on the next page shows extraordinary T-statistics and P-values for the variables in this model.

Injected Capital Model: Statistics 2002-2016	
Multiple R	0.98
R Squared	0.96
Adjusted R Squared	0.96
Standard Error	838.78
Observations	3804

The Independent Variables, data to 8/31/2016:

Injecting Country	Carry Incentives	US QE, incl Central Bank Holdings of USTs	Foreign Quantitative Easing
United States		FED System Open Market Account (SOMA) balance, primarily USTs, agency MBS and agency debt	
Japan	YCI: (Yen Carry Incentive) Fed Funds – BOJ Call rate Samurai Bonds (Yen denominated bonds issued by US companies)	BOJ UST: BOJ Holdings of US Treasuries, in \$	BOJ Non-UST: BOJ Balance Sheet excluding UST holdings (in \$)
Eurozone - ECB	ECI: FF – ECB Main Refinancing Operations Announcement Rate	Euro UST: Total UST Holdings of UK, Spain, France, Norway, Italy and Germany, in \$	Euro Non-UST: ECB Balance sheet, in \$, less Total UST Holdings of UK, Spain, France, Norway, Italy, Germany
China	CCI: (China Carry Incentive) FF – China 1yr Benchmark Lending Rate	BOC UST: Bank of China Holdings of US Securities, in \$	BOC Non-UST: Bank of China Balance Sheet excluding UST holdings, in \$

It is important to point out that this is not an over-fitted macro model based on iterations with hundreds of variables, as is typical of most ‘Quant’ strategies. **The theory behind this model was created and described in real time as the Crisis unfolded, in my Crisis Notes between 2006 and 2012.** The data to

test the theory was gathered and understood in 2016, in ‘[The Failure of Macro Economics](#)’, and finally tested in ‘[Understanding Beta](#)’.

Model	Coefficients	Standard Error	t Stat	P-value
Intercept	4722.36	316.13	14.94	0.00
YCI: FF - BOJ	910.72	65.02	14.01	0.00
ECI: FF-ECB	-407.03	74.80	-5.44	0.00
CCI: FF - China	847.48	60.48	14.01	0.00
Samurai	118.87	5.40	22.03	0.00
Fed-SOMA PreQE	1.42	0.14	10.36	0.00
BOJ-UST PreQE	11.58	0.37	31.14	0.00
EURO-UST PreQE	-3.39	0.59	-5.70	0.00
China-UST PreQE	-33.19	0.88	-37.74	0.00
Fed-SOMA PostQE	2.59	0.13	19.99	0.00
BOJ-UST PostQE	-1.07	0.69	-1.55	0.12
EURO-UST PostQE	2.02	0.39	5.13	0.00
China-UST PostQE	-4.62	0.28	-16.26	0.00
BOJ - NON UST	-0.21	0.07	-2.83	0.00
ECB - NON UST	0.09	0.07	1.22	0.22
CHINA - NON UST	5.30	0.17	31.84	0.00

A simpler model, with only 4 variables – YCI, BOJ Balance Sheet, Fed Balance Sheet, and Samurai bonds – still has significant meaning. There is cross-correlation among many of the variables listed above so the coefficients should not be relied on without more work. The Intercept, though, is very interesting.

Understanding the activities of foreign central banks, global connectivity, and using a broader tool kit, is crucial, with the understanding that there is usually an identifiable Rational or Non-Economic event that determines outcomes.

After 20+ years of levered asset growth from imported money supply, we believe that the US economy is driven by asset prices, with the tail wagging the dog. The stock market is one of the Conference Board’s ten Leading Indicators. However, ‘Injected Capital’ and the Yen lead them all.

For us, the Yen serves as the canary in the coalmine, as it did in 2007, able to signal global risk-off. Following the Yen is an important part of our risk-management process. The Fed embarking on QT increases the systematic risk of another global financial deleveraging, if our leverage suppliers - global savers - decide once again to protect their capital, such as they did in 2007. This will be telegraphed in the FX markets first.

For most of the period analyzed, exported capital from Japan has driven asset prices. **Now, we have three suppliers of capital, explaining the increase in gearing, and volatility, since 2016.**

I find predictions of recessions in xx months, or in yy year, incomprehensible. The next big drawdown event in asset prices will occur due to the interaction of the actions of multiple central banks. While central banks are trying to be transparent, and one can anticipate their actions, **it is not possible to look beyond their actionable horizon, which is only a few months.**

As the Fed raises rates or shrinks US QE, systematic risk increases. If Europe, about to enter another recession, or Japan, increase QE, systematic risk declines. If any foreign country raises rates relative to the US, systematic risk increases.

Modern Macro Economics is a balancing act between Carry and QE, between Hot Money (Carry) and Cold Money (QE), between Systematic and Unsystematic risk.

The world hangs in balance.

Conclusions and My History

This paper modernizes and broadens the over-specialized training in Finance and Economics. Most people in Economics, Financial Services and Asset Management toil in the trenches, and learn specialized skills that often define their careers.

When you work in the trenches, all you see is the sky! What is required is an eagle's view of the money world, to understand the terrain, the connections between regions, the flows of capital, and to understand history.

The importance of making such connections has grown in importance since the 1990s, when Japan entered a Liquidity Trap and ensured that the intentions of all central bankers were foiled - Macro Economic Interest Rate Policy started working in reverse, a theory I proposed in my Crisis Notes in 2009, and proved in 2016. I have described this in numerous articles that can be found on my website.

Most events called Black Swans can be viewed as result of the unintended consequences of events that might have happened years and decades prior. Much like gravitational waves remaining from the Big Bang, these events and the resulting responses leave behind waves that ripple through time. Such waves can sometimes cause tsunamis when they encounter "land", and cause the next Black Swan event. Taleb rightly remarks that most observers rationalize Black Swan events to explain them. They usually look at the most recent events and rationalize them to be the proximate cause of the Black Swan event, instead of looking further back in time or to the broader connected world to understand the event. Thus LTCM was blamed on the Russian default, while the GFC was blamed on subprime MBS.

I came to the US as a college student in 1982, with a deep desire to learn. I have a mechanical engineer's mindset (expressed in my hobbies), and would have gone down that route had I not fallen in love with economics in 1978 as an 11th grader in India, and remained enamored (at the expense of following a Computer Science career) after a Money and Banking course at Rutgers. I was shy and preferred to express my thoughts in writing, panicking at public speaking, talking to groups, or even making small talk. I thus chose to go into Fixed Income Research, where I could combine my quantitative skills with economics and write, instead of pitching deals in investment banking.

I started my first job at Merrill Lynch in April 1987, where I landed in the middle of a transition from my hiring manager to a new manager. Without guidance, I learned to interact directly with my constituents - salesmen and clients - and defined my roles (for the rest of my career) based on what clients needed.

On a daily basis, this has involved finding relationships between securities and markets, and translating them into ways to make money for my clients in order to maintain my relevance as a commission-earning salesperson and trader. Being an eagle has differentiated me for many buy-side clients who have left kind notes on LinkedIn when I changed careers to start MBS Mantra.

Out of the gate, starting in 1987, I discovered that my interests lay in the relationships between markets, resulting in a Merrill Lynch publication in 1988 '[An Analytical Guide to Interest Rate Futures Spreads: The NOB, MOB and TED](#)', parts of which are still relevant today.

I taught myself a scientific process of inquiry, thinking about problems from first principles, revalidating what was accepted and “known”, and conducting my own exhaustive analyses by building on first principles in economics and finance. I do not blindly accept or apply theory, but rather allow the facts and the data to either validate theory, or lead me down a path of inquiry to create new thinking, processes and theory when I encountered the unknown. Ray Dalio would call this ‘Radical Truth’, and parts of Ray Dalio’s [Principles](#) resonate deeply with me - I would recommend reading it.

This systematic process of analysis has informed my understanding of Beta, and allows me to identify Alpha – a process that I have been awarded a trademark for: Alpha Through Analysis®.

First principles research allowed me, in 1994, when I ran MBS Strategies group at Nomura, to identify the source of risk in MBS. The key insight I discovered is that **MBS is not a Fixed Income asset class, but a Variable Income asset class**. With a Fixed Income lens, MBS is risky. Exploiting this concept has allowed me to earn a living, identifying and supplying Alpha in MBS to the buy-side for 25+ years. MBS Mantra exists to supply this Alpha directly to investors, bypassing my former clients.

The research also forms the basis for the risk framework of the portfolios I create at MBS Mantra. Without understanding Beta, one cannot find Alpha, and I have identified numerous sources of Alpha that I capture for my clients to help solve their problems. **We provide an antidote and diversifier for conventional thinking and conventional strategies**, most of which only deliver Beta.

This interest in linkages has so far culminated in '[Understanding Beta – Determinants of the US Stock Market](#)' that describes a model for market valuation and risk solely from macro-economic inputs. There is a body of 30 years of output from my first principles process on my website. This has been used to protect my clients from drawdowns since 1990, when I first recommended to a money manager NOT to start a “LIBOR-plus” ARMs fund, through the Black Swan events described previously. Most of my research has long shelf life, and I still refer to it and build on it regularly. Some of the events and predictions from [the Crisis Notes](#) are still unfolding.

I invest the time to write and share my ongoing markets and economics research in the hope that by providing insights into how markets work, I can increase awareness of market risk, and thus help in preventing the so-called Black Swan events that cause so much global pain and suffering.

There are a few people that I do I consider my mentors, although I have never worked directly for them. They are some of my clients on the buy-side, who trusted me and shared how they did their jobs with me, and allowed me to help them. I owe them a lot, as from them I learned how Fixed Income Asset Management worked. It is this indirect mentorship that has resulted in MBS Mantra, to solve the major problems faced by investors.

Thanks for reading this. I hope this analysis can help you navigate markets better. I would love to hear your comments.

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Data Sources

- Most of the data in the graphs is from Bloomberg, accessed via their Excel API
- The Macro data used for regressions is from various sources: Fed, FRED, US Treasury, BIS, NBER, Bank of Japan, Japan's Ministry of Finance (MOF), IMF,
- The Samurai bond data is not available in the wild. I computed it by aggregating all Samurai bond issues, and tracking new issues and maturities to compute net outstanding balances. A pretty large project, that took months.
- There are a lot of papers related to macro and Japan's bank failures available on the websites of the BOJ, Fed, Brookings Institute, NBER, Bank of England, Bank of New Zealand, Project Syndicate, etc.
- One in particular stands out, from the IMES Discussion Paper Series at the Bank of Japan: "The Broad Yen Carry Trade", October 2007, by Masazumi Hattori and Hyun Song Shin, Discussion Paper No. 2007-E-19. This allowed me to find the sources of Japanese capital export that I discuss in 'The Failure of Macro Economics'. There are people in the Central Banks that are aware of the some of the issues with monetary policy, but my guess is that their voices are lost in the din from conventional and conformist thinking.
- The connection to the yakuza murders of Japanese banking personnel was made from Misha Glenny's 'McMafia' – a must read.
- When LTCM occurred, I was desperately trying to convince my clients not to catch falling swords – they thought spreads to USTs were 'cheap', as falling prices and widening spreads, to me, were occurring from swaps widening. During the moment, I 'knew' LTCM failure was from widening swap spreads. It took Michael Lewis's 1999 NY Times article 'How the Eggheads Cracked', that I only found in 2015, to prove it, and disprove the Russian crisis blame for LTCM.
- Many of the references are from my previous analyses and writings. They can be found on MBS Mantra's website:

<http://mbsmantrallc.com/analysis.shtml>

<http://mbsmantrallc.com/viewpoints.shtml>



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