Γγ

*A Commentary by Harley Bassman:*

# The Convexity Maven

Not a Product of Credit Suisse Research
For Distribution to Institutional Clients Only

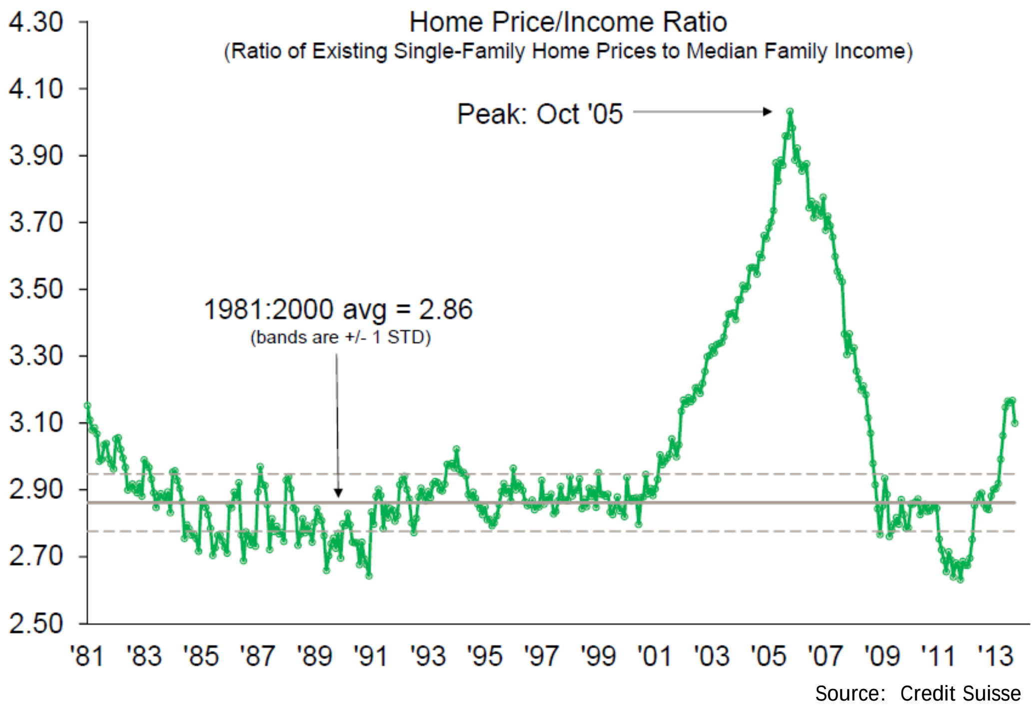
Value Concepts from the Credit Suisse Trading Desk
November 25, 2013

## "Money for Nothing...... "

So many traders think the key to investment riches lies in buying at the bottom or selling at the top: Such a fine but misguided notion. The cold reality is that unless one has (illegal) inside information, you will only transact at these locations by pure happenstance. The best managers can enter a position in a zip code near the bottom or top, but not precisely. This is why the most successful investors recognize that sizing is the critical concept. A position that is too small will not justify the effort involved in discovering a valuable idea. Even worse, a position that is too large may force a "stop out" before a brilliant theme reaches its denouement. This Commentary reveals a way to gain exposure to a popular idea, but in a manner that will allow one to hang on for the long ride it may take for full realization.

The Investment Hall of Fame's most recent inductees all managed to catch the collapse of the housing bubble via various methods of shorting residential real estate.  Many books have been written and a well chiseled actor with a full head of hair may well star as a bespectacled hedge fund manager when the movie is eventually produced.  But let me assure you there will be plenty of teeth gnashing from those who recognized the trading opportunity early, well before those now heralded as investment stars.

Detailed in the –granny smith- line below, the Home Price versus Income Ratio was kissing a four standard deviation surge by mid-2003.  Almost every mortgage professional surely knew we were in a bubble, and many of them were looking for ways to profit.  The problem was that this bubble had another three years of inflation left before it was ready to burst.




Thus the strange result that most of the mortgage specialists were "stopped out" of the trade in 2005 and 2006 as the negative carry of being long CDS on mortgage products sapped their ability to hold their positions.  In fact, the most famous winners were non-MBS specialists who came to the notion much later.  Their main advantage seems to have been the luck of not focusing upon the "bubble" in its early stages.

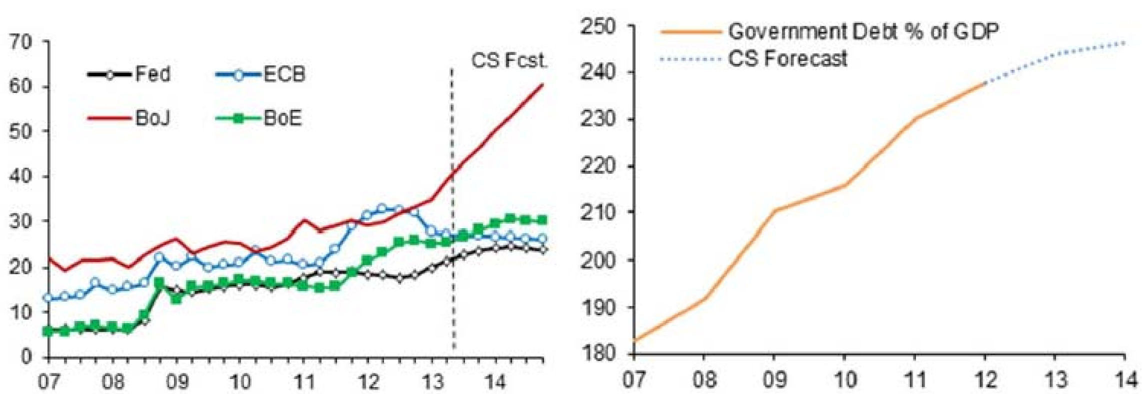
The lesson here is that being "right" is just not good enough to claim investment victory, <u>one must find a way maintain exposure to the investment premise long enough to earn a profit</u>.

So let’s turn our focus to what may surely be the next “big investment theme” that has so far only succeeded in gaining the moniker of “The Widow-Maker”. If you guessed wagering upon when the Helicopter Economy of Japan will finally lose altitude, you would be correct.

In a tree saving effort, let me boil my argument down to this: **“It is never different this time.”**

Over the course of nearly 6,000 years of collective human civilization, whether the currency of that society was shiny rocks or rhino horns, there has yet to be a case where a fiat currency could be grown at a pace much faster than the increase in the wealth of the realm without inflation. So how might it be that Japan will be the first to invent such modern day alchemy? If this were indeed the case, then Governments around the globe would simply print money to solve all their social ills as suddenly the “99%” will join the “1%”.

As I have said before, Japan is not proof that Governments cannot create inflation; it is just a case (so far) that they have not tried hard enough. And try they will. Below left is our forecast for Quantitative Easing of the four major Central Banks as a percentage of GDP, and on the right is the Japanese Debt to GDP ratio. Now nearing 250%, the Japanese make pikers out of the Greeks.




Source: Credit Suisse

Yet there are reasons Japan has so far avoided the fate of Greece:

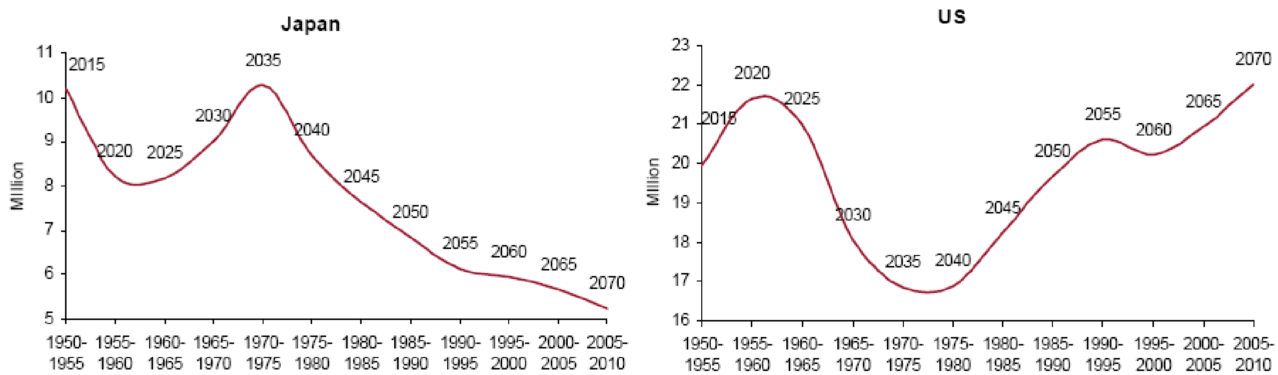
1) They are quite wealthy with a large positive international asset position;
2) They print their own currency;
3) But most important, their debt is mostly internally funded.

It is this last point that is the key driver; one should not expect Japanese interest rates to rise significantly, nor should the currency depreciate in an uncontrolled fashion, until Japan needs to source its marginal debt externally, and this will take more than a few years.

While some predictions require a degree of guesswork, the forward profile of the labor-force demographic is a near certainty. Unless we become a “Benjamin Button” society where babies are birthed at age of 80, we pretty much know how our population will look in the medium-term future; everyone who will turn 65 in the next decade has already been born.

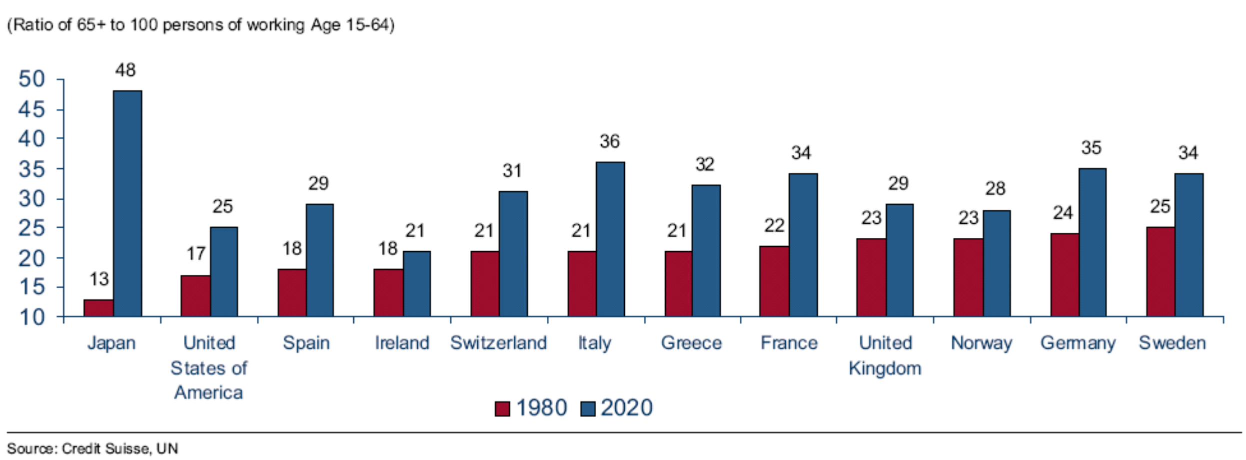
Below is the demographic profile for both Japan and the United States. The -brick line- on the right show the US “baby boom” from 1946 to 1964, followed by the “baby bust” in the 1970’s, and then the ramping up of the “echo boom” in the 1990’s. Contrast this with the –cardinal line- of Japan on the left where the similar post-war surge in births was not repeated a generation later.

## Live Births* and the Year They Turn 65



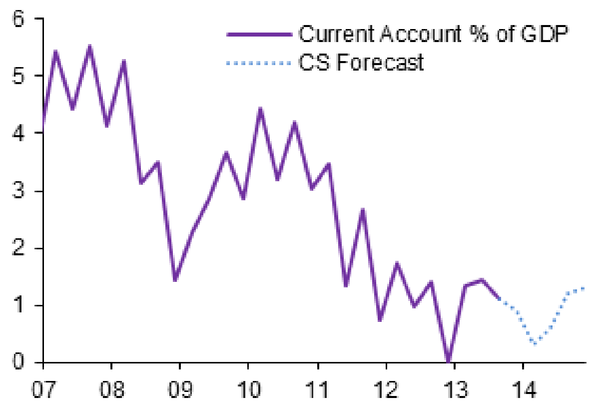

Source: UN, Credit Suisse Demographic Research https://research-and-analytics.csfb.com/R2Action.do

Sans a major shift in immigration patterns, Japan faces a massive demographic imbalance in the near future. Below is our favorite “Worker-bee to Senior” table that measures the ratio of those over age 65 to the working age cohort of those with ages between 15 and 64. As noted, this is not a projection, per se, since the basic population profile is already fully baked.



In merely six years Japan will have only 2.1 people of working age per senior citizen, down from 7.7 a bit more than a generation past. With fewer working age people to support programs for the elderly, a greater proportion of their financial productivity will be directed to social programs and less will be available for debt service and other Government activities. Since the notion of a Social Security "Lock Box" is merely a political slogan, <u>the ratio of workers to seniors is one of the most important statistics available for long-term public policy analysis</u>.

In synchronicity with this deteriorating demographic has been a decline in the –grape line- Current Account surplus. Not only has Japan posted a few random quarters of a negative trade balance, but also there are many analysts who foresee a negative balance of payments becoming a permanent trend.



Source: Credit Suisse

I would submit to you that it was Japan's favorably unbalanced demographic in the mid-1980's that supported their large positive trade balance. However, this advantage is diminishing quickly as their population ages. In the not too distant future, <u>a negative trade balance will begin to exhaust their external asset position</u> (wealth/savings). This will mitigate their ability to internally fund their public debt; and at that point the marginal Yen must be borrowed externally, albeit at a much higher rate. As we like to note: "Pigs can fly if shot out of a large enough cannon, but they eventually return to Earth as bacon."

As an important caveat, we would note that the "age profile" of a population is not the sole determinant of a country's economic path; moreover, "special handling" by policy makers can soften its impact.

Japan can internally fund itself for more than a few years, even in the face of "Abe-nomics", but eventually the flow of funds will rotate in a similar pattern to the national demographic, and the market will price this well before that date.

The vociferous Yen / JGB / JPswap bears are certainly correct about the path of Japanese financial instruments; the problem is their horizon may be too short.

## The Trade

Taking a "short position" in either Japanese interest rates or their currency is a fundamentally sound idea; however it may take three to seven years for the "Macro-profits" to be fully realized. Over that time, a short position will demand a cost, either in the terms of the negative carry of a spot position or the time decay of a short-dated option. Additionally, since it is unlikely you will enter the trade at the extreme, there could be some mark-to-market vibrations that may breach your risk limits.

To the rescue is the strange circumstance of a widening USD vs. JPY Rate differential in conjunction with a flattening Volatility Term Surface.

Below is a table of mid-market values for Par Strike USD call // JPY put options with expiries from one-year to ten-years. The critical observation is that a five-year option costs more than a ten-year option; thus the weird dynamic of owning an option with (effectively) positive "theta": **You are paid to own an option !**

| | Expiry | Fwd Fx | Implied Vol | Option Px | Delta | 1yr Theta |
|---|---|---|---|---|---|---|
| **Spot Fx** | >>>>>: | **101.81** | | | | |
| | 1yr | 101.52 | 11.2% | $5.19 | 52.3% | |
| | 2yr | 100.78 | 11.8% | $6.96 | 48.1% | -$1.77 |
| | 3yr | 99.19 | 12.3% | $7.94 | 44.6% | -$0.98 |
| | 4yr | 96.60 | 12.7% | $8.26 | 41.0% | -$0.32 |
| | 5yr | 93.26 | 13.1% | $8.21 | 37.6% | $0.05 |
| | 6yr | 89.59 | 13.6% | $8.01 | 34.6% | $0.20 |
| | 7yr | 85.86 | 13.9% | $7.64 | 32.1% | $0.37 |
| | 8yr | 82.41 | 14.4% | $7.53 | 30.2% | $0.11 |
| | 9yr | 79.16 | 14.8% | $7.32 | 28.7% | $0.21 |
| | 10yr | 76.11 | 15.1% | $7.09 | 27.4% | $0.23 |

mid-market model px

Source: Credit Suisse

This is neither financial "magic" nor an "option special"; these are all plain vanilla options than can be priced using Bloomberg's OVDV screen. Rather, it is merely the interesting mathematical paradox between the Rate process which is Linear and the Time process which is Logarithmic.

In a nutshell, net interest income is linear to time so two years of coupon payments are twice the size as a single year's value. In contrast, an option's price increases with the square root of time, so a two-year option is only 1.4 times greater in price than a one-year option.

The easy execution of this idea is just to buy a ten-year call option and put it away for five years:

*Strike = 100;  Price ~~ Customer pays 7.375%*

*Strike = 110;  Price ~~ Customer pays 5.375%*

*Strike = 120;  Price ~~ Customer pays 4.125%*

The more interesting trade might be to execute a five-year vs. ten-year calendar:

*Sell five-year vs. Buy ten-year, Strikes = 100;  Client receives 0.50%*

*Sell five-year vs. Buy ten-year, Strikes = 110;  Client pays 0.750%*

*Sell five-year vs. Buy ten-year, Strikes = 120;  Client pays 1.375%*

## Summary

1) The maximum loss for an out-right purchase is limited to the fee paid;
2) The “net” option decay is positive for longer-dated options;
3) Provides the time required to capture the “event risk” of the premise;
4) JPY rates should likely increase at a faster pace than USD rates when Japan finally needs to externally fund itself.  Thus one owns a “rates kicker” since the steep negative slope of the forward currency spread will collapse (and may ultimately invert).  This would greatly benefit the calendar spread execution.

The lesson from so many of the great Macro Investments Themes is that it sometimes takes the “fullness of time” to realize the largest profits. Unfortunately, the current environment has less patience to tolerate investment costs, as such a “Positive Carry” long option position should be quite interesting.

The Japanese financial situation will normalize at some point; being “paid to wait” for the first five years solves the thorny problem of trying to time that date.

Harley S. Bassman
Credit Suisse US Rates Trading
November 25, 2013

CREDIT SUISSE

**Clear Notice: This Commentary reflects the view of its author and is independent of CS Strategy.**